

TABLE OF CONTENTS

Organization, Regulations, and Courses 2015-16.....	3
About This Catalog.....	4
Dartmouth College Mission Statement.....	5
Organization of Dartmouth College 2015-16	6
Regulations	35
Instruction.....	77
Departments/Programs and Courses - Undergraduate	79
Departments/Programs and Courses - Graduate	532
Printable Version	621

ORGANIZATION, REGULATIONS, AND COURSES 2015-16

2015

Photo by Eli Burakian '00

September 2015

ABOUT THIS CATALOG

Volume LXXVI, Number 11, September 2015.

This catalog has been prepared for the benefit of students, faculty, and officers of Dartmouth College, and of others wishing to know more about the College's programs and activities. The information contained herein is accurate as of the date of publication (August 2015), and the officers of the College know of no significant changes to be made in the near future. However, Dartmouth College reserves the right to make from time to time such changes in its operations, programs, and activities, including cancellation of classes and campus closure, as the Trustees, faculty, and officers consider appropriate and in the best interests of the Dartmouth community.

Dartmouth College is committed to the principle of equal opportunity for all its students, faculty, employees, and applicants for admission and employment. For that reason Dartmouth does not discriminate on the basis of race, color, religion, sex, age, sexual orientation, gender identity or expression, national origin, disability, or military or veteran status in its programs, organizations, and conditions of employment and admission.

Any person having inquiries or complaints concerning Dartmouth's compliance with this policy or with federal regulations relating to nondiscrimination is directed to contact the Office of Institutional Diversity & Equity, Suite 304, Blunt Alumni Center, HB 6018, Hanover, New Hampshire 03755-3541, (603) 646-3197. The Section 504/ADA Coordinator has been designated by Dartmouth to coordinate the institution's efforts to comply with the regulations implementing Section 504 and the Americans with Disabilities Act.

Dartmouth College is accredited by the New England Association of Schools and Colleges Commission on Institutions of Higher Education.

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DARTMOUTH COLLEGE MISSION STATEMENT

Dartmouth College educates the most promising students and prepares them for a lifetime of learning and of responsible leadership, through a faculty dedicated to teaching and the creation of knowledge.

to Dartmouth and to each other is legendary and is a sustaining quality of the College.

Adopted May, 2007

Our Core Values

Dartmouth expects academic excellence and encourages independence of thought within a culture of collaboration.

Dartmouth faculty are passionate about teaching our students and are at the forefront of their scholarly or creative work.

Dartmouth embraces diversity with the knowledge that it significantly enhances the quality of a Dartmouth education.

Dartmouth recruits and admits outstanding students from all backgrounds, regardless of their financial means.

Dartmouth fosters lasting bonds among faculty, staff, and students, which encourage a culture of integrity, self-reliance, and collegiality and instill a sense of responsibility for each other and for the broader world.

Dartmouth supports the vigorous and open debate of ideas within a community marked by mutual respect.

Our Legacy

Since its founding in 1769 to educate Native students, English youth, and others, Dartmouth has provided an intimate and inspirational setting where talented faculty, students, and staff—diverse in background but united in purpose—contribute to the strength of an exciting academic community that cuts easily across disciplines.

Dartmouth is committed to providing the best undergraduate liberal arts experience and to providing outstanding graduate programs in the Dartmouth Medical School (founded 1797), the Thayer School of Engineering (1867), the Tuck School of Business (1900), and the graduate programs in the Arts and Sciences. Together they constitute an exceptional and rich learning environment. Dartmouth faculty and student research contributes substantially to the expansion of human understanding.

The College provides a comprehensive out-of-classroom experience, including service opportunities, engagement in the arts, and competitive athletic, recreational, and outdoor programs. Pioneering programs in computation and international education are hallmarks of the College. Dartmouth graduates are marked by an understanding of the importance of teamwork, a capacity for leadership, and their keen enjoyment of a vibrant community. Their loyalty

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Emeritus Faculty

Note: The listing is alphabetical; the date indicates the year of initial appointment.

Hoyt Sutliff Alverson (1968) Ph.D., Professor of Anthropology, Emeritus

Jon Howard Appleton (1967) M.A., Arthur R. Virgin Professor of Music, Emeritus

Martin A. Arkowitz (1964) Ph.D., Professor of Mathematics, Emeritus

James L. Aronson (1998) Ph.D., Professor of Earth Sciences, Emeritus

David G. Becker (1982) Ph.D., Associate Professor of Government, Emeritus

Edward M. Berger (1975) Ph.D., Professor of Biological Sciences, Emeritus

Fred Berthold (1949) Ph.D. D.D., Professor of Religion, Emeritus

Thomas Fulcher Bickel (1967) Ph.D., Professor of Mathematics, Emeritus

Peter Adolph Bien (1961) Ph.D., The Frederick Sessions Beebe '35 Professor in the Art of Writing and Professor of English and of Comparative Literature, Emeritus

Richard Williams Birnie (1974) Ph.D., Professor of Geology, Emeritus

Varujan Boghosian (1968) M.F.A., George Frederick Jewett Professor of Art and Professor of Studio Art, Emeritus

Edward Mix Bradley (1963) Ph.D., Professor of Classics, Emeritus

Charles Louis Braun (1965) Ph.D., Professor of Chemistry, Emeritus

Ashley Bryan (1973) B.S., Professor of Visual Studies, Emeritus

Colin Dearborn Campbell (1956) Ph.D., Loren M. Berry Professor of Economics, Emeritus

Robert Wentworth Christy (1953) Ph.D., Appleton Professor of Natural Philosophy and Professor of Physics, Emeritus

Laura E. Conkey (1982) Ph.D., Associate Professor of Geography, Emerita

Katharine Conley (1992) Ph.D., Edward Tuck Professor of French and Comparative Literature, Emerita

Alvin Omar Converse (1963) Ph.D., Professor of Engineering Sciences, Emeritus

William W. Cook (1973) M.A., Israel Evans Professor of Oratory and Belles Lettres and Professor of English, Emeritus

Kathleen A. Corrigan (1983) Ph.D., Professor of Art History, Emerita

Jonathan V. Crewe (1990) Ph.D., Leon D. Black Professor in Shakespearean Studies and Professor of English, Emeritus

Lewis Ashby Crickard (1987) M.F.A., Professor of Theater, Emeritus

Jere Rogers Daniell II (1964) Ph.D., Class of 1925 Professor of History, Emeritus

Augustus Edward De Maggio (1964) Ph.D., Professor of Biological Sciences, Emeritus

George Joseph Demko (1989) Ph.D., Professor of Geography, Emeritus

David Severin Dennison (1958) Ph.D., Professor of Biological Sciences, Emeritus

Norman Arthur Doenges (1955) Ph.D., Professor of Classics, Emeritus

Bruce Duncan (1969) Ph.D., Dartmouth Professor of the German Language and Professor of German Studies, Emeritus

Rogers Elliott (1962) Ph.D., Professor of Psychological and Brain Sciences, Emeritus

Kirk Michael Endicott (1981) D.Phil. (Oxon.), Professor of Anthropology, Emeritus

Howard Loyd Erdman (1964) Ph.D., Professor of Government, Emeritus

Hans Michael Ermarth (1970) Ph.D., Professor of History, Emeritus

Robert John Fogelin (1980) Ph.D., Sherman Fairchild Professor in the Humanities and Professor of Philosophy, Emeritus

Carol L. Folt (1983) Ph.D., Dartmouth Professor of Biological Sciences, Emerita

Linda L. Fowler (1995) Ph.D., Frank J. Reagan 1909 Professor in Policy Studies and Professor of Government, Emerita

Nancy K. Frankenberry (1977) Ph.D., John Phillips Professor in Religion, Emerita

Andrew C. Garrod (1985) Ed.D., Professor of Education, Emeritus

Gene Ralph Garthwaite (1968) Ph.D., Jane and Raphael Bernstein Professor of Asian Studies and Professor of History, Emeritus

Colette Louise Gaudin (1961) CAPES Phil., Professor of French and Italian Languages and Literatures, Emerita

Alan Theodore Gaylord (1967) Ph.D., Henry Winkley Professor of Anglo-Saxon and English Language and Literature, Emeritus

Michael S. Gazzaniga (1996) Ph.D., David T. McLaughlin Distinguished Professor of Psychological and Brain Sciences and of Cognitive Neuroscience, Emeritus

John Jouett Gilbert (1966) Ph.D., Professor of Biological Sciences, Emeritus

Mary Jean Green (1974) Ph.D., Professor of French and Italian, Emerita

Ronald M. Green (1969) Ph.D., Eunice and Julian Cohen Professor for the Study of Ethnicities and Human Values and Professor of Religion, Emeritus

Raymond Londell Hall (1972) Ph.D., Orvill Dryfoos Professor of Public Affairs and Professor of Sociology, Emeritus

Joseph David Harris (1959) Ph.D., Professor of Physics, Emeritus

Jeffrey Peter Hart (1963) Ph.D., Professor of English, Emeritus

Ernest Hebert (1987) B.A., Professor of English, Emeritus

James Anthony Walsh Heffernan (1965) Ph.D., Frederick Sessions Beebe '35 Professor in the Art of Writing and Professor of English, Emeritus

Robert Guy Henricks (1976) Ph.D., Preston H. Kelsey Professor of Religion, Emeritus

Richard Turner Holmes (1967) Ph.D., The Ronald and Deborah Harris Professor in Environmental Biology and Professor of Biological Sciences, Emeritus

James Frederick Hornig (1962) Ph.D., Dartmouth
Professor of Chemistry and of Environmental Studies,
Emeritus

Elisha Rhodes Huggins (1961) Ph.D., Professor of Physics,
Emeritus

Russell P. Hughes (1976) Ph.D., Frank R. Mori Professor
of Chemistry, Emeritus

Charles Edgar Hutchinson (1984) Ph.D., John H. Krehbiel
Sr. Professor for Emerging Technologies and Professor of
Engineering Sciences, Emeritus

John Jacobus (1969) Ph.D., Leon E. Williams Professor of
Art History, Emeritus

Herbert Lee James (1949) M.A., Israel Evans Professor of
Oratory and Belles Lettres, Emeritus

George Christian Jernstedt (1967) Ph.D., Professor of
Psychological and Brain Sciences, Emeritus

Keala J. Jewell (1986) Ph.D., Professor of French and
Italian Languages and Literatures, Emerita

Gary D. Johnson (1971) Ph.D., Professor of Earth
Sciences, Emeritus

James M. Jordan (1980) Ph.D., Professor of Art History,
Emeritus

Nelson Michael Kasfir (1970) J.D. Ph.D., Professor of
Government and Adjunct Professor of Environmental
Studies, Emeritus

Konrad Otto Kenkel (1974) Ph.D., Associate Professor of
German Studies, Emeritus

Francis Edward Kennedy Jr. (1974) Ph.D., Professor of
Engineering Sciences, Emeritus

Robert Eldon Kleck (1966) Ph.D., Professor of
Psychological and Brain Sciences, Emeritus

Werner Kleinhardt (1965) Dr. Phil., Professor of German
and of Comparative Literature, Emeritus

Vivian Kogan (1969) Ph.D., Associate Professor of
French, Emerita

Kenneth Arnold Korey (1972) Ph.D., Associate Professor
of Anthropology, Emeritus

Thomas Eugene Kurtz (1956) Ph.D., Professor of
Mathematics and Computer Science, Emeritus

Charles Dwight Lahr (1975) Ph.D., Professor of
Mathematics, Emeritus

John William Lamperti (1961) Ph.D., Professor of
Mathematics, Emeritus

George M. Langford (1991) Ph.D., Ernest Everett Just
1907 Professor of Biological Sciences, Emeritus

Albert Joseph LaValley (1984) Ph.D., Professor of Film
Studies, Emeritus

Walter Edward Lawrence III (1971) Ph.D., Professor of
Physics, Emeritus

Robert Nevitte Leaton (1964) Ph.D., Professor of
Psychological and Brain Sciences, Emeritus

Richard Ned Lebow (2002) Ph.D., James O. Freedman
Presidential Professor of Government, Emeritus

David Markham Lemal (1965) Ph.D., Albert W. Smith
Professor of Chemistry, Emeritus

David Treadwell Lindgren (1966) Ph.D., Professor of
Geography, Emeritus

Robert Leon McGrath (1963) Ph.D., Professor of Art
History, Emeritus

Vincent Herschel Malmström (1975) Ph.D., Professor of
Geography, Emeritus

Darrel Lee Mansell Jr. (1962) Ph.D., Professor of English,
Emeritus

Roger Davis Masters (1967) Ph.D., Nelson A. Rockefeller
Professor of Government, Emeritus

David Campbell Montgomery (1984) Ph.D., Eleanor and
A. Kelvin Smith Professor of Physics, Emeritus

Delo Emerson Mook II (1970) Ph.D., Professor of Physics
and Astronomy, Emeritus

William Natan Morris (1969) Ph.D., Professor of
Psychological and Brain Sciences, Emeritus

Ben Frank Moss (1988) M.F.A., George Frederick Jewett
Professor of Studio Art, Emeritus

Marysa Navarro (1968) Ph.D., Charles A. and Elfriede A.
Collis Professor of History, Emerita

Joseph Bruce Nelson (1985) Ph.D., Professor of History,
Emeritus

Robert Zane Norman (1956) Ph.D., Professor of
Mathematics and Computer Science, Emeritus

Neal Oxenhandler (1969) Ph.D., The Edward Tuck
Professor of French Language and Literature and Professor
of Comparative Literature, Emeritus

Larry Polansky (1990) M.A., Professor of Music, Emeritus

Carl B. Pomerance (2003) Ph.D., John G. Kemeny Parents
Professor in Mathematics, Emeritus

Ulrike Rainer (1985) Ph.D., Associate Professor of
German, Emerita

Louis Anthony Renza (1970) Ph.D., Professor of English,
Emeritus

Horst Joachim Richter (1975) Dr.-Ing., Professor of
Engineering Sciences, Emeritus

Frederick David Roberts (1957) Ph.D., Charles Collis Professor of History, Emeritus

Robert Hilton Russell (1957) Ph.D., Professor of Romance Languages and Literatures, Emeritus

Jeremy Bentham Rutter (1976), Ph.D., Sherman Fairchild Professor in the Humanities and Professor of Classics, Emeritus

Peter Saccio (1966) Ph.D., Leon D. Black Professor in Shakespearean Studies and Professor of English, Emeritus

Barry P. Scherr (1974) Ph.D., Professor of Russian, Emeritus

William Clyde Scott (1966) Ph.D., Dartmouth Professor of Classics, Emeritus

Kenneth Earl Shewmaker (1967) Ph.D., Professor of History, Emeritus

David Sices (1957) Ph.D., Professor of French and Italian Languages and Literatures, Emeritus

Brenda Ruth Silver (1972) Ph.D., Mary Brinsmead Wheelock Professor of English, Emerita

Roger Hamilton Soderberg (1962) Ph.D., Professor of Chemistry, Emeritus

Robert Sokol (1961) Ph.D., Professor of Sociology, Emeritus

Bengt Ulf Östen Sonnerup (1964) Ph.D., Sydney E. Junkins Professor of Engineering Sciences, Emeritus

Thomas Ancrum Spencer Jr. (1960) Ph.D., New Hampshire Professor of Chemistry, Emeritus

William Charles Spengemann (1984) Ph.D., Patricia F. and William B. Hale '44 Professor in Arts and Sciences and Professor of English, Emeritus

Margaret Elizabeth Spicer (1974) M.F.A., Professor of Theater, Emerita

Evelyn Schlufer Spiegel (1962) Ph.D., Research Professor of Biological Sciences, Emerita

Melvin Spiegel (1959) Ph.D., Professor of Biological Sciences, Emeritus

Leo Spitzer (1967) Ph.D., Kathe Tappe Vernon Professor and Professor of History, Emeritus

Vincent Evans Starzinger (1960) LL.B. Ph.D., Joel Parker Professor of Law and Professor of Government, Emeritus

Richard Whitney Sterling (1954) Ph.D., Professor of Government, Emeritus

William Summers (1984) Ph.D., Professor of Music, Emeritus

Virginia Edith Swain (1978) Ph.D., Professor of French and Italian Languages and Literatures, Emerita

Marsha Swislocki (1977) Ph.D., Associate Professor of Spanish and Portuguese Languages and Literatures, Emerita

James H. Tatum (1969) Ph.D., Aaron Lawrence Professor of Classics, Emeritus

Peter W. Travis (1970) Ph.D., Henry Winkley Professor of Anglo-Saxon and English Language and Literature, Emeritus

Stanley Hart Udy Jr. (1972) Ph.D., Professor of Sociology, Emeritus

Samuel J. Velez (1976) Ph.D., Associate Professor of Biological Sciences, Emeritus

Graham Blair Wallis (1962) Ph.D., Sherman Fairchild Professor of Engineering Sciences, Emeritus

Heide W. Whelan (1973) Ph.D., Professor of History, Emerita

Margaret Williamson (1999) Ph.D., Associate Professor of Classics and Comparative Literature, Emerita

Richard Edmund Williamson (1956) Ph.D., Professor of Mathematics, Emeritus

Richard Franklin Winters (1972) Ph.D., William Clinton Story Remsen Class of 1943 Professor in Government, Emeritus

Christian Wolff (1970) Ph.D., Strauss Professor of Music, and Professor of Classics, Emeritus

George L. Wolford (1969) Ph.D., Professor of Psychological and Brain Sciences, Emeritus

James E. Wright (1969) Ph.D., Professor of History, Emeritus

David Wykes (1972) Ph.D., Professor of English, Emeritus

Emeritus Presidents

Jim Yong Kim, Ph.D.

James Wright, Ph.D.

Active Faculty

Note: The listing is alphabetical without respect to rank; the date indicates the year of initial appointment.

Francine M. A'ness (1999) Ph.D., Lecturer of Women's, Gender, and Sexuality Studies and of Writing and Rhetoric

Maral Abrahamian (2010) Ph.D., Visiting Assistant Professor of Asian and Middle Eastern Studies, Women, Gender, and Sexuality Studies and of Theater

Margaret E. Ackerman (2010) Ph.D., Assistant Professor of Engineering Sciences

Susan Ackerman (1990) Ph.D., Preston H. Kelsey
Professor of Religion

Lisa V. Adams (2006) M.D., Adjunct Associate Professor
of Geography

Adenrele Adewusi (2015) B.A., Instructor of Studio Art

Joseph Aguado (2002) Ph.D., Associate Professor of
Spanish and Portuguese Languages and Literatures

Mary R. Albert (2009) Ph.D., Lecturer of Engineering
Sciences

Andreea S. Aldea (2012) M.A., Lecturer of Philosophy

Stephon Alexander (2012) Ph.D., Ernest Everett Just 1907
Professor in the Natural Sciences and Associate Professor
of Physics and Astronomy

Sarah Allan (1995) Ph.D., Burlington Northern Foundation
Professor in Asian Studies in Honor of Richard M.
Bressler and Professor of Asian and Middle Eastern
Languages and Literatures

Cristy Altamirano (2015) B.A., Instructor of Theater

Ross Alter (2014) Ph.D., Research Associate in Geography

Elena Altnuna (2015) Ph.D., Visiting Associate Professor
of Spanish and Portuguese Languages and Literatures

Sarah K. Amos (2003) M.F.A., Lecturer of Studio Art

Patricia Mary Anderson (1991) Ph.D., Professor of
Economics

Denise L. Anthony (1999) Ph.D., Professor of Sociology

Kianny N. Antigua (2014) M.A., Lecturer of Spanish and
Portuguese Languages and Literatures

Ivan Aprahamian (2008) Ph.D., Associate Professor of
Chemistry

Claudio Aquino (2013) Ph.D., Research Associate in
Chemistry

Julio Ariza (2011) Ph.D., Assistant Professor of Spanish
and Portuguese Languages and Literatures

Paloma Asensio (2005) Ph.D., Senior Lecturer of Spanish
and Portuguese Languages and Literatures

Timothy Ernest Atherton (1982) B.M., Senior Lecturer of
Music

Gerald D. Auten (1993) M.Arch., Senior Lecturer of
Studio Art

Bernard Avishai (2012) Ph.D., Visiting Professor of
Government

Matthew P. Ayres (1993) Ph.D., Professor of Biological
Sciences

Zahra M. Shoaib Ayubi (2013) M.A., Visiting Instructor of
Religion and of Women's, Gender, and Sexuality Studies

Milan Babik (2015) D.Phil., Lecturer of Government

Joseph Bafumi Jr. (2006) Ph.D., Associate Professor of
Government

Mohamed Baghdadi (2015) B.A., Lecturer of Asian and
Middle Eastern Languages and Literatures

Aimee Soogene Bahng (2009) Ph.D., Assistant Professor
of English

Christopher J. Bailey-Kellogg (2004) Ph.D., Professor of
Computer Science

Ian Baker (1986) D.Phil., Sherman Fairchild Professor of
Engineering Sciences

Lisa Baldez (2003) Ph.D., Professor of Government and of
Latin American, Latino, and Caribbean Studies

Donald J. Baldini (2003) B.M., Lecturer of Music

Devin Balkcom (2004) Ph.D., Associate Professor of
Computer Science

Randall Balmer (2007) Ph.D., John Phillips Professor in
Religion

William L. Balsam (2012) Ph.D., Adjunct Professor of
Earth Sciences

Dwaipayan Banerjee (2014) M.A., Research Associate in
Anthropology

Avner Bar-Ilan (2003) Ph.D., Visiting Professor of
Economics

Alexander H. Barnett (2005) Ph.D., Associate Professor of
Mathematics

Carmen Bascunan (2010) B.A., Lecturer of Spanish and
Portuguese Languages and Literatures

Kenneth M. Bauer (2011) D.Phil., Lecturer of
Anthropology, of Asian and Middle Eastern Studies, and
of Writing and Rhetoric

Peggy Baum (2013) M.A., Lecturer of Writing and
Rhetoric

Robert M. Baum (2013) Ph.D., Associate Professor of
African and African-American Studies and of Religion

Loris Bazzani (2014) Ph.D., Research Associate in
Computer Science

Virginia C. Beahan (2001) M.F.A., Senior Lecturer of
Studio Art

Amanda Bean (2015) Ph.D., Lecturer of Education

Faith Evelyn Beasley (1986) Ph.D., Professor of French
and Italian Languages and Literatures

Sonu Singh Bedi (2007) Ph.D., Associate Professor of
Government

Joseph James BelBruno (1982) Ph.D., Professor of Chemistry

Diane Belcher (2014) M.A., Lecturer of Music

Nurit Ben-Yehuda (2007) M.A., Senior Lecturer of Asian and Middle Eastern Languages and Literatures

Ehud Ze'eu Benor (1991) Ph.D., Associate Professor of Religion

Damiano Benvegna (2015) Ph.D., Lecturer of French and Italian Languages and Literatures

Renee L. Bergland (1998) Ph.D., Visiting Professor of Women's, Gender, and Sexuality Studies

Vincent H. Berk (2002) Ph.D., Lecturer of Engineering Sciences

Sharon Elizabeth Bickel (1997) Ph.D., Associate Professor of Biological Sciences

Jennifer Bilbo (2013) M.F.A., Costume Designer in Theater

Sabrina Billings (2015) Ph.D., Senior Lecturer of Anthropology

Rebecca E. Biron (2006) Ph.D., Professor of Spanish and Portuguese Languages and Literatures

Susan Blader (1978) Ph.D., Associate Professor of Asian and Middle Eastern Languages and Literatures

David Graham Blanchflower (1989) Ph.D., Bruce V. Rauner 1978 Professor of Economics

Miles P. Blencowe (1999) Ph.D., Albert A. Bradley 1915 Third Century Professor in the Sciences and Professor of Physics and Astronomy

Colleen Glenney Boggs (2001) Ph.D., Professor of English

Douglas Thomas Bolger (1993) Ph.D., Professor of Environmental Studies

Petra Bonfert-Taylor (2010) Ph.D., Lecturer of Engineering Sciences

Robert E. Bonner (2005) Ph.D., Professor of History

Lynda Elizabeth Boose (1985) Ph.D., Professor of English

Andrea Borsic () Ph.D., Lecturer of Engineering Sciences

Mark E. Borsuk (2006) Ph.D., Associate Professor of Engineering Sciences

Neil Von Boyer (1977) M.M., Senior Lecturer of Music

William Boyer (2010) Ph.D., Lecturer of Music and of Writing and Rhetoric

Jodi Brandt (2014) Ph.D., Research Associate in Environmental Studies

Sergey L. Bratus (2005) Ph.D., Research Associate Professor of Computer Science

Susan Joy Brison (1985) Ph.D., Eunice and Julian Cohen Professor for the Study of Ethics and Human Values and Professor of Philosophy

Michael A. Bronski (2000) M.F.A., Senior Lecturer of Film and Media Studies, of Jewish Studies, and of Women's, Gender, and Sexuality Studies

Deborah Jordan Brooks (2003) Ph.D., Associate Professor of Government

Stephen Gallup Brooks (2000) Ph.D., Associate Professor of Government

James E. Brown (1990) M.F.A., Senior Lecturer of Film and Media Studies

Yorke J. Brown (2003) Ph.D., Visiting Associate Professor of Physics and Astronomy

David J. Bucci (2004) Ph.D., Professor of Psychological and Brain Sciences

Kate L. Buckman (2011) Ph.D., Research Associate in Biological Sciences

Raul Bueno (1986) Ph.D., Professor of Spanish and Portuguese Languages and Literatures

Ann Elizabeth Bumpus (1991) Ph.D., Senior Lecturer of Philosophy

Louis G. Burkot (1981) M.M., Senior Lecturer of Music

Erin Butler (2013) Ph.D., Research Associate, Neukom Institute

Leslie A. Butler (2003) Ph.D., Associate Professor of History

John R. Butterly (2003) M.D., Adjunct Professor of Geography

Mingzhong Cai (2014) Ph.D., Lecturer of Mathematics

Jennifer L. Caine (2008) M.F.A., Senior Lecturer of Studio Art

Robert Reynolds Caldwell (2000) Ph.D., Professor of Physics and Astronomy

Colin Gordon Calloway (1995) Ph.D., John Kimball Jr. 1943 Professor of History and of Native American Studies

Brittney Calsbeek (2013) Ph.D., Lecturer of Biological Sciences

Ryan G. Calsbeek (2006) Ph.D., Associate Professor of Biological Sciences

Nicola M. Camerlenghi (2013) Ph.D., Assistant Professor of Art History

Edwin Joseph William Camp (2015) Ph.D., Lecturer of Government

Andrew T. Campbell (2005) Ph.D., Professor of Computer Science

John L. Campbell (1996) Ph.D., Class of 1925 Professor of Sociology

Nancy Lucia Canepa (1990) Ph.D., Associate Professor of French and Italian Languages and Literatures

Robert Steven Cantor (1984) Ph.D., Professor of Chemistry

John Michael Carey (2003) Ph.D., John Wentworth Professor in the Social Sciences and Professor of Government

Elizabeth A. Carpenter-Song (2009) Ph.D., Adjunct Assistant Professor of Anthropology

Paul Carranza (2012) Ph.D., Lecturer of Spanish and Portuguese Languages and Literatures

Edward J. Carroll (2005) M.M., Lecturer of Music

Jane L. Carroll (1999) Ph.D., Senior Lecturer of Art History and of Writing and Rhetoric

Jesse Casana (2015) Ph.D., Associate Professor of Anthropology

Carlos Martinez Casas (2013) B.A., Visiting Instructor of Film and Media Studies

Elizabeth U. Cascio (2006) Ph.D., Associate Professor of Economics

Michael Casey (2008) Ph.D., James Wright Professor of Music

Marcia Lynne Cassidy (1987) M.A., Senior Lecturer of Music

Patrick Cavanagh (2011) Ph.D., Research Professor in Psychological and Brain Sciences

Poala Cazares (2014) B.A., Administrative Associate of Spanish and Portuguese Languages and Literatures

Brian Charles Chaboyer (1998) Ph.D., Professor of Physics and Astronomy

Jamila Chahboun (2009) M.A., Senior Lecturer of Asian and Middle Eastern Languages and Literatures

Amit Chakrabarti (2003) Ph.D., Professor of Computer Science

Michael A. Chaney (2005) Ph.D., Associate Professor of English

Sara Biggs Chaney (2005) Ph.D., Lecturer of Writing and Rhetoric

Luke Chang (2015) Ph.D., Assistant Professor of Psychological and Brain Sciences

Stephen Chang (2013) M.A., Research Associate in Psychological and Brain Sciences

Simon Chauchard (2011) Ph.D., Assistant Professor of Government

Pramit Chaudhuri (2008) Ph.D., Associate Professor of Classics

Celia Chen (2003) Ph.D., Research Professor of Biological Sciences

Xiaolei Chen (2012) Ph.D., Research Associate in Chemistry

Xin Chen (2015) Ph.D., Research Associate in Biological Sciences

Zenghong Chen (2008) M.A., Lecturer of Asian and Middle Eastern Languages and Literatures

William Cheng (2014) Ph.D., Assistant Professor of Music

Xiayun Cheng (2013) Ph.D., Research Associate in Chemistry

Vladimir Victorovich Chernov (2001) Ph.D., Professor of Mathematics

Woon-Ping Chin (2000) Ph.D., Visiting Professor of Theater

Jonathan W. Chipman (2007) Ph.D., Applied Spatial Analysis Laboratory Director in Geography

In Ha Cho (2014) Ph.D., Research Associate in Biological Sciences

Min Hyung Cho (2012) Ph.D., Research Associate in Mathematics

Jung Ja Choi (2014) Ph.D., Lecturer of Asian and Middle Eastern Studies

Yoon Joo Choi (2012) M.Sc., Research Associate in Computer Science

Paul C. Christesen (1999) Ph.D., Professor of Classics

Heng-Hsuan Chu (2012) Ph.D., Research Associate in Biological Sciences

Peter Ciardelli (2013) M.A., Lecturer of Film and Media Studies

Noelia Cirnigliaro (2009) Ph.D., Associate Professor of Spanish and Portuguese Languages and Literatures

Robert Cioffi (2015), Ph.D., Lecturer of Classics

Pierre R. Clare (2014) Ph.D., Research Associate in Mathematics

Ann Stephanie Clark (1990) Ph.D., Professor of Psychological and Brain Sciences

Henry C. Clark (2011) Ph.D., Visiting Professor of Economics, of Government, and of Sociology

Kimberly R. Clark (2014) Ph.D., Lecturer of Psychological and Brain Sciences

Michelle Tolman Clarke (2007) Ph.D., Associate Professor of Government

William Spurgeon Clarke III (2015) M.F.A., Set Designer in Theater

Donna Jeanne Coch (2003) Ed.D., Associate Professor of Education

Mary K. Coffey (2004) Ph.D., Associate Professor of Art History

Ada Cohen (1991) Ph.D., Israel Evans Professor of Oratory and Belles Lettres and Professor of Art History

Michael Cohen (2014) Ph.D., Adjunct Professor of Computer Science

Carrie Colla (2012) Ph.D., Adjunct Assistant Professor of Economics

John Pruyn Collier (1984) D.Eng., Myron Tribus Professor of Engineering Innovation and Senior Lecturer of Engineering Sciences

Ayo Abietou Coly (2004) Ph.D., Associate Professor of African and African American Studies and of Comparative Literature

Diego Comin (2014) Ph.D., Professor of Economics

Joshua A. Compton (2008) Ph.D., Assistant Professor of Writing and Rhetoric

Annabelle C. Cone (1991) Ph.D., Senior Lecturer of French and Italian Languages and Literatures and of Comparative Literature

Tonia Convertini (2011) Ph.D., French and Italian Language Program Director

Emily Cooper (2015) Ph.D., Research Assistant Professor of Psychological and Brain Sciences

Thomas H. Cormen (1992) Ph.D., Professor of Computer Science

Edgar Jose Martins Dias Costa (2015) Ph.D., Research Associate in Mathematics

Kathryn Linn Cottingham (1998) Ph.D., Dartmouth Professor in the Arts and Sciences and Professor of Biological Sciences

David Cottrell (2015) M.A., Research Associate in Quantitative Social Science

Keith Coughlin (2014) B.Mus.Ed., Lecturer of Theater

Zoe Courville (2014) Ph.D., Adjunct Assistant Professor of Earth Sciences

Michael E. Cox (2012) Ph.D., Assistant Professor of Environmental Studies

Sienna R. Craig (2006) Ph.D., Associate Professor of Anthropology

William Craig (2013) M.F.A., Lecturer of English and of Writing and Rhetoric

Catherine Patricia Cramer (1982) Ph.D., Associate Professor of Psychological and Brain Sciences

Philippe Crane (1998) Ph.D., Adjunct Professor of Physics and Astronomy

Matthew D. Cravens (2012) Ph.D., Research Associate in Public Policy

Pamela Kyle Crossley (1985) Ph.D., Charles A. and Elfriede A. Collis Professor in History

Nancy Jay Crumbine (1981) Ph.D., Visiting Associate Professor of Writing and Rhetoric

Daniel C. Cullen (2004) Ph.D., Lecturer of Engineering Sciences

Lauren Culler (2013) Ph.D., Research Associate in Environmental Studies

Kathleen M. Cunneen (2003) B.F.A., Lecturer of Theater

Elisabeth S. Curtis (2006) Ph.D., Senior Lecturer of Economics

Benoit Cushman-Roisin (1989) Ph.D., Professor of Engineering Sciences

George Cybenko (1992) Ph.D., Dorothy and Walter Gramm Professor of Engineering Sciences

William Brian Dade (2003) Ph.D., Associate Professor of Earth Sciences

Margaret H. Darrow (1980) Ph.D., Professor of History

Sandeep Das (2015) B.A., Lecturer of Asian and Middle Eastern Studies

Nathan D. Davis (1999) M.M., Lecturer of Music

Diane-Marie Decharme (1980) M.A., Senior Lecturer of French and Italian Languages and Literatures

Jose M. del Pino (2004) Ph.D., Dartmouth Professor of Spanish

Edward del Rosario (2012) M.F.A., Lecturer of Studio Art

Eugene Demidenko (2002) Ph.D., Adjunct Professor of Mathematics

Richard Eugene Denton (1995) Ph.D., Research Professor of Physics and Astronomy

Cassio Ferreira De Oliveira (2015) Ph.D., Lecturer of Russian

Peter DeShazo (2014) Ph.D., Visiting Professor of Latin American, Latino, and Caribbean Studies

Jeremy Michael DeSilva (2015) Ph.D., Associate Professor of Anthropology and Adjunct Associate Professor of Biological Sciences

Mary Desjardins (1995) Ph.D., Associate Professor of Film and Media Studies

Mark J. Detzer (2003) Ph.D., Adjunct Assistant Professor of Psychological and Brain Sciences

Carolyn M. Dever (2014) Ph.D., Professor of English

Jody Diamond (2001) M.A., Senior Lecturer of Asian and Middle Eastern Studies

Solomon G. Diamond (2007) Ph.D., Associate Professor of Engineering Sciences

Sebastián Diaz (2009) Ph.D., Assistant Professor of Spanish and Portuguese Languages and Literatures

James T. Dietrich (2014) M.S., Research Associate, Geography and Neukom Institute

Michael Robert Dietrich (1998) Ph.D., Professor of Biological Sciences

Joseph P. DiGrazia (2014) M.A., Research Associate, Sociology and Neukom Institute

Taryn Lee Dinkelman (2011) Ph.D., Assistant Professor of Economics

Michael Anthony DiPompeo (2015) Ph.D., Research Associate in Physics and Astronomy

Robert Ditchfield (1972) D.Phil., Professor of Chemistry

Marc D. Dixon (2008) Ph.D., Associate Professor of Sociology

James E. Dobson (2014) Ph.D., Lecturer of English, of Writing and Rhetoric, and of Liberal Studies

Jameson W. Doig (2008) Ph.D., Visiting Research Professor of Government

Patrick J. Dolph (1995) Ph.D., Associate Professor of Biological Sciences

Nathaniel J. Dominy (2010) Ph.D., Professor of Anthropology

Mona Domosh (2000) Ph.D., Joan P. and Edward J. Foley Jr. 1933 Professor of Geography

Christiane Kathleen Donahue (2008) Ph.D., Associate Professor of Linguistics

Kui Dong (1997) D.M.A., Professor of Music

Francois G. Dorais (2012) Ph.D., Research Associate in Mathematics

James Dorsey (1997) Ph.D., Associate Professor of Asian and Middle Eastern Languages and Literatures

Alice M. Doughty (2014) Ph.D., Research Associate, Earth Sciences and Neukom Institute

Karen G. Dowell (2013) Ph.D., Research Associate in Computer Science

Maura P. Doyle (2008) Ph.D., Senior Lecturer of Economics

Peter G. Doyle (1999) Ph.D., Professor of Mathematics

Kyle Dropp (2013) Ph.D., Assistant Professor of Government

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Jay Pantone (2015) M.A., Research Associate in Mathematics

Graziella Parati (1991) Ph.D., Paul D. Paganucci Professor of French and Italian Languages and Literatures

Lara Park (2014) Ph.D., Lecturer in Biological Sciences

Soo Young Park (2005) M.F.A., Associate Professor of Studio Art

Misagh Parsa (1989) Ph.D., Professor of Sociology

Francesco Passarelli (2006) Ph.D., Visiting Professor of Economics

Beatriz Pastor (1976) Ph.D., Professor of Spanish and Portuguese Languages and Literatures

Lynn E. Patyk (2012) Ph.D., Assistant Professor of Russian Language and Literature

Scott D. Pauls (2001) Ph.D., Professor of Mathematics

Keith Douglas Paulsen (1988) Ph.D., Robert A. Pritzker Professor of Biomedical Engineering and Professor of Engineering Sciences

Nina Pavcnik (1999) Ph.D., Niehaus Family Professor in International Studies and Professor of Economics

David Ross Peart (1985) Ph.D., Professor of Biological Sciences

Donald Eugene Pease Jr. (1973) Ph.D., Ted and Helen Geisel Third Century Professor in the Humanities and Professor of English

Maria Pellegrini (2010) Ph.D., Research Associate Professor of Chemistry

Elizabeth Pérez (2011) Ph.D., Assistant Professor of Religion

David August Peterson (2003) Ph.D., Associate Professor of Linguistics

Kevin J. Peterson (2000) Ph.D., Professor of Biological Sciences

Steven O. Peterson (2010) M.S., Lecturer of Engineering Sciences

Victor Fedorovich Petrenko (1991) D.Sc., Senior Lecturer of Engineering Sciences

John Francis Pfister (1989) Ph.D., Senior Lecturer of Psychological and Brain Sciences

Minh Q. Phan (2000) Ph.D., Associate Professor of Engineering Sciences

Anne Marie Phillips (2014) Ph.D., Lecturer of African and African American Studies

William F. Phillips (1989) M.F.A., Adjunct Associate Professor of Film and Media Studies, of Comparative Literature, and of Liberal Studies

Sally Pinkas (1985) Ph.D., Professor of Music

Wendy A. Piper (2004) Ph.D., Lecturer of Writing and Rhetoric

Catherine F. Pipas (2014) M.D., Adjunct Professor of Sociology

Constance Pirckher (2015) B.A., Administrative Associate in French and Italian Languages and Literatures

Alexandre A. Pletnev (2007) Ph.D., Research Scientist in Chemistry

Ekaterina V. Pletneva (2007) Ph.D., Associate Professor of Chemistry

David Plunkett (2011) Ph.D., Assistant Professor of Philosophy

Brian William Pogue (2001) Ph.D., Professor of Engineering Sciences

Janet Estelle Polk (1981) B.Mus., Senior Lecturer of Music

Eric Stephen Posmentier (1984) Ph.D., Senior Research Scientist in Earth Sciences

Yolande Pottie-Sherman (2014) Ph.D., Research Associate in Geography

Thomas Powers (2003) B.A., Visiting Professor of Liberal Studies

Susnata Pramanik (2014) Ph.D., Research Associate in Chemistry

Anita Prasad (2011) Ph.D., Research Scientist in Chemistry

Daryl G. Press (1999) Ph.D., Associate Professor of Government

Olivia F. Prosper (2012) Ph.D., Research Associate of Mathematics

Timothy James Pulju (2001) Ph.D., Senior Lecturer of Classics, of English, and of Linguistics

Tracy Punshon (2008) Ph.D., Research Assistant Professor of Biological Sciences

Julie Puttgen (2015) M.F.A., Lecturer of Studio Art

Courtney K. Quaintance (2008) Ph.D., Assistant Professor of French and Italian Languages and Literatures

Julia Rabig (2011) Ph.D., Lecturer of History, of Women's, Gender, and Sexuality Studies, and of Liberal Studies

Michael J. Ragusa (2014) Ph.D., Assistant Professor of Chemistry

Alfia Rakova (2007) Ph.D., Senior Lecturer of Russian Language and Literature

Chandrasekhar Ramanathan (2010) Sc.D., Assistant Professor of Physics and Astronomy

Catharine Randall (2007) Ph.D., Senior Lecturer of Religion

Colleen Marie Randall (1989) M.F.A., Professor of Studio Art

John Arthur Rassias (1965) Ph.D., William R. Kenan Professor of French and Italian Languages and Literatures

Laura Ryan Ray (1996) Ph.D., Professor of Engineering Sciences

Gil Raz (2004) Ph.D., Associate Professor of Religion

Virginia A. Reed (2011) Ph.D., Research Associate Professor of Psychological and Brain Sciences

A. Kevin Reinhart (1983) Ph.D., Associate Professor of Religion

Devon J. Renock (2011) Ph.D., Assistant Professor of Earth Sciences

Carl Edward Renshaw (1997) Ph.D., Professor of Earth Sciences

Nicholas J. Reo (2012) Ph.D., Assistant Professor of Environmental Studies and of Native American Studies

Israel Reyes (1996) Ph.D., Associate Professor of Spanish and Portuguese Languages and Literatures

David A. Rezvani (2012) Ph.D., Visiting Research Assistant Professor of Writing and Rhetoric

Felipe Klein Ricachenebsky (2015) Ph.D., Research Associate in Biological Sciences

James Goodwin Rice (1997) M.A., Senior Lecturer of Theater

Justin Richardson (2015) Ph.D., Lecturer of Environmental Studies

Allen Riddell (2013) Ph.D., Research Associate in English, in German Studies, and in Neukom Institute

Enrico M. Riley (2001) M.F.A., Associate Professor of Studio Art

Alexander J. Rimberg (2004) Ph.D., Professor of Physics and Astronomy

Thomas Roberts (2015) Ph.D., Research Associate in Physics and Astronomy

Peter J. Robbie (1996) M.F.A., Senior Lecturer of Engineering Sciences

Daniel Rockmore (1991) Ph.D., William H. Neukom 1964 Distinguished Professor in Computational Science and Professor of Mathematics

Ellen B. Rockmore (2006) J.D., Lecturer of Writing and Rhetoric

Antonio Rodriguez (2012) Ph.D., Research Associate in Psychological and Brain Sciences

Claudia Rodriguez-Solorzano (2012) Ph.D., Research Associate in Environmental Studies

Bill Dale Roebuck (1983) Ph.D., Adjunct Professor of Environmental Studies

Barrett Neil Rogers (2001) Ph.D., Pat and John Rosenwald Professor of Physics and Astronomy

Kimberly Brooke Rogers (2015) Ph.D., Assistant Professor of Sociology

Julie L. Rose (2014) Ph.D., Assistant Professor of Government

Marjorie B. Rose (1997) Ph.D., Senior Lecturer of Economics

Joseph M. Rosen (1991) M.D., Senior Lecturer of Engineering Sciences

Timothy Rosenkoetter (2004) Ph.D., Assistant Professor of Philosophy

Regine Rosenthal (2006) Ph.D., Visiting Associate Professor of Liberal Studies

Adina L. Roskies (2004) Ph.D., Professor of Philosophy

George Collins Ruben (1984) Ph.D., Adjunct Professor of Biological Sciences

Douglas Rumble III (2012) Ph.D., Adjunct Professor of Earth Sciences

Jeffrey Kevin Ruoff (2001) Ph.D., Associate Professor of Film and Media Studies

Tracy LeAnne Rutler (2014) M.A., Lecturer of Liberal Studies

Marjorie Anne Sa'adah (1984) Ph.D., Joel Parker Professor of Law and Political Science and Professor of Government

Mara Beth Sabinson (1985) B.A., Associate Professor of Theater

Bruce Ian Sacerdote (1998) Ph.D., Richard S. Braddock 1963 Professor of Economics

Naaborko Sackeyfio-Lenoch (2008) Ph.D., Associate Professor of History

Rustam Sadykov (2008) Ph.D., Research Associate in Mathematics

Maria Aparecida Salgueiro (2010) Ph.D., Visiting Professor of African and African-American Studies

Nadav Samin (2014) Ph.D., Visiting Assistant Professor of Anthropology and of Jewish Studies

Andrew Alan Samwick (1994) Ph.D., Sandra L. and Arthur L. Irving '72a, P'10 Professor of Economics

Scott M. Sanders (2014) Ph.D., Assistant Professor of French and Italian Languages and Literatures

Analola Santana (2012) Ph.D., Assistant Professor of Spanish and Portuguese Languages and Literatures

Eugene Santos Jr. (2005) Ph.D., Professor of Engineering Sciences

Jennifer Sargent (2006) J.D., Visiting Associate Professor of Writing and Rhetoric

Pallad K. Sarker (2012) Ph.D., Research Associate in Environmental Studies

Irasema Saucedo (2005) B.A., Senior Lecturer of Spanish and Portuguese Languages and Literatures

George Eric Schaller (2003) Ph.D., Professor of Biological Sciences

Simone G. Schaner (2011) Ph.D., Assistant Professor of Economics

Janine L. Scheiner (1997) Ph.D., Visiting Associate Professor of Psychological and Brain Sciences

Axel Scherer (2013) Ph.D., Lecturer of Engineering Sciences

Sachi Schmidt-Hori (2015) Ph.D., Assistant Professor of Asian and Middle Eastern Languages and Literatures

Katherine Schroer (2013) Ph.D., Research Associate in Anthropology and in Biological Sciences

Erland Maxwell Schulson (1978) Ph.D., George Austin Colligan Distinguished Professor of Engineering Sciences

Ivy Terry Schweitzer (1983) Ph.D., Professor of English

John Troy Scott (1977) Ph.D., Professor of Economics

Christina Seely (2014) M.F.A., Assistant Professor of Studio Art

Hafiz Farel Shabazz (1980) M.Ed., Adjunct Associate Professor of Music

Holly Shaffer (2015) M.Phil., Research Fellow in Art History

Ronald G. Shaiko (2001) Ph.D., Research Associate Professor of Public Policy and of Government

Migun Shakya (2013) Ph.D., Research Associate in Biological Sciences

Jeffrey Sharlet (2010) B.A., Associate Professor of English

Mukul Sharma (2001) Ph.D., Professor of Earth Sciences

Thomas Richard Shemanske (1981) Ph.D., Professor of Mathematics

Simon G. Shepherd (2001) Ph.D., Senior Lecturer of Engineering Sciences

Fenru Shi (2013) M.A., Lecturer of Asian and Middle Eastern Languages and Literatures

Xun Shi (2002) Ph.D., Associate Professor of Geography

Won Mok Shim (2010) Ph.D., Assistant Professor of Psychological and Brain Sciences

Ellis Ray Shookman (1987) Ph.D., Professor of German Studies

Jeroen R. Sijtsling (2014) Ph.D. Research Associate in Mathematics

Scott L. Silver (1996) B.A., Adjunct Assistant Professor of Theater

Walter Paul Simons (1992) Ph.D., Professor of History

Devin Paul Singh (2015) Ph.D., Assistant Professor of Religion

Gurprit Singh (2015) M.Sc., Research Associate in Computer Science

Mathilde T. Sitbon (2004) D.E.A., Lecturer of French and Italian Languages and Literatures

Jonathan Snowden Skinner (1997) Ph.D., James O. Freedman Presidential Professor of Economics

Roger Dale Sloboda (1977) Ph.D., Ira Allen Eastman Professor of Biological Sciences

Elizabeth Faye Smith (1998) Ph.D., Dartmouth Professor of Biological Sciences

Kyle S. Smith (2013) Ph.D., Assistant Professor of Psychological and Brain Sciences

Merry Kinder Smith (2015) Ph.D., Research Associate in Chemistry

Sean William Smith (2000) Ph.D., Professor of Computer Science

Timothy Paul Smith (2004) Ph.D., Adjunct Associate Professor of Physics and Astronomy

Jessica G. Smolin (2006) Ph.D., Lecturer of African and African-American Studies and of Spanish and Portuguese Languages and Literatures

Jonathan Smolin (2005) Ph.D., Associate Professor of Asian and Middle Eastern Languages and Literatures

Christopher Shaun Sneddon (2000) Ph.D., Professor of Geography and of Environmental Studies

Christopher M. Snyder (2005) Ph.D., Susan and Joel Z. Hyatt 1972 Professor of Economics

Alireza Soltani (2013) Ph.D., Assistant Professor of Psychological and Brain Sciences

Victoria Somoff (2007) Ph.D., Associate Professor of Russian Language and Literature

Leslie Jean Sonder (1988) Ph.D., Associate Professor of Earth Sciences

Amrita Sontakke (2015) M.S., Research Scientist in Biological Sciences

Jason P. Sorens (2013) Ph.D., Lecturer of Government

Mark R. Spaller (2011) Ph.D., Adjunct Associate Professor of Chemistry

Angela M. Spickard (2012) M.Sc., Research Associate in Environmental Studies

Silvia D. Spitta (1989) Ph.D., Robert E. Maxwell 1923 Professor in Arts and Sciences and Professor of Spanish and Portuguese Languages and Literatures and of Comparative Literature

Robert St. Clair (2014) Ph.D., Assistant Professor of French and Italian Languages and Literatures

Douglas Owen Staiger (1998) Ph.D., John French Professor of Economics

Robert W. Staiger (2013) Ph.D., Roth Family Distinguished Professor in the Arts and Sciences and Professor of Economics

James N. Stanford (2008) Ph.D., Associate Professor of Linguistics

Jason Stauth (2011) Ph.D., Assistant Professor of Engineering Sciences

Thomas L. Steinmeier (2011) Ph.D., Research Scientist in Economics

Joel Stettenheim (2012) J.D., Research Associate in Physics and Astronomy

Roberta Stewart (1990) Ph.D., Professor of Classics

Jeffrey Stott (2015) B.A., Research Associate in Psychological and Brain Sciences

Justin V. Strauss (2015) Ph.D., Assistant Professor of Earth Sciences

Ian H. Street (2012) Ph.D., Research Associate in Biological Sciences

Patricia Stuelke (2015) Ph.D., Assistant Professor of English

Soyoung Suh (2011) Ph.D., Assistant Professor of Asian and Middle Eastern Studies and of History

Sandip Sukhtankar (2009) Ph.D., Assistant Professor of Economics

Charles Roger Sullivan (1996) Ph.D., Professor of Engineering Sciences

Paula R. Sundstrom (2005) Ph.D., Adjunct Professor of Biological Sciences

Craig J. Sutton (2005) Ph.D., Associate Professor of Mathematics

Joseph D. Sutton (2000) M.F.A., Senior Lecturer of Liberal Studies and of Theater

Lucas Alastair Swaine (2001) Ph.D., Associate Professor of Government

Harold M. Swartz (1994) Ph.D., Adjunct Professor of Chemistry

Steven R. Swayne (1999) Ph.D., Jacob H. Strauss Professor in Music

Nicholas R. Sylvain (2013) Ph.D., Lecturer of Biological Sciences

Nahid Tabatabai (2013) Ph.D., Research Associate in Economics

Wei Yu Tan (2015) Ph.D., Mellon Research Fellow in Asian and Middle Eastern Studies

Naomi Tanabe (2015) Ph.D., Lecturer of Mathematics

Andrea W. Tarnowski (1993) Ph.D., Associate Professor of French and Italian Languages and Literatures

Jeffrey Steven Taube (1990) Ph.D., Professor of Psychological and Brain Sciences

Alan C. Taylor (2013) Ph.D., Lecturer of Writing and Rhetoric

Melanie R. Benson Taylor (2009) Ph.D., Associate Professor of Native American Studies

Ronald K. Taylor (2003) Ph.D., Adjunct Professor of Biological Sciences

Stephen Taylor (2001) Ph.D., Professor of Engineering Sciences

Susan Taylor (2004) Ph.D., Adjunct Associate Professor of Earth Sciences

Vivien Frances Taylor (2010) Ph.D., Research Associate in Earth Sciences and in Environmental Studies

Hakan P. Tell (2004) Ph.D., Associate Professor of Classics

Hannah ter Hofstede (2013) Ph.D., Assistant Professor of Biological Sciences

Markus E. Testorf (2010) Ph.D., Lecturer of Engineering Science

Christine Jean Thomas (1997) Ph.D., Associate Professor of Philosophy

Pamela Esme Thompson (1979) M.F.A., Professor of Studio Art

John Robert Thorstensen (1980) Ph.D., Professor of Physics and Astronomy

Carl Philip Thum (1996) Ph.D., Adjunct Assistant Professor of Writing and Rhetoric

Francesco Ticozzi (2011) Ph.D., Adjunct Assistant Professor of Physics and Astronomy

Michele Tully Tine (2009) Ph.D., Assistant Professor of Education

Travis P. Todd (2013) Ph.D., Research Fellow in Psychological and Brain Sciences

Zenovia Toloudi (2014) D.DES., Assistant Professor of Studio Art

Spencer Topel (2009) Ph.D., Assistant Professor of Music

Lorenzo Torresani (2009) Ph.D., Associate Professor of Computer Science

Bruce Stuart Trembly (1982) Ph.D., Associate Professor of Engineering Sciences

John David Trout Jr. (1995) Ph.D., Associate Professor of Mathematics

George R. Trumbull IV (2008) Ph.D., Associate Professor of History

Bernard L. Trumpower (2012) Ph.D., Adjunct Professor of Biological Sciences

Peter Ulric Tse (2001) Ph.D., Professor of Psychological and Brain Sciences

Catherine L. Tudish (2006) Ph.D., Senior Lecturer of English

Zeynep Turkyilmaz (2011) Ph.D., Assistant Professor of History

Dale Antony Turner (1999) Ph.D., Associate Professor of Native American Studies and of Government

Aleksander Y. Ukhorskiy (2013) Ph.D., Adjunct Associate Professor of Physics and Astronomy

Roger B. Ulrich (1989) Ph.D., Butterfield Professor of Classics

Fahri B. Ulusoy (2013) M.A., Lecturer of Economics

Benjamin Thomas Valentine (2014) Ph.D., Research Associate in Anthropology

Benjamin A. Valentino (2003) Ph.D., Associate Professor of Government

Douglas W. Van Citters (2008) Ph.D., Assistant Professor of Engineering Sciences

Matthijs van der Meer (2015) Ph.D., Assistant Professor of Psychological and Brain Sciences

Johannes H. van Erp (2009) Ph.D., Assistant Professor of Mathematics

Diederik J. Vandewalle (1988) Ph.D., Associate Professor of Government

Nicholas Beguin Van Kley (2014) Ph.D., Research Assistant Professor of Writing and Rhetoric

Shalene A. M. Vasquez (2006) Ph.D., Associate Professor of English

Vikrant Vaze (2013) Ph.D., Assistant Professor of Engineering Sciences

Amanda Veile (2014) Ph.D., Visiting Assistant Professor of Anthropology

Vivek Venkataraman (2015) B.S., Lecturer of Anthropology

Steven Francis Venti (1982) Ph.D., DeWalt H. 1921 and Marie H. Ankeny Professor of Economic Policy and Professor of Economics

Deeptak Verma (2013) Ph.D., Research Associate in Computer Science

Roxana Michaela Verona (1990) Ph.D., Professor of French and Italian Languages and Literatures

Lorenza Viola (2004) Ph.D., Professor of Physics and Astronomy

Ross Arthur Virginia (1992) Ph.D., Myers Family Professor of Environmental Studies

Pamela Voekel (2015) Ph.D., Research Fellow in History

John Voight (2013) Ph.D., Associate Professor of Mathematics

Dietrich Vollrath (2011) Ph.D., Visiting Associate Professor of Economics

Kenneth E. Walden (2011) Ph.D., Assistant Professor of Philosophy

Keith Louis Walker (1976) Ph.D., Professor of French and Italian Languages and Literatures

Dorothy Irene Wallace (1987) Ph.D., Professor of Mathematics

Emily C. Walton (2012) Ph.D., Assistant Professor of Sociology

Christopher J. Ward (2013) Ph.D., Lecturer of Education

Nathaniel R. Warner (2013) Ph.D., Research Associate in Earth Sciences

Michelle R. Warren (2006) Ph.D., Professor of Comparative Literature

Dennis Washburn (1992) Ph.D., Jane and Raphael Bernstein Professor in Asian Studies and Professor of Comparative Literature and of Film and Media Studies

Ikuko W. Washburn Watanabe (1993) M.A., Senior Lecturer of Asian and Middle Eastern Languages and Literatures

John Mamoru Watanabe (1985) Ph.D., Associate Professor of Anthropology

John B. Weaver (2011) Ph.D., Adjunct Professor of Physics and Astronomy

David Leo Webb (1990) Ph.D., Professor of Mathematics

D. G. Webster (2009) Ph.D., Associate Professor of Environmental Studies

Gary Alan Wegner (1982) Ph.D., The Margaret Anne and Edward Leede '49 Distinguished Professor of Physics and Astronomy

Ulrike G. K. Wegst (2012) Ph.D., Associate Professor of Engineering Sciences

Steven Weinstein (2001) Ph.D., Adjunct Associate Professor of Philosophy and of Physics and Astronomy

H. Gilbert Welch (2010) M.D., Adjunct Professor of Public Policy

Catherine O. Welder (2009) Ph.D., Senior Lecturer of Chemistry

Sean Westwood (2015) Ph.D., Assistant Professor of Government

Paul J. Whalen (2005) Ph.D., Professor of Psychological and Brain Sciences

Lindsay John Whaley (1993) Ph.D., Professor of Linguistics and of Classics

Thalia P. Wheatley (2006) Ph.D., Associate Professor of Psychological and Brain Sciences

Charles J. Wheelan (2006) Ph.D., Senior Lecturer of Economics and of Public Policy

Derrick E. White (2014) Ph.D., Visiting Professor of History

Judith B. White (2012) Ph.D., Lecturer of Psychological and Brain Sciences

Ronald P. White (2011) Ph.D., Research Scientist in Chemistry

Emily Whiting (2014) Ph.D., Assistant Professor of Computer Science

Dean Edward Wilcox (1984) Ph.D., Professor of Chemistry

Barbara Elizabeth Will (1994) Ph.D., A. and R. Newbury Professor of English

Dana Peter Williams (1985) Ph.D., Professor of Mathematics

Mark J. Williams (1993) Ph.D., Associate Professor of Film and Media Studies

Terry Tempest Williams (2009) M.S., Visiting Professor of Environmental Studies

John D. Wilson (1991) M.Arch., Senior Lecturer of Studio Art and Lecturer of Engineering Sciences

June Kathleen Wine (1982) Ph.D., Associate Professor of French and Italian Languages and Literatures

Peter Winkler (2004) Ph.D., William Morrill Professor of Mathematics and of Computer Science

John Sterling Winn (1982) Ph.D., Professor of Chemistry

Jonathan M. Winter (2013) Ph.D., Assistant Professor of Geography

Shawn S. Winter (2011) Ph.D., Research Associate in Psychological and Brain Sciences

Lee A. Witters (1999) M.D., Professor of Biological Sciences

William Curti Wohlforth (2000) Ph.D., Daniel Webster Professor of Government

Leslie A. Woodger (2012) B.A., Research Associate in Physics and Astronomy

Christopher Wren (2004) M.S., Visiting Professor of Liberal Studies

Kevin Wright (2013) Ph.D., Assistant Professor of Physics and Astronomy

Richard Alistair Wright (1985) Ph.D., Orvil Dryfoos Professor of Public Affairs and Professor of Geography

Jimmy Wu (2007) Ph.D., Associate Professor of Chemistry

Martin N. Wybourne (1997) Ph.D., Francis and Mildred Sears Professor of Physics and Astronomy

Qiguang Xie (2012) Ph.D., Research Associate in Biological Sciences

Wen Xing (1999) Ph.D., Robert 1932 and Barbara Black Professor in Southeast Asian Studies and Professor of Asian and Middle Eastern Languages and Literatures

Maria Yamburenko (2011) Ph.D., Research Associate in Biological Sciences

Mengsheng Yang (2014) M.A., Research Scientist in Asian and Middle Eastern Languages and Literatures

Xing-Dong Yang (2015) Ph.D., Assistant Professor of Computer Science

Thomas Cooper Youle (2014) Ph.D., Assistant Professor of Economics

Paul David Young (2014) Ph.D., Associate Professor of Film and Media Studies

C. Frank Zarnowski (2008) D.A., Senior Lecturer of Economics

Melissa Fran Zeiger (1985) Ph.D., Associate Professor of English

Binzheng Zhang (2012) Ph.D., Research Associate in Engineering

Hesheng Zhang (2014) Ph.D., Visiting Professor of Asian and Middle Eastern Languages and Literatures

Olga Zhaxybayeva (2012) Ph.D., Assistant Professor of Biological Sciences

Fangfang Zhong (2012) Ph.D., Research Associate in Chemistry

Xia Zhou (2013) Ph.D., Assistant Professor of Computer Science

Jonathan Zinman (2005) Ph.D., Professor of Economics

Eric W. Zitzewitz (2007) Ph.D., Professor of Economics

Yan O. Zubo (2012) Ph.D., Research Associate in Biological Sciences

Divisions of the Faculty

For purposes of administration the Departments of the Faculty are grouped into three Divisions, as follows:

Arts and Humanities	Sciences	Social Sciences
Art History [ARTH]	Biological Sciences [BIOL]	Anthropology [ANTH]
Asian and Middle	Chemistry [CHEM]	Economics [ECON]
Eastern Languages and Literatures	Computer Science [COSC]	Education [EDUC]
[AMEL]	Earth Sciences [EARS]	Geography [GEOG]
	Engineering Sciences [ENGS]	Government [GOVT]

Classics [CLAS]	Mathematics [MATH]	History [HIST]	Jewish Studies [JWST]
English [ENGL]	Physics [PHYS] and	Psychological and Brain	Latin American, Latino and Caribbean Studies [LACS] and [LATS]
Film and Media Studies [FILM]	Astronomy [ASTR]	Sciences [PSYC]	Linguistics [LING]
		Sociology [SOCY]	Native American Studies [NAS]
French [FREN] and Italian [ITAL]			Quantitative Social Science [QSS]
German [GERM]			Women's, Gender, and Sexuality Studies [WGSS]
Music [MUS]			The Chair of each Academic Program serves on the Divisional Council of the Academic Programs; this council has general supervision over matters affecting the Academic Programs. Several of the Programs offer majors or minors. Others award certificates on completion of a selected set of courses, which may also be part of a modified major.
Philosophy [PHIL]			
Religion [REL]			
Russian [RUSS]			
Spanish [SPAN] and Portuguese [PORT]			
Studio Art [SART]			
Theater [THEA]			

Each of these Departments is represented by its Chair on the corresponding Divisional Council, which has general supervision over matters affecting the Division. Most of the Departments offer one or more majors.

A fourth division consists of the several Academic Programs, as follows:

The Academic Programs

African and African American Studies [AAAS]
Asian and Middle-Eastern Studies [AMES]
Cognitive Science [COGS]
Comparative Literature [COLT]
Environmental Studies [ENVS]

REGULATIONS

Undergraduate Study

Admission

Applicants for first-year admission have two deadline options. Candidates applying under the Early Decision program must submit applications by November 1 of the calendar year prior to the year in which they expect to enter college. Candidates are notified by mid-December whether they have been admitted or denied, or if their application has been deferred for further consideration. Candidates applying under the Regular Decision program must submit applications by January 1 of the calendar year in which they expect to enter college. Regular Decision notification concerning admission takes place on or about April 1. New students are enrolled only in the fall term.

Candidates for transfer admission must apply by March 1 of the calendar year in which they expect to matriculate. Transfer candidates are notified of their admissions decisions in early May.

A fuller statement of admission principles, policies, and procedures may be found online at <http://dartgo.org/apply/>. In addition, prospective first-year students may request more information about Dartmouth by using the online request form at <http://dartgo.org/signup>.

Academic Honor

On February 13, 1962, the Dartmouth College Faculty passed unanimously the following resolution; the text was updated by Faculty vote on May 17, 1999:

Whereas, on February 1, 1962, a majority vote of the student body adopted the principle that ‘all academic activities will be based on student honor’ and thereby accepted the responsibility, individually and collectively, to maintain and perpetuate the principle of academic honor.

Therefore be it Resolved that,

I. The Faculty of Dartmouth College, in recognizing the responsibility of students for their own education, assumes intellectual honesty and integrity in the performance of academic assignments, both in the classroom and outside. Each student upon enrollment at Dartmouth College accepts this responsibility with the understanding that any student who submits work which is not his or her own violates the purpose of the College and is subject to disciplinary actions, up to and including suspension and separation.

II. The Faculty recognizes its obligation: (a) to provide continuing guidance as to what constitutes academic honesty; (b) to promote procedures and circumstances

which will reinforce the principle of academic honor; (c) to review constantly the effective operation of this principle.

III. The practice of proctoring examinations is hereby discontinued, though a teacher may be present at appropriate times for the purpose of administration or to answer questions.

IV. The Committee on Standards shall undertake: (a) to publish and interpret the Resolution on Academic Honor to the student body each year; (b) to adjudicate reported violations according to established procedures; (c) to review constantly the effective operation of this principle and, if necessary, make recommendations to the Faculty for maintaining the spirit of this Resolution.

The faculty, administration and students of Dartmouth College recognize the Academic Honor Principle as fundamental to the education process. Any instance of academic dishonesty is considered a violation of the Academic Honor Principle and may subject a student to disciplinary action up to and including separation from the College.

Fundamental to the principle of independent learning are the requirements of honesty and integrity in the performance of academic assignments, both in the classroom and outside. Dartmouth operates on the principle of academic honor, without proctoring of examinations. Any student who submits work which is not his or her own, or commits other acts of academic dishonesty, violates the purposes of the College and is subject to disciplinary actions, up to and including suspension or separation.

The Academic Honor Principle depends on the willingness of students, individually and collectively, to maintain and perpetuate standards of academic honesty. Each Dartmouth student accepts the responsibility to be honorable in the student’s own academic affairs, as well as to support the Principle as it applies to others.

Any student who becomes aware of a violation of the Academic Honor Principle is bound by honor to take some action. The student may report the violation, speak personally to the student observed in violation of the Principle, exercise some form of social sanction, or do whatever the student feels is appropriate under the circumstances. If Dartmouth students stand by and do nothing, both the spirit and operation of the Academic Honor Principle are severely threatened.

A number of actions are specifically prohibited by the Academic Honor Principle. These focus on plagiarism and on academic dishonesty in the taking of examinations, the writing of papers, the use of the same work in more than one course, and unauthorized collaboration. This list of

examples covers the more common violations but is not intended to be exhaustive.

1. **Examinations.** Any student giving or receiving assistance during an examination or quiz violates the Academic Honor Principle.
2. **Plagiarism.** Any form of plagiarism violates the Academic Honor Principle. Plagiarism is defined as the submission or presentation of work, in any form, that is not a student's own, without acknowledgment of the source.

With specific regard to papers, a simple rule dictates when it is necessary to acknowledge sources. If a student obtains information or ideas from an outside source, that source must be acknowledged. Another rule to follow is that any direct quotation must be placed in quotation marks, and the source immediately cited.

Students are responsible for the information concerning plagiarism found in Sources and Citation at Dartmouth College at <http://www.dartmouth.edu/~sources/>.

3. **Use of the same work in more than one course.**
Submission of the same work in more than one course without the prior approval of all professors responsible for the courses violates the Academic Honor Principle. The intent of this rule is that a student should not receive academic credit more than once for the same work product without permission. The rule is not intended to regulate repeated use of an idea or a body of learning developed by the student, but rather the identical formulation and presentation of that idea. Thus the same paper, computer program, research project or results, or other academic work product should not be submitted in more than one course (whether in identical or rewritten form) without first obtaining the permission of all professors responsible for the courses involved. Students with questions about the application of this rule in a specific case should seek faculty advice.

4. **Unauthorized Collaboration.** Whether or not collaboration in course work (labs, reports, papers, homework assignments, take-home tests, or other academic work for credit) is permitted depends on expectations established in individual courses. Students are sometimes encouraged to collaborate on laboratory work, for example, but told to write their laboratory reports independently. Students should presume that collaboration on academic work is not permitted, and that submission of collaborative work would constitute a violation of the academic honor principle, unless an instructor specifically authorizes collaboration. Students should not presume that authorization in one class applies to any other class, even classes in the same subject area. Students should discuss with instructors in advance any questions or uncertainty regarding permitted collaboration.

Faculty Guidelines for Responding to Violations of the Academic Honor Principle

Voted by the Faculty of Arts and Sciences, May 23, 1983:

An instructor who suspects that a student may have violated the Academic Honor Principle of the College should observe the following guidelines:

1. The instructor may want to discuss the suspected violation with the student(s) in order to determine that there has been no misunderstanding between the instructor and the student(s).
2. The instructor is strongly encouraged to test the validity of his/her suspicion by consulting a colleague or the department/program chair.
3. If, after consultation, the instructor believes that the suspicion is valid, the instructor should immediately bring the matter to the attention of the COS and should inform the department/program chair. Under no circumstances should the instructor who suspects a violation of the Academic Honor Principle attempt to resolve the matter independently or in camera with the student in question.

Requirements for the Degree of Bachelor of Arts

The degree of Bachelor of Arts is awarded by the Board of Trustees to qualified students who have been recommended by the Faculty. Certain changes in degree requirements, which take effect for the Class of 1998 and later classes, were voted by the Faculty and Trustees in 1992; members of the Class of 1997 and earlier classes should consult previous editions of this Catalog for details of the distribution and major requirements as they apply to them.

The degree requirements, given in detail below, fall into several basic categories: Residence (fall, winter, and spring of the first and senior years and summer following the sophomore year), Course Count (35 courses passed), Specific Course Requirements (including Writing and First-Year Seminar, Foreign Language and General Education requirements), a Physical Education Requirement, and a Major Requirement. The details of each of these requirements are given in the following sections as they apply to students who matriculated as first-year students. Students who matriculated at Dartmouth after one or two years' work at another institution should note the modifications of the graduation requirements that apply to them. (To matriculate is to be accepted by Admissions as a full time degree-seeking student at Dartmouth College. Students studying as exchange students, as special community or as special high school students, are not matriculated at Dartmouth. Any credits these students earn prior to matriculation, if awarded after matriculation, may count as transfer credit only and do not count towards meeting residency requirements.)

I. A student must fulfill the academic requirements of the College and must, as an absolute minimum, complete six terms in residence, registered and enrolled in courses. (Terms spent elsewhere while enrolled in absentia in the various Dartmouth off-campus programs do not serve for any part of this requirement, nor do exchange or transfer programs.) A student must be in residence for all three terms of the first year, for the summer term following the sophomore year, and for the fall, winter, and spring terms of the senior year, in every case being registered and enrolled in courses. A student will normally be enrolled for twelve terms, but will be allowed thirteen if two of these are summer terms. For further details and information regarding certain exceptions, see the section on Enrollment Patterns.

II. A student must pass thirty-five courses, although this number may be reached in part by credits transferred from another institution. No credit will be awarded for a course dropped or withdrawn from before completion; unless the withdrawal is authorized, the course will be included with a failing grade in the student's cumulative average. No more than eight courses passed with the grade of D (including those received under the Non-Recording Option) may be counted toward the thirty-five courses required for graduation. No more than 17 transfer courses may be counted toward graduation.

No student may count toward graduation more than a combined total of eight final standings of CT (Credit), NC (No Credit), NR (Non-Recorded from courses under the Non-Recording Option), and E (when resulting from courses under the Non-Recording Option).

A student otherwise eligible for graduation but not in good academic standing as a result of his or her performance in the last term of enrollment preceding intended graduation may graduate only with the approval of the Committee on Standards. No student may graduate with the standing of Incomplete in any course even though the count of courses passed may exceed thirty-five.

Students are subject to the requirements listed in the ORC in the year they matriculate. An exception is made for students in good standing who are readmitted after 10 years of absence from the College. These students should contact the Registrar and the chair of the department/program in which they wish to major. The Registrar would work with the student to determine appropriate general education requirements which could be a combination of prior and current requirements. The chair of the major department/program would determine appropriate major requirements (and minor requirements, if applicable) and an academic plan for graduation would be reviewed, possibly modified, and approved by the Committee on Instruction.

III. A student must pass the following courses, although they may be substituted in part by credits on entrance or by proficiency demonstrated then or later. Either a passing

letter grade or a CT (Credit) will suffice. The standing NR assigned under the Non-Recording Option will not serve.

1. Writing: Writing 5; Writing 2-3; or Humanities 1. Students must complete the requirement by the end of the second term of the first year. Writing 5, Writing 2-3, and Humanities 1 are not eligible for use of the Non-Recording Option.
2. First-Year Seminar: One seminar chosen from an approved list which is available on the College website: <http://dartmouth.edu/~reg/fysem.html>. These seminars, which have Writing 5 (or 2-3) as prerequisite, are designed both to further the student's proficiency in writing and to provide an opportunity for participation in small group study and discussions with an instructor on a subject of mutual interest. This requirement must be completed during the first year. A First-Year Seminar may satisfy a distributive or world culture requirement if so indicated on the College website at <http://www.dartmouth.edu/~reg/fysem.html>. It is never possible to include a First-Year Seminar as an actual part of a major. No First-Year Seminar may be taken under the Non-Recording Option.
3. Language: Foreign language courses numbered 1, 2, and 3; or proficiency equivalent to three terms of study in one foreign language at the college level, or fluency in some language other than English. A student must demonstrate the ability (1) to read with understanding representative texts in a foreign language; and in the case of a modern foreign language, (2) to understand and use the spoken language in a variety of situations. Every student will take qualifying tests upon entrance. If the student passes these examinations, he or she will have fulfilled the Foreign Language Requirement. Where no department or program exists to determine a student's fluency in a language, the Associate Dean of Faculty for the Humanities shall make whatever arrangements are necessary for such a determination.

Unless exempted, as above, a student must normally complete the requirement before the end of the seventh term, either in a language offered for admission or in another language begun at Dartmouth.² There are two options: (1) study on the Dartmouth campus in any of the languages offered, or (2) participation in one of Dartmouth's Language Study Abroad (D.L.S.A.) programs offered in several of these languages.

Language courses numbered 1, 2, or 3 and other beginning language courses (e.g., Greek 11, 12, and 13) may not serve under any circumstance in partial satisfaction of the General Education requirement. They may not be taken under the Non-Recording Option until the Foreign Language Requirement has been satisfied in another language (and then only if the department/program so authorizes); no course studied off-campus may be taken under the Option.

The language requirement may be waived under certain special circumstances.

4. General Education Requirements: There are two separate requirements under this heading: World Culture Requirement, and Distributive Requirement. These requirements are outlined below, and are explained in detail (including the codes used to designate which courses fall into which categories) later.
 - a. World Culture Requirement. Each student must take and pass one course in each of three areas: Western Cultures, Non-Western Cultures, and Culture and Identity
 - b. Distributive Requirement. Each student must take and pass ten courses, as follows:
 - one in the Arts;
 - one in Literature;
 - one in Systems and Traditions of Thought, Meaning, and Value;
 - one in International or Comparative Study;
 - two in Social Analysis;
 - one in Quantitative and Deductive Sciences;
 - two in the Natural Sciences;
 - one in Technology or Applied Science.
 - *One of the courses in the Natural Science or Technology categories must have a laboratory, field, or experimental component.*

A course may satisfy categories in two of these requirements. For example, a course might satisfy the Western category in the World Culture requirement and the Literature category in the Distributive requirement. Consequently, by careful choice of courses, it is possible to satisfy all of these requirements with just ten courses. Note also that the fact that a course falls within the student's major department or program does not invalidate its use toward meeting these requirements. Courses satisfying general education requirements must be taken subsequent to college matriculation.

Credits received prior to matriculation, even for courses which would qualify for one or more of these requirements if taken after matriculation, do not count, even though they receive course credit or advanced placement credit. Courses satisfying these requirements must be passed with a regular letter grade. Courses which are failed, for which the regular grade has been replaced by NR due to the student's election of the Non-Recording Option, or for which the grade is CT (Credit) or NC (No Credit) do not satisfy these requirements. Graduate courses (those numbered 100 or higher) never serve in satisfaction of any part of these requirements.

IV. A student must complete satisfactorily the program of Physical Education.

V. A student must receive credit for completion of a major program at least satisfactorily, as certified by the department, program, or other appropriate body supervising the major. The supervising body may in advance require a minimum grade average in the major or other demonstrations of learning in the field of the major. A student may elect a major no earlier than the first day of the fourth term in residence and must do so by the end of the student's fifth term, or immediately thereafter, depending upon the student's enrollment pattern. The major is elected by securing the approval of the appropriate body and filing the choice with the Registrar. A student may change major, or type of major (including the addition of a second major), at any time through the end of the first week of the last term in residence, but not thereafter.

A full statement of the purpose and the various forms of the major follows. Only those courses passed with a letter grade, or a grade of CT (Credit) if previously approved, may be counted in satisfaction of the major. Courses failed, or taken under the Non-Recording Option and resulting in a standing of NR (Non-Recorded), may not be used toward completion of the major.

VI. A student is expected to make satisfactory progress at all times toward the degree. All students should be familiar with the requirements for satisfactory academic progress as set forth in the Student Handbook. The Committee on Standards has been empowered by the Faculty to place a student on Risk, Warning, or Probation, or to vote Suspension or Separation for failure to meet the academic standards detailed there.³

² *Under certain circumstances the Registrar will allow an extension of the seven-term rule; such action may allow a student, otherwise prevented by complications of course scheduling, to undertake the Language Study Abroad program.*

³ *Students who have disciplinary cases pending are not eligible for a degree until the case has been resolved. In any case when penalties are imposed, the case is not resolved until the suspension, period of probation, or other penalty has been completed.*

Students Matriculating after the First Year

For students who matriculate at Dartmouth after having spent one or two years at another institution, the academic regulations and degree requirements described above (and, in some cases, following) have been modified by vote of the Faculty on January 13, 1986 and May 1, 1989. The modifications are as follows.

1. Maximum number of course credits: Students transferring to Dartmouth will be allowed a maximum credit of 17 courses and advanced placement credits.

No further transfer credits will be allowed after matriculation.

2. The minimum number of enrolled terms will be six for all transfer students.
3. A summer term residence will be required of all transfer students. Students transferring after their first year will be in residence the summer following their sophomore year. Students transferring after their second year will be encouraged to be in residence this same summer. The Office of Admissions should complete the admissions process early enough to allow students to plan for the appropriate summer in residence and notify students accordingly.
4. No credits will be allowed in departments or programs not represented in the Dartmouth undergraduate curriculum for transfer students.
5. Non-Recording Option (NRO) and Credit/No Credit (CT/NC) elections: Students entering after their first year will be allowed 2 NR's and a total of 6 CT/NC plus NR's. Students entering after their second year will be allowed 1 NR and a total of 4 CT/NC plus NR's.
6. Two- and Four-Course Terms: Students entering after their first year will be allowed a two-course load in any two terms and a four-course load in any three terms. Students entering after their second year will be allowed a maximum of one two-course load and two four-course loads. Within those limits no permissions are required nor are there changes in tuition.
7. Students admitted after their first year must declare a major and an enrollment pattern according to the deadline for second-year students. Students admitted after their second year must declare a major and file an enrollment pattern during their first term in residence at Dartmouth.
8. Course equivalencies are determined by the Registrar or his/her designate. In the event of a question concerning the equivalency or appropriateness of a course, the department/program involved will be consulted. Courses applied for major credit must be approved by the major department/program.
9. Degree requirements for transfer students are the same as for all other students, with the exception of the First-Year Seminar, first-year residence, and physical education requirements, which are waived. All transfer students must satisfy the senior residence requirement.

Degree Audit

DegreeWorks is a web based application with two components that assist students and advisors in planning the student's academic program at Dartmouth, available on BannerStudent at <http://www.dartmouth.edu/bannerstudent>. It consists of

a Degree Audit tool to help students and advisors monitor a student's progress toward completion of his or her general education and degree requirements, and a Program Planner for students to declare their majors and minors, and to plan their major or minor program with the help of a Faculty Advisor.

The Degree Audit displays how courses that have been completed count toward general education and degree requirements, and helps students and advisors see what courses and requirements still need to be completed before graduation. The Program Planner displays prior courses that the student has taken, by term, and allows the student to indicate future courses s/he plans to take in the major/minor, by term, prior to receiving major/minor approval. It also has other features, such as the ability to compare courses planned versus courses taken. The Faculty Advisor may approve, adjust, or deny a major/minor after reviewing the student's program plan.

Dartmouth Student Information System

Each student has secure access to a student information system, BannerStudent, to conduct many official transactions and to obtain personal academic information at <http://www.dartmouth.edu/bannerstudent>.

Students use this system for official transactions such as to check in for each term, elect courses, file an enrollment pattern, order official transcripts, declare a major, and to apply for the degree. Personal academic information such as class schedules, grades, and the DegreeWorks degree audit and major plan can be viewed here. To provide maximum security, the KClient/Sidecar authentication software must be installed on any computer accessing this information.

Academic Support

Support for the academic work of individual students is available through numerous offices, programs, and individuals at the College. Included are faculty members who serve as first-year or major advisors, Pre-Major Advising Office, and the Deans in the Office of the Dean of Undergraduate Students. Dartmouth provides an Integrated Academic Support Program for first-year students, an Academic Skills Center (including a Tutor Clearinghouse), and a Composition Center. Details may be found in the Student Handbook.

Access and Accommodation for Students with Disabilities

Dartmouth College adheres to the Americans with Disabilities Act and Section 504 of the Rehabilitation Act to ensure that otherwise qualified students with disabilities are not excluded from or denied the benefits of the Dartmouth collegiate experience.

The Student Accessibility Services (SAS) office promotes and fosters an accessible Dartmouth College for students with disabilities. SAS works with students, faculty, and staff to ensure that the programs, services, and activities of Dartmouth College are accessible to, and useable by, students with disabilities. SAS endeavors to:

- Promote a fully inclusive and disability-friendly environment at Dartmouth College.
- Help students with disabilities to have the information and services they need to have full and equal access to all of Dartmouth's programs, services, and activities.
- Encourage student independence and life skills.
- Support Dartmouth students who wonder if they may have a disability and want to explore that possibility.
- Support the efforts of campus programs, staff, and faculty who are trying to responsibly include students with disabilities.
- Foster a better understanding of disability, its relationship to the rest of life and society, and to encourage self-advocacy.
- Honor and recognize the positive aspects of disability and the value of people with disabilities as a part of Dartmouth's diverse human resources.

SAS direct services to students with disabilities are determined on an individualized basis. They may include:

- Facilitating/arranging academic and other adjustments such as testing modifications, reduced course loads, adjustments to financial aid, accessible housing, mobility services.
- Auxiliary Services (e.g. sign language interpreters, note-taking, amanuenses, real-time captioning, Braille, document conversion . . .)
- Technological solutions (adaptive technology, preventing technological barriers)
- Disability-related advising, information, and referral
- Technical assistance to campus entities including faculty members
- Pre-screening services to students exploring whether they may have a disability
- Advocacy

Service eligibility is based on students' disability-related need, primarily evidenced by each student's experiences and any needed disability documentation. A record of prior academic adjustments and services, in and of itself, is usually insufficient to support academic adjustments and services at Dartmouth College.

Students interested in pursuing disability-related academic adjustments and services should:

1. *VISIT* the SAS website at <http://www.dartmouth.edu/~accessibility/>.
2. *CONTACT SAS* by sending an electronic mail message to Student.Accessibility.Services@Dartmouth.edu or calling (603) 646-9900 arrange a time to meet and get information about whether any documentation or other materials should be provided ahead of time.

Students who wish to request academic adjustments and services need to do so in a timely manner, provide appropriate disability-related documentation as needed, and constructively engage in SAS's processes for determining appropriate actions. Students who believe they may need academic adjustments and services are strongly encouraged to contact the Student Accessibility Services office early in their academic career. For those classes in which students desire academic adjustments that involve instructors and/or academic departments, students are encouraged to notify their instructors as early as possible.

There are appeals processes for when a student is denied an academic adjustment or otherwise believes that disability-related discrimination or a policy/procedure violation may have occurred. See:

http://www.dartmouth.edu/~accessibility/currentundergraduate_student_questions_concerns_and_complaint_grievance_resolution.html for information about the processes.

Language Requirement Waiver

The Dartmouth College Language requirement is described in sub-section III.3. of the ORC section entitled "Requirements for the Degree of Bachelor of Arts (p. 36)." Under certain circumstances, the Language requirement may be waived for a student who has a substantiated disability-related need for a waiver. Normally, such a waiver will not be granted in the absence of (1) a verified disability, (2) sufficient information about the petitioner's disability-related need for a waiver confirmed by Student Accessibility Services (SAS), and (3) a recommendation supporting a waiver from SAS. Students who wish to inquire about a disability-related waiver of the Language requirement should contact the Student Accessibility Services office.

Petitions are submitted to the campus Foreign Language Waiver Committee and will be considered only from students with documented disabilities who have not yet completed the language requirement. The Committee generally meets once per term (i.e. four times per year) to consider petitions, and students are notified about the Committee's decision soon afterward.

Students who have been granted a Language waiver:

Once the Foreign Language Waiver Committee has granted a Language waiver to a student, the following occurs:

1. The student is relieved from the Language requirement.
2. All grades for elementary non-English language courses will not be incorporated into the student's cumulative grade point average. This provision is retroactive, so there may be effects on a student's existing cumulative grade point average. Students' transcripts will designate those grades and note that they are not incorporated into the grade point average, but the transcripts will not contain direct information about the reason.
3. Students granted a waiver will be permitted to use the Non-Recording Option in elementary language courses. All the regulations governing use of that option will apply except that students who have received a language waiver are allowed a total of five (5) uses of the Non-Recording Option, two of which can be applied only to introductory courses in the same language. If the grade matches or surpasses a student's selection, it will appear on the transcript; any grade of NR will count as one of the five uses of the option allowed, and any grade of E will appear on the transcript. However, no grade assigned in the course will be incorporated into the student's grade point average.

Contact Student Accessibility Services for more information

General Education Requirements: Categories

This section describes the categories of the General Education requirement. The following section addresses some procedural matters regarding these requirements.

1. World Culture Requirement. All Dartmouth undergraduates must satisfactorily complete one course from each of the three areas listed below:
 - a. Western Cultures (W). The cultures of the classical Judeo-Christian and Greco-Roman Mediterranean, and of Europe and its settlements. The disciplines of the Arts and Sciences as they are studied at Dartmouth developed in these cultures, as did the institution of the liberal arts college itself. For this reason, Dartmouth students are required to take at least one course with a focus on the cultures of the West.
 - b. Non-Western Cultures (NW). Non-Western cultures, including those with a history of colonialism. The world in which Dartmouth graduates will function demands an understanding of its non-Western majority. Knowledge of non-Western peoples, cultures, and histories is thus an increasing practical necessity as well as a form of intellectual enrichment. Courses that satisfy this requirement have as their primary focus understanding the diverse cultures of the non-Western world.
 - c. Culture and Identity (CI). All students are required to take a course studying how cultures shape and express identities. Courses satisfying this requirement examine how identity categories develop in cultures and as a result of interactions between cultures. Forms of identity to be studied may include but are not limited to those defined by race, gender, sexuality, class, religion, and ethnicity. Courses in this category may study the relations of culture and identity with reference to cultural productions from any part of the world.
2. Distributive Requirement (Dist). All Dartmouth undergraduates must satisfactorily complete ten courses divided as indicated below:
 - a. Arts (one course): (ART). Courses fulfilling this requirement usually focus on one or more art or media forms, using historical, critical, and/or participatory methods. Dartmouth aims to foster creativity, to encourage the acquisition of artistic skills and disciplines, and to equip students with the historical knowledge and interpretive powers that will allow them to be informed participants in the world of the arts and contemporary media.
 - b. Literature (one course): (LIT). Rigorous critical reading and writing are central to all academic discourse; although these skills are not taught exclusively in literature courses, they are actively cultivated in those courses. Knowledge and appreciation of literary texts, and of the diverse cultural histories embedded in them, remain crucial to any liberal arts education. In recent times, the emergence of literary theory has transformed literary study and broadened the scope of literary criticism to include cultural and interdisciplinary perspectives. Literary theory also poses fundamental questions about the ways in which language and literature represent the world. Courses that satisfy this requirement are usually in the language and/or literature departments.
 - c. Systems and Traditions of Thought, Meaning, and Value (one course): (TMV). Courses satisfying this requirement provide students with systematic, critical understanding of philosophical issues or systems of religious belief and practice. They

- address the ways human beings have conceptualized and put into practice claims about such topics as the meaning of human existence and the nature of truth, knowledge, or morality. Such courses are not restricted to a particular cultural, geographical, or historical focus and may include studies from a wide variety of cultures and time periods.
- d. International or Comparative Study (one course): (INT). In addition to understanding the traditions of particular cultures, an educated person needs to be aware that no nation, society, or culture exists in isolation. To an increasing degree, an international dimension informs all human endeavors, including economic, political, social, ideological, religious, and artistic ones. Thus all students are required to elect one course that considers interrelationships among societies, cultures, or nations and/or the methods or approaches employed in comparative studies. We seek to ensure that Dartmouth students will be internationally as well as nationally informed.
 - e. Social Analysis (two courses): (SOC). Courses in this category examine theories of individual and social human behavior, methods of social observation and analysis, historical analysis and inquiry, and issues of civic life and public policy. Social scientific and historical analyses are important tools in our efforts to understand ourselves and others, the contemporary world and its past. They also serve an important purpose in the development of public policy. Courses in social analysis familiarize students with the critical interpretation of evidence and such means of investigation as experiments, modeling, observation, comparison, statistical sampling, interviews and surveys, the use of records and artifacts.
 - f. Quantitative and Deductive Science (one course): (QDS). Mathematical sciences are fundamental to much scientific and social scientific investigation, while the underlying mode of deductive reasoning continues to inform many ways of obtaining knowledge. In this category, students must pass a course in mathematics, in mathematical statistics, or in symbolic logic, the underpinning of mathematical reasoning. Modern mathematics includes areas as diverse as topology, probability, and combinatorics, as well as the more familiar algebra, geometry, and analysis. An understanding of some basic mathematical techniques is essential for appreciating ways in which the world can be visualized and studied. At the same time, such understanding helps in testing the suitability of many of these visualizations, and gives tools to
- examine the fit between natural phenomena and their abstract models.
- g. Natural and Physical Science (two courses): (SCI or SLA). These courses introduce students to scientific methods of inquiry as well as research methodology and interpretation. One of these courses must provide a laboratory, experimental, or field component as an integral part of its structure (courses in the Technology and Applied Science category may also be approved as satisfying the one-course laboratory requirement.) An understanding of the basic principles and terminology of science, and of the ways in which scientists obtain, validate, judge, test, and then re-judge information, is an essential form of education for this century and the next. Students should acquire some expertise in scientific discourse: in the ways in which facts are acquired, tested, and challenged, and in some of the scientific principles that help to explain physical, cosmological, chemical, and biological processes.
- Many science courses are taught with coordinated laboratory activities. In some cases these laboratories take the form of a field trip, outdoor or off-campus, to a site or facility at which the student can examine first hand some phenomenon, feature, or object.
- h. Technology or Applied Science (one course): (TAS or TLA). These courses must include the methodology and theory of applied science, and may consider the social contexts, benefits, and threats of technology. They enable students to understand the process by which the discoveries of basic science have been translated into products, facilities, services, devices and technical information. These courses address the principles underlying technology or applied science, rather than just making use of technology.
- General Education Requirements: Procedures*
- Certain courses, such as Writing 2, 3, and 5, language courses numbered 1, 2 and 3 or equivalents, Independent Study courses, TUCK courses, and all graduate courses (courses numbered 100 and higher) do not qualify to satisfy any part of the General Education requirements. All other courses may potentially satisfy one or more of these requirements. Departments and programs must propose their courses for such credit and have the proposals approved by the faculty Committee on Instruction. Courses that have already received such approval are noted in this Catalog using codes described below. Certain courses, usually those whose topic varies from offering to offering, may satisfy different categories for each offering. Such courses are indicated by a notation such as 'Dist: Varies' in the course listing, with the exact category of each offering appearing in the Timetable of Courses for the term.

While every effort has been made in this Catalog to provide information that is as accurate and complete as possible regarding the categories satisfied by courses in the curriculum, it is inevitable that a few changes or additions will occur in the period before students elect courses for a term. Thus information provided in the Timetable of Courses for each term will officially supersede that found in this Catalog (or on Department/Program websites). Every effort will be made to keep these changes to an absolute minimum.

It should be noted that some courses might almost equally well fall into either of two categories. However, with one exception noted below, each course may satisfy only one category for the Distributive requirement, and also only one category for the World Culture requirement. In such situations a decision, which may be somewhat arbitrary, must be made as to which category to select. Students must follow the decision that has been made; there is no appeal of this decision, nor may students petition (then or later) to have a course count for them in a category other than the one selected by the department or program and approved by the COI. In cases where the category of a course has been changed, the category in effect in the term in which the course was taken will be used.

The following phrase or codes are used in the course listings in this Catalog to indicate the categories for each course:

World Culture Requirement (WCult):

W	Western Cultures
NW	Non-Western Cultures
CI	Culture and Identity

Distributive Requirement (Dist):

ART	Arts
LIT	Literature
TMV	Systems and Traditions of Thought, Meaning, and Value
INT	International or Comparative Studies
SOC	Social Analysis
QDS	Quantitative and Deduction Sciences
SCI	Natural Sciences (without laboratory component)
SLA	Natural Sciences (with laboratory component)
TAS	Technology or Applied Science (without laboratory component)
TLA	Technology or Applied Science (with laboratory component)

Each course listing in the ORC has information on General Education categories. For example, 'Dist: ART, WCult:

NW' indicates that the course in question satisfies the Art category for the Distributive requirement and the Non-Western category of the World Culture Requirement. If no listing occurs (for example, if WCult does not appear) then the course does not satisfy any part of the requirement in question.

In the Distributive requirement, certain courses satisfy both the International and Comparative Studies category and a second category, and, for example, would be listed in the ORC and Timetable as 'Dist: INT or ART'. However, in each case, a given course can satisfy only one requirement for any individual student (that is, in the example given, either INT or ART but not both). The INT category is the only category under the Distributive requirement that can be combined with another category in this way.

The Major

The purpose of a major is to provide a coherent program of study in a discipline or area of knowledge. The College offers a number of options designed to meet the needs of students in their selected major programs of study. These options, in addition to Standard Departmental Majors and Program majors, include a Modified Major or a Special Major. A Modified Major usually comprises work in two departments or programs with emphasis in one. The Special Major exists to accommodate students who wish to design special interdisciplinary or interdivisional programs of study. It is also possible for a student to have combinations of majors and minors; however, a student cannot exceed two additional majors or minors beyond the required major (for a total of three).

No more than half of courses required for the major, including prerequisites, may be satisfied by transfer.

In planning a major program of study the student is urged to consider carefully these different options; each is described in detail in the designated section. Consultation with appropriate department or program chairs, advisers, and other faculty members is an important and necessary part of planning a major program. Procedures for students wishing to file more than one major are described in the Working Rules and Regulations Section.

The Committee on Instruction is empowered, for all types of major, to allow individual and general variations from the usual patterns that will assist a given student or improve a major without damaging the basic concept.

Culminating Experience in the Major

Each department and program includes among its major requirements a culminating activity, normally during the senior year, academically challenging and appropriate to the discipline and mission of the department or program. To this end, the following principles apply:

1. The requirement may involve individual projects (theses, directed research and writing, laboratory

research, creative projects), senior seminar(s), group tutorials or colloquia, or some combination of these. If the requirement exclusively involves graded individual projects, a department or program may provide on a regular basis an informal but mandatory senior colloquium or set of group tutorials (these would not necessarily need to be graded) to encourage students to exchange ideas, and to share with one another and with members of the faculty, reports about progress with their individual projects.

2. The requirement will assume a solid grounding in the substance of the discipline and expect and encourage development of a relatively sophisticated understanding and use of its methods, thereby fostering the student's ability to articulate his or her work and ideas in writing, oral presentation, and/or discussion.
3. The requirement must be taken for credit and graded. All majors must satisfactorily complete this requirement.
4. The requirement must involve at least one course credit but may take the form of a single project extended over two or three terms (e.g. a 3-term tutorial, laboratory, creative or research/writing project) with credit and grade recorded upon completion of the final term of the project.
5. Departments/programs may offer more than one sort of senior academic activity in order to maintain rational teaching loads for faculty while providing appropriate options to be elected by or designated for students on the basis of their interests and academic achievements.

The implementation of this requirement for each individual major is described under the department or program section in this Catalog.

Standard Departmental or Program Major

The Standard Department or Program Major consists of eight to ten courses in the major subject in addition to those courses prerequisite to the major. (With the agreement of the major department/program at least some of the 'prerequisite' courses may be taken after declaring the major.) Prerequisite courses, unlike those actually part of the major, may be taken under the Non-Recording Option and, with the special approval of the department or program, need not necessarily be passed. Every course counted as an actual part of the major must be passed with a recorded letter grade or previously authorized CT; courses completed with standings of NC, NR, and E are not included.

The major must be a unified and coherent whole, not a series of relatively unrelated courses. When appropriate, however, courses from other departments or programs may be substituted for one or more in the area of the major. For instance, an English major often includes as one of the eight courses a comparative literature offering, or

Chemistry, a physics course. However, such courses must serve in satisfaction of the major (not simply as a prerequisite to the major) in the other department or program unless a course has been specifically approved and listed in this Catalog as suitable for the major credit in the department or program of the student's major. Courses within the major, or offered by the major department or program, satisfy whatever Distributive, World Culture, or Interdisciplinary credits are normally attached to those courses. In other words, these requirements are completely independent of choice of major.

The Department or Program may set a minimum grade average for admission to and/or completion of the major. It may also impose the requirement of a thesis, comprehensive examination, etc.

When a student finishes a standard major as here outlined, the Department or Program determines whether the student has adequately completed (i.e., passing, or reaching an announced minimum average) the courses of the major declared as part of the program plan, along with other specified requirements. If so, the Department or Program notifies the Registrar of the completion of the major and, accordingly, satisfaction of this requirement for graduation. On graduation, the student's record indicates completion of the major in, for example, Comparative Literature or Physics. No form of Honors or Distinction in the major is allowable, unless the student has undertaken an Honors Program (see the next paragraph), although the student may receive overall (Latin) honors, e.g., *Magna cum Laude*, as the result of grade point average for all courses taken at Dartmouth.

Students with appropriate grade averages and the desire to do so may apply to do an Honors Program in the major (i.e., Honors Major). By so doing they may on graduation achieve Honors or High Honors in the major; please see The Honors Program and Honors in the Major.

The procedures for declaring a major are outlined under Working Rules and Regulations in the Catalog and on the Registrar's website. After a student declares a major and if it is approved or denied by the department or program, updates may be made by consulting the authorized major adviser and submitting a revised major plan.

Modified Major

Departments and Programs may offer modified majors, intended to fit the needs of students who have a definite interest in the major department/program but are also interested in some specific problem or topic, the study of which depends on courses in related fields.

Basically a modified major contains ten courses, six in one field and four in a second field or perhaps in more than one area. It should be planned as a unified, coherent whole, and not consist of a series of unrelated courses. Students must submit a written statement to the primary department or program and to the Registrar, explaining their rationale for

the courses selected for the modified major. Each department or program sets its own prerequisite and prescribed courses for a Modified Major, within the limit described above, and in greater detail in the following paragraphs. Courses which form part of a modified major are subject to the same requirements described in the section 'Standard Department Major' above; they must serve in satisfaction of a major in the department or program offering the course unless specifically listed in this Catalog as suitable for a modified major. The Registrar may refuse to accept a modified major that does not meet the 'unified and coherent' requirement. If the issue cannot be resolved between the Registrar and the department(s) or programs(s) concerned, it will go to the Committee on Instruction for decision.

The primary part of the major must consist of six courses in a single major-offering department/program (e.g., English, Biology, History, Comparative Literature). The secondary part must consist of four courses, none of which may bear the same department/program title as that of the primary part. (Exception: when a department or program offers officially distinct subjects, as indicated by differing names, an internal modified major may be constructed, e.g., of six French and four Italian courses [or the converse].) Furthermore, there will always be at least one course prerequisite to the primary part and normally one or two prerequisites to the secondary part. In case the primary department/program has no prerequisites for its standard major, seven courses are required in the primary part of a modified major.

If a student desires a modified major consisting of the necessary primary part with six courses from one department or program and four courses that are not from a single second department or program as the second part, the major requires the approval of the chair (or approved faculty delegate) of the primary department/program only. There is no direct advantage to securing a second approval. When a student completes the major, it will be entered in the permanent record as, for instance, 'Psychology Modified,' no indication of the second part appearing. This is Modified Major "type B."

It is also possible for a student to arrange a Modified Major that will receive full recognition. The student works with one major-offering department/program (primary) and a second such, or a non-major-offering department/program (secondary). The major plan must show six courses (plus prerequisites) in the primary field (standing for department or program) and four courses (plus prerequisites) in the secondary field. The various prerequisite courses should be identified. The primary field, as noted, must be a department or program authorized to offer a major; the plan will require the approval of the chair (or faculty delegate) of this department or program indicating specific and overall approval. The plan will also require the approval of the chair (or faculty delegate) for the secondary department or program, again indicating specific

and overall approval. Both faculty members, in approving the plan, indicate that the resulting major is an intellectually integrated package; it must not be a 'major' and a 'minor' with little or no relationship between the two fields. When such a major has been completed, the final records will show a major for, say, 'History Modified with Economics,' or 'English Modified with Women's Studies.' This is Modified Major "type A." Please note that a student might take exactly the same courses, but not have the approval by the secondary department or program; if so, the major would be recorded as 'History Modified' or 'English Modified.'

In other respects a modified major is like a standard one. A student may or may not carry out an Honors Program, the potential results being wholly similar. Please be sure to consult the last paragraph of the previous 'Standard Departmental Major' section and the Registrar's website for directions on declaring a major.

Special Major

Special Major

Dartmouth offers a choice of established majors in a broad array of disciplines and interdisciplinary areas that meet most students' interests. In rare cases, a student may pursue a special major program of study, provided that it demonstrates intellectual coherence and educational merit and has the approval of two faculty advisers and of the Divisional Council for Interdisciplinary Programs.

After consultation with appropriate faculty member(s), the student wishing to pursue a special major should submit in writing the proposed individualized program of study to the Associate Dean for Interdisciplinary Programs. The proposal should state the purpose and objective of the program of study and list ten interrelated courses, at least one of which must consist of independent study or research in association with a primary adviser. No more than three courses may consist primarily of independent reading, study, or research. If an independent research course in a special major has a minimum GPA requirement, the minimum GPA for the research course becomes a requirement for the special major. For advising assistance, the student should meet with the Assistant Dean of Faculty for Pre-Major Advising.

The proposal must also include a detailed supporting letter from the faculty member who agrees to be the primary adviser and the written endorsement of an additional faculty member who is the intended instructor of at least one of the ten courses, this faculty member to serve as secondary adviser.

In its review of a proposed special major program, the Council will consider the intellectual coherence of the program and the academic qualifications of the applicant. The Council may, at its discretion, call upon the applicant and the advisers to explain the proposal in person.

Since Divisional Councils do not meet in the summer, students due to file a major in or before the summer term should make application early in the spring term or should file a related standard major from which they may later shift. Petitions for a special major will not normally be considered by the Council unless the petition is presented early enough to allow the student three full terms of regularly enrolled course work at Dartmouth before graduation.

Application for a special major is a demanding process requiring considerable time and many steps. The applicant should not apply for such a major unless s/he has a carefully planned program that is of great personal interest. A special major is not likely to be approved if the applicant is simply uninterested in pursuing a standard or modified major. The Council requires evidence that one of these established majors will not suffice.

Upon approval of a special major, the Council will notify the student, the advisers, and the Office of the Registrar. The notification letter will indicate the title of the major and list the courses therein. The student will then file with the Office of the Registrar a completed major card with the signatures of the two advisers; he or she will also supply the advisers and the Divisional Council with signed duplicate major cards. The major adviser and the Council shall have the right to reconsider a program at any time they may regard the candidate's work as unsatisfactory. Moreover, changes in the course program of the special major will not be made without the approval of the student's primary adviser and the Associate Dean for Interdisciplinary Programs, who will send confirmation of any changes to the Office of the Registrar and the secondary advisor.

Upon the student's completion of the major program, and upon receipt of a recommendation from the two advisers, the Council will decide the student's final standing in the major.

The Honors Program

Each of the various forms of major makes available an Honors Program that is required of candidates for Honors or High Honors in the major, the awarding of these to be decided upon when the student's department or other appropriate supervisory body is about to certify to the Registrar the completion of the major.

The program requires work that is clearly greater in depth and scope than that expected in the normal major program. As soon as a student declares a major, he or she should receive a description of the Honors Program including requirements for eligibility, the procedure for admission, and the name of the faculty member in charge of the program.

This additional undertaking shall take the form of supervised independent work on an individual or small-

group basis to enable students to progress toward an understanding of their major field at an accelerated pace. It includes a thesis — or its equivalent, such as an experimental investigation — as well as the writing of papers or other creative activity suitable to the major subject. Beyond these stipulations a department (or other supervisory body) may at its discretion impose such additional requirements as a start upon the Honors Program in the junior year, a more demanding reading program than it requires of regular major students, and the use of honors courses or honors seminars. Examinations in the Honors Program will be regulated by the department or program. Students may receive a maximum of two course credits for participation in the program.

Admission to an Honors Program is by application to and with the consent of the department/program or other supervisory body. Each department or program publishes in this Catalog the criteria and procedure for admission to its Honors Program. The minimum requirement for admission is a grade point average of 3.0 in the major and a 3.0 general College average at the beginning of the senior year or at any other time that an application for admission is made. The Committee on Instruction is empowered to make small downward adjustments of these requirements when a department or program strongly supports the application of a candidate who does not quite qualify.

As indicated above, Honors Programs will vary, but all will include independent, sustained work. Those students who satisfactorily complete the Honors Program with a 'B+' average or better will earn Honors recognition in their major or, in appropriate cases, High Honors. High Honors will be granted only by vote of the department or program on the basis of outstanding independent work. Departments and programs are urged to make an interim evaluation of honors students after one term and to recommend the continuation of those students only whose work demonstrates the capacity for satisfactory (B+) work. Students who satisfactorily complete the Honors Program will have entered on their permanent record, e.g., High Honors in Chemistry, or Honors in History.

No record will be kept for completion of an Honors Program in the absence of the awarding of Honors or High Honors, since the department or program has thereby indicated that the performance was not 'satisfactory' (in the applied sense of the word).

Honors work in the Special Major requires a recommendation from the student's two advisers with full description of the planned approach to the Council on Interdisciplinary Studies; this recommendation must be submitted in time for the Committee to make its decision by October 1 of the senior year.

Students not meeting the usual requirements for the Honors Program may seek special admission to an Honors Program with department or program support and approval of the Committee on Instruction.

The Minor

Students who wish to elect a minor must officially sign up for it no later than the end of the first week of the last term in residence prior to graduation (and after officially filing a major.)

A student cannot exceed two additional majors or minors beyond the required major (for a total of three). If the minor has been completed at the time of graduation, it will then be noted on the student's transcript, but the fact that a student is working toward a minor will not appear on the transcript prior to graduation.

Minors may be offered by departments, programs, or groups of faculty, and must be approved by the Faculty. A minor consists of at least six courses, no more than two of which may be designated as prerequisites (although more than two prerequisites may be required). The courses beyond prerequisite must be suitable for the major in those departments and programs offering a major, or of similar level in other departments and programs. The entire program for each minor is to form a unified and coherent intellectual whole. One or more faculty members will be designated as advisers for each minor.

A student enrolls in a minor by declaring the minor and submitting a plan, similar to declaring a major, indicating the courses constituting the minor program, along with the terms in which the courses will be taken. See the Registrar's Office website for procedures on declaring a minor. A minor may not be in the same department or program as the student's major (either part of the major in the case of a modified major), except when completely separate majors are offered by the same department or program (French and Italian, for instance) and would be acceptable as the two parts of a double major. As with Dual Majors, no course may count toward both a major and a minor or toward both of two minors (although a course may be part of one of these and prerequisite to the other, or prerequisite to both, subject to the approval of both departments or programs). At most one course in the minor, including prerequisite courses, in which the standing of NR is received may be used toward satisfying the minor. Individual departments or programs may disallow courses with NR standing to count toward their minors; see the individual department or program information in this Catalog to determine whether courses with NR standing are allowed to count toward their minors.

No more than half of all courses required for the minor, including prerequisites, may be satisfied by transfer.

A student may develop a special interdisciplinary minor working directly with two or more faculty advisers. A proposal for a special minor, including a written rationale, must be approved by the Divisional Council for Interdisciplinary Programs. A special minor normally shall include no more than one course taken prior to petition and approval.

Statement of Credits

For a student who was registered fall 1985 or later all courses are in the form of course units. Each course count unit may be considered the equivalent of a semester course worth 3.3 semester hours (4.5 if a laboratory course) or 5 quarter hours (6.7 if a laboratory course.) This statement appears with undergraduate official transcripts.

Scholarship Ratings

Regularly Graded Courses: Since the fall term of 1973-1974, the grade assigned at the completion of a course has been one of the following: A, A-, B+, B, B-, C+, C, C-, D, or E. The following guidelines offer general criteria for evaluation and grading, with 'plus' or 'minus' designations indicating that, in the opinion of the instructor, the student has performed at a level slightly higher or lower than the norm for that category.

- A: 1. Excellent mastery of course material
- 2. Student performance indicates a very high degree of originality, creativity, or both
- 3. Excellent performance in analysis, synthesis, and critical expression, oral or written
- 4. Student works independently with unusual effectiveness
- B: 1. Good mastery of course material
- 2. Student performance demonstrates a high degree of originality, creativity, or both
- 3. Good performance in analysis, synthesis, and critical expression, oral or written
- 4. Student works well independently
- C: 1. Acceptable mastery of course material
- 2. Student demonstrates some degree of originality, creativity, or both
- 3. Acceptable performance in analysis, synthesis, and critical expression, oral or written
- 4. Student works independently at an acceptable level
- D: 1. Deficient in mastery of course material
- 2. Originality, creativity, or both apparently absent from performance
- 3. Deficient performance in analysis, synthesis, and critical expression, oral or written
- 4. Ability to work independently deficient
- E: 1. Serious deficiency in mastery of course material
- 2. Originality, creativity, or both clearly lacking
- 3. Seriously deficient performance in analysis, synthesis, and critical expression, oral or written
- 4. Cannot work independently

The following grade point values are assigned: A, 4; A-, 3 2/3; B+, 3 1/3; B, 3; B-, 2 2/3; C+, 2 1/3; C, 2; C-, 1 2/3; D, 1; and E, 0.

In view of the many grades assignable and differences in faculty policies, every faculty member will explicitly declare criteria for grading to students in his or her courses and provide as much information as possible with respect to an individual student's progress and the evaluation of the final grade assigned.

A course assigned a grade of E does not add to the student's total (course count) counting toward the minimum of 35 for graduation, nor does it serve in satisfying any other graduation requirement. The E is, however, a permanent part of the student's record, is included in all calculations of his or her grade point average, and is shown on transcripts.

On May 23, 1994 the Faculty voted that transcripts and student grade reports should indicate, along with the grade earned, the median grade given in the class as well as the class enrollment. Departments and Programs may recommend, with approval of the Committee on Instruction, that certain courses (e.g., honors classes, independent study) be exempted from this provision. Courses with enrollments of less than ten are also exempted. At the bottom of the transcript there is a summary statement of the following type: 'Exceeded the median grade in 13 courses; equaled the median grade in 7 courses; below the median grade in 13 courses; 33 courses taken eligible for this comparison.' This provision applies to members of the Class of 1998 and later classes.

A student who has failed a course may elect it again. In this situation both of the grades are recorded and included in the cumulative average; only one course credit is earned. The same general principle applies to Credit/No Credit courses.

At the end of each term every undergraduate may view a grade report listing the courses taken, the grade in each, the term and total overall course count, and the grade point average for the term and overall. This information is available on BannerStudent.

At the end of each term every student's term and cumulative grade point average (GPA) are calculated. The GPA calculation includes solely courses taken at Dartmouth on a regular A through E grading scale (GPA courses). The calculation uses quality points which are three times the usual grade values to prevent the accumulation of errors: an A counts as 12 points, A- as 11, B+ as 10, B as 9, B- as 8, C+ as 7, C as 6, C- as 5, D as 3, and E as 0. The GPA is the sum of the quality points divided by three times the GPA courses. This quotient is rounded to two decimal places.

The grade reports show alongside a course entry, when appropriate, an asterisk to indicate the intention of the instructor to award a citation. Citations are designed to

procure an official record of information about undergraduates who have made particularly favorable impressions on members of the faculty because of their unusual talents, dependability, initiative, resourcefulness, or other meritorious characteristics that are not indicated adequately by academic grades. The actual statement of citation is included with a student's transcript whenever such is issued unless the instructor has failed to supply it at the time of issuance of the transcript or the student does not wish it to be included.

If a student has elected a course under the Non-Recording Option, the grade assigned by the instructor is shown on the grade report, then the limiting grade selected by the student, and finally the officially recorded standing. If the assigned grade has at least matched the grade limit, the assigned grade becomes the official grade; if not, the standing 'NR' (Non-Recorded) is posted unless the assigned grade is E. Please consult the section on the Non-Recording Option.

It should be noted that grades that are high enough to satisfy the various degree requirements may not be indicative of overall satisfactory progress and may lead to action by the Committee on Standards; consult the Student Handbook.

If an instructor decides to request a grade change, the written request with brief justification must have the signature of approval of the department/program chair and be forwarded in writing to the Registrar. No change will be made for course work completed after the term in which the course was offered, except in the case of an Incomplete. Normally, all requests for change of grade must be submitted by the instructor to the Registrar by the last day of the term following the term in which the course was taken. If the grade change is in response to a student appeal, the student must have initiated the appeal in writing to the instructor by the last day of the term following the term in which the course was taken. If the instructor decides to request a grade change as a result of a student appeal, the grade change request must be submitted by the instructor to the Registrar by the last day of the second term following the term in which the course was taken. No change of grade will be approved by the Registrar after the second term following the course.

Temporary Transcript Designations

There are various circumstances in which the final grade in a course cannot be submitted by the instructor during the usual period immediately following the end of the final examination period. Three different designations, I (Incomplete), ON (On-Going), or AD (Administrative Delay), may appear temporarily on the end of term grade reports and on transcripts, depending on the circumstances, as described below.

There is no grade of Incomplete. Incomplete is a temporary notation placed on a student's record to indicate that the

work in a course has not yet been completed and therefore a grade has not yet been submitted by the instructor. The assignment of Incomplete in a course may be made only by the Dean of the College⁴ upon request of the student and the instructor. Failure to complete a course on time without prior approval by the Dean will result in the grade of E. Generally speaking, an Incomplete is approved when there are circumstances that are judged to be beyond reasonable control by the student.

⁴ *Although the original vote of the Faculty was specific, all of the Deans in the Office of the Dean of the College are qualified to act in the context of Incompletes.*

If the request is based on such an academic reason as an unanticipated difficulty in obtaining sources or the failure of a critical experiment, the student should consult first with the instructor. Approval by the instructor of the student's request should be in writing and should set forth the circumstances. This document should then be sent directly to the Dean of the College.

If the request for an Incomplete is based on non-academic reasons (illness, unavoidable absence, etc.), the student should make it directly to the Dean of the College who will grant or deny the request after consultation with the instructor in the course.

All Incompletes are granted for a specific period to be established jointly by the student and the instructor with the concurrence of the Dean of the College. If the student fails to complete the work of the course within the agreed period and no extension is granted, the instructor reports the appropriate grade for the student based on the student's performance, no credit being allowed for the fraction of the work not turned in. If the instructor fails to report a grade, the Dean, after consultation with the instructor, the department or program chairman, or both, may ask the Registrar to record the grade of E (or in courses offered on the Credit/No Credit basis, the final standing of NC). Extensions of time beyond the original deadline are granted only in exceptional cases. A request for an extension must be received by the Dean of the College before the established period has expired, and are granted or denied after consultation with the instructor.

NOTE: All requests for the temporary standing of Incomplete must be received by the Dean of the College on or before the last day of the corresponding examination period.

The designation ON (On-Going) may be used on transcripts when the assignments of a single course necessarily extend beyond the limit of a single term. Examples of such circumstances are certain senior honors courses where the work in a preliminary course cannot be evaluated until a second term of a thesis or other project is completed.

The ORC course description indicates those courses in which a grade of "ON" may be assigned. Grades for any

course not having such permission must be assigned at the end of the term in which the course is offered. The first term of a two term ongoing grade is replaced with same final grade as the final term when no other grade has been assigned. Students may receive no more than 2 credits for an on-going course.

The designation AD (Administrative Delay) may be used on transcripts when the grades of one or more students in a course cannot be reported on time due to administrative or personal factors, but where the use of an Incomplete is not appropriate. Examples of such circumstances are a serious illness of the instructor at the time grades are due, or delays in receiving grades from Off-Campus programs. Requests for use of this designation, including an agreement on the date when the final grades will be submitted, will be made by the instructor or Chair to the Registrar.

Credit/No Credit Courses

Certain courses are offered on a Credit/No Credit basis. A student electing one of these courses receives a grade of CT (Credit) or NC (No Credit). A grade of NC is defined as failure to complete the course satisfactorily according to criteria to be announced by the instructor at the beginning of the term. Such a course will be counted, if the grade is CT, toward the minimum of thirty-five needed for graduation. A course with grade of CT or NC may not be used to satisfy a General Education requirement. If approved previously, a Credit/No Credit course may be counted toward the Major Requirement.

Courses under this system carry no grade units and are not used in establishing a cumulative average. If a student receives a grade of NC, the course is recorded as such, and no increase in course count is achieved.⁵ As in regularly graded courses, there can be a temporary standing of Incomplete.

⁵ *Students should note that, although a grade of NC does not affect the Dartmouth grade point average, certain outside agencies (for instance, the Law School Data Assembly Service) will count such grades as E's and will recalculate the student's grade point average to reflect this.*

While endorsing the system here indicated, the Faculty believes it necessary to ensure that students have on their records an adequate number of regular letter grades. A limit has been set for each student of overall eight final standings of CT, NC, NR, and E (the last standing only when assigned in an NRO course). Accordingly, the degree of use of 'Credit/No Credit' courses affects the election of courses under NRO and vice-versa. (If a student never uses the Non-Recording Option, or does so but always regains the eligibility temporarily invested, that student may accordingly elect as many as eight Credit/No Credit courses.)

The concept of essentially non-graded courses was developed mainly to offer an improved way of dealing with subject matter that is intrinsically ill-suited for grading. It may be applied, however, to any area when an instructor desires, provided in every case that the authorization of the Department or Program offering the course has been obtained sufficiently in advance. An individual course may accordingly be offered in different terms as a regularly graded course or in the fashion described here. The Registrar's Office website, including a link on the Timetable of Class Meetings lists the Credit/No Credit courses for the given term. No change in either direction may be made after publication of the published list and no individual student may be graded in a fashion different from the announced pattern.

In a given term all sections of a course offered that term in two or more sections must be offered under the same pattern: all must be regularly graded or all must be Credit/No Credit (with the pattern having been earlier announced, as indicated previously).

Students should be sure to recognize the differences between a Credit/No Credit course and a course taken under the Non-Recording Option, as described in the following section. A department or program sets the grading pattern for a Credit/No Credit course. A student may elect a CT/NC course but may not determine the grading mode. However, the student does have the option to choose the Non-Recording Option unless the course has been placed 'out of bounds.'

Non-Recording Option

To support and encourage students who would like to elect courses that may pose greater than usual academic risk, the Faculty offers the Non-Recording Option to students who are not currently on Probation, Warning, or the first term following assignment of Risk. Under this option, students may elect under certain conditions to exclude a grade in one regularly graded course from the record in a given term, in the sense that the grade will not be shown on transcripts or included in the calculation of grade point averages. There is a regular grade, however, that is used internally to the student's advantage or disadvantage; for instance, a 'non-recorded' D will be counted toward the maximum of eight D's allowable in the minimum course count for the degree and will make the student liable for academic action by the Committee on Standards. The grade of E invalidates the student's election of the option while constituting the use of an eligibility; the E is recorded, and it is averaged normally.

Since various departments and programs, or instructors, believe certain courses are unsuitable for use of the option, a list of courses that are 'out of bounds' is maintained and published on the Registrar's web site and a link from the Timetable of Classes lists the courses that are to be out of bounds in the corresponding term. Departments and programs may not make any change following the

publication of the list for a given term, and are specifically enjoined from granting an exemption from the out-of-bounds status to an individual student. Along with numerous individual courses, all First-Year Seminars, all courses studied off-campus, all beginning language courses (taken in satisfaction of the Language Requirement or prior thereto), and almost all graduate courses are out of bounds for application of the option.

Each undergraduate is allowed a maximum of three uses of the option that result in a standing of 'Non-Recorded' (NR); when a student has been assigned three NR's he or she is no longer eligible to make any further use of the Non-Recording Option.⁶ It is possible to elect use of the option and do work in the course of such quality that the regular final grade is recorded. The regulations follow:

⁶ *For exceptions to the limit of three uses, see the section on Language Requirement Waivers.*

Within the first fifteen days (usually eleven class days) of a term a student who is not on probation or warning, or in the first term of 'risk,' and has elected an eligible course may indicate use of the Non-Recording Option in that single course. (The student indicates which course on BannerStudent including the lowest letter grade he or she is willing to have recorded and used in averaging, or the intention to have a final standing in the course of NR (Non-Recorded). After the fifteen-day deadline the student may neither change the choice of course under NRO nor drop the use of the option unless he or she officially drops the course from his or her record.

At any time after this initial period, but not later than five class days before the last day of classes for the term, a student under the option may revise the choice of lowest acceptable grade or of NR in BannerStudent.

A regular letter grade will be assigned by the instructor, who has not been informed which members of the class are under the option (although instructors are entitled to know how many students elected the option).

There are three possible outcomes for a course under the option:

1. If the grade actually assigned by the instructor matches or surpasses the student's final choice, it is entered and serves in all respects as a regular letter grade. The student regains the eligibility for use of the option he or she had temporarily lost.
2. Should the grade be lower than the student's final selection (or should the actual choice have been NR), as long as the grade is not E, the entry on the student's permanent record and on transcripts is NR. The letter grade is not used in computing any recorded grade average, but is available for internal use (e.g., in connection with the limit on the number of D's allowable). The course is included in the student's sum of credits toward graduation, but does not serve in

partial satisfaction of the Distributive, World Culture, or Major requirement. At most one course in the minor, including prerequisite courses, in which the standing of NR is received may be used toward satisfying the minor. The student will have exhausted one of the quota of three eligibilities available during his or her career at Dartmouth. The standing of NR is permanent: requests to revoke it and reveal the letter grade originally assigned by the instructor must be refused.

3. Should the assigned letter grade be E, this grade is recorded and averaged in the normal fashion no matter whether the student chose a grade or NR. The student receives no course credit and uses one of three NRO eligibilities.

Most students will wish to indicate, for instance, that a grade of B- or higher should become a regular grade, and thereby count in all respects, while restoring the use of the option. If a student wishes during the term, in effect, to cancel a use of the option he or she should file a second grade limit of D; accordingly, any passing grade will have the 'liberating' effect of the B- mentioned in the previous sentence; that is, the grade actually assigned by the instructor will be recorded and included in averages. A student may decide that B- is too high a target, but be unwilling to have a grade lower than C posted; in that case the B- should be changed to C.

Students should note the crucial NRO dates (published on the Registrar website) for selecting the option (or changing the course chosen or withdrawing from the election of the option) and for altering the choice of grade. The Registrar does not grant extensions of either deadline for action for any but the most extenuating and compelling circumstances. Should a student withdraw from the course selected for NRO after the end of the initial fifteen days, he or she does not use the eligibility associated with the designated course, but is not able to make use of NRO in that term.

The recording of NR is irrevocable. Students sometimes desire the release of the concealed letter grade, e.g., for use in a major, for general education credit, or for admission to a graduate school with possible advanced placement.

Under the terms of the Non-Recording Option such is not permissible; requests must be refused. Students are accordingly advised against risking misuse of the option, as in the cases just mentioned. However, they may in effect 'withdraw' from the use of the option by changing to a grade limit of D by the published deadline each term. Uses of the option resulting in the standing of NR or grade of E (up to the maximum of three) are included in the total of eight courses that may be taken Credit/No Credit, or under the Non-Recording Option with the just indicated results.

Final notes: A standing of NR prevents the course from being used for the Major Requirement, the World Culture or Distributive Requirement. However, prerequisite

courses to the major may be taken under the Non-Recording Option and at most one course in the minor, including prerequisite courses, in which the standing of NR is received may be used toward satisfying the minor.

Special Students

Special Students are non-degree candidates who are admitted on a temporary basis. They include academically prepared area high school students who participate in Dartmouth's Special Community High School program administered by the Dean of the College, and qualified College students admitted through the Admissions Office for the summer term only. In addition, the Dean of the Faculty may, in extraordinary, rare circumstances admit a special student temporarily for one or more terms other than summer term.

While the degree regulations do not apply to Special Students, most of those applying to specific courses do; such students should note particularly the following section on 'Working Rules and Procedures.'

Enrollment Patterns (D-Plans)

Shortly after the start of the spring term every first-year student must file with the Registrar's Office his or her enrollment preferences (D-plan) for the remaining (normally) nine terms that permits, within a period of four academic years (or fifteen terms after matriculation), the satisfaction of the degree requirement of thirty-five courses passed. Routine changes in enrollment pattern may be made online using BannerStudent and more complex changes in the Office of the Registrar.

The deadline for making a change in enrollment pattern (D-Plan) for any immediately following term from R (for Residence) to another status is five weeks after the start of classes of the previous term, excepting that the deadline for making such a change for fall term is five weeks after the start of classes of the spring term. A student making such a change later will be charged one hundred dollars or, if not until after the ninth day of the new term, two hundred dollars. Students are encouraged to pay close attention to the dates in the academic and term calendar.

A student wishing to take more than a year without being enrolled (more than four consecutive terms with enrollment patterns of only L or A) must withdraw from the College after the fourth such term. International students should consult with the Office of Visa and Immigration Services about implications for their visa status in SEVIS before initiating more than one leave term within the United States or before initiating a withdrawal.

A student desiring to file an enrollment pattern (D-plan) distributing the thirty-five courses over a period of five academic years (sixteen to nineteen elapsed terms), or to change a previously approved pattern to a new one of this type, must petition the Registrar; five-year patterns will not normally be approved until a student has progressed at

least well into the sophomore year and has filed a major card. The Registrar will normally approve any appropriate pattern, provided that the student can make satisfactory progress toward the degree. The student's department or program chair must certify that the proposed pattern will not jeopardize satisfactory completion of the major. Should a student wish to appeal a negative judgment of the Registrar, he or she may petition the standing subcommittee of the Committee on Standards.

Every student is required to be in residence, registered and enrolled in classes in the fall, winter, and spring terms of the senior year (the fourth year after matriculation or the last year if a student is a later graduate). If a student is able, through some combination of advanced standing and extra-course terms, possibly with one or more transfer terms, to satisfy all other requirements in fewer than eleven terms (of residence [R], Dartmouth off-campus study [O], and official Dartmouth exchange programs [X], the student is not subject to the senior residence requirement. He or she may graduate on completion of all other requirements during the junior year or may attend, if preferred, in chosen terms of the senior year.

Students not able or intending to graduate in fewer than eleven terms must recognize that the ability to complete all other requirements by the end of eleven or twelve terms does not free them from any part of the fall/winter/ spring senior residence requirement. Accordingly in planning and modifying their enrollment patterns students should be careful to be on leave sufficient terms in the sophomore and junior years to avoid having an overall twelve-term pattern when eleven terms would have sufficed, or a thirteen-term pattern when only twelve terms were required.

Certain Dartmouth-sponsored off-campus summer programs may be used in satisfaction of the summer residence requirement. In addition, under special circumstances the Registrar may waive the requirement of a summer residence term, but no more than forty such waivers (including exemptions for three-term athletes) will be allowed for any college class. In appropriate cases the Registrar may allow the substitution of the earlier or later summer term if there is great academic or personal justification.

The vote of the faculty dealing with summer residence and also with senior year residence is:

'All students are required to be in residence during the summer term that follows the sophomore year because the Dartmouth curriculum is being so designed as to take advantage of the presence of an entire class during that time, by, for example, offering special courses introductory to the major. Substitution of any other summer term for the summer term following the sophomore year may be permitted for a particular student only when it can be demonstrated that such a change will significantly enrich that student's academic program.

'Complete waiver of the summer residence requirement, as distinct from a shift in summer, will be granted only in truly exceptional circumstances, such as significant enrichment of the student's academic program, cases of demonstrable serious financial hardship, a serious personal or health problem, or participation in varsity athletics in the fall, winter, and spring terms of every year.

'All students, except those requiring fewer than eleven terms to complete the degree, are required to be in residence during the fall, winter, and spring terms of the senior year. Exemptions from this senior year residence requirement will be made only when it can be demonstrated that such a change will significantly enrich the student's academic program, as, for example, through participation for a term in a Dartmouth-sponsored Off-Campus Program, or to avoid a serious personal or health problem.

'All requests for a shift in the summer residence term, for a complete waiver of the summer residence requirement, or for a partial exemption from the senior year residence requirement must be made by written petition to the Registrar; senior waiver petitions must be accompanied by a copy of the student's approved major plan. Participation in a Dartmouth-sponsored Off-Campus Program during the senior year will automatically qualify the student for a compensatory adjustment to the senior year residence requirement if the Off-Campus Program is in the student's major department or program. In all other cases petition must be made as described above. The Registrar's decision may be appealed to a subcommittee of the Committee on Standards, as described in the Organization of the Faculty of Dartmouth College.'

Off-Campus Activities

Students have a variety of opportunities for studying off-campus. Dartmouth strongly encourages students to study through Dartmouth-sponsored programs and exchange programs. In addition, students may independently seek out programs offered by other institutions which Dartmouth refers to as transfer terms. The Frank J. Guarini Institute for International Education administers Dartmouth-sponsored credit-bearing programs and applications to participate in exchange programs. The Office of the Registrar administers transfer term applications and both exchange and transfer course approvals.

To be eligible for a Dartmouth-sponsored off-campus program or exchange program, accepted students must be in good standing, must not have the temporary standing of Incomplete in any course, and must have completed the First-Year Seminar requirement. The rules for approval of transfer courses taken while on an exchange program are the same as for all transfer courses. (See 3 below, Transfer Credit from other Institution.) Students who wish to participate in a transfer term must petition the Committee

on Instruction outlining how the transfer term meets their academic goals.

Only programs taught by Dartmouth faculty, i.e. Dartmouth L.S.A. (L.S.A.+) and Dartmouth F.S.P., carry Dartmouth course credit. The Committee on Off-Campus Activities (COCA) is charged to review and supervise all Dartmouth-sponsored off-campus academic programs and activities. Other off-campus coursework activity, exchange programs or non-Dartmouth programs, may be eligible for transfer credit.

A student enrolled in a Dartmouth off-campus program pays full Dartmouth tuition and program costs are eligible for financial aid. The Guarini Institute determines the cost of each of the programs. (The cost of most programs exceeds the cost of a term spent on campus.) For financial aid students, assistance is available to meet the extra costs, including airfare. For Dartmouth scholarship recipients, half of the extra cost is met with additional Dartmouth scholarship; loan assistance is offered for the other half. Loan assistance is also offered to replace the employment that would normally be included in an on-campus term.

The Committee on Instruction (COI) is charged with the oversight of transfer terms. Students may transfer no more than four Dartmouth-equivalent course credits from other institutions toward the degree at Dartmouth and transfer credits received for courses taken at other institutions prior to matriculation count toward the maximum permissible total of four. A student participating in a transfer term pays an application fee to Dartmouth for each term of participation. No Dartmouth scholarship aid is available to students enrolled in an academic institution with which Dartmouth has no formal exchange agreement.

Dartmouth College does not investigate the issues of safety and security in the various transfer programs students may consider when taking a transfer term: it is the students' responsibility to investigate these issues. Dartmouth urges students to explore with their parents all issues of safety and security.

1. Guarini Institute Off-Campus Programs: Officially recognized programs that are administered and led by Dartmouth Faculty. Students receive specific course credits and grades. A list of programs for 2014-2015 follows this section.

The Guarini Institute website describes all programs in detail. Note: The Chinese, Film Studies, German, Japanese, Portuguese, Russian and Theater summer programs serve in satisfaction of the summer residence requirement.

Candidates for Foreign Study (FSP) and Language Study Abroad (LSA) Programs apply online via the Guarini Institute website by the appropriate deadlines; selection is made by the sponsoring department or program. It is the student's responsibility to review information on the Guarini Institute website or contact the Guarini Institute

staff for application deadline information. Although the Language Requirement is, by regulation, to be completed by the end of the seventh term, the Registrar can grant an extension to permit L.S.A. study at a later time if a student's program of study prevents earlier enrollment.

Specific Dartmouth course credit and grade can be given only for a course taught or directly supervised by a Dartmouth faculty member. Students must elect a three-course load; two-and four-course loads are not allowed on Dartmouth off-campus academic programs. Courses taken on such programs are out of bounds for the use of the Non-Recording Option. Students are expected to be at their program for its full duration.

For academic off-campus program courses delivered in the English language, elective courses must be closely related to the subject of the program and an integral part of an officially defined undergraduate Arts and Sciences curriculum. Thus, pre-professional, technical, business or graduate courses are not acceptable. The elective course does not satisfy distributive or world-culture requirements unless such requirements have been assigned by the Committee on Instruction at the time the off-campus program is authorized.

A senior who participates in an off-campus program must obtain special permission from his or her major department or program; such approval is strongly advised for juniors as well. A senior may, with the permission of the chair of the major department/program and the Registrar, replace one of the required residence terms by a term of off-campus study in the principal field of the major, provided such will be of great benefit to the student's program and will in no way interfere with proper completion of the major or other requirements.

No Dartmouth student may participate in more than three terms of Dartmouth-sponsored off-campus programs (i.e., L.S.A. and/or F.S.P., etc.) for academic credit, except by special permission by the COCA based on a written petition presenting valid academic reasons and strongly supported by the student's major department or program.

2. Transfer Credit from Dartmouth Exchange Programs: A student may participate in one of Dartmouth's established Exchange Programs by applying online via the Guarini Institute website by the appropriate deadline. Grades received in courses transferred from other institutions are not recorded on the Dartmouth transcript or included in the Dartmouth cumulative average. Credits earned on Exchange Programs are included in the maximum of four transfer credits allowed toward the degree. Information regarding procedures for pre-approval of transfer credit from exchange programs is available from the Guarini Institute and the Registrar's Office.

It is the student's responsibility to seek and obtain department or program pre-approval for the transferability

of each course, for distributive and world culture attributes, and for possible major and/or minor credit, if appropriate.

The Frank J. Guarini Institute for International Education Academic Programs in 2014-15

Foreign & Domestic Study (FSP, DSP)

Program	Department	Term
Argentina — Buenos Aires.	Spanish & Portuguese (Spanish).	S
Austria — Vienna.	Music FSP	S
Costa Rica and Cayman Islands.	Biological Sciences.	W
Czech Republic — Prague.	Geography.	S
France — Paris (three offerings).	French & Italian (French).	F, W, S
Germany — Berlin.	German Studies.	F
Greece and Turkey.	Classics.	S
India — Hyderabad.	Asian & Middle Eastern Studies/Women & Gender Studies	W
Italy — Rome.	Art History.	S
Morocco — Fez.	Asian & Middle Eastern Studies.	S
New Zealand — Auckland.	Anthropology and Linguistics & Cognitive Science.	W
Spain — Madrid.	Spanish & Portuguese (Spanish).	F
South Africa — Cape Town.	Astronomy	W
Southern Africa.	Environmental Studies.	F
United Kingdom — Edinburgh.	Film & Media Studies.	X
United Kingdom — Edinburgh.	Philosophy.	F
United Kingdom — Glasgow.	English.	F
United Kingdom — London.	Government.	F
United Kingdom — London.	History.	F
United Kingdom	Theater.	X

— London

United States — Washington, DC Government S

Western U.S. and Canada. Earth Sciences. F

Language Study Abroad (LSA, LSA+)

Program	Department	Term
Argentina — Buenos Aires (two offerings).	Spanish & Portuguese (Spanish).	W, S
Brazil — Salvador (LSA+).	Spanish & Portuguese (Portuguese).	X
China — Beijing (LSA+).	Asian & Middle Eastern Languages & Literatures (Chinese).	F
France — Lyon (two offerings).	French & Italian (French).	W, S
France — Toulouse (two offerings)(LSA+).	French & Italian (French — Advanced).	W, S
Germany — Berlin (two offerings).	German Studies.	X, S
Japan — Tokyo (LSA+).	Asian & Middle Eastern Languages & Literatures — Advanced.	X
Italy — Rome (LSA+).	French & Italian (Italian — Advanced).	W
Russia — St. Petersburg (LSA+).	Russian — Advanced.	X
Spain — Barcelona (two offerings).	Spanish & Portuguese (Spanish).	W, S
Exchange Programs		
Bocconi University, Milan, Italy.		F
Chinese University of Hong Kong (CUHK), Hong Kong.		F, W, S
Chulalongkorn University (Engineering), Bangkok, Thailand.		W, S

Consortium for Advanced Studies Abroad, Havana, Cuba (tentative)	F,W/S	Germany — Berlin.	German Studies.	F
Federation of German Universities, Germany.	F,W,S	India — Hyderabad.	Asian & Middle Eastern Studies/Women & Gender Studies	W
Hebrew University Exchange, Jerusalem, Israel	F	Ireland — Dublin.	English.	F
Kanda University (KUIS) Chiba, Japan.	F,W,S	Italy — Rome.	Art History.	S
Keble College, Oxford, United Kingdom.	F,W,S	Italy — Rome.	Classics.	F
Keio University, Tokyo, Japan.	F,W,S	Morocco — Fez.	Asian & Middle Eastern Studies.	S
McGill University, Montreal, Canada.	F	New Zealand — Auckland.	Anthropology and Linguistics & Cognitive Science.	W
Morehouse College, Atlanta, Georgia.	F	South Africa — Cape Town	Astronomy	W
Spelman College, Atlanta, Georgia.	F	Southern Africa.	Environmental Studies.	F
Twelve-College Exchange: Amherst, Bowdoin, Connecticut	F,W,S	Spain — Madrid.	Spanish & Portuguese (Spanish).	F
(also National Theater Institute), Mount Holyoke, Smith, Trinity, Vassar, Wellesley, Wesleyan, Wheaton, Williams Mystic Seaport Program.		United Kingdom — Edinburgh.	Philosophy.	F
		United Kingdom — Edinburgh.	Religion.	F
University of California, San Diego (Muir College), California.	W,S	United Kingdom — Glasgow.	English.	F
University of Copenhagen, Copenhagen, Denmark.	F	United Kingdom — London.	Government.	F
Yonsei University Seoul, South Korea	F	United Kingdom — London.	History.	F
		United Kingdom — London.	Music.	S
		United Kingdom — London.	Theater.	X
		United States — Los Angeles, CA	Film & Media Studies	W (biennial)
		United States — Santa Fe, NM	Native American Studies	F (biennial)
		United States — Washington, D.C.	Government	S
		Western U.S. and Canada.	Earth Sciences.	F

Anticipated Off-Campus Academic Programs for 2015-16

Foreign & Domestic Study (FSP, DSP)

Program	Department	Term		
Argentina — Buenos Aires.	Spanish & Portuguese (Spanish).	S		
China — Beijing	Asian & Middle Eastern Languages & Literatures (Chinese).	F		
Costa Rica and Cayman Islands.	Biological Sciences.	W		
Czech Republic — Prague.	Geography.	S		
France — Paris (three offerings).	French and Italian (French).	F,W,S		
Ghana — Accra — West Africa	African & African American Studies (AAAS)	F (biennial)		
			Language Study Abroad (LSA, LSA+)	

Program	Department	Term	Federation of German Universities, Germany.	F,W/S
			Hebrew University, Jerusalem, Israel	F,W/S
Argentina-Buenos Aires.	Spanish & Portuguese (Spanish)	S	Keble College, Oxford, United Kingdom.	F,W,S
Brazil — Salvador (LSA+).	Spanish & Portuguese (Portuguese).	X	Kanda University, Chiba, Japan.	F,W,S
China — Beijing (LSA+).	Asian & Middle Eastern Languages & Literatures (Chinese).	F	Keio University, Tokyo, Japan.	F,W,S
			McGill University, Montreal, Canada.	F
France — Lyon (two offerings).	French & Italian (French).	W,S	Morehouse College, Atlanta, Georgia, US.	F
France — Toulouse (two offerings) (LSA+).	French & Italian (French — Advanced).	W,S	Spelman College, Atlanta, Georgia, US.	F
Germany — Berlin (two offerings).	German Studies.	X,S	Twelve-College Exchange: Amherst, Bowdoin, Connecticut	F,W/S
Japan — Tokyo (LSA+).	Asian & Middle Eastern Languages & Literatures — Advanced.	X	(also National Theater Institute), Mount Holyoke, Smith, Trinity, Vassar, Wellesley, Wesleyan, Wheaton, Williams Mystic Seaport Program.	
Italy— Rome (two offerings) (LSA+).	French & Italian (Italian — Advanced).	W,S	University of California, San Diego (Muir College), San Diego, CA.	W,S
Italy — Rome.	French & Italian (Italian).	F	University of Copenhagen, Copenhagen, Denmark.	F
Morocco — Rabat (LSA+) (tentative)	Asian & Middle Eastern Languages & Literatures — Advanced.	X	Yonsei University, Seoul, South Korea	F
Peru – Cuzco (LSA+)	Spanish & Portuguese (Spanish – Advanced)	F	3. Transfer Credit from other Institutions: Students desiring transfer of course credit from any other institution not part of a formal exchange program with Dartmouth submit a Transfer Credit Application and Transfer Credit Approval Form to the Office of the Registrar by the appropriate deadline date listed on the Registrar's website. A non-refundable, non-petitionable application fee of \$2,200 is assessed for the winter, spring, and summer terms. No fee is assessed for fall term. To initiate the process, students should review the policies and procedures on the Registrar's web site regarding transfer credit, research transfer term possibilities by talking with professors and reviewing online resources, and prepare a statement describing how they plan to incorporate the transfer term into their Dartmouth academic program. Students obtain the required transfer credit application forms on the Registrar website or in 105 McNutt Hall. Following are the policies surrounding transfer credit: a. Prior Dartmouth approval is required for the specific program as well as individual courses. It requires review and approval by a sub-committee of the Committee on Instruction, the Registrar, and the Departments/Programs accepting transfer of the courses. It is the student's responsibility to initiate the process and to seek and obtain department or program approval for the transferability of each course. This would include distributive and world	
Russia — St. Petersburg (LSA+).	Russian — Advanced.	X		
Spain — Barcelona (two offerings).	Spanish & Portuguese (Spanish).	W,S		
Spain – Santander (LSA+)	Spanish & Portuguese (Portuguese—Advanced)	X		
Exchange Programs				
Bocconi University, Milan, Italy.		F		
Chinese University of Hong Kong (CUHK), Hong Kong.		F,W,S		
Choulalongkorn University (Engineering), Bangkok, Thailand.		W/S		
Consortium for Advance Studies Abroad, Havana, Cuba		F, W/S		

culture attributes, as well as possible major and/or minor credit, if appropriate.

- b. Potentially acceptable programs and undergraduate courses. Courses offered by accredited four year degree-granting institutions are potentially acceptable for transfer credit provided the courses are an integral part of an officially defined undergraduate Arts and Sciences curriculum; those given by extension programs, junior or community colleges or internship programs are not transferable. Students should be aware that some departments and programs have restrictive policies toward transfer credit.
- c. Length of term. For each potential transfer course, students must be enrolled for a minimum of three weeks and thirty contact hours per Dartmouth course credit.
- d. Credits, grading, and general education attributes. A minimum of three semester hours or four quarter hours are required to earn one Dartmouth course credit. A minimum grade of C quality or better must be earned. Grades received in courses transferred from other institutions are not recorded on the Dartmouth transcript or included in the Dartmouth cumulative grade point average. A pass/fail course is not accepted in the absence of proof that the grade is a minimum C quality. Courses elected under such a grading option do not carry distributive or world culture attributes.
- e. Deadlines. Deadlines for each term and the Transfer Term Application and Transfer Credit Approval forms are available on the Registrar's website and from the Office of the Registrar.
- f. Approvals. A sub-committee of the Committee on Instruction (COI) reviews each Transfer Term Application and will inform the student whether or not his or her transfer term has been approved. Approval of a course(s) by department/programs is required but not sufficient for transferability. Normally no more than 5 students may participate in the same program in the same term.
- g. Course changes. A student with approved plans for an exchange or transfer term at another institution, who finds after enrollment that an approved course is not available, may apply for approval of a substitute course. After the transfer term starts, it may be possible to substitute a course for one that was approved previously, but such approval is not guaranteed. Additional non-related courses are not approved. Students must contact the Registrar's Office to initiate such changes.
- h. Transcripts. Upon completion of the transfer term the student must personally request that an official transcript from the host institution be sent directly

to the Dartmouth College Registrar's Office. All transcripts must be on file in the Registrar's Office by the end of the term immediately following the transfer term. No credit is entered on the Dartmouth record until an official transcript has been received from the transfer institution.

- i. Limits of transfer credit. Students admitted as first-year students may transfer a maximum of four course credits toward the thirty-five required for the Dartmouth degree, whether such credits have been earned prior to matriculation or subsequently. Advanced Placement credit does not count toward the limit of four transfer credits. Students with special academic plans may petition the Registrar for transfer study up to a total of one academic year (i.e., nine credits). Normally one additional credit may be approved and the Committee on Instruction may review petitions for further credits when unusual circumstances arise.

Academic Standing Limits on Transfer Courses

Normally, because of residence requirements, the option of studying during the fall, winter, and spring terms at another institution for transfer credit is not open to first-year students or to seniors. Students on probation or withdrawn on probation, or those suspended or withdrawn with prejudice, are also ineligible except in the following instances:

1. Probation. Students on probation (or withdrawn on probation) may, with the strong support of a dean, and prior to enrolling at another institution, petition the Committee on Instruction (COI) in advance for permission to take courses at that institution for credit toward the Dartmouth degree; the resulting credits are included in the maximum of four allowed toward the degree. Students whose academic standing changes to probation after approval of the transfer term are then on probation, and permission for the transfer term is automatically revoked. Such students who enroll in another institution will not be awarded transfer credit without further petition to the COI as indicated above.
2. Suspension. Students who have been suspended for a definite period and who take courses after the period of suspension ends but before they have been officially readmitted to Dartmouth may, with the strong support of the Dean of the College, petition the COI to be allowed to apply for transfer credit. Students submitting such petitions should present convincing reasons for transferring the desired courses and be aware that (a) only courses taken after the period of suspension has ended may be considered for transfer credit (for students withdrawn with prejudice, no courses taken during the first three terms after leaving Dartmouth will be considered for transfer credit), (b) in no case will COI grant permission to transfer more than four courses taken prior to readmission, and (c) those

transferring courses under such circumstances ordinarily must return to Dartmouth for at least one term in residence before graduating. Students whose academic standing changes to suspension after approval of the transfer term are then on suspension, and permission for the transfer term is automatically revoked. Such students may not apply for transfer credit from another institution without further petitioning the COI after the period of suspension ends but before they have been officially readmitted to Dartmouth, as indicated above.

3. Suspension or withdrawal with prejudice. Students who have been suspended or withdrawn with prejudice and subsequently readmitted may apply for transfer credit for courses that they take after readmission but before they actually return to Dartmouth. The regular rules and deadlines for receiving transfer credit will normally apply in such cases.

Transfer Credits For Matriculating Transfer Students

Students who transfer to Dartmouth after one or more years elsewhere may not transfer further credits. This prohibition includes exchange terms and other transfer work.

Students who have spent one or more years at another institution before matriculation at Dartmouth are subject to various special academic regulations. The eighth of these relates to the transfer of credit: 'Course equivalencies are determined by the Registrar or his/her designate. In the event of a question regarding the equivalency or appropriateness of a course, the department or program involved will be consulted. Courses applied for major credit must be approved by the major department or program.'

The basic principle guiding this regulation is that credit for matriculating transfer students is granted based on the same criteria that it is based for students who matriculate as first year students. Likewise, pre-matriculation credits on entrance (such as Advanced Placement) given by the original institution are evaluated according to Dartmouth standards. One exception to this general principle is that departments or programs which restrict transfer credit (for instance, only to majors) or which place certain courses out of bounds for transfer credit (for instance, elementary language courses) may approve such credits for matriculating transfer students, assuming the courses qualify otherwise.

Transfer students are notified upon admission that they must submit syllabi for all work requested for transfer credit, official transcripts and CEEB, CBAP, and other scores unless they are available from the Admissions Office. These transfer credits are evaluated by the same criteria and procedures used for currently enrolled students going away on transfer terms. This includes methods of conversion of quarter or semester hour courses into the

Dartmouth course credit system, determination of distributive credit, language requirement completion, etc. Once a student has filed a major or minor, any courses in the major or minor field that have already been granted degree credit are submitted for approval for major or minor credit by the appropriate academic department or program. It should be noted, however, that no more than half of all courses required for the minor or major, including prerequisites, may be satisfied by transfer.

All transfer credits will be evaluated and credit placed on the student's record before the end of the first term of enrollment, provided that the transfer documentation is received prior to the start of the term.

Credits and Proficiencies on Entrance

As indicated in the booklet *Your First Year: Class of 2018*, supplied to all first-year students, many students achieve credits on entrance for college-level courses and proficiency exemptions for others.

The evidence that may be used to demonstrate mastery of college-level work is limited to: (1) standardized test scores (Scholastic Assessment and Subject Tests, AP exams, British A-Levels, International Baccalaureate), (2) official transcripts from four-year colleges, and (3) Dartmouth placement exams.* The awarding of pre-matriculation credit based on French, Swiss, Italian and German Baccalaureate results is evaluated on a case-by-case basis, and is limited to two credits on entrance granted in any one discipline. Students who have mastered material covered in Dartmouth courses without providing the aforementioned documentation may receive exemption, but not credit on entrance, from such courses if approved by Dartmouth departments or programs. The maximum number of pre-matriculation credits that students may be awarded is nine (9).

Credits on entrance do not satisfy any part of the Distributive, World Culture, or Interdisciplinary requirements. The awarding of pre-matriculation credit and formal requests for exemptions must be made within the first term of study.

The taking of a course rated as equivalent to one for which course credit has been granted will nullify the credit received on entrance and it may not be reinstated. In the case of elementary language courses, students may not receive credit for a course below the level at which they have been placed or from which they have been exempted except by prior written permission of the department/program chair.

Working Rules and Regulations

Course Loads

The normal course load in each of the four terms of the academic year is three courses. While two- or four-course loads are allowed within specified limits, no matriculated undergraduate may have in any term a load of fewer than two courses or may in any term take, or receive credit for, five or more courses. Any registered student not officially enrolled in at least two courses by the end of the tenth day of classes in a term is liable for administrative withdrawal.

Should a student have what he or she believes is a compelling reason for adding a course after the tenth day, a petition may be addressed to the Registrar. The petition must explain fully the circumstances that have arisen since the start of the term to cause the request, and must be accompanied by written permission from the intended instructor. Regulations regarding withdrawal from courses after the tenth day of classes are enumerated elsewhere in the Catalog.

Two-Course Loads

A student may have a two-course load in any three terms, as a maximum, during his or her college career. There is no reduction in tuition associated with the taking of a two-course load. (See the section on tuition reduction for possible exceptions involving disabilities.) The end of the tenth day of classes of any term is the deadline for a student to reduce a course load from three to two or increase it from two to three. No change in either direction may be made after that date. See the first paragraph of this section for the possibility of filing a petition to add a course. There are no special restrictions as to the taking of Credit/No Credit courses or courses under the Non-Recording Option that apply to the course load chosen. Election of a two-course load is intended to permit increased concentration of effort upon the student's courses or to allow other unofficial academic effort. Although it is not necessary for a student to have at least one extra course credit accumulated before undertaking a two-course term, the election of a reduced load should not impair normal progress toward graduation.

Four-Course Loads

A student may without permission or extra charge undertake during a college career a four-course load up to a maximum of four times. Each qualifying student has until the end of the tenth day of classes of any term, within the maximum of four, to add a fourth course. Note: It is not possible to elect four courses until the term in question has begun. A fourth course may be dropped until the end of the sixth week of classes. After the end of the sixth week, the rules for withdrawal from courses apply and one of the four uses of this provision is thereby lost. A student who has already exhausted the quota of four, four-course loads may undertake additional four-course loads only by permission of the Registrar; the student is charged extra tuition in the amount of one third of the normal. Such students should be sure to note that the decision to drop

such a fourth course after the tenth day of classes does not result in full exemption from the extra tuition, but instead one reduced with time according to the tuition refund policy.

Election of Courses

After approximately seven weeks of each term every student scheduled to be enrolled as 'R' or 'O' elects courses for the following term. In elections of winter and spring courses all students make use of the newly published Timetable which updates this Catalog, and in the spring (or summer) the corresponding Timetable.

On occasion a student who has already taken and passed a course will wish to elect it again, sometimes with the intention of improving upon the earlier performance. Such is not allowable unless the course is of the type in which a project is carried farther (e.g., Chemistry 87) or in which the content is different (e.g., French 10 in a different one of its listed forms). Violation of this regulation results in loss of credit and grade points for the second election. (Sometimes a student gains permission from the Registrar to elect such a course as the two just mentioned as a no-credit, grade-only, non-averaged third or fourth course. Such a course does not count in that term's course load.) Students may not elect a course that has been renumbered but is wholly or effectively identical to one already passed; they should also make sure that a repetition in course number is not also a repetition in content that will lead to loss of credit.

Election of a course nearly equivalent to one for which course credit has been granted on entry, will entail loss of credit.

A student who has failed a course may elect it again. In this situation both of the grades are recorded and hence both are included in the cumulative average; only one course credit is earned. The same general principle applies to Credit/No Credit courses.

Full directions for electing courses are outlined on the Registrar's Office website. Numerous courses have enrollment limits set prior to release of the Timetable; others are limited as enrollments grow. If the demand exceeds the limit, students are enrolled according to priorities established by the offering departments and programs. Dartmouth College reserves the right to make changes in the offering of any listed course and to cancel it when the enrollment is fewer than five students.

Students registering for courses that require instructor permission, a prerequisite override, or any other special permission/override must first consult with the instructor and/or the instructor's proxy, if appropriate, and provide the instructor with his or her ID number so the instructor may apply the appropriate permission/override to his or her record. After the permission/override has been applied, the student receives a confirmation email that the

permission/override was applied. The student then registers for the course. Students who have not obtained a permission/override are not permitted to register for the course. After submitting their courses, students review their class schedule to ensure they have entered it correctly. Students should note that addition to Dartmouth's learning management system, Canvas, without registration in Banner does not constitute official registration for the course and may result in a loss of expected credit.

Many courses at the College have prerequisites, either in the form of prior course work, permission of the instructor, or both. It is the responsibility of each individual student to see that he or she has met the requirements for each course elected. Failure to heed published prerequisites may place the student in an untenable position in the course. Effective in the 2003 summer term, an instructor may require a student to drop a course during the first eight class days of the term if the student lacks the published prerequisite courses. Some departments/programs use Banner prerequisite checking and do not allow a student to gain entry without a prerequisite override, while some departments/programs simply list prerequisite requirements in this Catalog. In either case, the student is required to meet the prerequisites listed.

Each term, students who have filed proper course elections for the following term may make changes in them through the last day of classes in the current term.

Effective Fall 2003, an undergraduate student may request to take a course at the Tuck School of Business provided the course is cross-listed by an Arts and Sciences department or program, or has the subject code "TUCK". An undergraduate student may also request to take graduate courses at the other graduate schools provided the course is cross-listed by an Arts and Sciences department or program. The Committee on Instruction will deny an undergraduate student petition to take a course at the Tuck School of Business, or the other graduate schools, unless the course has been cross-listed or is one of the special TUCK courses offered to undergraduates.

Auditing a Course

Any student wishing to earn credit for a course offered at Dartmouth must elect the course for a term in which he or she will be registered (having the enrollment pattern letter R or O), paying tuition, and actually performing in that term the full normal work of the course. Accordingly, it is not permissible for a student to do the work of a course when not registered and then elect it for credit later when officially registered.

With the permission of the instructor, a student may choose to audit a course instead of electing it for credit. The student should not expect to participate in class discussion or laboratory work, or expect the instructor to read or grade any work the student undertakes. No formal record is kept concerning courses audited; the student may

not call on the instructor to write letters concerning his or her accomplishment or suggesting the quality of performance.

Registration and Course Changes

At the beginning of each term students must check-in online using BannerStudent. Students may begin check-in the day before classes begin and have until the end of the third day of class to complete check-in. This process requires the on-line verification/update of the student's local address, emergency information, confirmation of missing student information, and an enrollment commitment for the term. The check-in process indicates any holds that may have been placed due to failure to settle the tuition bill or Dartmouth Card account, file a major when due, or meet certain other College requirements. If holds exist, information is provided to indicate where and how to remove the holds. (Note: In-person processes to remove holds must be recorded during regular office hours, M-F, 8am-4pm, and may require completion earlier than the published deadline date. All online transactions must be completed by midnight of the published deadline date.)

A fifty-dollar charge will be made for check-in after the deadline. Students may submit a petition to the Student Financial Services Office for a fee waiver only if supporting documentation from the office who initiated the hold is provided. (Petitions without supporting documentation will not be considered.) Any student scheduled to be in residence who has not completed the check-in procedure ten calendar days after the term begins is subject to administrative withdrawal from college immediately thereafter. Any student whose enrollment pattern calls for a residence term (R), but whose plans change, should be sure to change the pattern by the end of the ten days; otherwise he or she will be charged two hundred dollars instead of the previously indicated one hundred dollars (see the first Note in section 2 above).

Beginning with the first day of classes, students are eligible to change courses online using BannerStudent. Each term a five-day period is available for the adding, dropping, or exchanging of courses or sections. Information about adding, dropping and exchanging courses using BannerStudent are on the Registrar's website. During the second five class days of a term students may add or exchange courses only by securing the approval of the instructor of the intended new course(s). Students should note that the last day of this period is the tenth class day of the term, i.e., the final day to settle on a load of three or, if desired and allowable, two or four courses. Be sure to study carefully Section 1. Any student not officially enrolled at the end of the tenth day of classes in any term in at least two courses becomes liable for administrative withdrawal by the Dean of the College.

After this second five-day period a student may exchange courses only under certain conditions. He or she must

obtain the written approval of the instructor of the intended new course, the written certification of the instructor of the course the student wishes to drop that he or she is not failing the course, and the written agreement of the Registrar to the overall change. Courses that are normally approved for exchange, per the Committee on Instruction, include section changes, those where the subject matter is essentially the same, where there was inappropriate placement within the same department/program (for example language courses), thesis and independent study courses, or courses that may be offered with or without laboratories. Completely unrelated courses and those exchanged late in the term are not normally approved.

On May 29, 1995, the Faculty approved changes in procedures for dropping or withdrawing from courses. These procedures took effect with the 1995 Summer term.

Each term is divided into three parts with regard to the rules and procedures governing course drops and withdrawals. The specific dates involved appear in the Academic Calendar. As the various deadlines are regulated by faculty policy and are consistently administered, students should be careful to be aware of them each term.

During the first ten class days of a term, as indicated above, students may drop courses as they please. Courses dropped in this period will not appear on the transcript. For students taking four courses, this period extends to the end of the sixth week.

After this period, and until ten class days before the last class day of the term, students may withdraw from a course at their own discretion. They must, as a courtesy, notify their instructor of their intention, and obtain the instructor's signature on a course withdrawal card. This card must be filed in the Office of the Registrar on or before the withdrawal deadline. The course remains on the student's transcript with the notation W for Withdrew. First-year students must also obtain the signature of one of the Deans of Undergraduate Students. Neither the instructor nor dean has the authority to forbid the withdrawal (excepting the case of first-year Writing and first-year seminar courses). Note: Requests to remove a W from the transcript will not be considered.

During the last ten days of classes in the term and subsequently, students must petition to withdraw from a course. Such petitions must be accompanied by a written response from the instructor in the course, and confirmation that the student has discussed the matter with one of the Deans of Undergraduate Students. It will be expected that almost none of these petitions will be approved except in the most extreme medical or other circumstances, arising after the deadline. Petitions are reviewed and approved or denied by a committee that meets weekly during this period. Students whose petitions are denied may appeal to the COS Subcommittee. Once the final examination period has begun, it will be assumed that

students intend to complete their courses, and no course withdrawal requests will be accepted.

It is important to note that no student may have more than three terms in which he or she is enrolled in only two courses (courses from which the student has withdrawn do not count toward the course load). A student may never be enrolled in just one course.

At any time during a term, students may view their course schedule on BannerStudent to confirm the courses in which they are officially enrolled, as well as classrooms and instructors. Checking this source in the first two weeks of the term is strongly advised to ensure that course elections officially on file match the student's intentions.

Administration of Courses; Scheduling of Final Examinations; Pre-Examination Break

Not later than two weeks after the start of each academic term, every course instructor should provide students with a list of the papers, reports, examinations, and other requirements that are the components for a grade in the course, and the approximate dates on which the work is due.

By vote of the Faculty, effective the spring term of 1981-1982, during the last five days of classes of each term, no major tests or examinations may be given. Routine quizzes and drills may, however, be administered. Also by vote of the Faculty, in every term there shall be a mandatory two-day break (Pre-Examination Break) between the last day of classes and the first final examination, during which no classes or tests may be scheduled. The academic calendar lists the various dates term by term. Because of the adoption of Memorial Day as a College holiday in 1998, the two days of the Pre-Examination Break in spring term will normally fall on Monday (Memorial Day) and the following Thursday, with final class days on Tuesday and Wednesday and examinations beginning on Friday.

Since problems sometimes arise in the reconciling of classroom and extracurricular schedules, the Executive Committee of the Faculty has established the regulations of the following three paragraphs:

"Regular class attendance is expected of all students. Though academic schedules may sometimes conflict with College-sponsored or College-recognized extracurricular events, there are no excused absences for participants in such activities. Students who participate in athletics, debates, concerts, or other activities should check their calendars to see that these events do not conflict with their academic schedules. Should such conflicts occur or be anticipated, each student is responsible for discussing the matter with his or her instructor at the beginning of the appropriate term. Instructors may be accommodating if approached well in advance of the critical date.

Such accommodations can be made only when the conflict occurs because of a scheduled College-sponsored or

College-recognized event. No participant should expect to be excused in order to attend a team meeting or orientation session, practice session, meal, or other such activity.

No College-sponsored or College-recognized regular-season event may be scheduled during a Pre-examination break or a Final examination period except with the permission of the Provost, Dean of Faculty, and Dean of the College. One such exception is the regularly scheduled Saturday football game that is scheduled during the fall final examination period; during this time normally final examinations are suspended.”

The Registrar announces the annual schedule of final examinations at the beginning of the academic year, effective fall term 2002. The schedule is arranged so that any instructor can allow up to three hours for the final exam. If a student is scheduled to have two examinations in actual conflict or three examinations on a single calendar day, the student may seek relief from one of the instructors to take that examination at another mutually convenient time during the final examination period. Therefore, students should be prepared to be available for examinations through the last day of the examination period. It is not uncommon for a student to have two examinations on a single calendar day or three examinations in two days. In these circumstances, no adjustment should be expected.

All regularly scheduled final examinations occur during the announced examination period; no undergraduate may be either allowed or required to take any final examination prior to the start of the examination period. Take home examinations, papers, or assignments due after the last day of class cannot be due earlier than the end of the second day of the examination period or the time of the regularly scheduled exam, whichever comes later. (By vote of the faculty on May 23, 2005.) A student who is not able to take a final examination or otherwise complete a course on time due to illness or other compelling cause must work with the instructor and the Dean of the College Office to make arrangements for an Incomplete well in advance of the examination or other deadline. Be sure to consult the section on standings of ‘Incomplete.’

Final Grades

Whether or not there is a final examination, the instructor submits grades not later than four days after the end of the final examination period, subject only to the following stipulation: in those courses in which there is the requirement of a term paper or overall project, but no final examination, instructors may defer the required date for students to submit this work as late into the examination period as they may find convenient, provided that the final grades are nonetheless reported to the Registrar not later than four days after the close of the examination period. If, however, the paper or project is to be submitted prior to the beginning of the examination period, the final grades are to

be reported not later than five days after the start of the examination period. For all final examinations scheduled after the Sunday prior to Thanksgiving Day in the fall term, the instructor reports final grades to the Registrar not later than the Wednesday after Thanksgiving Day.

Several days thereafter, the Office of the Registrar posts final grades. At that time, students may access their grades on BannerStudent. Should you wish to learn a grade prior to this you must obtain it from your instructor. By vote of the Faculty every instructor has the obligation to make grades available to the students; the instructor may leave grades with an administrator, ask you to supply a self-addressed postcard, or use any other convenient method that does not violate confidentiality. The Office of the Registrar will not supply these grades; such is done only in the case of standings of Incomplete for which grades have since been assigned.

The assignment of final grades is the responsibility of the instructor. A student who questions the appropriateness of a grade should confer with the instructor. If the instructor agrees, he or she will make a written request, with the approval and co-signature of the department/program chair, to the Registrar; the request must indicate one or more specific ways in which the student was done an injustice. A simple change of mind will not suffice.

Should the Registrar not approve this petition, the instructor may appeal to the Dean of the Faculty. If the instructor declines to request a change in grade, the student may seek aid in turn from the chair, the Associate Dean of the Faculty for the appropriate division, and the Dean of the Faculty; it is unusual for such appeal to go beyond the chair.

All student appeals for change of grade must be initiated by the last day of the term following that in which the course was taken. The grade change request must be submitted by the instructor to the Registrar by the last day of the second term following the term in which the course was taken.

No change in grade may be made on the grounds of course work completed after the term in which the course was offered other than in the case of an official incomplete. No change in grade may be made after a student has been graduated other than in the case of clerical, computational or other similar administrative error. It can only be initiated by the department/program chair within one year of the student’s graduation.

Election of a Major

As indicated under the Requirements for the Degree, students declare a choice of major after the beginning, and must do so by the end of his or her fifth term of residence or, in some cases, immediately thereafter.

Students in residence (R) during the winter term of their second year may start the major declaration process at the start of winter term and must declare it by the second Thursday of spring term, whether or not they will be in residence that term. As a practical matter, most students who will not be enrolled in the spring term must declare their major before leaving at the end of the winter. Students not in residence in their second winter will be required to declare their major by the last day of class in their next term of residence. Since no student is required to declare a major before the end of the fifth term of enrollment (R, O, and X all being included) in a few cases the deadline for declaring is delayed from that indicated above until the end of the fifth term of enrollment is reached.

Early in the appropriate term, every student required to declare a major submits a major plan using DegreeWorks which requires the approval of the chair of the appropriate department or program (or other authorized faculty member designated by the chair). The student also lists the courses that are prerequisite to the major and the culminating experience. Detailed instructions for major declaration and the use of DegreeWorks are available on the Registrar's website.

Important Note: In working out your major with the department or program adviser you may find it necessary to modify your enrollment pattern (D-plan). If you do modify your D-plan, be sure to alter your official D-plan accessed from the BannerStudent menu or at the Office of the Registrar. It is the official enrollment pattern as filed with the Registrar and as displayed in BannerStudent, not what is listed in DegreeWorks program planner or any other document, that certifies your actual enrollment pattern (D-plan).

Clearly, it takes a great deal of time and effort to work out a desirable major program, and the more individualized it is, the more thought, consultation, and possible committee action will be required. Be sure to become familiar with the descriptions in this Catalog. Highly structured standard majors, such as Engineering Sciences, and worthwhile individualized ones, although quite opposite in nature, are likely to require the earliest starts and most careful planning. Bear in mind that most advanced and many elementary courses are offered only once a year, and that quite a few are offered only every other year. As indicated earlier, it is to allow the careful planning especially needed for the Dartmouth Plan that this Catalog covers a two-year period.

Frequently students are reluctant to sign up for a major because they do not feel sure enough that they are ready to make a suitable choice. They should not worry unduly in this respect: what is necessary is to make a start. Many students change to another major; there is no penalty of any sort for making a change, but note that students may not change major (or type of major, including the addition

of a second major) later than the first week of their last term in residence.

As indicated earlier in this Catalog, there are three main possibilities for majoring, namely, the Standard Major, the Modified Major, and the Special Major. You should be sure to review these descriptions. As suggested by the name, most students pursue a Standard Major as offered by most departments and programs.

Multiple Major

Many students major in two separate fields, often quite dissimilar, for instance, Theater and Government. To do so, the student must submit two separate major plans to the two departments or programs, approved by both Chairs. The culminating experience must be satisfied for both majors. In designing the double major program, it is not possible to use any individual course as part of both majors (although a course may be part of one major and prerequisite to the other, or prerequisite to both majors). A student may start with one major and later add, through appropriate submission, a second. Either or both of the majors may be Standard, Modified, or Special. The student may at any time decide to return to a single major by submitting a "drop" major submission using the Major/Minor Dashboard on BannerStudent. See the Registrar's website for detailed instructions. Note that the regulation concerning the deadline for making a change of major (or type of major) is not intended to keep a student who has been carrying a dual major from dropping one major in the last days of the term preceding graduation.

Preparation for Graduation

A Dartmouth student of the Class of 1988 or later class is eligible for graduation at the end of any term in which he or she has completed at least six terms in residence with course count of at least thirty-five and the various other requirements, including the completion of the major as certified by the major department or program.

Students whose enrollment patterns indicate that they plan to receive the degree during the current academic year must apply for the degree. Students are annually notified of deadlines and instructions for this process. The student must indicate exact plans for completing the minimum 35 credits required, that is, by what combination of R, O, X, and T study the total will be achieved. Students who have studied elsewhere and failed to supply a suitable transcript of credits eligible for transfer, and certain others, may not be approached since they do not appear to be current degree candidates. It is up to them and to any student who wishes to graduate at other than the usual time to inform the Office of the Registrar and his or her major department or program of this intention. No student who has failed to apply for the degree will be graduated.

Students are advised not to study off-campus or to plan to transfer credits in their last term, particularly if it is the spring term: the only acceptable evidence of work

performed is a Dartmouth faculty grade report or an official transcript in the case of transfer credits. Students who do hope to transfer credits in time for graduation must, therefore, order an official transcript to be delivered directly to the Registrar's Office at the earliest possible date.

It is the duty of each student to keep track of progress in completing the various requirements. Each student has access to DegreeWorks, a degree audit report that is available on BannerStudent. The audit indicates the current standing of the student with respect to each degree requirement (other than those pertaining to the major(s)).

No student may graduate who has any course recorded as incomplete, ON, or AD, no matter how large the course count. The problem may be resolved by normal completion of the course or conceivably by a drop without penalty if authorized by the Registrar and if the final course count is still at least thirty-five. Otherwise the course may be assigned the grade of E without credit, provided again the final course count is still adequate.

Academic Standing

All students are considered to be in good academic standing who are eligible to enroll the next term. Note, however, the following regulation:

A student not in good academic standing as a result of his or her performance in the last term of enrollment preceding intended graduation, but otherwise eligible for graduation, may graduate only with special approval of the Committee on Standards.

Honors

General (Latin) Honors

The regulations of the following three paragraphs apply to the awarding on graduation of the degree of Bachelor of Arts summa cum laude, magna cum laude, or cum laude:

A student with final average exactly matching or exceeding the final cumulative average of the lowest standing of the past three academic year's top 5% of graduates will be awarded the degree summa cum laude.

A student with lower standing but with final average exactly matching or exceeding the final cumulative average of the lowest standing of the past three academic year's top 15% of graduates will be awarded the degree magna cum laude.

A student with lower standing but with final average exactly matching or exceeding the final cumulative average of the lowest standing of the past three academic year's top 35% of graduates will be awarded the degree cum laude.

The lowest averages for these three groups of graduates in the three academic years 2012-2013 through 2014-2015 were, in descending order 3.91, 3.81, 3.66. Accordingly, these values govern the awarding of the corresponding honors in 2015-2016.

A Senior Fellow may be eligible for these honors by application of the regulations already given, provided that the Committee on Senior Fellowships certifies that the level of his or her work during the fellowship year justifies the awarding of the honor.

The students who attain the first and second highest standings in each graduating class shall be given respectively valedictory and salutatory honors (which shall not necessarily consist of appointments as commencement speakers). No student shall be eligible for salutatory or valedictory honors who has not been for at least three years a student at Dartmouth College.

The following selection process was established in 2014 for determining the Valedictory speaker:

- The Registrar determines in early spring term the possible Valedictory candidates based on the highest GPA in the graduating class, and informs the Dean of the College and the Dean of Faculty of those candidates.
- Students in this group are asked by the Dean of the College whether they are interested in speaking at Commencement if they attain Valedictory rank and, if they are, that they inform the Dean of the College of this.
- The candidates interested in speaking are considered by a Committee consisting of the Dean of Faculty, two of the Associate Deans of Faculty, the Dean of the College, and two of the Associate Deans of the College. This committee will devise and articulate a set of criteria and make a recommendation directly to the President.
- The President makes the final decision about who will speak at Commencement. The students are informed of the decision by the Dean of the College or designate.
- If, in a particular year, none of the Valedictory candidates wishes to speak, the Salutatorian candidates will be invited to be considered. The same process should be used as the one for selecting the Valedictory Speaker.

Honors in the Major

Students with sufficiently high grade point averages overall and in their major may be admitted to the corresponding Honors Program. For details of admission and requirements see The Honors Program section in this Catalog. To be certified for graduation, they like other students must complete in at least passing fashion all of the courses of their major along with any other requirements normally specified by the department or program.

Those graduating honors candidates who achieve at least a B+ average in the work of the Honors Program (but not necessarily an overall minimum B+ average in the major) will have officially completed the Honors Program and will so earn Honors in their major. If the department or

program deems that the student has performed outstanding independent work, it may assign High Honors in the major by an individual vote.

Honors or High Honors in the major will be entered on a student's permanent record, e.g., Honors in History or High Honors in Chemistry. No entry will be made concerning Honors or completion of an Honors Program for a student who does not achieve the indicated B+ average in the work of the Honors Program.

A number of departments and programs have described fully their Honors Programs in the description of their majors; others refer to this statement and to the general requirements for the Honors Program.

Honor List

At the close of the spring term an Honor List is calculated for all the classes, based upon the work of the year starting the previous summer, and divided into three groups; to be included, students must have been enrolled for at least two of the terms, have received at least five regularly recorded grades (i.e., other than CT, NC, or NR), and have no standing of Incomplete in any course for the year. The regulations of the following three paragraphs apply:

An eligible student with annual average exactly matching or exceeding the annual average of the lowest standing of the previous year's top 5% of eligible students will be placed in the first honor group (i.e., will be designated as a Rufus Choate Scholar) for the year.

An eligible student with lower standing but with annual average exactly matching or exceeding the annual average of the lowest standing of the previous year's top 15% of eligible students will be placed in the second honor group for the year.

An eligible student with lower standing but with annual average exactly matching or exceeding the annual average of the lowest standing of the previous year's top 35% of eligible students will be placed in the third honor group for the year.

Approximately January 1 in the current academic year the annual averages for the past academic year of all the eligible students of that year (as defined in the first paragraph) will be examined and the lowest annual averages for the students in the top 5%, top 15%, and top 35% will be determined. These values accordingly govern the placement in honor groups for 2015-2016. Preliminary examination suggests that the required averages will closely approximate, in descending order 3.96, 3.86, 3.70.

Phi Beta Kappa

Phi Beta Kappa is an honorary society, originally founded at the College of William and Mary in 1776, in which membership is conferred for high scholastic standing only. The Alpha of New Hampshire was established at Dartmouth in 1787, being the fourth oldest chapter in the

country. Membership is determined by vote of the chapter according to scholarship record, no initiative being taken by the student. The president of the chapter is Jay Hull, and the secretary-treasurer is Kate Soule.

The following persons are eligible for regular membership:

1. Any undergraduate who on October 15 of the fall term three years after matriculation has completed at least eight R (Residence) or O (Off-Campus) terms at Dartmouth College, and who then ranks in cumulative average among the twenty highest in that category. To be considered on October 15, such a student should have completed (with final grades) all courses for previous terms; if such is impossible, the student may present the reasons to the Chapter Secretary for due consideration.
2. Any student who at the time of graduation from Dartmouth College has a cumulative average no lower than the average achieved by graduates within the top tenth of those graduating in the preceding three academic years. If the application of this figure results in the selection of less than ten percent of the graduating class, additional students will be invited to join Phi Beta Kappa to bring the total membership to ten percent of the graduating class.

Note: The cumulative average required of candidates during the academic year 2015-2016 is 3.86 which was the dividing line for the top tenth of those graduated in the academic years 2012-2013 to 2014-2015.

The Society of Sigma Xi

Sigma Xi is a scientific honor society, originally established at Cornell University in 1886. Its mission is to honor scientific accomplishments, to encourage and enhance the worldwide appreciation and support of original investigation in science and technology, and to foster a creative and dynamic interaction among science, technology, and society. A fundamental responsibility of the Society is honoring research scientists or those with aptitude for research. Candidates are nominated by full members of Sigma Xi. Membership is determined by a vote of the Dartmouth College chapter's Committee on Admissions. The president of the Dartmouth College chapter is Dean E. Wilcox, the vice-president is Timothy P. Smith, the treasurer is Charles P. Daghljan, and the secretary is Susan Taylor.

The following persons are eligible for associate and full membership:

1. Associate Membership. Nominees for Associate Member should be seniors or early graduate (e.g., master's) students who have demonstrated strong aptitude for scientific research. They must have done research that has resulted in an excellent written report, which should be available to the Committee on Admissions if requested. They should also have a

demonstrated interest in further study and/or research in a pure or applied science.

2. Full Membership. Nominees for election or promotion to Member should be graduate students in the final stage of a Ph.D. program, or those who have already completed the Ph.D. (including postdoctoral associates and faculty members). They should have demonstrated noteworthy achievement in research, as evidenced by a completed Ph.D. dissertation or at least two published papers on their research, at least one of which lists the nominee as the principal author.

Fellowships and Scholarships

Senior Fellowships

By vote of the Board of Trustees, each year there is selected from the junior class a group of students (usually no more than ten, but in exceptional circumstances a maximum of twelve) to be Senior Fellows during the following year. The Senior Fellows are chosen from among students of such intellectual caliber, independence of character, and imaginative curiosity that they have become interested in some personal project of study that will contribute to their own intellectual growth. Every Senior Fellowship must involve a project in which the intellectual scope and breadth of imagination goes beyond that which can be accomplished by taking courses offered in the existing curriculum. These students are permitted all the freedom they are capable of using profitably within the framework of the undergraduate college. The Senior Fellowships constitute recognition of the existence within the College of the kind of responsible individualism that must ever be a part of education in a free, democratic society, and provide exceptional opportunity for self-education for those who are best able to use it.

Selection of the Fellows is made by the President on the recommendation of the Faculty Committee on Senior Fellowships, consisting of a representative of the Dean of the College, the Assistant Dean of the Faculty for Undergraduate Research, and six tenured or tenure-track faculty. The regulations governing the selection of these Fellows are as follows:

1. Regulations Concerning the Application to a Senior Fellowship: Members of the junior class may become candidates for Senior Fellowships by individual application. Students applying for Senior Fellowships must have a minimum College grade point average of 3.0 at the time of application. The Committee on Instruction is empowered to make small downward adjustments of this requirement when the Committee on Senior Fellowships strongly supports the application of a candidate who does not quite qualify.

In the planning and execution of this program a Fellow shall be responsible to some member of the Faculty who shall act as adviser. No member of the Faculty will be

expected to act as principal adviser for more than one Senior Fellow during an academic year. In the exceptional case where two or more students collaborate on a senior fellowship, each student must have a separate principal adviser. If the principal adviser is not a tenure-track member of the Dartmouth faculty, one of the secondary advisers must meet that criterion. The Committee on Senior Fellowships shall exercise general supervision over all programs.

Each candidate must file an application with the Office of Undergraduate Advising & Research not later than the end of the third week of the term, two terms before the Senior Fellowship is to begin. Included in the application shall be an application form, itemized budget, official transcript, and a detailed description of the project: what the candidate proposes to do, the reasons for doing it, and plans for achieving the goals. The applicant's potential adviser shall submit to the Committee on Senior Fellowships, in support of the candidate's application, a comprehensive written statement in which the merit and feasibility of the project, the qualifications of the applicant, and the commitment of the adviser are fully discussed. In addition, two other faculty members must submit recommendation letters for the candidate.

The Committee on Senior Fellowships will review all applications and select candidates to advance to the interview phase. Selected candidates and their potential advisers will be required to attend an interview with the Senior Fellowship Committee. If the candidate will be off-campus in the term during which the application is filed, he or she must notify the Office of Undergraduate Advising & Research at the time of the application so that plans can be made for alternative interview formats. Applicants must plan ahead and discuss their projects with their prospective adviser and the Assistant Dean of the Faculty for Undergraduate Research a minimum of one term before the term in which their application will be submitted.

2. Requirements for Senior Fellows: The Fellowship year comprises three terms of registered enrollment, at least one of which must be spent primarily in residence. Fellows are enrolled for two Senior Fellow courses in each term of the Fellowship. The courses are graded on a Credit/No Credit basis. Supervised independent research away from campus will count as an R-term. All Fellows must have their schedules approved by the Senior Fellowship Committee.

Senior Fellows are required to complete a total of thirty-five course credits before the end of their Fellowship year. Fellows must complete all distributive and related requirements by the end of the second term of the Fellowship. During the Fellowship year, Fellows shall take such courses as the Committee on Senior Fellowships may prescribe.

Fellows shall not be required to complete a major, but may do so if they so desire; they do not receive any reduction in

the requirements for a major. No part of the Senior Fellowship work may be submitted for departmental major honors. Students who plan to finish a major in addition to the Senior Fellowship should be aware that they must complete all of the major's requirements, including a culminating experience if required. The Senior Fellowship does not fulfill the culminating experience requirement for a major.

The Fellowship appointment is provisional for one term. Continuation for the remaining two terms requires the Committee on Senior Fellowship's approval of a Fellow's accomplishments and rate of progress during the first term. In making its determination, the Committee on Senior Fellowships shall evaluate a written report from the student, a detailed analysis and recommendation of the principal adviser, and such additional information as may be required. Senior Fellows should have a plan to complete a major in time for graduation in the event that the Fellowship is discontinued at the end of the first term.

3. **Completion of a Senior Fellowship:** Senior Fellowship projects are evaluated by three or more examiners. Except in special circumstances, at least one of the members is expected to be from outside the College. At the end of the first term of the Senior Fellowship, the candidate's primary adviser will recommend two or more examiners, in addition to the primary adviser, to serve on the candidate's Examining Committee. The Committee on Senior Fellowships must approve the list of examiners. The membership of the Examining Committee may change during the course of the Fellow's tenure, but any change must be approved by the Committee on Senior Fellowships.

The Examining Committee for each Senior Fellow will make a recommendation to the Committee on Senior Fellowships as to whether the Senior Fellow has completed the Fellowship and whether a completed Fellowship should be considered for Honors or High Honors. The Committee on Senior Fellowships will determine the final standing for each Senior Fellow based on the recommendations of all members of the Examining Committees and will notify the Registrar of these final standings. This standing shall become part of the Fellow's permanent record.

The Fellow must submit a draft of the project to the primary adviser by the end of the third week of the final term of the fellowship. The student's final Senior Fellowship project must be completed and submitted to the Examining Committee three weeks before the beginning of the final examination period in the third term of the fellowship. Each Fellow must make an oral presentation to the Examining Committee within two weeks of submitting the final project. In addition, each Fellow must present the final project to the Dartmouth community in a public forum prior to the beginning of the final examination period in the third term of the fellowship.

Senior Fellows who do not meet these deadlines are not eligible for Honors or High Honors. In addition, the Committee on Senior Fellowships may declare failing a Senior Fellow whose work has not been of satisfactory quality. If this occurs, the Senior Fellow will not receive credit for the two Senior Fellowship classes in the third term of the Fellowship. The Committee shall in such cases specify the requirements to be fulfilled before the degree is granted.

4. **Tuition Reduction for Senior Fellows:** All Senior Fellows are entitled to attend their final term at Dartmouth College tuition-free. Since this provision may have differing effects on individual students, a Senior Fellow has two options:
 - a. Tuition remission for the final term (for students receiving financial aid, this will mean a reduction in the self-help package for the entire year); or
 - b. A graduate fellowship equal to one term's tuition. (The amount of the fellowship is based on the tuition in the year in which the student completed the fellowship.)

Senior Fellows who are receiving financial aid should contact the Financial Aid Office to discuss these two options before making a decision. Senior Fellows who are not receiving financial aid should contact Student Financial Services.

James O. Freedman Presidential Scholars

The James O. Freedman Presidential Scholars Program was initiated under the auspices of the Faculty of Arts and Sciences in 1988 to encourage and facilitate the attainment of intellectual and artistic excellence among Dartmouth undergraduates. In 2007 the program was renamed in honor of James O. Freedman who was President of Dartmouth College from 1987 through 1998. The James O. Freedman Presidential Scholar Research Assistantships offer students the opportunity to serve as research assistants to individual members of the faculty. This venture in student-faculty collaboration introduces third-year students to approaches and methods of research that may prove useful in their own future scholarship. By working closely on a project with individual faculty mentors, juniors receive apprenticeship training in research that may facilitate pursuit of an honors thesis or Senior Fellowship.

The assistantships are two terms in length and must be completed during the junior year. The two terms can be sequential or may be split by mutual agreement of the student and directing faculty member. As assistants, students are expected to work seven to twelve hours per week and will receive an honorarium. If the second term's work is deemed worthy of academic credit as Independent Study by the directing faculty member (subject to departmental criteria), one course credit may be given if

the student so requests. Students must register during the normal registration period for Independent study credit through the faculty mentor's department/program and the Registrar. Assistantships for which Independent Study credit is to be granted will involve a greater commitment of time than non-credit Assistantships. Students who do not elect or qualify for this option will receive the honorarium for the second term of their

Assistantships. Students may not receive both honorarium and credit for the same work.

Upon completion of two terms of research and submission of all required documentation, the student's transcript will carry the notation James O. Freedman Presidential Scholar Research Assistant. To be designated a James O. Freedman Presidential Scholar at Commencement, students must successfully complete the honors program in their major department/program or receive honors for the project for which they were appointed a Senior Fellow.

Eligible students are notified in winter term of their sophomore year. To be eligible, students must have attained a grade point average at the end of the fall term that places them in the top 40% of their class. Students interested in the program are responsible for contacting potential faculty mentors and arranging interviews. Students may interview for Assistantships during the last two weeks of winter term and during the first two weeks of spring term. Faculty select their Presidential Scholars on the basis of these interviews. If the number of students applying for the program exceeds the number of Presidential Scholar stipends available, acceptance to the program will be made on the basis of academic standing and the relevance of the assistantship to the student's course of study.

Students may obtain further information in the Office of Undergraduate Advising and Research located in Parker House.

Awards for Graduate Study

In addition to national and international fellowships and awards by graduate schools in the United States, Dartmouth College fellowships are awarded each year to seniors (and in some cases recent graduates of the College) who have done academic work of distinction and who are qualified to proceed to advanced study in graduate school or to pursue an independent project or research in the U.S. or abroad.

Appointments to the fellowships are made by the President of the College on the recommendation of the Committee on Graduate Fellowships. Application forms and information are available through Scholarship Advising. Normally applications for the Reynolds Scholarships must be completed in early February, and for other awards in March or early April.

The James B. Reynolds Scholarships for Foreign Study are based on a fund given by James B. Reynolds of the Class

of 1890, and are awarded annually for projects or study abroad to Dartmouth seniors and graduates who are United States citizens, or to those who have made application for first citizenship papers in the United States. The awards are based on the intellectual ability and character of the applicants and on the value to the community of their program of study. The Scholarships may be used for study in any field in any foreign country, normally in affiliation with a recognized educational institution, and in any case in conformity with a definite program of study approved by the Committee on Graduate Fellowships. Additionally, programs of scholarly investigation or creative activity to be pursued independently abroad may be approved. The award is for one year only, for a sum of approximately \$20,000.

Dartmouth General Fellowships are awarded with consideration of the financial need of the applicant as well as of her or his academic merit. Most awards are for up to one year of study or research in the United States or abroad. Grants may also be used for short-term post-graduate projects. The funds are awarded in varying amounts, normally not exceeding \$5,500. The amount granted depends on the need of the candidate, taking into account other available sources, including fellowships and assistantships at graduate schools.

The Paul L. '83 and Neil T. McGorrian Fellowship is awarded each year to a graduating senior whose proposal for foreign travel or study reflects the spirit that motivated the lives of Paul '83 and Neil McGorrian: a desire to learn about the world and to communicate that knowledge to other Americans, a passion for the truth, and the courage to face challenges. Paul died tragically while pursuing a career as a foreign correspondent in Pakistan, only months after the untimely death of his younger brother, Neil. Applicants must be United States citizens or permanent residents. Students who plan careers in some aspect of foreign affairs and cultures, including such fields as journalism, the arts, education, diplomacy, preservation of indigenous cultures, environmental work, humanitarian relief, and economic development, are encouraged to apply. The award of approximately \$5,000 is for a period of two months to one year and is not renewable, but may be combined with other fellowships.

The William Hill Memorial Loan Fund has been established to provide financial aid for graduating seniors and recent graduates who are well qualified for graduate work and in need of financial assistance. Under its conditions, a student may apply to the Committee on Graduate Fellowships for a low-interest loan from this Fund.

The Alfred K. Priest Fellowships are awarded to Dartmouth graduates accepted into any graduate program at Harvard University, needing financial assistance beyond the amount available from Harvard. Fellows are named yearly, and each is awarded a stipend, not to exceed

\$10,000, which may be renewed annually until the completion of the advanced degree, not exceeding five years.

The Fred C. Scribner Jr. 1930 Fellowship, the Fred C. Scribner, Jr. 1930 and James H. Hamlen Fund Fellowship and the Charles H. Woodbury Class of 1897 Memorial Law Prizes are awarded each year to graduating seniors enrolling in law school. The Scribner Fellowships give preference to seniors from the state of Maine. The awards vary yearly, but are normally between \$3,000 and \$10,000 per award. The awards are non-renewable.

The H. Allen Brooks Traveling Fellowship is awarded each year to one graduating senior or recent graduate in the fields of architecture, urban planning, land conservation, historic preservation, architectural and urban history, and art history, who is committed to graduate work and a career in the above fields of study. The fellowship is intended to provide financial support for its recipient to study outside of a regular academic program. Fellowship recipients may study in any foreign country for one year. The stipend is currently \$15,000, and the award is non-renewable.

Financial Aid

Scholarships, federal grants, subsidized and unsubsidized loans, and employment are administered by the Financial Aid Office for the benefit of students who are unable to meet the full cost of a college education through their own and their families' reasonable efforts.

Scholarships and grants are gifts made to students with financial need and are offered as part of a financial aid 'package' that may also include loans and employment. Scholarship students continue to receive aid throughout their undergraduate years, for the first twelve terms of enrollment, as long as their need continues. Renewal applications must be filed each year. In addition to demonstrating financial need, students must make satisfactory progress toward the degree, as described fully in the Student Handbook.

Need-based College loans, Federal Perkins Loans, and both subsidized and unsubsidized Federal Direct Loans through the Federal Direct Lending Program enable the College to offer financial assistance each year to more students than could otherwise be aided.

Many employment opportunities are available to students on campus and in the community. These employment opportunities are for students who are eligible for Federal Work-Study as well as those who are not eligible. Employment information can be found at www.dartmouth.edu/~seo.

The Financial Aid Office can provide information concerning a variety of private and federal parent loan plans to supplement family resources and offer suggestions on other college financing options and plans. For full

information on all available financial aid, families should contact the Financial Aid Office (McNutt Hall).

Additionally, current and prospective students can access financial aid general information and forms at <http://admissions.dartmouth.edu/financial-aid/>.

For financial aid purposes, students are considered to be sophomores at the end of the spring term of their first year following matriculation if they have completed three terms, or whenever they have a course count of 7; to be juniors at the end of the spring term of their second year following matriculation if they have completed five terms with 14 course credits, or whenever they have a course count of 17; to be seniors at the end of the spring term of their third year following matriculation if they have completed eight terms with 23 course credits, or whenever they have a course count of 26. For the purposes of this classification, a 'completed term' means a term in which the student had an enrollment pattern of R, O, X, or T and received Dartmouth credit for at least two courses. Students receiving credits upon matriculation will be considered to have completed one term of work if two or more credits are granted, two terms if five or more credits are granted, and three terms if eight or more credits are granted.

Students participating in the Army ROTC program are eligible to apply for Army ROTC scholarships on a competitive basis to commence during their first year. Contact the ROTC Office in Leverone Field House for additional information.

College Charges

Tuition Charges

Tuition of sixteen thousand forty dollars (\$16,040) per term is charged each student for instruction, instructional facilities, and other services. Although this tuition charge covers the normal three-course load, students may, without permission or extra charge, elect a fourth course during each of four terms during their college career. After use of the four allowed four-course terms a supplementary charge of five thousand three-hundred forty seven dollars (\$5,347) will be assessed. Students should consult the Student Handbook and the Regulations section of this Catalog for details of the regulations concerning extra courses. Students taking a two-course load receive no reduction in tuition.

The Trustees believe that all Dartmouth students should appreciate that the tuition charge covers about one half of the cost to the College of each student's education at Dartmouth. For the remainder, he or she is the beneficiary of endowments received during the last two centuries from those who wish to support Dartmouth's kind of education, from current gifts, and especially from the very generous support of the Dartmouth Alumni Fund.

Tuition charges listed above apply to the summer, fall, winter, and spring terms of the academic year 2015-2016. Charges for the summer term of 2016-2017 will be announced at a later date.

Students who take reduced course loads because of documented, verified disabilities, and whose disability-related circumstances, as determined by Student Accessibility Services (SAS), significantly affect the number of terms they need to be enrolled at Dartmouth to be graduated, may be eligible for reduced tuition. Permission from the Registrar for a reduced course load is not sufficient grounds for tuition reduction. Tuition reduction requests to SAS must be submitted at the same time as requests for SAS's support for a reduced course load. If a student who has been granted tuition reduction takes a normal course load, the student must re-petition for reduced tuition in subsequent terms. Reduced tuition eligibility may be reviewed if a student's disability-related circumstances change significantly. For full information, inquiries should be sent to the Student Accessibility Services office.

Room and Board Charges

Students living in College residence halls are charged rents that vary depending on the quarters occupied. Room rent will be \$2,851 per term for the 2015-2016 academic year. If College property is damaged, those found responsible are charged for the required repairs.

All students are required to purchase a nonrefundable dining plan each term they are enrolled in classes or living in College or College-approved housing. All first-year students will receive the SmartChoice20 plan which will provide 20 meals per week and \$100.00 of flex dollars to spend during the term. In addition, first year students will be charged \$200.00 for meals during the Orientation program. For winter and spring terms, first-year students may change to one of the other two plans available for on-campus students or continue with the 20 meal per week plan.

More information about dining plans and costs at Dartmouth can be found at the Dining Services (DDS) website (<http://www.dartmouth.edu/dining/plans/>). To make a dining plan selection, please visit the Dartmouth Card Office website (<http://www.dartmouth.edu/~dartcard/>)

Room and board charges are billed to students through their Dartmouth student account. Payment is due by the date indicated on the student account statement subject to a late charge if the payment deadline is not met. Please refer to regulations covering payment of student charges for information regarding assessment of late charges.

Room and board charges listed above apply to the 2015-2016 academic year which includes Summer term 2015 through Spring term 2016.

Computing Equipment Charges

All first-year and transfer students are charged for the required purchase of a basic package of computing equipment to be used in their education, unless granted a waiver by the Director of Computing. Ownership of adequate computing equipment would justify such a waiver. Purchase of computing equipment in addition to the basic package is at the option of the student.

Class Dues

At the beginning of their first year undergraduate students are assessed a one-time charge of twenty two dollars (\$22). Funds collected from these charges will be made available to that class council over the four years that class is in attendance at the College.

Document Fee

In their first term of enrollment each undergraduate is assessed a one-time document fee of one hundred and fifty eight dollars (\$158). This fee entitles the student to an unlimited number of official transcripts. Additionally, the fee covers a number of services offered by the undergraduate Career Services Office. The fee covers these services while the student is in attendance at the college and post attendance it covers unlimited transcripts.

General Student Services Fee

All undergraduate students are assessed a \$294 General Student Services fee each term enrolled. The general fee partially supports a variety of services provided for all enrolled undergraduate students including but not limited to technology costs, library services and facilities, and recreation activities and facilities.

International Services Fee

The \$84.00 per term international services fee helps offset costs generated by the visa sponsorship process and the support services offered to international students. This fee is assessed to all actively enrolled international students at the College—both undergraduate and graduate. An international student for the purposes of this fee is defined as one who is not a U.S. citizen or a U.S. permanent resident, and who holds, or is applying for, a valid U.S. visa or immigration status under Dartmouth's sponsorship.

Student Activities Fee

All undergraduate students are assessed a \$86 Student Activities fee for each term in residence. Funds collected from these charges will be used to support the Student Assembly, other co-curricular organizations, and campus-wide cultural, educational, social, and athletic activities. Student Activities fee funds are managed directly by students through the Council on Student Organizations (COSO).

Health Access Fee

This \$82.00 per term fee supports the College's continuing commitment to providing health services to enrolled undergraduate, graduate and professional students. These services include those listed on the College's Health Service website at: <http://www.dartmouth.edu/~health/>

Health Insurance Charges

All full-time students must purchase the Dartmouth Student Group Health Plan (DSGHP) unless they complete the two step waiver process. A nonrefundable fee of \$2,645.00 will be billed to the student account, except those having an approved waiver, in early July for the 2015-2016 plan year. To begin the waiver process go to the DSGHP website located at: <http://www.dartmouth.edu/~health/depts/insurance/>. Please note that waivers received after July 1, 2015 will incur late fees.

Supplemental Course Fees

In limited circumstances supplemental fees may be assessed students enrolling in certain courses. Supplemental course fees must meet the standards detailed below to be processed on the student bill. Courses for which such fees will be levied will be identified in any course descriptions published in this Catalog or its supplements.

Special course fees must be recommended to the Executive Vice President by the responsible faculty Dean, and generally will be approved only when the following three criteria are met:

1. The fee must be required of each member of the class,
2. The fee must be the same for each class member, and
3. The services or goods related to the fee must be warranted by special circumstances and not be readily available from local vendors.

Students will be notified of actual fee amounts no later than the first week of class.

Miscellaneous Charges

The following miscellaneous fees and penalties are commonly applied:

A penalty of fifty dollars (\$50) is imposed on any student who fails to check-in by the prescribed deadline at the opening of any term.

A non-refundable, non-petitionable application fee of \$2,200 is assessed for the winter, spring, and summer terms. No fee is assessed for fall term.

A separate charge will be assessed for late payment of any student account bill. Payment is due and payable not later than the due date indicated on the billing statement. If

payment is not made by the specified due date a late charge equal to 1.5% of the amount payable will be assessed.

A charge of twenty-five dollars (\$25) will be assessed when a personal check or on-line payment is offered in payment of charges on a student's account and the check or payment is not honored.

Student Penalty Fees and Fines Policy

Fines and penalty fees may be assessed to students for various rule infractions and violations of policy. With due notification penalty fees and fines may be charged to the student's Administrative Fees and Fines Account. Failure to pay such fines or penalties may prevent a student's registration or release of transcripts or a diploma.

The Executive Vice President shall review and in consultation with the Student Assembly and Graduate Student Council approve all student fines and penalty fees that may be assessed. Student fines shall be consistently applied within the Dartmouth Community and will be approved only when the following criteria are met:

The amount of the fine or assessment must be reasonably related to the costs and/or seriousness of the infraction or violation of policy.

Revenue realized from the assessment of penalty fees and fines will be recorded to a general revenue account of the College. Generally, such revenue may not accrue to the department that assesses the fine.

Administrative costs associated with assessing and posting fines, hearing appeals, and collecting payments can be substantial, accordingly, alternative means to ensure compliance with rules and regulations must be considered before a penalty fee or fine will be approved.

Once the Executive Vice President has approved a penalty fee or fine, the following requirements or procedures must be met:

All rule infractions and violations of policy which will result in the assessment of a fine or penalty fee, must be identified in the Student Handbook and appropriate College or departmental materials and mailings. Specific reference shall be made in the Student Handbook that fines and penalty fees may be appealed.

Departmental materials shall include the amount of the fine, a statement of purpose, the circumstances under which penalty fees or fines are assessed, and the consequences of noncompliance.

Departments must publicize in their materials and mailings or by other means that an appeals process exists for students or parents who believe that their individual circumstances warrant an exception to assessment of the penalty fee or fine. Specific information should be available in connection with the handling of appeals and

appeals must be heard and resolved within a timely manner.

Students who commit rule infractions subject to a fine or penalty must be notified that a violation has occurred and that a charge is being assessed. If a fine is caused by the student's failure to meet a published deadline, notification of the fee is not required.

Fines and penalty assessments must be submitted to the Dartmouth Card Office within 30 days of the date the violation has been confirmed. Fees and fines may not be charged to a student's administrative account once the 30-day period has lapsed or the student is no longer enrolled because of graduation or withdrawal from the College. In cases where fees are assessed to reimburse the College for the actual cost of damages, fines must be submitted to the Dartmouth Card Office as soon as possible after final costs have been determined, but no longer than 30 days. Note: departments and offices may not receive or deposit direct payments from students for fines or penalty fees. They must be submitted to the Dartmouth Card Office.

If it is determined that a fine has been assessed incorrectly or waiver of the penalty fee has been approved as a result of the appeals process, the appropriate credit must be expeditiously applied to the student's Administrative Fees and Fines account.

Regulations Concerning Enrollment Pattern Changes

Students who change their enrollment patterns for a particular term less than five weeks from the start of the previous term create significant problems within the College. After careful consideration, the following regulations have been adopted. The charges imposed partially compensate the College for the very real costs connected with late changes.

1. Normally the final date for changing the pattern letter for any term shall be five weeks from the start of the preceding term. Any student who changes after that date from an 'R' (Resident Enrollment) will be charged one hundred dollars (\$100).

A student may petition for waiver of the charges via the Office of the Registrar in the case of extenuating circumstances. Such is normally granted only in instances where the extenuating circumstances could not have been anticipated prior to the deadlines, and were beyond the control of the student.

2. Any student who fails to check-in for a term, while still maintaining an 'R' through the end of the ten-day period designated for late registration, will be charged two hundred dollars (\$200).

Regulations Covering Payment of Student Account Charges

Account statements for tuition, room, and board will be available on D-Pay, Dartmouth's electronic billing and

payment system, approximately six weeks before the beginning of each term. When the account statement is available, an electronic mail message is sent to the student and anyone else authorized by the student. Payment is due 25 days after the statement is available; the exact due date will be indicated on the statement. If payment is not made by the specified due date, a late charge equal to 1.5% of the amount payable will be assessed.

No student will be permitted to enroll for any term unless the total amount due, including tuition, room rent, and applicable board charges has been paid in full.

The flexibility of the Dartmouth Plan makes it possible for an upperclass student, through a change in term patterns, to incur a tuition charge or other charges after statements have been produced. In such instances, since tuition, room charges, and dining plan charges are fixed or determined prior to the start of the term, the student must pay these charges by the payment deadline established even though a statement reflecting the charges may not have been produced and made available.

All students enrolled at the College have an account in their name through which tuition, room and board, and other costs of attendance are billed. Periodic account statements reflecting charges and credits posted to this account will be available on D-Pay. Financial aid awards which have been confirmed and documented, but not posted to the student's bill, can be considered as anticipated credits in calculating the balance due and any known when the statement is produced will be reflected on the statement. All necessary steps for processing such awards must be met before they will be accepted as deductions.

No transcript of a student's record will be issued until amounts due the College have been paid, nor will a senior receive a diploma until all College and community financial commitments have been met. In instances where a student's account becomes delinquent through flagrant neglect, the student may be subject to disciplinary action. In such cases no credit will be allowed for the work of terms to which the unpaid charges relate until all overdue charges are paid in full.

In those instances where a personal check or online payment is offered in payment of charges on a student's account and the check or on-line payment is not honored, a charge of twenty-five dollars (\$25) will be assessed. If the returned check or rejected on-line payment was the means of meeting an amount due or registration deadline, the deadline will not be considered met and the appropriate penalties relating to failure to meet the deadline may be assessed. The College reserves the right to demand payment by money order, certified check, or other mode of payment acceptable to the College in instances of repeat offenders. Additionally, flagrant or habitual offenders may be subject to disciplinary action.

Payment Plans

Dartmouth College provides students and their families the means to pay all or part of their expenses in interest-free installments over the course of the term. There is a \$25 fee per term to participate in the payment plan. Students and their families may enroll in the plan in D-Pay, Dartmouth's online billing and payment system, when the term's billing statement has been posted. Students and their families decide each term whether they would like to participate in the payment plan.

Refund Policy

The College policy on refunds for students withdrawing from the College, whether voluntarily or by dismissal, is set forth below.

Tuition: Refunds for students who withdraw after tuition has been paid, but prior to registration and the first day of classes, will be 100 percent of tuition. After the beginning of classes, refunds will be calculated as follows: a refund of 90 percent for withdrawal during the first week of the term, a refund of 75 percent for withdrawal during the second and third weeks of the term, a refund of 50 percent for withdrawal during the fourth week of the term, and a refund of 25 percent for withdrawal during the fifth week of the term. No refund will be made after the fifth week of the term.

Board: Refund shall be calculated on a pro rata basis for any student who withdraws voluntarily or who is dismissed from the College during the term.

Residence Hall Room Rents: The policy for residence hall room rent is identical to the tuition refund policy: 100% before classes begin; 90% during the first week; 75% during the second and third weeks; 50% during the fourth week; and 25% during the fifth week. There is no refund after the fifth week. This policy applies to all dormitory rooms and to room rents in College-owned fraternities and organizations. The effective date for the room rent refund will be the date upon which the student vacates the room and returns the room key.

Other Charges: Charges for computing equipment and for the Dartmouth Student Group Health Plan are nonrefundable. Other miscellaneous fees and charges, including student activity fees and class dues, are nonrefundable if the student withdraws after registration and the first day of classes.

The only exception to this policy will be for students receiving Title IV, HEA federal financial aid who are attending Dartmouth for the first time and who withdraw on or before the 60 percent point in time of their first term of enrollment. Refunds for these students will be calculated using the pro rata refund formula prescribed for these particular students by federal regulations. Please consult with Undergraduate Financial Aid Office for particulars and examples.

In the case of a withdrawing student receiving Dartmouth scholarship assistance or federal financial aid, the share of the refund returned to the student or family is dependent upon a number of factors. The amount of scholarship retained and/or the amount of repayment due to federal programs must be calculated in accordance with applicable regulations and formulas. Please consult with Undergraduate Financial Aid Office for particulars and examples.

Refunds, scholarship adjustments and repayments of federal funds are recorded to the student's account. All requests for student account refunds shall be submitted in writing to the Student Financial Services Office, and any balance due the student upon the making of such adjustments shall be paid to the student within 30 days.

In any instance where it is felt that individual circumstances may warrant exception to the Refund Policy, the student may appeal in writing to the Controller.

NOTE: For complete information regarding student life, and appropriate regulations, consult the Student Handbook

Student Residence

Dartmouth is a residential college. Therefore, all first-year students who are not married or in a college-recognized domestic partnership are required to live on campus during their first three academic terms at Dartmouth. Housing is not required after the first year. All remaining registered undergraduates who are not married or in a college-recognized domestic partnership may live in College undergraduate housing or in a College-recognized coed/fraternity, sorority, or undergraduate society house if space is available. Students who reside off campus during an enrolled term must file a local address as part of the on-line check-in process. Enrolled Dartmouth students may not live in coed, fraternity, sorority, or undergraduate society houses that are not recognized by the College.

NOTE.: For complete information regarding residence life and appropriate regulations, consult the Student Handbook, the Office of Residential Life publication Welcome Home, or the web site <http://www.Dartmouth.edu/~orl>.

Graduate Study

Professional Schools

The Professional Schools of Dartmouth College are the Dartmouth Medical School, the Thayer School of Engineering, and the Amos Tuck School of Business Administration. Information on their entrance requirements, courses of instruction, and other matters is published in separate catalogs, which may be obtained by addressing the Dean of each School. For the requirements for the degrees of Doctor of Medicine, Bachelor of

Engineering (in several engineering curricula) or Master of Engineering Management, and Master of Business Administration, also see the catalogs of the Dartmouth Medical School, the Thayer School of Engineering, and the Amos Tuck School of Business Administration, respectively; they are available from the respective schools or from the College Editor.

Graduate Degrees in Arts and Sciences

Programs leading to advanced degrees are offered in all departments in the Division of the Sciences, as well as in the Departments of Music, Psychological and Brain Sciences, and the Programs in Comparative Literature and Liberal Studies. The requirements for the degrees awarded by the Faculty of Arts and Sciences and the types of fellowship support available to graduate students in these programs are described in the following paragraphs. Inquiries regarding graduate study should be addressed to the department to which admission is sought or to the Dean of Graduate Studies.

Graduate Special Students: Under special circumstances holders of the Bachelor's degree may be admitted to College courses and register as Graduate Special Students. Permission to register must be secured from the Dean of Graduate Studies. Students in this category are not candidates for any Dartmouth degree.

Grades: Course work and grades are only one component of graduate education, and the grading system is designed to reflect this fact. The following grades will be used in courses acceptable for credit toward a graduate degree:

HP: High Pass, indicating work of quality which is distinctly superior to that normally expected of a graduate student.

P: Pass, indicating work of good quality, worthy of graduate credit. This would be the most common grade denoting satisfactory graduate performance.

LP: Low Pass, indicating work which is acceptable for graduate credit, but in which the student exhibited one or more serious deficiencies. Graduate programs may, for example, limit the number of LP grades acceptable for a degree.

CT: Credit, indicating satisfactory work in certain courses, such as research courses, in which assignment of a grade of HP, P, or LP is considered inappropriate. The grade CT is not intended as a routine alternative to the HP, P, and LP system, and CT is the only passing grade in a course in which it is used. Approval of the use of CT in any course must be obtained from the Council on Graduate Studies by the graduate department offering the course.

NC: No Credit, indicating work which is not acceptable for graduate credit.

When it is not possible to assign a grade in a course at the end of the term, the instructor may request permission to

record the temporary status of Incomplete. Use of Incomplete will require approval of the Dean of Graduate Studies and the request must include an agreed upon completion date. All Incompletes for any term must be removed by the end of the following term and may be extended only upon approval of the Dean of Graduate Studies. Incomplete grades which have not been resolved by submission of a permanent grade will revert to No Credit after the stated deadline.

The designation ON (On-going) may be used when the work of a course extends beyond the limit of a single term, such as in Research Rotation. All ON grades must be resolved before the degree is awarded.

Graduate students enrolled in courses for which they are not receiving graduate credit will be graded with the undergraduate grading system.

Transfer of Credit: Upon recommendation of the department accepting the student for graduate work, credit for graduate courses (not research) taken at other institutions may be granted by the Dean of Graduate Studies. Not more than three of the course requirements for the Master's degree nor more than six for the Ph.D. degree may be fulfilled in this way.

Course Changes: Courses may be added, dropped, or exchanged with no charge at any time during the first two weeks of the term. The dropping of courses after the first two weeks of a term requires permission of the adviser and the Dean of Graduate Studies. Appropriate forms for adding or dropping a course are available from the Office of Graduate Studies and from departmental and program offices.

It is expected that the requirements for the Ph.D. degree will be completed no later than seven years after initial enrollment, unless the student enters with a Master's Degree in his or her field of proposed study, in which case the student is expected to complete the doctorate in five years. Failure to complete the work in the time periods specified or failure to meet the academic standards of the student's graduate program shall necessitate reevaluation of the student's progress and may result in a notice of termination.

The Degrees of Master of Arts Master of Science

Graduate work is offered leading to the degree of Master of Arts in the fields of comparative literature, liberal studies, and digital musics, and to the degree of Master of Science in computer science, earth sciences, engineering sciences, health policy and clinical practice, and physics. (Refer to the Thayer School catalog for graduate work leading to the degree of Master of Engineering Management.)

To receive the degree of Master of Arts or Master of Science from Dartmouth College, a graduate student must have spent at least three terms in residence at Dartmouth and must have received credit for eight courses of graduate

quality. These courses may be replaced in part by research or special study approved and supervised by the department accepting the student for graduate work, provided that not more than four of the required courses may be so replaced. Additional requirements may be imposed by the individual departments.

Candidates whose preparation is deemed deficient by the department accepting the candidate may be required to correct this deficiency by taking courses in addition to those required for the degree.

Thesis: A thesis is ordinarily required of candidates for the Master's degree but on recommendation of the department in which the degree is sought this requirement may be waived.

The Degree of Doctor of Philosophy

The Dartmouth Faculty at present offers programs leading to the Ph.D. degree in biochemistry, biological sciences, chemistry, cognitive neuroscience, computer science, earth sciences, engineering sciences, health policy and clinical practice, experimental and molecular medicine, genetics, mathematics, microbiology and immunology, pharmacology, physics, physiology, and psychological and brain sciences. (Refer to the Medical School catalog for the program leading to the Doctor of Medicine degree.)

A limited number of students who have done superior work in attaining the Bachelor's degree or its equivalent and who have had an experience in liberal learning comparable to that offered by Dartmouth College will be accepted in these programs. Because of the limited enrollment in each department, it is possible to tailor the academic program to individual needs and to assure each student extensive contact with the faculty. Although the core of the Ph.D. is research and scholarship, the Dartmouth Ph.D. programs in the Arts and Sciences recognize the importance of preparing students for careers in colleges and universities. By example and by program, the faculty gives explicit testimony to this aspect of graduate training.

Ph.D. Teaching Requirement: An essential element of graduate education at Dartmouth is the experience gained in teaching other students, especially for the many students who are pursuing academic careers. Therefore, at least one term of undergraduate teaching is required of all Ph.D. students. For pedagogical reasons, some departments may require that students participate in more than one term of supervised teaching. Each student's program will be arranged, according to his/her individual needs and interests, in consultation with the faculty advisor and the department. For those departments or programs in which there are no opportunities for supervised teaching, students will fulfill Dartmouth's supervised teaching requirement by a substitute activity (e.g. tutoring) established by individual departments and approved by the office of Graduate Studies.

The minimum residence requirement for the Ph.D. degree is six terms (two academic years). Course requirements are established by the individual departments. Further information about these programs may be obtained by looking under the offerings of the appropriate department in this Catalog or by writing to the chair of that department.

Fellowships

Most Arts and Sciences graduate students receive financial assistance through a program of Dartmouth fellowships, scholarships, and loans. These are supported through Dartmouth funds and through federal and private fellowships and traineeships.

Fellowships carry stipends of approximately \$17,874 for the 2010-2011 academic year or approximately \$23,832 for the twelve-month year. Scholarship awards normally cover full tuition. Opportunities for summer fellowships and scholarships are available in most departments.

Most graduate students who participate in the Dartmouth Student Group Health Plan (DSGHP) and receive a full tuition scholarship and full stipend support also receive a credit on their student accounts to offset the expense.

Insofar as is consistent with the terms of the individual awards, each student's program of course work, teaching, and research is designed to promote most effectively his or her academic progress without reference to the source of financial support. Efforts are made to avoid large discrepancies in the size of stipends.

The Degree of Master of Arts in Liberal Studies

Dartmouth College offers a graduate program leading to the degree of Master of Arts in Liberal Studies (M.A.L.S.). This program features an interdisciplinary approach to advanced study in the liberal arts. It is intended for students dedicated to furthering their liberal education by both directed and independent study.

M.A.L.S. participants design an individualized plan of study in consultation with the program's faculty advisors, choosing courses from a series of special interdisciplinary courses offered by the M.A.L.S. Program as well as from regular offerings of the College. Completion of the M.A.L.S. coursework normally requires a minimum of two summers plus another term of study at Dartmouth. While it is possible to take courses on a year-round basis, a student must be in residence for a minimum of one summer, participating in two summer symposia or one symposium and an approved symposium substitute. All M.A.L.S. students also produce a thesis as the final program component to receive the degree.

Dartmouth College's M.A.L.S. program is a member of the Association of Graduate Liberal Studies Programs, A.G.L.S.P. For more information on the M.A.L.S. Program at Dartmouth, visit their web site

<http://www.dartmouth.edu/~mals/> or send an e-mail to:
MALS.Program@Dartmouth.EDU.

INSTRUCTION

Course Election

Students elect their courses for the following term in the preceding regular term using BannerStudent. The details are explained on the Registrar's web site for each term, which is made available to students just before course election. The Timetable includes an up-to-date listing of courses scheduled to be offered and indicates any courses with limits on enrollment or needing permission of the instructor. Exact dates are published in the academic calendar. Students who elect courses late lose priorities in limited enrollment courses.

Prerequisite

Some courses have prerequisites which are stated in terms of class standing in college, the requirement of the completion of certain specified courses, and/or the obtaining of written permission. While some departments/programs use Banner for prerequisite checking, some list prerequisites in this Catalog only. In either case, the student is responsible for meeting prerequisite requirements.

Time Sequence

In the course listings to be found on the following pages, below the line with the course number and the title there appear in most cases two-digit numbers, indicating the year, and letters F (fall), W (winter), S (spring), or X (summer), to show the term(s). In most cases, a symbol follows (after a colon) to indicate the time sequence(s) in which the course is to be offered, usually according to the following weekly schedule.

NOTE: The Faculty of Arts and Sciences approved a revised weekly schedule in June, 2015. Students will be notified when the new schedule is implemented.

65-Minute periods three times weekly:

9L	MWF	8:45-9:50	x-period:	Th 9:00-9:50
10	MWF	10:00-11:05	x-period:	Th 12:00-12:50
11	MWF	11:15-12:20	x-period:	Tu 12:00-12:50
12	MWF	12:30-1:35	x-period:	Tu 1:00-1:50
2	MWF	1:45-2:50	x-period:	Th 1:00-1:50
10A	TuTh	10:00-11:05	No x-period	
	and	3:00-4:05		

W

2A	TuTh	2:00-3:05	No x-period
	and	4:15-5:20	
	W		

50-Minute periods four times weekly:

8	MTuThF	7:45-8:35	x-period:	W 7:45-8:35
9S	MTuThF	9:00-9:50	x-period:	W 9:00-9:50

10	MWF	10:00-10:50	No x-period
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and Th 12:00-12:50

11	MWF	11:15-12:05	No x-period
	and Tu	12:00-12:50	

12	MWF	12:30-1:20	No x-period
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and Tu 1:00-1:50

2	MWF	1:45-2:35	No x-period
	and Th	1:00-1:50	

10+†	MTuThF	10:00-10:50	x-period:	W 10:00-10:50
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11+†	MF	11:15-12:05	x-period:	W 11:15-12:05
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and TuTh 11:00-11:50

110-Minute periods twice weekly:

10A	TuTh	10:00-11:50	x-period:	W 3:00-3:50
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2A	TuTh	2:00-3:50	x-period:	W 4:15-5:05
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3A	M	3:00-4:50	x-period:	M 5:00-5:50
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and Th 4:00-5:50

3B	TuTh	4:00-5:50	x-period:	M 5:00-5:50
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† Not shown in weekly schedule diagram.

It should be noted that there are two possible modes of conducting classes in the 9, 10, 11, 12, 2, 10A, and 2A sequences, depending upon the instructor's preference for frequent meetings and need for use of x-periods. Furthermore, the instructor may change mode from one week to another without producing conflicts or major confusion. The 9-sequence is most commonly used in either of two modes. In the table and on the following diagram 9L is used for the 65-minute version of the 9-sequence, and 9S for the 50-minute form.

Note that time sequences with different codes do not conflict, with the following exceptions: 3A and 3B conflict; 10+ conflicts with both 10 and 10A; 11+ conflicts with both 11 and 10A.

There appears above a diagram of the preceding schedule; all basic sequences are shown, but not all of the variations mentioned in the paragraph above.

Laboratory periods are most commonly scheduled in the afternoon beginning at approximately 1:45, but morning and evening sessions are also held.

All undergraduate and many graduate offerings are marked, in the following department and program listings, with one or more of the term codes 13F, 14W, 14S, 14X, 14F, 15W, 15S; i.e., the codes for the seven terms included. The sequence or sequences in which a course is taught are indicated with term code followed by time sequence, as examples: 13F: 9; 14W, 14S: 12; or 14W: 9, 10, 2. Various courses are listed as 'Arrange' since the sequence has not yet been set or the meetings will be tutorial. Dartmouth reserves the right to alter, including cancel, course offerings if enrollments (fewer than five students), resources and/or other circumstances in the judgment of the Trustees and Administration require.

Numbering and Level

The numbering of each course indicates the level of the course. Numbers 1-9 are used primarily to designate courses on an introductory level; numbers 10-79 are used for the general course offerings of the department or program. The significance of the various levels depends on the needs of the department or program, but the higher numbers generally indicate courses of more advanced and specialized nature. Numbers 80-89 are used for certain special types of courses, such as seminars, thesis courses, independent study, and honors courses. The numbers 90-99 are used for certain advanced undergraduate major courses. Numbers 100-299 are used for graduate courses. Special topics courses, and certain other related courses, are numbered using a two digit leading number followed by a "point," then a two digit number starting with .01 for the first topic, .02 for the next, etc.

Weekly Schedule Diagram

In the diagram below, all solid lines represent the exact starting times of a class: the previous class ends at least ten minutes earlier. Special forms of the 10, 11, 12, 2, 10A, and 2A sequences are not shown completely on the diagram; the 10+ and 11+ sequences are not shown at all. The 9L version of the 9-sequence begins at 8:45 while the 9S version begins at 9:00. When scheduling a required class meeting outside the normally scheduled times, faculty are encouraged to provide specific date and time information to students in advance.

DEPARTMENTS/PROGRAMS AND COURSES - UNDERGRADUATE

African and African-American Studies

Chair: Michael A. Chaney

Professors R. Balmer (Religion), S. E. Freidberg (Geography), D. E. Haynes (History), K. L. Walker (French and Italian); Associate Professors R. M. Baum (AAAS, Religion), M. A. Chaney (English), A. A. Coly (AAAS, Comparative Literature), L. Edmondson (Theater), J. M. Favor (English), D. K. King (Sociology), N. Sackeyfio-Lenoch (History), G. R. Trumbull IV (History), S. A. Vásquez (English); Assistant Professors A. E. Garrison (English), R. N. Goldthree (AAAS), R. J. Johnson (History), A. H. Neely (Geography), E. Perez (Religion); Lecturers F. L. Haas (Music), C. M. Kinyon (Theater), A. M. Phillips (AAAS), J. Rabig (AAAS, English, MALS), J. G. Smolin (LALACS), Visiting Associate Professors S. J. Billings (Anthropology) and D. E. White (AAAS and History).

The African and African American Studies (AAAS) Program offers a multidisciplinary program designed to provide students with a critical understanding of the history, art and cultures, economics, politics and social organization of the African diaspora. The focused as well as comparative study of Africa, North America and the Caribbean are central components of the program. Students explore the innovative scholarship within the field of African and African American Studies while integrating theoretical perspectives and methodologies from various disciplines.

To view African and African American Studies courses, [click here](#) (p. 80).

Requirements for the Major

The AAAS major consists of eleven courses:

1. Two survey courses (must include either AAAS 10 or AAAS 11).

One African survey course: AAAS 11, AAAS 14, AAAS 15, AAAS 18.03, or AAAS 19.

One African-American survey course: AAAS 10, AAAS 12, or AAAS 13.

2. Eight elective courses, including at least two courses from each of the following distributive designations. The program office has a current list of courses satisfying each distributive requirement.

Two courses with SOC, TMV, or TAS.

Two courses with ART or LIT.

One course focused on Africa and one course on African America (including the Caribbean) must be among the eight elective courses. AAAS 10, AAAS 11, AAAS 12, AAAS 13, AAAS 14, AAAS 15, AAAS 18.03, or AAAS 19 may be used to fulfill this requirement, but more advanced courses are strongly recommended.

3. One of the following culminating experience options:
Senior Seminars: AAAS 90-96.

Senior Independent Research: AAAS 97 (p. 89).

Honors Thesis: AAAS 98 and AAAS 99 (p. 89).

Majors are encouraged to take at least one diaspora course, which may be used to satisfy either area requirement. Courses with the INT distributive designation may satisfy either of the disciplinary requirements. With approval of the Chair, one associated course may be counted toward the major.

Requirements for the Modified Major

African and African American Studies may be undertaken as the secondary part of a modified major. A modified major should be planned to form a coherent program of study with the major. The requirements are four courses in African and African American Studies in addition to those listed for a modified major in the particular department or program. Early approval of a modified major should be obtained from the student's major department or program and from the African and African American Studies Program.

Requirements for the Minors

Students desiring a minor in African and African American Studies may select one of three areas of concentration: *African Diaspora Studies*, *African Studies*, or *African American Studies*. Minors (especially *African Diaspora* minors) are encouraged to elect at least one diaspora course, which may be substituted for either area requirement. A senior seminar is not required, but is strongly recommended.

The Minor in *African Diaspora Studies* consists of six courses:

1. Two survey courses, (one must be AAAS 10 or AAAS 11):

One African survey course: AAAS 11, AAAS 14, AAAS 15, AAAS 18.03, or AAAS 19.

One African American survey course: AAAS 10, AAAS 12, or AAAS 13.

2. Four electives, which must include:

One course in SOC, TMV, or TAS

One course in ART or LIT

The elective courses for the *African Diaspora Studies* minor must include:

One course on African America (including the Caribbean)
One course on Africa.

The Minor in *African Studies* consists of six courses:

1. AAAS 11 Introduction to African Studies is required.
2. Five elective courses on Africa, which must include:
One course in SOC, PHR, TMV, or TAS
One course in ART or LIT

The program office has a current list of courses satisfying this requirement.

The Minor in *African American Studies* consists of six courses:

1. AAAS 10 Introduction to African American Studies is required.
2. Five elective courses on African America including the Caribbean, which must include:
One course in SOC, TMV, or TAS
One course in ART or LIT

The program office has a current list of courses satisfying this requirement.

Honors Program

Qualified majors may apply for admission to the Honors Program during the second or third terms of their junior year. Completion of the Honors Program is prerequisite to graduation with Honors or High Honors in the major subject. In order to qualify for an Honors Program at Dartmouth College, the student must have at the time of application a cumulative grade point average of 3.0 in all subjects and a 3.3 grade point average in the major. During two terms of the senior year the honors student will pursue the project under the guidance of a selected staff member by enrolling in AAAS 98/AAAS 99 (p. 89). The student is expected to produce a substantial thesis as the culmination of the project. A grade of A or A- over the two terms earns High Honors; and a Grade of B+ in the first term is satisfactory to continue for Honors.

AAAS - African and African American Studies Courses

To view *African and African American Studies Requirements*, [click here](#) (p. 79).

AAAS 7 - First Year Seminar

Offered: Consult special listings

AAAS 10 - Introduction to African-American Studies

Instructor: Favor, Rabig

A multidisciplinary investigation into the lives and cultures of people of African descent in the Americas. Topics may include: the African background, religion and the black

church, popular culture, slavery and resistance, morality and literacy, the civil rights movement, black nationalism, theories of race and race relations.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 12

AAAS 11 - Introduction to African Studies

Instructor: Baum

Multidisciplinary in scope, the course will survey critical social change in African cultures and civilizations through a study of history, art, literature, religion, economy, and politics, paying particular attention to the cultural impact of colonial rule on contemporary societies and states.

Distributive: Dist:SOC; WCult:NW

Offered: 15F: 10; 17S: 10A

AAAS 12 - Race and Slavery in U.S. History

Instructor: Johnson

This course deals with the African heritage, origins of white racial attitudes toward blacks, the slave system in colonial and ante-bellum America, and free Black society in North America. Specific emphasis will be placed on the Afro-American experience and on the relationship between blacks and whites in early American society. Open to all classes.

Cross-Listed as: HIST 16

Distributive: Dist:SOC; WCult:W

Offered: 15F: 12; 17W: 2

AAAS 13 - Black America since the Civil War

Instructor: White

This course is a continuation of HIST 16. Among the topics to be discussed are Black Reconstruction, segregation and disfranchisement, migration, nationalism, Blacks and the New Deal, the impact of war on Blacks, and the 1960s. Open to all classes.

Cross-Listed as: HIST 17

Distributive: Dist:SOC; WCult:W

Offered: 16W: 10

AAAS 14 - Pre-Colonial African History

Instructor: Sackeyfio-Lenoch

This course will examine the social and economic history of Africa to 1800. Several interrelated themes of social organization, the expansion of trade, rise of new social classes, the emergence and disintegration of various states and European intervention will be discussed. Through our readings, we will visit every major historical region of

Africa (north, east, central, west and south) at least once during the semester to illuminate the various themes.

Cross-Listed as: HIST 5.01

Distributive: Dist:SOC; WCult:NW

Offered: 16W: 2A; 16X: 10A; 17S: 12

AAAS 15 - History of Africa since 1800

Instructor: Sackeyfio-Lenoch

This course explores some of the major historical processes unfolding in Africa since 1800. Our analysis will focus on social and economic history as we examine Africa's integration into the international economy during the nineteenth century, the rise of new social classes, and the creation of the colonial and post-colonial state. Our primary case studies will be drawn from east, west and southern Africa to highlight both the similarities and differences of their historical development. Open to all classes.

Cross-Listed as: HIST 66

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 12; 17S: 10

AAAS 16 - History, Culture and Society: The Many Faces of Latin America

Instructor: Varies

The Spanish discovery and conquest of this continent created Latin America and the Caribbean out of the diverse and complex realities of the pre-Columbian world. Since colonial times Latin American and Caribbean cultures have developed against a background of cultural repression, racial conflict, political domination, colonial exploitation, and gender inequality. And yet, in the midst of all this turmoil, Latin America and the Caribbean have produced an extraordinary variety and wealth of artistic creations, ranging from literature to the visual arts, from music to film. In this course we will turn to some of the works by Latin American and Caribbean artists and writers in an attempt to illuminate and explore some of the wonders of the cultural dynamics that shape the many faces of what we call Latin America and the Caribbean.

Cross-Listed as: LACS 4

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period 15F through 16F.

AAAS 18 - Introduction to African Religions

Instructor: Baum

This course introduces the study of Indigenous African Religions, their cosmologies, histories, ritual structures, and their relationships to other aspects of African cultures. Of particular importance will be ideas of gendered spiritual power, the spread of African-inspired

religions to the Americas, and the nature of orally transmitted religious traditions. Conversion to Islam and Christianity and reconversion from these religions will also be studied. Finally, we examine the role of African religions in post-colonial African societies and the impact of globalization. Open to all.

Cross-Listed as: REL 14

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period 15F through 16S.

AAAS 18.03 - Introduction to African Religions

Instructor: Baum

This course introduces the study of Indigenous African Religions, their cosmologies, histories, ritual structures, and their relationships to other aspects of African cultures. Of particular importance will be ideas of gendered spiritual power, the spread of African-inspired religions to the Americas, and the nature of orally transmitted religious traditions. Conversion to Islam and Christianity and reconversion from these religions will also be studied. Finally, we examine the role of African religions in post-colonial African societies and the impact of globalization. Open to all.

Cross-Listed as: REL 14

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period 15F through 16S.

AAAS 19 - Africa and the World

Instructor: Trumbull

This course focuses on links between Africa and other parts of the world, in particular Europe and Asia. Readings, lectures, and discussions will address travel and migration, economics and trade, identity formation, empire, and cultural production. Rather than viewing Africa as separate from global processes, the course will address historical phenomena across oceans, deserts, cultures, and languages to demonstrate both the diversity of experiences and the long-term global connections among disparate parts of the world.

Corequisite: HIST 5.08

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F: 10A; 17S: 2A

AAAS 23 - The Black Sporting Experience

Instructor: White

This course examines the historical and contemporary sporting experiences primarily of Black Americans. The decision to refer to this class as a "Black" experience is deliberate, as we will briefly interrogate how race and sports functions for the Black diaspora in the Caribbean, Latin America, and Europe. Despite brief examinations of

the diaspora, this class uses sports history as a critical lens to understand American history.

Distributive: Dist:SOC; WCult:CI

Offered: 16W

AAAS 24 - The Black Radical Tradition in America

Instructor: White

This course introduces major currents in the history of black radical thought, with a particular focus on the U.S. after emancipation. This class encourages students to define and evaluate radicalism in the shifting contexts of various liberation struggles. By exploring dissenting visions of social organization and alternative definitions of citizenship and freedom as expressed through nonviolence, armed rebellion, black nationalism, Pan Africanism, socialism, communism, anticolonialism, feminism, queer theory and integrationism, students will confront the meaning of the intersection of race, gender, class and sexuality in social movements.

Cross-Listed as: HIST 37

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10

AAAS 25 - Constructing Black Womanhood

Instructor: King

This course is a critical examination of the historical and contemporary status of black women in the United States, as presented in fiction, primary accounts, and social science literature. We will explore the nature, extent, and consequences of the multiple discriminations of race, sex, and class, as the context in which these women shaped their social roles and identities within the black community and the larger society. We will consider the themes of family, motherhood, and sexuality; educational, economic and political participation; aesthetics and religious traditions; self and social images.

Cross-Listed as: SOCY 46 and WGSS 33.01

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 2A; 17W: 2

AAAS 26 - Toni Morrison

Instructor: Vasquez

Identical to, and described under, English 53.02 (Not offered 14F-16S)

Distributive: Dist: LIT; WCult: W.

Offered: Not offered in the period 15F through 16S.

AAAS 31 - Black Theater, U.S.A.

Instructor: Kinyon

This course will examine African American playwrights, drama, and theater from 1959 to the present. Further exploration will focus on the impact of civil rights, the Black Arts movement, and cultural aesthetics on the form, style, and content of African American plays. Readings will include plays of Hansberry, Baldwin, Baraka, Kennedy, Childress, Shange, Wolfe, Wilson, Parks and others. Open to all classes.

Cross-Listed as: THEA 22

Distributive: Dist:ART; WCult:CI

Offered: 16S

AAAS 33 - The African American Intellectual

Instructor: Favor

A cross-disciplinary study of the contributions and problems of African American intellectuals in the U.S. We will focus primarily on 20th century figures and scholarship to understand works by such thinkers as W.E.B. DuBois, Alain Locke, Zora Neale Hurston, Carter Woodson, Ralph Ellison, E. Franklin Frazier, James Baldwin, Angela Davis, Manning Marable, Derrick Bell, Cornel West, and Patricia Williams, as well as the social and intellectual contexts in which they found, and continue to find, themselves.

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period 15F through 16S.

AAAS 34 - Early Black American Literature

Instructor: Chaney

A study of the foundations of Black American literature and thought, from the colonial period through the era of Booker T. Washington. The course will concentrate on the way in which developing Afro-American literature met the challenges posed successively by slavery, abolition, emancipation, and the struggle to determine directions for the twentieth century. Selections will include: Wheatley, *Life and Works*; Brown, *Clotel*; Douglass, *Narrative*; Washington, *Up from Slavery*; DuBois, *Souls of Black Folk*; Dunbar, *Sport of the Gods*; Chestnut, *House Behind the Cedars*; Harriet Wilson, *Our Nig*; Johnson, *The Autobiography of an Ex-Coloured Man*; and poems by F. W. Harper, Paul L. Dunbar and Ann Spencer.

Cross-Listed as: ENGL 30

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period 15F through 16S.

AAAS 35 - Modern Black American Literature

Instructor: Favor

A study of African American literature from the Harlem Renaissance to the present, this course will focus on emerging and diverging traditions of writing by African Americans. We shall also investigate the changing forms and contexts of 'racial representation' in the United States. Works may include those by Hurston, Hughes, Wright, Ellison, Morrison, Schuyler, West, Murray, Gates, Parks.

Cross-Listed as: ENGL 33

Distributive: Dist:LIT; WCult:W

Offered: 15F: 10

AAAS 39.01 - History of Jazz to 1965

Instructor: Haas

This course examines jazz from its origins to 1965, with special attention given to pivotal figures such as Louis Armstrong, Charlie Parker, Miles Davis and John Coltrane. Class work includes listening to, analyzing, and discussing jazz recordings and watching jazz films. Students will also attend live jazz performances and read about the artists who brought this music to life, with the goal being to increase understanding, appreciation and enjoyment of this great American art form.

Cross-Listed as: MUS 5.01

Distributive: Dist:ART; WCult:W

Offered: 15F: 10A; 16F: 10A

AAAS 40 - Gender Identities and Politics in Africa

Instructor: Coly

This interdisciplinary course explores the constructions of gender identities in different African sociocultural contexts. The emphasis is on contemporary Africa, although we will discuss some of the historical frameworks of these identities. We will read historical accounts of gender in some pre-colonial African societies, investigate the impact of colonialism, and examine gender in some anticolonial movements. We will also analyze gender in urban and rural contexts, and address such questions as homosexuality and gay rights.

Cross-Listed as: WGSS 34.02

Distributive: Dist:INT; WCult:CI

Offered: 17S: 3A

AAAS 42 - Women, Religion and Social Change in Africa

Instructor: Baum

This introductory, multidisciplinary course examines women's religious ideas, beliefs, concerns, actions, rituals and socio-cultural experiences in African societies and cultures from a comparative, historical and gender perspective. We will look at women's experiences of social change in African religions, the encounter with Islam,

slavery, Christianity, and colonialism. We will analyze the articulations of economic and political power or lack of power in religious ideas as we ask questions such as: What are the different antecedents and circumstances in which women exercise or are denied agency, leadership, power and happiness in their communities? Texts will include nonfiction, fiction, and film narratives. Open to all students.

Cross-Listed as: REL 66 and WGSS 44.03

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 10A

AAAS 44 - Contemporary Africa: Exploring Myths, Engaging Realities

Instructor: Billings

This course focuses on processes, relationships, and experiences that have shaped, and continue to shape, the lives of Africans in many different contexts. These include issues of ecology and food production, age, gender, ethnicity, exchange, colonialism, apartheid, and development. We will then embark on in depth readings of ethnographies that engage these issues and themes. In the processes we will move beyond prevailing stereotypes about Africa, to engage the full complexity of its contemporary realities. (AREA)

Cross-Listed as: ANTH 36

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 10

AAAS 45 - Africa: Ecology and Development

Instructor: Neely

This course is intended as an introduction to contemporary political, economic, social, and environmental issues in Sub-Saharan Africa. It will begin with a brief historical overview, focusing on the legacies of the colonial era. It will then look critically at a number of modern-day concerns, including agriculture and food security, environmental degradation, health and disease, urbanization, economic aid and restructuring, and the politics of ethnicity and democratization. While we will examine each subject by way of select case studies, emphasis throughout will be on the diversity and changing nature of the African continent. This course will also consider how Africa's problems are portrayed and understood (and often misunderstood) by the rest of the world.

Cross-Listed as: GEOG 40

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period 15F through 16S.

AAAS 46 - History of Modern South Africa

Instructor: Sackeyfio-Lenoch

After an initial overview of colonialism in Africa, this course will concentrate on Southern Africa, with special emphasis on the historical development, effects, and implications of the racial situation in the Republic of South Africa. Readings will be drawn from primary and secondary materials and from works of fiction. Illustrative films will be shown, and some opportunity offered to compare the history of race relations in South Africa with that in other African countries and in the United States. Open to all classes.

Cross-Listed as: HIST 67

Distributive: Dist:SOC; WCult:NW

Offered: 16X: 2A

AAAS 50 - Colonialism, Development and the Environment in Asia and Africa

Instructor: Haynes

This course examines the environmental history of Africa and Asia, focusing on the period of European colonialism and its aftermath. Topics include deforestation and desertification under colonial rule; imperialism and conservation; the consequences of environmental change for rural Africans and Asians; irrigation, big dams and transformations in water landscapes; the development of national parks and their impact on wildlife and humans; the environmentalism of the poor; urbanization and pollution; and global climate change in Africa and Asia. Open to all classes.

Cross-Listed as: HIST 75 and ENVS 45

Distributive: Dist: INT or SOC; WCult: NW

Offered: 15F: 10; 16F: 10

AAAS 51 - African Literatures: Masterpieces of Literatures from Africa

Instructor: Coly

This course is designed to provide students with a specific and global view of the diversity of literatures from the African continent. We will read texts written in English or translated from French, Portuguese, Arabic and African languages. Through novels, short stories, poetry, and drama, we will explore such topics as the colonial encounter, the conflict between tradition and modernity, the negotiation of African identities, post-independence disillusion, gender issues, apartheid and post-apartheid. In discussing this variety of literatures from a comparative context, we will assess the similarities and the differences apparent in the cultures and historical contexts from which they emerge. Readings include Chinua Achebe's *Things Fall Apart*, Naguib Mahfouz's *Midaq Alley*, Calixthe

Beyala's *The Sun Hath Looked Upon Me*, Camara Laye's *The African Child*, and Luandino Vieira's *Luanda*.

Cross-Listed as: COLT 51.01, ENGL 53.16

Distributive: Dist:INT or LIT; WCult:NW

Offered: 15F: FSP

AAAS 52 - The History of North Africa from the Arrival of Islam to the Present

Instructor: Trumbull

This course offers an introduction to the history of North Africa from its conversion to Islam to its current, transnational political and social formations. Focusing on religion and conversion, Sufism and mysticism, French and Italian colonialism, trade and economic history, environment, the region's engagement with the Sahara, literature and culture, and migration, assignments will emphasize major themes in the social, political, economic, and cultural history of the region. Open to all classes.

Cross-Listed as: HIST 68

Distributive: Dist:SOC; WCult:NW

Offered: 15F: 2A

AAAS 53 - Islam in Africa

Instructor: Trumbull

This course aims to introduce students to the formation of Islam in the Maghrib, Saharan Africa, and Africa south of the desert. Assignments will address continuities with and differences from the practices of Muslims in other parts of the world while emphasizing the central role the religion has played in the unfolding of history in various parts of Africa. Topics covered will include conversion, popular religion and mysticism, cultural formations, and social organization. Open to all classes.

Cross-Listed as: HIST 69

Distributive: Dist:SOC; WCult:CI

Offered: 17W: 2A

AAAS 54 - Postcolonial African Drama

Instructor: Edmondson

This course explores selected theatre and performance traditions of sub-Saharan Africa. How do African playwrights negotiate and transform the colonial legacy of Western drama, and how do they use theater to challenge neocolonial regimes and to advance ideas of democracy, human rights, and gender equality? Plays from Nigeria, South Africa, Kenya, and Uganda receive special emphasis. No prior knowledge of African studies or theater is necessary, just a willingness to expand critical and creative horizons.

Cross-Listed as: THEA 23

Distributive: Dist:ART; WCult:NW

Offered: 16S

AAAS 55 - African Cinema

Instructor: Coly

This course focuses on the cinemas of Francophone Africa. We will examine early Western filmic representations of Africans as savages devoid of culture and history. We will then examine how African filmmakers have challenged those images by creating new depictions of their societies, offering Africa through African eyes. We will explore the social, historical, and political contexts of these films and explore their aesthetic and narrative characteristics. We will discuss issues and theories related to the definition of the so-called third world cinema, postcolonial cinema, and postmodern cinema.

Cross-Listed as: FILM 42.09

Offered: 16F: 3A

AAAS 55.01 - African Cinema

Instructor: Coly

This course focuses on the cinemas of Francophone Africa. We will examine early Western filmic representations of Africans as savages devoid of culture and history. We will then examine how African filmmakers have challenged those images by creating new depictions of their societies, offering Africa through African eyes. We will explore the social, historical, and political contexts of these films and explore their aesthetic and narrative characteristics. We will discuss issues and theories related to the definition of the so-called third world cinema, postcolonial cinema, and postmodern cinema.

Distributive: Dist:ART; WCult:NW

Offered: 16F: 3A

AAAS 60 - Slavery and Emancipation in Latin America and the Caribbean

Instructor: Goldthree

For over 300 years, Africans were transported to Latin America and the Caribbean to work as enslaved laborers. This course will examine the history of African slavery in the region from the beginning of the Atlantic slave trade to the abolition of slavery in Brazil in 1888. For each class session, students will review primary source documents such as autobiographies, slave codes, plantation journals, visual images, and anti-slavery tracts as well as historical scholarship.

Cross-Listed as: HIST 86, LACS 58

Distributive: Dist:INT or SOC; WCult:NW

Offered: 17S: 2

AAAS 61 - Caribbean History: 1898 to the present

Instructor: Phillips; Goldthree

This course surveys the major issues that have shaped Caribbean society from the late 19th-century to the present, including: imperialism, urbanization, migration and globalization, struggles for national independence, the transition from plantation to tourism-based economies, and the global spread of Caribbean popular culture. Our readings and discussions will focus on the historical trajectories of Cuba, Haiti, Jamaica, Puerto Rico, Trinidad, and the Dominican Republic using historical scholarship, music, literature, film, and personal narratives.

Course cross-listed with LACS 59 and HIST 88

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W; 17W: 12

AAAS 62 - Nationalism and Revolution in the Caribbean

Instructor: Goldthree

The islands of the Caribbean have served as the site for two of the most significant revolutionary upheavals of the modern era-the Haitian Revolution and the Cuban Revolution and have produced anti-colonial luminaries such as José Martí, Frantz Fanon, Marcus Garvey, and Claudia Jones. This course will explore the origin, trajectory, and outcome of nationalist struggles in the Caribbean from the eighteenth-century to the present through primary and secondary materials, memoirs, fiction, and film.

Cross-Listed as: HIST 6.10; LACS 54

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16S: 10; 17S: 10

AAAS 67 - Colonial and Postcolonial Masculinities

Instructor: Coly

In this course, we will develop an understanding of masculinity as a construct which varies in time and space, and is constantly (re)shaped by such factors as race, class, and sexuality. The contexts of the colonial encounter and its postcolonial aftermath will set the stage for our examination of the ways in which social, political, economic, and cultural factors foster the production of specific masculinities. Texts include Achebe's *Things Fall Apart*, Conrad's *Heart of Darkness*, Lafferiére's *How to Make Love to a Negro*, and additional writings by Irish, Indian, and Australian authors. Our study will be organized around the questions of the production of hegemonic and subaltern masculinities, the representation of the colonial and postcolonial male body, the militarization of masculinity, and the relation between masculinity and nationalism. Theoretical material on masculinities will frame our readings

Cross-Listed as: WGSS 52.01

Distributive: Dist:LIT

Offered: Not offered in the period 15F through 16S.

AAAS 80.06 - Civil Rights in the United States in the 20th Century

Instructor: White

This course examines movements for civil rights, broadly defined, in the 20th-century US. Students explore concepts of American citizenship, considering struggles for political inclusion and efforts to participate fully in the nation's social and cultural life. We focus on women's and gay rights and the struggles of African Americans, Latinos, Native Americans and Asians, examining how these and other groups have envisioned and pursued full American citizenship.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 12

AAAS 81 - The Black Arts Movement

Instructor: Rabig

This course explores the literature, art, and criticism of the Black Arts Movement. The artistic corollary to the Black Power movement, the Black Arts Movement flourished in the 1960s and 1970s as artists/activists sought to put a revolutionary cultural politics into practice around the country. The Black Arts Movement had far-reaching implications for the way artists and writers think about race, history, authorship, and the relationship between artistic production and political liberation. We'll explore these issues in work by Amiri Baraka, Sonia Sanchez, Larry Neal, and others who forged the traditionally-defined Black Arts Movement in Harlem. We'll also trace the movement's flowering around country, where local political struggles and artistic traditions in Chicago, Newark, Los Angeles, and Detroit shaped distinctive regional variations of the Black Arts Movement. We'll consider how the literature of the Black Arts Movement intersected with other cultural currents of the time, its critics, and the persistence of its themes in contemporary culture.

Offered: Not offered in the period 15F through 16S.

AAAS 81.01 - The Black Arts Movement

Instructor: Rabig

This course explores the literature, art, and criticism of the Black Arts Movement. The artistic corollary to the Black Power movement, the Black Arts Movement flourished in the 1960s and 1970s as artists/activists sought to put a revolutionary cultural politics into practice around the country. The Black Arts Movement had far-reaching implications for the way artists and writers think about race, history, authorship, and the relationship

between artistic production and political liberation. We'll explore these issues in work by Amiri Baraka, Sonia Sanchez, Larry Neal, and others who forged the traditionally-defined Black Arts Movement in Harlem. We'll also trace the movement's flowering around country, where local political struggles and artistic traditions in Chicago, Newark, Los Angeles, and Detroit shaped distinctive regional variations of the Black Arts Movement. We'll consider how the literature of the Black Arts Movement intersected with other cultural currents of the time, its critics, and the persistence of its themes in contemporary culture.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period 15F through 16S.

AAAS 82.01 82.01 - Religion and the Civil Rights Movement

Instructor: Balmer

An examination of the importance of religion in the drive for civil rights during the 1950s and 1960s. The course will look at the role of activists, clergy, sermons, and music in forging the consensus in favor of civil rights. Open to all.

Cross-Listed as: REL 61

Distributive: DIST:SOC; WCult:CI

Offered: 16S: 10A

AAAS 82.05 - Dave the Potter: Slavery Between Pots and Poems

Instructor: Chaney

This course examines the work of David Drake, a South Carolinian slave who made some of the largest ceramic storage vessels of this region, signing them and etching sayings and poems onto them as well. This seminar engages with Drake's poetry-pottery through critical and historical research, interpretive writing, and our own creative adventures in ceramic handicrafts. As a culminating assignment, students will contribute chapters to a scholarly book on Drake, which the professor shall edit.

Cross-Listed as: ENGL 52.03, COCO 3.01

Distributive: Dist:ART

Offered: Not offered in the period 15F through 16S.

AAAS 83.02 - Food and the African World

Instructor: Freidberg

African plants, cuisines and knowledge have long enriched the world's diets and agrarian economies, yet in contemporary Africa millions suffer from hunger. This course explores both aspects of Africa's food history, as well as the connections between them. The topics covered include traditional African foodways and their transatlantic

and global spread, modern Africa's experience of famine and food aid, and questions of race and food rights in the United States. This course will be taught as a seminar.

Cross-Listed as: GEOG 80

Distributive: Dist:SOC

Offered: Not offered in the period 15F through 16S.

AAAS 83.05 - African Religions of the Americas

Instructor: Pérez

This class introduces the history and practices of African-derived religious traditions as they have developed in the Caribbean, Latin America, and Black American communities in the United States. These religious systems will be discussed with reference to their mainstream representation (as "voodoo") and analyzed according to the more complex realities of their practitioners' everyday lives. Three themes to be explored in each tradition include 1) gender identity; 2) racial identity and resistance; and 3) aesthetics. Open to all classes.

Cross-Listed as: REL 17

Distributive: Dist:INT or TMV; WCult:CI

Offered: 15F: 2; 16F: 2

AAAS 83.06 - Caribbean Lyric and Literature

Instructor: Vasquez

This course will look at several issues that reappear throughout the work of a variety of Caribbean writers from former British colonies. These concerns include (but are not limited to) notions of exile, the importance of language and music, the articulation of identity in varying post-colonial states, and representations of gender, race and ethnicity. The class will also analyze the socio-political events in particular nations and the ways in which these events influence writing in the archipelago. We will also examine the ways in which a strong tradition of music as protest influences the production of particular poetic forms in Trinidad and Jamaica. The class will move from early twentieth century writers like Claude McKay to the important contributions of later writers such as Kamau Brathwaite, Jamaica Kincaid, George Lamming, V.S. Naipaul, Sam Selvon, Olive Senior and Derek Walcott. We will examine the more recent innovations in form, as musical elements are introduced by writers such as Mikey Smith and Kwame Dawes. Each week's readings will be supplemented with seminal critical writings including excerpts from the text *The Empire Writes Back*.

Cross-Listed as: LACS 66

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in the period 15F through 16S.

AAAS 86.03 - Affirmative Action in Brazil

This course uses texts and films to discuss race, class, and social reformation in Brazil resulting from recent affirmative action. Over a long historical period racial issues were not openly discussed and the country was seen as a "racial democracy." Brazil was the last country in the Western world to abolish slavery, and the most ethnically diverse in the western world, yet there is controversy over its racial quota system's impact on jobs and society.

Distributive: Dist:SOC; WCult:CI

AAAS 87.05 - Politics of Africa

Instructor: Horowitz

This course examines post-colonial politics in sub-Saharan Africa, with particular focus on the events of the last decade. The course will be structured around three main themes: (1) patterns of economic growth and decline; (2) the transition to democratic political systems; and (3) political violence and civil conflict. While the course covers broad trends across the continent, it will also draw on case studies from particular countries.

Cross-Listed as: GOVT 42

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period 15F through 16S.

AAAS 87.06 - 20th Century African Art

Instructor: Nzewi

This course is designed to introduce undergraduate students to African art in the twentieth century. It charts the development and dimensions of artistic expressions and cultural production in Africa from the colonial period to the contemporary. By looking at various case studies comparatively, the course explores the intersection of developments in artistic practice and identity, and cultural production, and sweeping changes in the political, social and economic spheres in Africa. It considers the effects of colonialism, postcolonial conditions, neocolonialism, economic liberalism, and globalization on cultural production and artistic practice. Following a chronological format, it will attempt to cover the different sub-regions of the continent but draws substantial amount of examples from sub-Saharan Africa.

Offered: Not offered in the period 15F through 16S.

AAAS 88.02 - Women and Gender in the African Diaspora

Instructor: Johnson

This course focuses on the lived experiences of—and structural limitations placed upon—women of African descent from the era of the trans-Atlantic slave trade through the early twentieth century. We will examine a number of critical themes, including power, labor,

geography and migration, racism, sexuality, spirituality, and a host of other dynamics impacting women. Importantly, however, we will also focus on the many ways in which these women "talked back" to the larger world.

Cross-Listed as: WGSS 38.02

Distributive: Dist:INT or SOC; WCult:CI

Offered: 15X: 12; 17W: 11

AAAS 88.06 - The 1970s: Decolonization and Diaspora

Instructor: Smolin

This course will examine the turbulent decade of the 1970s from a transnational perspective, focusing on the interconnections of four locations: Angola, Mozambique, Brazil, and the United States. The violent struggles that resulted in independence for Portugal's former colonies in 1975 had an impact across the African diaspora, as blacks in the United States as well as Brazil identified their own fight for equality with decolonization in Africa. Political struggle gave rise to artistic innovation as artists, musicians, and writers sought to liberate culture from different forms of colonialist oppression. We will examine this process through literature, film, and music, beginning with the novels to come out of the independence movements in Angola and Mozambique and ending with the spread of reggae and soul across the diaspora. We will look at African American and Afro-Brazilian artistic movements during the period, intercultural exchanges between Africa, Brazil, and the United States, the impact of the women's movement, and writers' efforts to creatively re-write the history of the African diaspora in the Americas. Authors may include Luis Bernardo Honwana, Abdias do Nascimento, Ishmael Reed, Amiri Baraka, and Gilberto Gil.

Distributive: Dist:INT or SOC; WCult:CI

Offered: Not offered in the period 15F through 16S.

AAAS 88.07 - Afro-Diasporic Dialogues: Latin America and the U.S.

Instructor: Phillips; Goldthree

This course investigates how people of African ancestry have forged cultural and political ties across national boundaries in the Americas. Drawing on primary sources, film, and literature, we will examine the transnational dialogue among US African Americans, Afro-Latinos, and Afro-Caribbeans from the 19th century to the present. We will also consider why efforts to mobilize Afro-descendants across the Americas have often been undermined by mutual misunderstandings, conflicting agendas, and differing conceptions of "race" and "nation."

Distributive: Dist:INT or SOC; WCult:CI

Offered: 15F: 11

AAAS 89 - Independent Study in African and African American Studies

Available to students who wish to independently explore aspects of African and African American Studies which are not included in courses currently offered at Dartmouth. Open to qualified students with permission of the course instructor and the Chair. (Obtain Proposal Form in the program office.) No student may take more than two such courses without the approval of the program. Open to sophomores, juniors, and seniors. The AAAS faculty.

Offered: All terms: Arrange

AAAS 90.01 - Identity and Power in the Americas

Instructor: Baldez

This course examines how different forms of collective identity—including class, race, ethnicity, indigeneity and gender—have shaped Latin American and Latino politics in the 20th and 21st centuries. We will focus on a range of cases in Latin America and the U.S. to address the following questions: In what ways does the state create and sustain certain categories of identity as the basis for political inclusion and exclusion? What explains changes in the political salience of certain categories of collective identity? Why do some identities become politically salient and others do not? How have forms of political representation changed over the past century? How does state policy affect the ability of groups to mobilize and press for demands? How do organized groups affect state policy? What are the possibilities and limitations of identity-based mobilization?

Cross-Listed as: LACS 80.02

Distributive: Dist:LIT

Offered: Not offered in the period 15F through 16F.

AAAS 90.02 - Prophetism in the Black World

Instructor: Baum

This seminar utilizes historical, anthropological, and comparative religions perspectives to examine the relatively widespread phenomena of prophetism in the black world. We will explore the lives and prophetic careers of people who claimed direct revelation from a supreme being or lesser spirits in indigenous African religions, Islam, and African and African-American Christianity. We will examine such movements before European occupation as well as the colonial and post-colonial eras. We will also examine African-American movements from the period of slavery and the twentieth century. Topics will include women's prophetic movements, religious critiques of underdevelopment, the process of inculturation of Islam and Christianity, and the role of religion in resistance to foreign or domestic domination.

Cross-Listed as: REL 80

Distributive: Dist:TMV; WCult:CI

Offered: 16W: 10A

AAAS 90.03 - Afro-Diasporic Dialogues: Latin America and the U.S.

Instructor: Phillips; Goldthree

This course investigates how people of African ancestry have forged cultural and political ties across national boundaries in the Americas. Drawing on primary sources, film, and literature, we will examine the transnational dialogue among US African Americans, Afro-Latinos, and Afro-Caribbeans from the 19th century to the present. We will also consider why efforts to mobilize Afro-descendants across the Americas have often been undermined by mutual misunderstandings, conflicting agendas, and differing conceptions of "race" and "nation."

Distributive: Dist:INT or SOC; WCult:CI

Offered: 15F: 11

AAAS 91 - The Harlem Renaissance

Instructor: Favor

This class will examine the literature and social contexts of a period widely known as the "Harlem Renaissance." Part of our mission in the class will be to deconstruct some of the widely held presuppositions about that era, especially by interrogating questions of class, race, gender and sexuality as social constructs. Although this class will focus mainly on fiction writing, we will also consider some poetry and non-fiction prose as well.

Cross-Listed as: ENGL 53.18

Offered: Not offered in the period 15F through 16S.

AAAS 91.01 - The Harlem Renaissance

Instructor: Favor

This class will examine the literature and social contexts of a period widely known as the "Harlem Renaissance." Part of our mission in the class will be to deconstruct some of the widely held presuppositions about that era, especially by interrogating questions of class, race, gender and sexuality as social constructs. Although this class will focus mainly on fiction writing, we will also consider some poetry and non-fiction prose as well.

Cross-Listed as: ENGL 53.18

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in the period 15F through 16S.

AAAS 97 - Senior Independent Research in African and African American Studies

For senior African and African American Studies majors toward the culminating experience, with permission of

selected instructor and the Chair. (Obtain Proposal Form in the program office.)

Offered: All Terms: Arrange

AAAS 98 - Honors Thesis in African and African American Studies

The honors student will pursue the project under guidance of a selected faculty member and with permission of the Chair. See "A Guide to Honors in African and African American Studies" in the program office.

Offered: Two Terms of Senior Year: Arrange

AAAS 99 - Honors Thesis in African and African American Studies

The honors student will pursue the project under guidance of a selected faculty member and with permission of the Chair. See "A Guide to Honors in African and African American Studies" in the program office.

Offered: Two Terms of Senior Year: Arrange

Associated Courses

Associated courses are those with a central focus on aspects of Africa and/or the African diaspora. These courses may be offered by various departments and programs. Associated courses, including those not on this list, may count toward a major or minor in AAAS. To obtain credit, students must petition the AAAS Steering Committee, outlining how their work in a particular course forms part of a coherent course of study in AAAS.

Environmental Studies 40, Foreign Study in Environment Problems I

Environmental Studies 42, Foreign Study in Environment Problems II

French 21: Introduction to Francophone Literature and Culture

French 70: Francophone Literature

Geography 16: The Political Economy of Development

Geography 27: Race, Identity and Rights

Geography 28: Immigration, Race, and Ethnicity

Geography 25: Social Justice and the City

Geography 43: Geographies of Latin America

Government 25: Problems of Political Development: India, South Africa, and China

Government 86: Race, Law and Identity

History 96: Race, Ethnicity and Immigration in U.S. History

History 96.22: Topics in West African History

Music 4: Global Sounds

Music 51: Oral Tradition Musicianship

Psychological and Brain Sciences 53: Stereotypes, Prejudice and Discrimination

Sociology 47: Race and Ethnicity in the U.S.

Theater 10: Special Topics in Theater

Anthropology

Chair: Sienna R. Craig

Professors: N. J. Dominy, D. F. Eickelman, S. A. Kan, D. L. Nichols; Associate Professors: J. Casana, S. R. Craig, J. M. DeSilva, L. A. Ogden, J. M. Watanabe; Adjunct Assistant Professor: E. Carpenter-Song; Senior Lecturer: S. Billings; Lecturers: K. Bauer, W. Fitzhugh, N. Samin, V. Venkataraman; The Robert A. 1925 and Catherine L. McKennan Postdoctoral Fellow: B. Valentine; Andrew W. Mellon Postdoctoral Fellow: D. M. Banerjee; Neukom Fellow: K. Schroer; Emeriti Professors: H. Alverson, K. Endicott; Emeritus Associate Professor: K. Korey

Contact the Department Administrator, Joseph Cadoret, for further information.

To view Anthropology courses, [click here](#) (p. 91).

Requirements for the Major

The *Major in Anthropology* comprises ten courses, to be selected as follows:

For students enrolled in class years preceding 2017:

1. An introductory course: ANTH 01 - *Introduction to Anthropology* or ANTH 03 - *Introduction to Cultural Anthropology*.
2. One course from each of the following four subject areas: Archaeology, Biological Anthropology, and the two subsets of Cultural Anthropology - Topical and Area. The subjects are indicated as ARCH, BIOL, TOPIC or AREA following each course description.
3. Any four additional courses from the department's offerings.
4. A Culminating Experience Seminar, which is designated by course numbers in the 70s, (e.g. ANTH 72, 73, 74, 75). Seminars are usually offered in Fall and Spring terms.

For students enrolled in class year 2017 and beyond:

1. An introductory course: ANTH 01 - *Introduction to Anthropology* or ANTH 03 - *Introduction to Cultural Anthropology*.
2. One course from each of the following three subject areas: Archaeology, Biological Anthropology, and Cultural Anthropology.
3. Any five additional courses from the department's offerings.
4. A Culminating Experience Seminar, which is designated by course numbers in the 70s, (e.g. 72, 73, 74, 75). Seminars are usually offered in Fall and Spring terms.

Statistics: All anthropology majors are encouraged to take a course in statistics. Students who plan to undertake

independent research, especially in archaeology and biological anthropology, and any student considering attending graduate school in anthropology should take at least one statistics course: e.g., GOVT 10, MSS 15, PSYC 10, SOCY 10.

Modified Major: The Modified Major consists of seven courses in anthropology, one of which must be a culminating seminar and another of which will normally be ANTH 1 (p. 91) or ANTH 3 (p. 91), plus four courses above the prerequisite level in one or more other department(s) or program(s). The 11 courses must form a unified, coherent program of study. Students wishing to modify their Anthropology major must submit a written rationale that makes clear the coherence and purpose of their modified major. This rationale must be reviewed by, and can be approved by any faculty in the Anthropology department, and must be submitted to the Registrar.

Concentrations: Anthropology majors may choose to concentrate in one or more subfields of anthropology by taking at least four courses in: archaeology, biological anthropology, or cultural anthropology.

Archaeology is the scientific study of past human behavior and societies from material remains of the earliest human ancestors to recent times. Students interested in graduate studies in archaeology should take a statistics course and have fieldwork experience that can be gained by enrolling in an archaeological field school for transfer credit.

Biological anthropology is the study of human biological variation and evolution. Biological anthropologists seek to document and explain the patterning of biological variation among contemporary human populations, trace the evolution of our lineage through time in the fossil record, and provide a comparative perspective on human uniqueness by placing our species in the context of other living primates. Students concentrating in biological anthropology are advised to take a course in statistics, as well as one or more advanced courses in biological sciences.

Cultural anthropology addresses broad questions about what it means to be human in contemporary societies and cultures, as well as those of the recent past. Cultural anthropologists systematically explore topics such as technology and material culture, social organization, economies, political and legal systems, language, ideologies and religions, health and illness, and social change. Students concentrating in cultural anthropology are strongly advised to take the course in ethnographic research methods, ANTH 18 (p. 94). Students planning on graduate studies in cultural anthropology are advised to take Main Currents in Anthropology, ANTH 73 (p. 100).

Under special circumstances, students may petition the Anthropology faculty to substitute a course from another department or program to count for the Anthropology major. The petition should be submitted to the Chair, along

with a copy of the syllabus for the substitute course and a list of the student's major courses. The petition must be approved by a vote of the Anthropology Department faculty.

Minors in Anthropology

The *Minor in Anthropology* comprises six courses, as follows:

1. An introductory course: ANTH 01 - *Introduction to Anthropology* or ANTH 03 - *Introduction to Cultural Anthropology*.
2. One course from each of the following three subject areas: Archaeology, Biological Anthropology, and Cultural Anthropology - (either Topical or Area). The subjects are indicated as ARCH, BIOL, TOPIC or AREA following each course description.
3. Any two additional courses from the department's offerings.

The *Anthropology Minor in Global Health* comprises six courses, as follows:

1. An introductory course: ANTH 01 - *Introduction to Anthropology* or ANTH 03 - *Introduction to Cultural Anthropology*.
2. At least one course from each of the following five core approaches to the study of global health: Social Studies of Medicine, Health and Disease; Cultural Approaches; Biological Approaches; Methodological Approaches; and Interdisciplinary Approaches.

About the Minor in Global Health

The Minor in Global Health consists of six courses, *at least four of which, including the introductory course, must be taken within the Anthropology department*. The minor provides students with disciplinary introductions to sociocultural and medical anthropology, encourages an understanding of biological perspectives on global health, develops students' training in relevant research methods (qualitative / quantitative), and asks that students delve into interdisciplinary areas of inquiry related to global health. Core courses in medical anthropology provide an anchor for the minor, but other offerings can be tailored to the intellectual trajectories of students. Interested students should consult with the Anthropology Department for a list of appropriate courses. The minor can be pursued simultaneously with the Dickey Center's Certificate in Global Health.

Honors Program

Students applying to the honors program must meet the minimum college requirements of a 3.0 grade point average and a 3.3 grade point average in the major. By the end of the third term preceding their graduation, applicants will ordinarily have completed, with a minimum grade of A–, a preparatory reading course (ANTH 85) and will have submitted an honors thesis proposal for work to be

supervised by a primary faculty advisor. Admission to the program is by vote of the department faculty, which may appoint one or more secondary advisors.

Students admitted to the honors program must enroll in ANTH 88, *in addition to the ten courses ordinarily required in the standard major or eleven courses in the case of a modified major*. The honors project, which culminates in a substantial independent thesis, will be submitted to the primary advisor at least four weeks prior to graduation. Those students completing the program with a grade of A– or higher in their honors course will receive honors recognition in the major. High honors may be awarded by faculty vote for truly exceptional work.

SUMMARY OF ANTHROPOLOGY CURRICULUM

The subject areas within the curriculum are outlined in the following list.

Introductory Anthropology: 1, 3, 4, 5, 6, 8, 9, 11, 12.01, 12.02, 12.04, 12.11, 12.16, 14, 15, 17, 18, 20, 21, 22

Archaeology: 5, 8, 11, 12.02, 12.13, 21, 22, 50.03, 50.05, 57, 59, 75

Biological Anthropology: 6, 12.04, 20, 30, 38, 40, 41, 42, 43, 62, 63, 64, 74

Area Courses in Cultural Anthropology: 4, 12.11, 27, 32, 35, 36, 37, 47, 52

Topical Courses in Cultural Anthropology: 1, 3, 9, 12.01, 12.16, 14, 15, 17, 18, 26, 31, 33, 34, 44, 45, 48, 49, 51, 55, 58, 60, 61, 65, 72, 73

Culminating Seminars: 72, 73, 74, 75

ANTH - Anthropology Courses

To view Anthropology requirements, [click here](#) (p. 90).

ANTH 1 - Introduction to Anthropology

Instructor: Watanabe

This course explores the unity and diversity of humankind by examining our evolution as a single biological species that nonetheless depends for its survival on learned-and therefore varied as well as variable-patterns of cultural adaptation. Lectures and readings address the relationship between the material conditions of our existence, our unique human capacity for creative thought and action, and changes in the size and scale of human societies.

Distributive: Dist:INT or SOC; WCult:CI

Offered: 15F, 16F: 9L

ANTH 3 - Introduction to Cultural Anthropology

Instructor: Ogden, Kan, Craig

Cultural anthropology is the study of human ways of life in the broadest possible comparative perspective. Cultural

anthropologists are interested in all types of societies, from hunting and gathering bands to modern industrial states. The aim of cultural anthropology is to document the full range of human cultural adaptations and achievements and to discern in this great diversity the underlying covariations among and changes in human ecology, institutions and ideologies. (TOPIC)

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16S: 9L; 16X: 10A; 17S: 9L

ANTH 4 - Peoples and Cultures of Native North America

Instructor: Kan

The course provides an introduction to the peoples and cultures of Native North America. A single indigenous group (nation) from different "culture areas" is highlighted to emphasize particular forms of economy, social organization, and spirituality. The course focuses on the more traditional American Indian cultures that existed before the establishment of Western domination, as well as on the more recent native culture history and modern-day economic, sociopolitical and cultural continuity, change, and revitalization. Open to all classes. (AREA)

Cross-Listed as: NAS 10

Distributive: Dist:SOC; WCult:NW

Offered: 16S, 17S: 11

ANTH 5 - Reconstructing the Past: Introduction to Archaeology

Instructor: Casana, Nichols

Anthropological archaeology makes a unique contribution to understanding the human past. This course introduces the key concepts, methods and techniques used by modern archaeologists to interpret the past. Students will become better acquainted with archaeological methods through small projects and the discussion of case studies. (ARCH)

Distributive: Dist:SOC

Offered: 16S: 12; 17S: 10

ANTH 6 - Introduction to Biological Anthropology

Instructor: DeSilva, Venkataraman, Dominy

The major themes of biological anthropology will be introduced; these include the evolution of the primates, the evolution of the human species, and the diversification and adaptation of modern human populations. Emphasis will be given to (1) the underlying evolutionary framework, and (2) the complex interaction between human biological and cultural existences and the environment. (BIOL)

Distributive: Dist:SCI

Offered: 15F: 12, 16W: 11, 16F: 10A

ANTH 7 - First-Year Seminars in Anthropology

Offered: Consult special listings

ANTH 8 - The Rise and Fall of Prehistoric Civilizations

Instructor: Nichols

One of the most intriguing questions in the study of human societies is the origins of cities and states or the transformation from small kinship-based societies to large societies that are internally differentiated on the basis of wealth, political power, and economic specialization. This course examines the explanations proposed by archaeologists for the development of the first cities and state societies through a comparative study of early civilizations in the Old World and the Americas. (ARCH)

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16F: 10

ANTH 9 - Language and Culture

Instructor: Billings

This course introduces major themes and thinkers in the development of the study of language and culture in Anthropology and Linguistics. The course begins with theories of the linguistic sign and then explores how these have been applied to the study of sound and meaning. We ask questions about the connections between grammar and cognition, language diversity and cultural variation, and the role of language use in the production of social life and cultural worlds. (TOPIC)

Distributive: Dist:SOC

Offered: 16W, 16F: 12

ANTH 11 - Ancient Native Americans

Instructor: Nichols

This course provides an introduction to the ancient societies of North America. The course examines the populating of the Americas and related controversies. We then concentrate on the subsequent development of diverse pre-Columbian societies that included hunter-gatherer bands in the Great Basin, the Arctic, and the sub-Arctic; Northwest Coast chiefdoms; farmers of the Southwest, such as Chaco Canyon and the desert Hohokam; and the mound-builders of the Eastern Woodlands. (ARCH)

Cross-Listed as: NAS 11

Distributive: Dist:SOC; WCult:NW

Offered: 16F: 12

ANTH 12.01 - Ethnographic Film

Instructor: Banerjee, Ruoff

Ethnographic film crosses the boundaries between academic anthropology and popular media. This course

addresses the construction of meaning in ethnographic films in relation to written anthropology. It focuses on individual films, analyzing their significance from the perspectives of filmmakers and audiences. The class will appeal to students of anthropology and film as well as others interested in international studies and the politics of cross-cultural representation. (TOPIC)

Cross-Listed as: FILM 41.04

Distributive: Dist:INT or ART; WCult:NW

Offered: 16S: 3A

ANTH 12.02 - The Archaeology of the Ancient Near East

Instructor: Casana

This course will present students with an introduction to the archaeology of the Near East from the Paleolithic to the Achaemenid Period (12000 BC – 330BC) and cover major developments in human history, including the move toward sedentism, the origins of agriculture, the establishment of urbanism, the development of writing and the rise and fall of the world's first empires. These events and issues will be addressed through the lens of archaeological evidence from Mesopotamia, the Levant, Anatolia, Iran and Arabia. (ARCH)

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F: 11; 17S: 12

ANTH 12.04 - Your Inner Chimpanzee

Instructor: Schroer

Chimpanzees and bonobos are the nearest living relatives to humans and provide a critical counterpoint for understanding the potential uniqueness of human behaviors. This course will address the history of using chimpanzees and bonobos as models of human evolution, examine landmark case studies in primate language, violence, reproduction, and tool use, and discuss the socio-political role of chimpanzees and bonobos in medicine, conservation, and art. (BIOL)

Distributive: Dist:SCI

Offered: 16S: 12

ANTH 12.05 - Death and the Afterlife in the Ancient Near East and Egypt

In the ancient world, death was not the great equalizer—how you were buried and your lot in the afterlife depended on your status, means and achievements. Through archaeological remains and texts, this course will explore how ancient peoples of the Near East and Egypt prepared for the hereafter. Examining cases from Neolithic plastered skulls to the pharaohs' pyramids, we will learn about funerary rituals, ancestor cult, afterlife beliefs, burial practices, memorialization and social memory. (ARCH)

Distributive: Dist:INT or ART; WCult:NW

Offered: Not offered during the period from 15F through 16S

ANTH 12.11 - Arctic Crossroads

Once considered a remote frontier with a shallow history and marginalized peoples, "the big thaw" is transforming the Arctic into an international melting pot with a surprisingly deep and complex history. This course presents the 40,000 year history of the circumpolar Arctic through the latest discoveries in environmental science, archaeology, ethnology, history, and art. We will also explore how Europeans 'discovered' the Arctic, beginning with the voyages of Pythias, the sagas of Norse Vikings, Frobisher's Northwest Passage quest, and Dezhnev's discovery of the Bering Strait. The third strand of our Arctic odyssey will be seen through the eyes, art, mythology, and beliefs of the northern peoples themselves. (AREA)

Distributive: Dist:INT; WCult:NW

Offered: 16W: 10A

ANTH 12.13 - Moving House in Prehistory

Societies care about migration. It matters to us when people move into (or out of) our places. We think carefully about how to react to new bodies—whether they are students arriving at our universities, migrant workers following job opportunities, or refugees fleeing across borders. We intuitively grasp that the movements of people can have wide-ranging consequences for the sending societies, receiving societies, and the migrants themselves. Yet somehow, there is a tendency to think about migration in the past in more simplistic terms. In this class, we will apply our nuanced ways of understanding modern mobility to the archaeological past. By addressing the motives, mechanisms, and outcomes of migration through the lens of material culture, we will see how archaeologists can situate past migrations at the forefront of social theory. Our primary focus will be on method and theory, rather than the details of any specific migration. Serious engagement with the weekly readings is necessary to begin tackling seemingly straightforward questions including: How are archaeologists dealing with migration? How aren't they? How should they? And how can they? (ARCH)

Distributive: Dist:INT or SOC

Offered: Not offered in the period from 15F through 16S

ANTH 14 - Death and Dying

Instructor: Kan

Using anthropological and historical works, novels and films, the course explores the meaning of death in a variety of cultures. Particular attention is paid to understanding native ideas about the person, emotions, life cycle, and the afterlife, as well as the analysis of mortuary rituals and the

experience of the dying and the survivors. The course also offers an anthropological perspective on the development of the modern American ways of dealing with death and dying. (TOPIC)

Distributive: Dist:INT or SOC

Offered: 16S, 17S: 2

ANTH 15 - Political Anthropology

Instructor: Samin

The political anthropology of non-Western societies raises basic questions concerning the nature of authority, coercion, persuasion, and communication in both small-scale and complex societies. Classical approaches to problems of freedom and order are challenged through examples drawn from various societies. Topics including the ideologies and language of political domination, revolution, wealth, and the transition to post-modern societies are assessed, as are factions, knowledge and control, state secrecy, state and non-state violence, and religious fundamentalism. (TOPIC)

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W: 10

ANTH 17 - The Anthropology of Health and Illness

Instructor: Banerjee, Carpenter-Song

This introduction to medical anthropology focuses on the cross-cultural study of health and illness. Medical anthropology also speaks to issues of global health equity, human rights, and social suffering. This class examines the role of the healer/physician in a variety of societies, explores the boundaries between 'religion' and 'science' as they relate to healing, considers 'traditional medicine' and examines processes and practices of 'medical pluralism' by investigating how individuals and communities make health care-related decisions. (TOPIC)

Distributive: Dist:INT or SOC

Offered: 16W: 12; 16F: 10A

ANTH 18 - Research Methods in Cultural Anthropology

Instructor: Carpenter-Song

This course will introduce students to the premier method of empirical research in cultural anthropology: participant observation, and associated informal dialogue and interviewing. We will study techniques for planning and carrying out such research, and for recording, checking validity and reliability, storing, coding, analyzing and writing up of ethnographic data. Students will undertake "mini" research projects, and become familiar with basic ethical issues, informed consent, writing of research proposals, formulating research contracts, and sharing results with cooperating individuals and groups. (TOPIC)

Distributive: Dist:SOC

Offered: 15F: 10A; 16F: 2A

ANTH 20 - Primate Evolution and Ecology

Instructor: Dominy

Humans are primates. The biology of our species cannot be fully understood outside of this context. This course offers a broad survey of living nonhuman primate diversity. The physical, behavioral, and ecological attributes of each of the major groups of primates will be discussed. Emphasis will be placed on traits relating to diet, locomotion, growth, mating, and social systems. Students will gain a comparative perspective on humankind. (BIOL)

Distributive: Dist:SCI

Offered: 16S, 17S: 10

ANTH 21 - The Aztecs

Instructor: Nichols

Mexico City once the capital of New Spain overlies the remains of Tenochtitlan, capital of the Aztec empire. This course examines the development of the Aztec empire, the organization of Aztec society and religion, and the Spanish conquest of the Aztec. It ends with an introduction to Nahua society in the first century after conquest. We will also consider the varied perspectives of Aztec history offered by Nahua texts, archaeology, history, and art history. (ARCH)

Cross-Listed as: LACS 42

Distributive: Dist:SOC; WCult:NW

Offered: Not offered during the period from 15F through 16S

ANTH 22 - Olmecs, Maya, and Toltecs: Ancient Civilizations of Mesoamerica

Instructor: Nichols

The course begins by discussing how people first occupied Mesoamerica during the Ice Age and then examines the development of agriculture and early villages that laid the foundations for Mesoamerica's earliest complex societies, including the Olmecs. We then explore the Classic period civilizations of Teotihuacan, Monte Albán, and the Maya and the Postclassic city-states of the Toltecs, Mixtecs, and Maya and the Aztec empire at the time of the Spanish Conquest. (ARCH)

Cross-Listed as: LACS 43

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period from 15F through 16S

ANTH 23 - The Incas

Conquering from the high mountain valleys of South America's Andean region, the Incas came to dominate a population numbering in the millions and living across one of the most diverse regions on the planet. An empire lacking writing or currency, the Incas provide an unusual case study for understanding the rise and fall of early civilizations. This course will introduce students to Inca society using current archaeological evidence and the writings of sixteenth-century Spanish chroniclers. (ARCH).

Offered: Not offered in the period from 15F through 16S

ANTH 24 - Early Civilizations of the Andes

The Andean region of western South America is one of a very few world regions where agriculture and urbanism developed independently. This course will consider Andean prehistory from the arrival of the first humans, covering hunter-gatherer lifeways, the domestication of plants and animals, and the emergence of hierarchical societies such as Paracas, Nasca, and Chavin. We will finish with a discussion of early states and empires, looking at the Moche, Wari, Tiwanaku, and Chimú societies. (ARCH)

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period from 15F through 16S

ANTH 25 - The Land of the Totem Poles: Native Peoples of the Northwest Coast

Instructor: Kan

With their complex social organization, elaborate ceremonies, fascinating mythology, and flamboyant "art," the indigenous peoples of the Pacific Northwest Coast represent a truly unique "culture area" of Native North America. The course surveys several cultures of this region (from the coast of Oregon to southeastern Alaska), drawing upon early travelers' accounts, anthropological works, native testimony, artifacts from the Hood Museum of Art, and films. Lectures, class discussions, and student presentations will deal with the "classic" Northwest Coast cultures of the eighteenth and the nineteenth centuries as well as their modern versions. Open to all classes. (AREA)

Cross-Listed as: NAS 49

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15F through 16S

ANTH 26 - Gender and Global Health

This course will examine the intersection of gender and health. Readings will be from medicine, history, journalism, and the social sciences. We will interrogate the relationship between biology, science, and culture, focusing our attention on the cultural construction of healing and embodied experience of illness. We will

examine how cultural institutions, ideologies, and practices contribute to health disparities along lines of race, class, and gender, paying attention to medicine's role in gendering the body. (TOPIC)

Cross-Listed as: WGSS 61.05

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15F through 16S

ANTH 27 - Thought and Change in the Middle East and Central Asia

Instructor: Samin

This course focuses on changing ideas of political and religious authority in the Middle East. Topics include how changing notions of personal, tribal, ethnic, and religious identities influence politics locally and internationally; religion and mass higher education; the multiple meanings and prospects of democracy; conflict over land and natural resources; political and economic migration; new communications media; the global and local bases for extremist movements; and the changing faces of Islam and other religions in the region's public spaces. (AREA)

Cross-Listed as: AMES 5

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 2

ANTH 30 - Hunters and Gatherers

Instructor: Dominy

This course explores the hunting and gathering way of life, the sole means of human subsistence until the development of agriculture 10,000 years ago, now represented by only a few dozen groups around the world. We will examine a number of hunting and gathering peoples living in highly disparate environments- deserts, tropical forests, arctic regions-in an attempt to discover how they adapt to their natural and social environments, how they organize and perpetuate their societies, and how they bring meaning to their lives through religion. Understanding contemporary hunter-gatherers illuminates the workings of earlier human societies as well as fundamental features of human society in general, such as the sexual division of labor. (BIOL)

Prerequisite: One introductory Anthropology course.

Distributive: Dist:SOC; WCult:NW

Offered: 15F: 10A

ANTH 31 - Gender in Cross-Cultural Perspective

Instructor: Billings

Sex (biological differences between men and women) and gender (social constructions of those differences) are not straightforward or natural. Gender inequalities are also not straightforward and natural. This course thus pays close attention to issues of power and inequality, including the

ways in which Western gender ideals have been imposed on people in other parts of the world. We will also engage with perceptions, images, stories, encounters, games, connections, disconnections, practice and resistance. (TOPIC)

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16S, 17S: 10A

ANTH 32 - Anthropology of Tibet and the Himalayas

Instructor: Bauer, Craig

This course introduces students to the peoples and cultures of Tibet and the greater Himalayan region (Nepal, northern India, Bhutan). We examine the cultural, ecological, political, religious, and economic interfaces that define life on the northern and southern slopes of Earth's greatest mountain range. In addition to learning about Himalayan and Tibetan lifeways, we will also learn about how these mountainous parts of Asia have figured into occidental imaginings, from the earliest adventurers to contemporary travelers. (AREA)

Cross-Listed as: AMES 26

Distributive: Dist:SOC; WCult:NW

Offered: 16W: 11

ANTH 33 - Crossing Over: Latino Roots and Transitions

This course focuses on the experiences of Mexican, Central American, Cuban, Dominican, and Puerto Rican migrants living in the US. The literature will draw from anthropology and its neighboring disciplines in an attempt to understand the social, political, and economic processes that shape the varied experiences of Latino migrants living in the United States. In so doing the class will examine Latino migrant experiences in relation to issues such as the changing character of capitalism as an international system, the organizing role of networks and families, changing patterns of gender relations, the emergence of a second generation, and the cultural politics of class formation. (TOPIC)

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period from 15F through 16S

ANTH 34 - Comparative Perspectives on the U.S.-Mexican Borderlands

The borderlands will be examined in ways that take us from a concrete analysis of the region, including conflict and organizing efforts at the border, to more abstract notions that include strategies of cultural representations and the forging of new identities. We will consider several analytical perspectives relevant to anthropology including: gender, identity, resistance, economics, globalization, migration, and the politics of everyday life. (TOPIC)

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period from 15F through 16S

ANTH 35 - Maya Indians Under Mexican and Guatemalan Rule

Instructor: Watanabe

This course explores the contemporary Maya cultures of Mexico and Guatemala against the backdrop of nearly five hundred years of conquest, colonialism, revolution, and nation-building. Given the contrasting, at times deeply antagonistic, cultures and identities that have resulted, this course focuses on issues of Maya ethnicity, inequality, and nationalism in these two closely related yet historically distinct countries. (AREA)

Prerequisite: One course in Anthropology or Latin American, Latino and Caribbean Studies.

Distributive: Dist:SOC; WCult:CI

Offered: 17S: 10

ANTH 36 - Anthropology and Contemporary Africa: Exploring Myths, Engaging Realities

Instructor: Billings

This course focuses on processes, relationships, and experiences that have shaped, and continue to shape, the lives of Africans in many different contexts. These include issues of ecology and food production, age, gender, ethnicity, exchange, colonialism, apartheid, and development. We will then embark on in depth readings of ethnographies that engage these issues and themes. In the processes we will move beyond prevailing stereotypes about Africa, to engage the full complexity of its contemporary realities. (AREA)

Prerequisite: One introductory course in anthropology or in AAAS or by permission.

Cross-Listed as: AAAS 44

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16W, 16F: 10

ANTH 37 - Legacies of Conquest: Latin America

Instructor: Watanabe

Despite nearly five hundred years of conquest, colonialism, and change, native peoples still survive in culturally distinct enclaves within the dominant Iberian traditions of Latin America. This course examines the roots as well as the endemic social inequalities and prejudices that resulted. Selected case studies will relate to such contemporary problems as international drug trafficking, deforestation of the Amazon basin, and ongoing political repression and revolution in Central America. The course draws on the insights of local ethnographic studies to shed light on global problems, while anthropologically situating native

cultures of Latin America in their larger historical and geopolitical context. (AREA)

Prerequisite: One course in anthropology or Latin American and Caribbean Studies.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 11

ANTH 38 - Human Behavioral Ecology

The human condition is characterized by immense biological and behavioral variation. The extent to which such variation is adaptive is topic a great importance and controversy. Current research in the field of human behavioral ecology reflects a growing interaction between the social and biological sciences. The objectives of this course are to critically examine the origin and development of this discipline and to survey the physiological and behavioral ways that humans interact with their environment. (BIOL)

Distributive: Dist:SCI

Offered: Not offered 15F-16S

ANTH 40 - Human Functional Anatomy

Instructor: Dominy

Anatomy is a science of nomenclature; it provides a universal language for understanding how and why form supports function. Such a biomechanical conceptual framework can inform our understanding of human biology. Yet the anatomical novelties that characterize modern humans are best appreciated when contextualized against living nonhuman primates and the hominin fossil record. Student grades will be based on a mastery of concepts from lectures and labs featuring cadavers, skeletal materials, models, and casts. (BIOL)

Distributive: Dist:SLA

Offered: 15F, 16F: 2A

ANTH 41 - Human Evolution

Instructor: DeSilva

The fossil record demonstrates that humans evolved from an extinct ape that lived in Africa more than 5 million years ago. Paleoanthropology is the branch of biological anthropology that seeks to document and explain the evolution of our lineage using paleontological and archaeological data. This course provides a survey of human evolution in light of current scientific debates. Emphasis will be placed on reconstructing the biology and behavior of prehistoric species. (BIOL)

Distributive: Dist:SCI

Offered: 16W, 17W: 10A

ANTH 42 - Primate Societies

Primates are highly-social mammals. Most primate species live in cohesive social groups. Living in a group poses unique challenges to the individual. This course explores the diversity of primate social organization, with regard to the costs and benefits of group living. Students will gain an understanding of the evolutionary pressures influencing primate social behavior in an ecological context. (BIOL)

Distributive: Dist:SCI

Offered: Not offered in the period from 15F-16S

ANTH 43 - Human Osteology

Instructor: Valentine

Human osteology is an important component of biological anthropology, with applications in archaeology, paleontology, forensics, and medicine. This course is designed to acquaint students with the normal anatomy of the human skeleton. Our focus is the identification of isolated and fragmentary skeletal remains. Students are introduced to principles of bone growth and remodeling, biomechanics, morphological variation within and between populations, pathology, ancient DNA, taphonomy, and forensics. Practical techniques are developed in regular laboratory sessions. (BIOL)

Prerequisite: ANTH 6 or permission of the instructor.

Distributive: Dist:SLA

Offered: 16S: 11; 17W 2A

ANTH 44 - Globalization from Above and Below

Globalization is used to describe various differing social, economic, and political processes. Most commonly, globalization is used to refer to increasing interconnections of people, ideas, and money across the world. While some scholars may praise the connections offered by globalization, others provide more critical accounts of the homogenizing impacts of globalization on culture, and the exploitative nature of transnational corporations on both people and the natural environment. In this course we examine both the ways that globalization is producing a world that while diverse, is changing through increased interconnectedness and new form of mobilization on the ground that challenge various forms of inequalities. (TOPIC)

Distributive: Dist:INT or SOC

Offered: Not offered in the period from 15F through 16S

ANTH 45 - Asian Medical Systems

Instructor: Armbricht, Craig

This course investigates systems of healing practiced in, and derived from, Asia. We will focus primarily on three Asian medical systems: Ayurveda, Chinese medicine, and Tibetan medicine. We will strive to understand how these

medical systems are based on coherent logics that are not only biologically but also culturally determined. We will also analyze the deployment of these medical systems in non-Asian contexts, and examine the relationship between Asian systems and "western" biomedicine. (TOPIC)

Distributive: Dist:SOC; WCult:NW

Offered: 17S: 10A

ANTH 47 - Alaska: American Dreams and Native Realities

Instructor: Kan

Since the time United States "purchased" Alaska from Russia, this land has been seen by many as the "last frontier" - a place where tough and adventurous Euro-Americans could strike it rich or get away from the negative consequences of civilized living. Using anthropological and historical works as well as fiction, film and other media, the seminar explores the mythology surrounding the "land of the midnight sun." This myth of the "last frontier" - in its development-driven as well as conservationist versions -- is also contrasted with the ways Native Alaskans' have viewed and lived on their land. (AREA)

Cross-Listed as: NAS 37

Distributive: Dist:SOC; WCult:CI

Offered: 16W, 16X: 2A

ANTH 48 - From the Sacred to Salvation: The Place of Religion in Human Societies

Instructor: Elison, Watanabe

This course examines religions as cultural systems that give shape and meaning to people's lives and provide them a means, in the form of rituals, to affect their worlds and themselves. The emphasis is on understanding non-Western religions, especially local traditions, through the interpretation of myth, ritual, and symbolism. The relationship of religion to political power and ideology is also explored. (TOPIC)

Prerequisite: One course in Anthropology or Religion or permission of the instructor.

Distributive: Dist:INT or TMV; WCult:NW

Offered: 16S: 10; 17S: 12

ANTH 49 - Environment, Culture, and Sustainability

Instructor: Ogden, Bauer

Environmental problems cannot be understood without reference to cultural values that shape the way people perceive and interact with their environment. In this course we will engage with cultural difference with special attention to how the American experience has shaped the ways in which Americans imagine and interact with the

environment. We will pay close attention to issues of consumption and conservation and how they have impacted ecologies and human livelihoods around the world. (TOPIC)

Distributive: Dist:INT or SOC; WCult:W

Offered: 16S: 11

ANTH 50.03 - Digital Archaeology

Instructor: Casana

As a form of social science inquiry, the anthropology of science examines the social, political and cultural worlds within which scientific theories, debates and controversies emerge. Through readings of ethnographic writings about varied fields such as neuroscience, genetics, microbiology and physics, this introductory course provides students with the tools to analyze scientific work as a form of meaningful social and cultural action. (TOPIC)

Offered: 16F: 2A

ANTH 50.05 - Environmental Archaeology

Instructor: Casana

Archaeological sites preserve not just architectural and artifactual remains, but important clues to how people lived in and acted on their environment. In this course we will explore the types of data used to reconstruct ancient environments and examine theoretical approaches to human-environment relationships. Through case studies, we will confront contentious issues in environmental archaeology and learn how archaeologists integrate the archaeological record with data from history, biology, and geosciences. (ARCH)

Distributive: Dist:SLA

Offered: 16F: 10A

ANTH 50.06 - HIV/AIDS Through a Biosocial Lens: 30 Years of a Modern Plague

The multifaceted impacts of HIV expand and change daily. Even as we make progress on research, treatment, and prevention, HIV eludes a cure. Using material from the three decades of this modern plague, students will learn about the HIV/AIDS pandemic through biosocial perspectives, using case studies, clinical research, and ethnography drawn from around the world. Biomedical topics like the HIV viral life cycle and the epidemiology of HIV/AIDS will be paired with topics from anthropology such as stigma, culture and behavior change, and the political-economy of the AID(s) industry. (TOPIC)

Cross-Listed as: COCO 2.03

Distributive: WCult:CI

Offered: Not offered in the period from 15F through 16S

ANTH 50.10 - Anthropology of War and Peace

“Have humans always fought and killed each other, or did they peacefully coexist until organized states developed?” This fundamental question frames important debates on the nature of human society. Topics ranging from local contexts, ethnicity, power, territorial partition, justice, domestic and international politics, collective security, justice and mediation will be examined. Using approaches grounded in cultural and political analysis, this course explores how individuals and communities cope with war and rebuild fractured lives and communities. (TOPIC)

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period from 15F through 16S

ANTH 51 - Colonialism and Its Legacies in Anthropological Perspective

Instructor: Watanabe, Ogden, Craig

Between the 16th and mid-20th centuries, European nations and Japan colonized much of the rest of the world. This course examines similarities and differences in the practices of these colonial powers in different regions at different times and the impact they had on indigenous peoples and societies. It traces the ways in which colonial processes and experiences have shaped the politics, economics, and identities of both developed and developing nations in the world today. (TOPIC)

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16W, 17W: D.F.S.P.

ANTH 52 - Introduction to Maori Society

Instructor: Watanabe, Ogden, Craig

This course is an introduction to the study of traditional and contemporary Maori society and culture. Topics for study include pre-European Maori history, origin and migration traditions, land ownership and use, religion, leadership, meeting ground (marae) protocols, the colonial experience, struggles of resistance and of cultural recovery. (AREA)

Distributive: Dist:SOC; WCult:NW

Offered: 16W, 17W: D.F.S.P.

ANTH 54 - Foreign Study in Anthropology

Credit for this course is awarded to students who have successfully completed the designated course in the department of Anthropology at the University of Auckland during the Dartmouth foreign study program in Anthropology and Linguistics and Cognitive Science.

Prerequisite: Two courses in Anthropology.

Distributive: Dist:SOC

Offered: 16W, 17W: D.F.S.P.

ANTH 55 - Anthropology of Global Health

This course explores human responses to disease and illness from the perspective of medical anthropology, with a particular focus on international health. In this context, 'global health' not only refers to health care systems, medical practices, and ideas about illness and the body in cross-cultural contexts, but also encompasses issues of health development paradigms, culture and epidemiology, global health equity and human rights issues. (TOPIC)

Distributive: Dist:INT or SOC

Offered: Not offered in the period from 15F through 16S

ANTH 57 - Origins of Inequality

What led human societies to accept social inequality? This question is as old as the earliest political writings and a central theoretical issue in anthropology. With the collection of detailed archaeological data from multiple world regions, anthropologists have developed case studies for working out the emergence of social inequality. This course will explore the theoretical expectations of multiple approaches to inequality, and then focus on current archaeological evidence from multiple world regions. (ARCH)

Distributive: Dist:INT or SOC

Offered: Not offered in the period from 15F through 16S

ANTH 58 - Sustainable Cities

Instructor: Ogden

Trends suggest that the human experience is increasingly an urban one, with urbanization transforming social and ecological worlds at a rapid pace. With these changes comes a growing urgency to enhance the sustainability of cities. In this course we compare past and present forms of urbanization, with an emphasis on understanding specific challenges and solutions to sustainability. In doing so, we think about how urbanization is embedded in broader socio-ecological processes that transform rural lands and livelihoods.

Distributive: Dist:INT or SOC

Offered: 15F: 10A

ANTH 59 - Who Owns the Past?

Instructor: Casana/Hruby

Archaeology reconstructs life in ancient societies, but its contemporary practice and disciplinary future are complicated by questions about ownership of the past. This course will consider intellectual debates and cultural clashes over roles played by governments, cultural institutions, and indigenous peoples in archaeological inquiry. We will also study ongoing controversies about the ethical treatment of archaeological remains, from

ancient human bodies to artifacts, monuments, and landscapes transformed through human actions. (ARCH)

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 12

ANTH 60 - Psychological Anthropology

Instructor: Carpenter-Song

This course examines key concepts and core debates within the field of psychological anthropology. The course draws on the historical roots of the field as well as contemporary theoretical developments in psychological anthropology. Central questions addressed in the course include: What is the relationship of the individual to culture? How do categories of the person, self, thought, and emotions vary cross-culturally? What do extraordinary psychological experiences reveal about fundamental human processes? (Pending Faculty Approval)

Distributive: WCult:CI

Offered: 15F: 2A

ANTH 61 - Women and Madness

In this course, we will examine the multiple meanings of women's mental illness. Course readings will draw on a broad range of writings on mental illness, incorporating perspectives from practitioners, social scientists, historians, journalists, and patients. We will seriously consider theories that posit mental illness as biological in origin, although the primary aim of this course is to complicate our understandings of mental health and illness using a constructivist approach. We will endeavor to unpack how women's experiences of mental illness emerge within specific, gendered social and historical contexts. Through this examination, we will grapple with crucial issues that feminists face in conceptualizing mental health and illness and the political nature of psychiatric knowledge. (TOPIC)

Cross-Listed as: WGSS 61.04

Offered: Not offered in the period from 15F through 16S

ANTH 62 - Health and Disease in Evolutionary Perspective

Instructor: Venkataraman

This course explores how principles from biological anthropology can provide insight into human health and disease. This course also asks students to critically analyze prevailing medical concepts of 'normal' physiology and illness. We adopt a comparative approach to consider the evolutionary, physiological, and cultural bases of human health and disease by examining case studies in the following areas: i) human diet and nutrition, ii) demography, life history, and reproduction, and iii) pathogens, parasites, and immunity. (BIOL)

Distributive: Dist:SCI

Offered: 16S: 12

ANTH 63 - Biocultural Dimension of Child Development

What is childhood? Is it a social construct of a distinct biological stage in human development? This course explores cross-cultural patterns of child development using the theoretical frameworks of human evolutionary ecology and biocultural anthropology. Students will learn how nutritional, epidemiologic, and social conditions shape developmental processes in infancy, childhood, and adolescence. Students will also analyze children's roles and economics contributions in a cross-cultural context, and examine contemporary global patterns of child health and disease.

Distributive: Dist:INT or SCI; WCult:NW

Offered: Not offered in the period from 15F through 16S

ANTH 64 - Evolution of Birth, Pregnancy, and Babies

This course examines human universals and cross-cultural variation in pregnancy, birth, and infant development. In the first section, principles of life history theory and human reproductive ecology are introduced, and students will learn how assisted birth evolved in humans. In the second section, students will analyze expectations and systems of pregnancy, birth, and infant care in a cross-cultural context. Throughout the course, students will evaluate current controversies surrounding medical models of childbirth, breastfeeding, and co-sleeping.

Distributive: Dist:INT or SCI

Offered: 17W: 10

ANTH 72 - Ethnicity and Nationalism

Instructor: Kan

Ethnic politics and nationalist movements dominated the 20th century and continue to play a major role in shaping the world today. This course explores these important subjects through an anthropological lens by examining such topics as the symbols, rituals and myths of ethnic and national identity; nationalism, ethnic minorities and the state; and homeland and diaspora nationalism. Ethnographic case studies range from indigenous nationalism to that of the newly independent states of Eastern and Central Europe. (TOPIC)

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16W: 10A

ANTH 73 - Main Currents in Anthropology

Instructor: Watanabe, Ogden

This course examines the theoretical concerns that define anthropology as a discipline. Readings by major theorists past and present address the nature and extent of human social and cultural variation, the relationship of

institutional arrangements in society to systems of meaning, the material and moral determinants of human social life, the dynamics of change within and between cultures, and the place of power in maintaining and transforming meaningfully constituted human orders. (TOPIC)

Distributive: Dist:SOC

Offered: 15F: 2A; 16F: 11

ANTH 74 - The Human Spectrum

Contemporary foraging peoples are often viewed as ecological relicts and therefore instructive models for understanding the selective pressures that gave rise to the human condition. The objective of this course is to critically evaluate this enduring concept by examining the spectrum of human interactions with tropical habitats. We will also evaluate the basis of recent popular trends - the paleo diet, raw foodism, barefoot running, parent-child co-sleeping - that emphasize the advantages of a "natural" pre-agricultural lifestyle.

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15F through 16S

ANTH 75 - Ecology, Culture, and Environmental Change

Instructor: Nichols

Anthropology's interest in the interactions of humans and their environments has been long-standing, especially in archaeology. In this seminar we will consider changing conceptual frameworks for understanding human-environmental interactions and long-standing debates about nature vs. culture, materialist vs. symbolic approaches, the development of cultural ecology, and the new "ecologies." We will draw on the research of archaeologists, biological and cultural anthropologists, geographers, and historians. (ARCH)

Distributive: Dist:SOC

Offered: 15F: 10

ANTH 85 - Reading Course

Students who would like to pursue intensive, supervised study in some particular aspect of anthropology may do so with the agreement of an appropriate advisor. The student and advisor will work out together a suitable topic, procedure, and product of the study.

Prerequisite: Written permission of the department faculty member who will be advising the student.

Offered: All terms: Arrange

ANTH 87 - Research Course

Students with an interest in research in anthropology and a particular problem they would like to investigate may do

so with the agreement of an appropriate advisor. The student and advisor will work out together a suitable topic, procedure, and product of the study.

Prerequisite: Written permission of the department faculty member who will be advising the student.

Offered: All terms: Arrange

ANTH 88 - Anthropology Honors

Open only to honors seniors by arrangement with the Chair. Admission to the honors program shall be by formal written proposal only. Consult with Chair concerning the details.

Prerequisite: Written permission of the department faculty member who will be advising the student.

Offered: All terms: Arrange

Art History

Chair: Mary Coffey

Professors A. Cohen, J. Kenseth; Associate Professors M. K. Coffey, A. F. Hockley; Assistant Professors N. M. Camerlenghi, K. Hornstein, S. L. Kim, C. Elias; Senior Lecturers J. L. Carroll, M. E. Heck, S. E. Kangas, K. O'Rourke; Mellon Fellow H. Shaffer.

Consult the Department Administrator for further information.

To view Art History courses, click here (p. 103).

Requirements for the Major

Twelve courses as follows:

Prerequisite: Two courses from ARTH 1, ARTH 2, or ARTH 4.

Requirements:

- one Studio Art course;
- four Art History courses, each from a different area:
 - Pre-Modern (ancient and medieval art to 1400)
 - Early-Modern Europe (1400-1850)
 - Asia and the Middle East
 - Modern and Contemporary (1850 to the present);
- one advanced seminar in Art History (ARTH 80 through ARTH 84);
- ARTH 85 or ARTH 86, which will serve as the Major Culminating Experience;

- three other Art History courses numbered 10 or higher. (A Classical Studies course [CLST 20, CLST 21, CLST 22, CLST 24, CLST 25, or CLST 26] may be substituted for one of the three other Art History courses.)

N.B.: ARTH 1, ARTH 2, and ARTH 4 may serve only as major prerequisite courses.

Students planning an Art History major must first complete a Major Worksheet (available outside the Department office) which needs to be completed and then signed by the Department Chair, before it's submitted to the Department Administrator. Students formally elect the major by submitting a proposed plan of courses through DegreeWorks, which the Department Administrator will check against the submitted worksheet. Once your plan is approved it will go to the Registrar.

Modified Major

Students wishing to declare a modified major must submit a short description of the proposed modification and a completed Modified Major Worksheet (available outside the Department office) to the Chair. If the faculty approves the proposal, the worksheet, and rationale statement must be filed with the Department Administrator, and additionally you must email the rationale statement to the Registrar. The courses making up a modified major should constitute an intellectually coherent whole. The Department will consider proposals for modifying the Art History major only if they are presented before the end of the student's senior fall term. Students formally elect the modified major by submitting a proposed plan of courses through DegreeWorks, which the Department Administrator will check against the submitted worksheet. Once your plan is approved it will be sent to the Registrar.

Art History Modified

Thirteen courses as follows:

Prerequisite: Two courses from ARTH 1, ARTH 2, or ARTH 4.

Requirements:

- three courses in three out of four categories:
 - Pre-Modern (ancient and medieval art to 1400)
 - Early-Modern Europe (1400-1850)
 - Asia and the Middle East
 - Modern and Contemporary (1850 to the present);
- either ARTH 85 or ARTH 86 (constituting the Major Culminating Experience);
- two other Art History courses numbered 10 or higher;
- either a seminar (ARTH 80–ARTH 84) or an Honors Thesis course (ARTH 90–ARTH 91).

N.B.: ARTH 1, ARTH 2, and ARTH 4 may serve only as major prerequisite courses.

- Four courses, selected in consultation with the Art History advisor, will be taken in the secondary (modifying) department(s), with whatever prerequisites they require.

Another Major Modified with Art History

Prerequisite: One course: ARTH 1, ARTH 2, or ARTH 4.

Requirements: Four Art History courses selected in consultation with the advisor in the primary department.

Requirements for the Minor

Six courses as follows:

Prerequisite: One or two of ARTH 1, ARTH 2, or ARTH 4.

Requirements: Four courses, one in each of four categories:

- Pre-Modern (ancient and medieval art to 1400)
- Early-Modern Europe (1400-1850)
- Asia and the Middle East
- Modern and Contemporary (1850 to the present)

If only one prerequisite is taken, any additional Art History course may be taken as the sixth course. An Art History seminar (ARTH 80-ARTH 84) is not required, but is strongly encouraged. *N.B.: ARTH 1, ARTH 2, and ARTH 4 may serve only as prerequisite courses.*

Students planning an Art History minor must complete a Minor Worksheet (available outside the Department office) which needs to be completed and then signed by the Chair, and submitted to the Department Administrator. Students formally elect the minor by submitting a proposed plan of courses through DegreeWorks, which the Department Administrator will check against the submitted worksheet. Once your plan is approved it will go to the Registrar.

For more information about how to submit a plan through DegreeWorks, please consult the student guide located on the Registrar's website.

https://www.dartmouth.edu/~reg/guides/degreeworks/student_major_declaration_guide.html

Advanced Placement

The Department does not award course credit to students who have taken the high school Advanced Placement course in Art History. However, an Art History major or minor who has achieved a grade of 5 in this course may substitute two appropriate mid-level Art History courses for the two introductory-level courses (ARTH 1, ARTH 2, or ARTH 4) required as prerequisites for the major or minor. The substitute courses must be chosen in consultation with a faculty advisor.

Honors Program

To be eligible for the Honors Program, a student must have achieved by the end of the junior year a 3.2 general College average and a 3.4 average in all Art History courses. A candidate for admission to the Honors Program must, in either the spring preceding or in the fall of the senior year, consult with a potential faculty adviser and submit a written and in-person presentation to the whole Art History faculty of the proposed Honors project. Admission or non-admission to the Honors Program will subsequently be determined by a vote of the faculty. The Program will consist of an advanced project of study under ARTH 90-ARTH 91 (only one of which may be counted as part of the major, under "other"), taken during two consecutive terms in the senior year.

Students are strongly encouraged to initiate discussion with an appropriate faculty adviser as early as possible in the junior year.

The Art History Department oversees funds intended to underwrite research for honors projects in the Department. For information see the Department Administrator.

Foreign Study Program

In order that students may have an opportunity to study art history in direct contact with original works of art, the Department conducts a Foreign Study Program during the spring term. Based in Rome, one of Europe's richest artistic centers, with a continuous evolution from antiquity to the present, the program examines the monuments of the city, their creators, their patrons, and their various audiences.

This program is open to all students. There are two prerequisites:

There are two prerequisites for the Art History FSP, Italian 1 (or its equivalent) and Art History 1. In addition, Art History 2 is highly recommended. While in Rome, students are enrolled in ARTH 10 and ARTH 11 (both of which may be counted toward the major and/or minor, but only one of which fulfills a departmental distributive), and ARTH 12, which is the equivalent of ITAL 2. Interested students should contact Professors Hornstein, or Camerlenghi as early as possible in their academic careers.

ARTH - Art History Courses

To view Art History requirements, click here (p. 101).

ARTH 1 - Bodies and Buildings: Introduction to the History of Art in the Ancient World and the Middle Ages

Instructor: Carroll, Kansas

A study of basic problems and new directions in the understanding of architecture, sculpture, and painting in Europe and the Middle East from the earliest times to the end of the Middle Ages. The course introduces the student to the language of art criticism and method, as well as the relationships of the arts to each other and to their historical contexts. Special attention is given to the human body and visual narrative.

Distributive: Dist:ART; WCult:W

Offered: 15F: 11, 16F

ARTH 2 - Introduction to the History of Art II

Instructor: Coffey, Kenseth

A survey of art and architecture from 1500 to the present. The course introduces the student to the basic terminology of the arts, the language of stylistic criticism, and the relationship of the arts to each other and to their historical background. ARTH 1 is not prerequisite to ARTH 2. Priority for enrollment is given to first- and second-year students.

Distributive: Dist:ART; WCult:W

Offered: 16W: 11, 17W

ARTH 4 - Introduction to World Architecture

Instructor: Hockley, Heck

A comparative study of several architectural styles past and present, Western and Non-Western. Consideration will be given to a variety of building types ranging from the monumental to the residential.

Distributive: Dist:ART

Offered: 16S: 2

ARTH 7.02 - Paris in the 19th Century

Instructor: O'Rourke

This course will examine the city of Paris as an artistic capital, looking at artists and art production in the mid-late nineteenth century. Focusing on the movements of Realism, Impressionism and Post-Impressionism, we will investigate factors of contemporary life that affected subject matters, style, technique, and meaning in art works, in particular the invention of photography, urban planning, the modernization of Paris, and the political and social situation in France and Europe. While exploring the impact of these factors on painting, photography, sculpture, and architecture, the course will look at alternative art practices and exhibitions that challenged the status quo and that became the basis of modern art. We will investigate what makes Paris in the 19th century "modern" and trace how characteristics of modernism continue to define the art world up to today.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 7.08 - Seven Wonders of the Ancient World and their Modern Successors

Instructor: Kangas

According to the dictionary, the word *Wonder* may refer to “a monumental human creation regarded with awe.” We know that as early as the fifth century B.C.E. the Greek historian Herodotus identified certain monuments in the Greek world that inspired a sense of wonder. Over time other creations were acknowledged for their unsurpassed level of technological achievement and imagination, resulting in a list of “seven ancient wonders.” The membership in the original list of “seven ancient wonders” was changeable, but in the Renaissance there emerged the canonical list familiar to us today. From this list only one monument, the pyramids at Giza, remains in existence. This seminar will focus on the canonical “seven wonders” of the ancient world and explore, via their reconstructions, the features that made them unique in their time. We will study the cultural context from which they emerged, whether in the Near East, Egypt, or Greece, from ca. 3000 B.C.E. to ca. 200 B.C.E. More recently, a new list of “Wonders of the World” has been created that incorporates ancient as well as modern monuments. The seminar will also consider these newly identified “wonders” in a comparative perspective. We will try to understand why certain monuments were selected and why others did not make the list.

Offered: Not offered in the period from 15F through 17S

ARTH 10 - Foreign Study I

Instructor: Camerlenghi

The History of Art in Rome. This course entails the on-site examination of mosaics, paintings and sculptures of particular art historical interest. The approach will be thematic, with emphasis falling on major issues within the History of Art. These may include narrative, iconography, social history, gender, perception, patronage, and formal analysis.

Prerequisite: Membership in the Foreign Study Program

Offered: 16S, 17S: D.F.S.P.

ARTH 11 - Foreign Study II

Instructor: The staff

Architecture and Urbanism in Rome. Rome offers a broad array of building types, architectural styles and urban spaces. This course introduces students to the principles of architectural analysis, while simultaneously plotting out a history of Roman architecture and urbanism. The course will begin with the study of ancient architecture. It will, however, focus on the evolution of architectural practices and forms during the late Middle Ages, Renaissance, and Baroque.

Prerequisite: Membership in the Foreign Study Program.

Distributive: Dist:ART; WCult:W

Offered: 16S, 17S: D.F.S.P

ARTH 12 - Foreign Study III

Instructor: The staff

The Language and Culture of Rome. This course is equivalent to Italian 2. This course aims at expanding students' knowledge of Italian language and culture. It begins with a review of basic verb forms and moves on to explore new tenses and moods. Throughout, students engage in practical exercises geared to improve their oral and written expression, as well as enhance their vocabularies. All classes will be conducted in Italian. Note that this course may not be counted as part of the Art History major.

Prerequisite: Membership in the Foreign Study Program.

Offered: 16S, 17S: D.F.S.P

ARTH 13 - Rome: The Eternal City

Instructor: Camerlenghi

No city in the world has an urban fabric so rich in historical layers as Rome. This course surveys the topography and urbanism of Rome from its origins to the present. While the immediate goal will be to study the city of Rome, the larger goal will be to provide a conceptual framework with which to consider the power and function of cities.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period of 15F through 17S

ARTH 16.01 - Velazquez and the Spanish Baroque

Instructor: Kenseth

Diego Velazquez, sometimes called the prince of painters, was Spain's preeminent artist in the seventeenth century. This course considers his achievements as a painter, his aspirations as a courtier and gentleman, and his remarkably privileged association with his patron, King Philip IV. The class will study in depth many of Velazquez's key works and examine how he challenged previous notions about the nature of representation, and simultaneously sought to demonstrate the "nobility" of painting.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 16.02 - Women in Art

Instructor: O'Rourke

This course will explore the complex and varied roles of women in the arts: as artists, patrons, “muses,” and cultural critics. We will examine the structural conditions of art

making in the academy and the studio, the market and the exhibition. We will investigate gendered notions of genius, creativity and originality, including the status of women artists as “exceptional.” Looking also at the female nude in Western art and feminist art in post-modernism, we will analyze the roles that femininity and masculinity play in modernism. With a focus mostly on the 18th-20th c., major figures include Artemisia Gentileschi and Judith Leyster, Mme de Pompadour, Elisabeth Vigée-LeBrun, Mary Cassatt, Berthe Morisot, Frida Kahlo, Barbara Kruger and Cindy Sherman, among others.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 16.03 - Contemporary Architecture

Instructor: Heck

A survey of the history of architecture, around the world, from 1970 to the present. Lectures track architectural movements from the end of Late Modernism in the 1970s to the computer-driven designs currently under construction. We will pay close attention to the changing technologies and cultural values that have shaped the last thirty years of architectural design.

Offered: Not offered in the time period from 15F through 16S

ARTH 16.17 - Rembrandt

Instructor: Kenseth

Rembrandt van Rijn was Holland's preeminent artist in the seventeenth century. This course considers Rembrandt's extraordinary achievements as an etcher, focusing especially on the artist's highly imaginative and experimental use of the etching medium, the broad range of subjects and expressive power of the prints, as well as the functions the prints served in Rembrandt's time. All our classes will make use of the Hood Museum's superb collection of Rembrandt prints, thus allowing students to do first-hand study of the artist's original works.

Offered: 16S: 2A

ARTH 16.18 - Duchamp

Arguably twentieth-century art's greatest iconoclast, Marcel Duchamp (1887-1968) devoted almost his entire career to debunking pre-existing ideas about art, which he believed should appeal to the intellect rather than the senses. This Art History class will explore Duchamp's radical art and ideas, focusing in particular on the reception of the artist's readymades and *Large Glass*, along with their theoretical implications and historical consequences. The class is timed to coincide with an exhibition entitled *Marcel Duchamp: Worlds in a Box* that will be on display at the Hood Museum of Art in the spring of 2015.

Offered: Not offered in the time period from 15F through 17S

ARTH 16.19 - Satire: Art, Politics & Critique

Instructor: O'Rourke

Satire has been used since antiquity as a powerful form of political, social and cultural critique. With humor, sarcasm, and often biting criticism, satire goes beyond pure comedy to speak with a moral voice. The targets of satire range from the world of fashion and the everyday to that of politics and high culture. We will examine case studies of satirical production, from the 18th century through the late 20th century, from the darkly comic prints of Hogarth and Daumier, to the overtly humorous and/or subversive gestures of Duchamp and Dada, Warhol and Pop Art, to the satire of gender roles and modern capitalism in Postmodernism. We will pay particular attention to the role of satire in modern art as it employed irony, parody, ridicule and exaggeration to attack social mores, political figures and the art world status quo. We will also explore the use of satire in film and TV, from the darkly comic (Charlie Chaplin) to the ridiculous (Stephen Colbert). This course hopes to come to terms with the broad range and appeal of satire in the visual arts.

Offered: 15F: 12

ARTH 16.20 - Art & Money

Instructor: Elias

This course will cast a critical eye on the commercial mechanisms of the contemporary art world encompassing auction houses, private galleries, museums, art schools, art fairs, biennales and magazines. How is commercial value produced in the art market, and what does it have to do with the critical or symbolic value assigned to artworks in the art world more generally? In addressing this question we will examine the changing function of artistic production within a knowledge or experience-based economy. At the same time, this course will also offer students a critical framework for analyzing the display, marketing and consumption of artworks in a global economy.

Distributive: Dist:ART

Offered: 15F: 11

ARTH 17.03 - The Architecture of Late Antiquity

Instructor: Camerlenghi

This course examines Roman, Sassanid, Byzantine and Arab buildings built between the third and early eighth centuries—a period known as Late Antiquity. The architecture of this time encapsulates revolutionary moments: the demise of paganism, the advent of Christianity and the rise of Islam as well as the gradual dissolution of vast cities in favor of rarefied fortified

enclaves. We investigate buildings in light of the cross-cultural interactions that inspired their designs.

Offered: Not offered in the period from 15F through 17S

ARTH 17.04 - Vision and Reality: The Art of Northern Europe in the Fifteenth Century

Instructor: Carroll

The fifteenth century in northern Europe is an amalgam of influences that form our idea of the modern. The concerns and styles of the Late Gothic are present, mixing with new forms of technology, such as printing or the perfection of oil painting techniques. The weakened grip of the Church contributes to the emerging emphasis on the individual that characterizes Early Modern art. The fifteenth century sees the rise of secular art, the concept of objective realism, the development of panel painting, the commercialization of prints, and the beginnings of independent portraiture. My goal is to give you the knowledge and skills that will enable you to understand and appreciate the nuances and complexity in fifteenth-century artworks wherever you encounter them. In addition to the mastery of scholarly materials, you will work on reading visual culture, practicing your writing skills and perfecting your oral communication. Our focus will be on reception, context and invention.

Distributive: Dist:ART

Offered: Not offered in the time period from 15F through 16S

ARTH 17.05 - Castles, Cloisters, and Cathedrals

Instructor: Camerlenghi

This course explores the origins and development of architecture during the Middle Ages. While arranged as a chronological survey, classes will focus on the role of architects and patrons, the influence of pilgrimage and monasticism, and the cross-cultural impact of Islamic and Byzantine architecture on the buildings of medieval Western Europe.

Distributive: Dist:ART; WCult:W

Offered: 15F: 10A

ARTH 17.09 - Italian Renaissance Architecture

Instructor: Camerlenghi

Although the innovations of the European Renaissance affected all aspects of culture (e.g. language, engineering, theology, as well as the arts), we will focus uniquely on the architecture of Italy from about 1420 to 1580. During this time, the Italian peninsula was a hotbed of revolutionary ideas about how architecture could shape and be shaped by the human will. In fact, the Renaissance in Italy saw the emergence of a new type of architecture, which took its cue from the needs, activities, and ambitions of humans. Building practices and styles that were initially based on

medieval models gradually evolved in light of the self-conscious discovery and consequent reinterpretation of classical antiquity. The chronological presentation of the material is interspersed with lectures that present some of the broad themes of the course (humanism, the inspirational role of ancient and medieval buildings, living conditions and styles, the profession of the architect, etc.). Accordingly, lectures and textbook readings will focus on the major thinkers, designers, and builders of the period as well as on the economic, political, and religious forces that were at play in the formation of ambitious and beautiful buildings that placed humankind as its center.

Distributive: Dist:ART; WCult:W

Offered: 15F: 3B

ARTH 17.11 - Art and Archaeology of Israel

Instructor: Kangas

This course will examine the archeology of Israel from prehistory through the early Roman period, with emphasis on cultural interactions and their material manifestations. Ancient Israel was a crossroads where many different cultures met. Home to Canaanites and Israelites, Israel successively experienced the cultural and artistic impact of Egyptians, Assyrians, Greeks, and Romans, who either invaded this region or came into contact with it through a variety of more peaceful processes.

Distributive: Dist:ART; WCult:NW

Offered: Not offered in the time period from 15F through 16S

ARTH 17.12 - African Art (Survey)

Instructor: Smooth

This course is designed to introduce undergraduate students to African art in the twentieth century. It charts the development and dimensions of artistic expressions and cultural production in Africa from the colonial period to the contemporary. By looking at various case studies comparatively, the course explores the intersection of developments in artistic practice and identity, and cultural production, and sweeping changes in the political, social and economic spheres in Africa. It considers the effects of colonialism, postcolonial conditions, neocolonialism, economic liberalism, and globalization on cultural production and artistic practice. Following a chronological format, it will attempt to cover the different sub-regions of the continent but draws substantial amount of examples from sub-Saharan Africa.

Offered: Not offered in the time period from 15F through 17S

ARTH 17.13 - Arts of South Asia

Instructor: Shaffer

This course is an introduction to the arts of South Asia from the grandeur of the Taj Mahal to Gandhi's spinning wheel. From the thirteenth century, and the advent of Islam in India, through the Mughal dynasty and British colonial rule to Independence in 1947, we will examine courtly art and architecture alongside popular arts and material culture. No background in Asian or South Asian art is necessary.

Prerequisite: AMES 42.10

Distributive: Dist:ART; WCult:NW

Offered: 15F: 2A

ARTH 20 - The Art of Ancient Egypt and the Ancient Near East

Instructor: Kangas

A study of painting, sculpture, architecture, and occasionally minor arts in the Near East and Egypt from prehistory through approximately the first millennium B.C.E. The course aims at a parallel treatment of the Egyptian and various Near Eastern civilizations, especially those that developed in Mesopotamia, Anatolia, Syria/Palestine, and Iran. Special attention will be paid to the cultural contacts among different ancient centers at key moments in history, as conjured up by individual monuments.

Distributive: Dist:ART; WCult:NW

Offered: Not offered in the time period from 15F through 16S

ARTH 21 - Art in Ancient Greece: Temples, Gods, Heroes

Instructor: Kangas

The course treats chronologically the history of Greek art from its beginnings to the end of the fifth century B.C. The principal monuments of architecture, sculpture, and painting will be examined in terms of style, theme, and context. The question will be posed as to how Greek art came to serve Greek society, while some attention will also be given to the ways in which the classical tradition has persistently served later cultures.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the time period from 15F through 16S

ARTH 22 - Art in the Hellenistic era: from Alexander to Cleopatra

Instructor: Cohen

This course examines the principal works of architecture, sculpture, and painting in the Greek world, from the fourth through the first centuries B.C.E., a period of significant political and art-historical change. In the reign of Alexander the Great, Greek culture expanded beyond its

borders to encompass Egypt and Western Asia. Particular emphasis will be given to important recent discoveries associated with the court of Alexander, his father Philip II, and some of his successors.

Distributive: Dist:ART; WCult:W

Offered: 16S: 10A

ARTH 25 - Roman Art

Instructor: Cohen

This course explores key works of architecture, sculpture, painting, and decorative arts in the Roman world from the sixth century B.C.E. through the third century C.E. Such issues as the influence of the Etruscan and Greek traditions, stylistic change and its determinants, and the role of art in Roman society will be considered in relation to both the great public monuments of Republican and Imperial Rome and works made for private individuals.

Open to all classes.

May be taken in partial fulfillment of the major in Classical Languages and Literatures, the major in Classical Archaeology, and the major in Classical Studies.

Distributive: Dist:ART; WCult:W

Offered: 16W: 12

ARTH 30 - Early Christian Art

A study of painting, sculpture, architecture, and the minor arts in the Mediterranean from the third through seventh centuries. Emphasis will be placed on the role of art in late antique society, especially in the process of transformation from the classical to the medieval world.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 31 - Byzantine Art

A study of painting, sculpture, architecture, and the minor arts of Byzantium from the period of Iconoclasm to the fall of Constantinople. Emphasis will be placed on the use of art during this period to express the beliefs and goals of the church and the state to satisfy private devotional needs.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 32 - Early Medieval Art

Instructor: Carroll

Though the 8th-11th centuries are often erroneously known as the "Dark Ages," this course will explore the vibrant life in the emerging northern Europe of Charlemagne and William the Conqueror. Evolving methods of societal organization and identity through religion, nationhood and

the cult of personality will be examined through the art and architecture of the period.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the time period from 15F through 16S

ARTH 33 - Gothic Art and Architecture

Instructor: Carroll

Characterized by rising urbanism, a growing middle class and developed political states, the Gothic period combines elements of medieval and early modern worlds. This course will explore the influence of new patrons and institutions on the era's art, the art's reflection of the period's religious and political reality, and the popularity of new, more secular subject matter. The works covered will encompass both massive public projects, such as Chartres Cathedral, and the personal, private taste found on ivory mirror backs.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 16S

ARTH 35 - Islamic Architecture

Instructor: Camerlenghi

This course examines the architecture of Islamic cultures from the seventh-century rise of the Umayyad dynasty to the modern centers of Dubai and Doha. By studying the historical contexts within which Islamic architecture developed, we will consider major themes, chronological developments and regional variations in both religious and secular architecture. Additionally, by examining instances of cross-cultural influence, we will explore pivotal interactions between Islamic and non-Islamic architectural traditions.

Distributive: Dist:ART; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARTH 36 - Italian Medieval Art and Architecture, 1200-1400

What is it to picture divinity? What can paintings do that texts cannot? How do public buildings communicate political ideas? This course addresses such questions in relation to the art and architecture of late medieval Italy. We analyze paintings by Duccio, Giotto, and the Lorenzetti, sculptures by the Pisani, and Italian Romanesque and Gothic architecture. We discuss these in relation to mendicant spirituality, communal politics, and the emergence of Italian vernacular literature.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 40 - Florence 1400-1450: Culture, Politics, Society

This course advances an interdisciplinary account of Florentine art, architecture, literature, politics, and social life during the crucial years in which the Medici family first came to power. Examining the period's rich historical and historiographical resources, we seek to understand the novel cultural character of Masaccio's paintings, Donatello's sculpture, Brunelleschi's architecture, Alberti's theoretical writings, and Burchiello's poetry, within a thematic structure that also addresses the development of linear perspective, of public political art, and of a new architectural language.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 41 - Italian Visual Culture, 1450-1500

In this course we explore various Italian cultural centers—Florence, Mantua, Milan, Naples, Rome, Urbino, and Venice—during the second half of the fifteenth century. While focusing on the cultural particularities of each locale, we also consider an array of broader thematic and generic developments, including mythological painting, pictorial narration, the collection and display of art, gender and spectatorship, the emulation of antiquity, and portraiture. Artists studied include Piero della Francesca, Mantegna, Botticelli, Perugino, Leonardo, and Michelangelo.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 42 - The High Renaissance and Mannerism in Italy

Instructor: Kenseth

A study of the major monuments of painting and sculpture in Italy during the sixteenth century. The course surveys the classical style of the High Renaissance (beginning with Leonardo da Vinci, Michelangelo, and Giorgione) and then traces the development of Mannerism and Maniera in the work of such artists as Pontormo, Bronzino, and Tintoretto. The art of the reformers at the end of the century is also considered, especially as it looks forward to the Baroque.

Distributive: Dist:ART; WCult:W

Offered: 17S

ARTH 43 - Northern Renaissance Art

Instructor: Carroll

A survey of the major monuments of painting, sculpture, and the graphic arts in the Low Countries, Germany, and France, from the late fourteenth century through the Reformation. Content as well as style is examined in the light of its relation to social transformation and the cultural

evolution of the period. Emphasis is placed on the work of such significant personalities as the van Eycks, van der Weyden, Bosch, Bruegel, Grünewald, Dürer, and Holbein.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 16S.

ARTH 45 - Southern Baroque Art

Instructor: Kenseth

A survey of painting and sculpture from 1600 to 1700. This course focuses upon the art of Caravaggio and his followers in Italy and Spain; the Carracci and the development of seventeenth century classicism; Bernini and the High Baroque; and the art of French visitors to Italy. Special emphasis is given to the relation that the painting and sculpture of this time has to seventeenth century poetry, theatre, science and the aims of the reformed Catholic Church.

Distributive: Dist:ART; WCult:W

Offered: 16W: 2A

ARTH 46 - Northern Baroque Art

Instructor: Kenseth

Painting in Flanders and Holland from 1600 to 1700. This course considers the naturalistic tradition from Caravaggio's northern followers to the Haarlem School of Hals; the art of Rembrandt; the classical genre of Vermeer and the Delft School; Rubens and the Flemish High Baroque. The growth of specialized genres of painting and the differing aesthetic aims of Dutch and Flemish painters are viewed against the background of the Protestant reformation and the rise of a mercantile society.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 48 - Art & Society in the Age of the Rococo

Instructor: O'Rourke

This course explores the transformative period in European art and culture between 1700 and 1800, when the playful decadence of the Rococo gave way to the morally purified art of Neoclassicism. We will study the "high arts" of painting, sculpture & architecture in the context of an expanded realm of visual culture, including interior design and decorative objects, clothing and fashion, hairstyles and luxury goods, the art market and the print trade. We will investigate the political and social uses of art at the time paying special attention to alternative discourses of power spoken through fashion, gesture and influence. We will examine court culture, the new public sphere, the growth of the middle class, the Grand Tour, the expanded role of women in the 18th century as patrons and artists, and the socio-political changes leading up to the French

Revolution. Artists include Hogarth, Watteau, Boucher, Kauffman, Reynolds, Adam, Greuze, among others.

Distributive: Dist:ART; WCult:W

Offered: 16W: 10

ARTH 49 - European Art in the Age of Revolution (1750-1850)

Instructor: Hornstein

Visual arts were transformed in the second half of the eighteenth and first half of the nineteenth century by dramatic upheavals in social, political and cultural life. In addition to taking account of stylistic movements such as Rococo, Neo-classicism and Romanticism, we will devote our attention to relationships between artistic and social change, political and institutional pressures upon artists, changing ideas of art's purpose and audience, and artists' shift to direct engagement with modern life.

Distributive: Dist:ART; WCult:W

Offered: 16S: 10

ARTH 50 - Romanticism

Instructor: O'Rourke

From the late eighteenth to the mid-nineteenth century the artistic and intellectual movement of Romanticism dominated European culture. With its emphasis on the imagination, extreme emotions, the sublime in nature, and local cultural forms, it was a reaction against classicism and the Enlightenment's emphasis on reason. In the wake of the social and political changes following the French Revolution, Romanticism was a transitional moment pointing towards modernism. With new ideas, new media, and contemporary subject matter, Romanticism broke with older traditions of art and opened the way to Realism and Impressionism. Themes addressed in this course are contemporary life and politics, the ugly vs. the beautiful, the growth of nationalism in the face of empire, popular art, censorship, the sublime, "orientalism" and industrialization. This course focuses on France, Britain, Germany and Spain, examining works by Delacroix, Géricault, Daumier, Constable, Turner, Goya and Friedrich, and many others.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the time period from 15F through 16S

ARTH 51 - Realism, Impressionism and Post-Impressionism

Instructor: Hornstein

From 1848 to 1914, French art and the modern city of Paris dominated the international art scene. This course explores the radical visual culture of the period in painting, sculpture, prints and photography, from the realism of

Courbet and Manet to the abstraction of Seurat and Cézanne. We will focus on how new technologies, political and social revolutions, and exhibition culture influenced the work of Cassatt, Degas, Monet, Renoir, Van Gogh and Rodin, among others.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 52 - Building America: An Architectural and Social History

Instructor: Heck

This course draws upon recent scholarship in anthropology, archaeology, material culture, social history and architectural history in its review of five centuries of American architecture. Course lectures not only emphasize America's principal architects and their designs, but also summarize the social and cultural forces that shaped the country's built landscape.

Cross-Listed as: HIST 34

Distributive: Dist:ART; WCult:W

Offered: 16W: 2

ARTH 53 - Twentieth Century Art in Europe, 1900-1945

Instructor: Hornstein

The rapid changes of the first half of the twentieth century inspired artistic avant-gardes in France, Germany, Italy and Russia. We will examine "avant-garde" artistic practice as a cultural phenomenon, studying individual artists and their associated movements (Cubism, Futurism, Constructivism, Dad, Surrealism) through themes such as artistic responses to mass culture; new forms of technology; representations of sexual, racial, and class identity; and the relationship between art, nationalism, war and revolution.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 54 - The First Crisis of Modernism: Painting and Sculpture 1914-1945

Art after the First World War: International Dada, Surrealism, Suprematism, Russian Constructivism, the Bauhaus. The further development of abstraction: Mondrian, De Stijl, Abstraction-Création, early modernism in New York. The idea of the avant-garde and interwar struggles for leadership will be studied in theoretical and historical context. Readings in primary sources.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 55 - Late and Post-Modernism: Art from 1945 to the Present

Abstract Expressionism (the New York School) as culmination of the modernist tradition. The "Post-Pollock" problem and reactions. Neo-Dada, Pop Art, Hard Edge, Minimalism, Conceptual, New Realism, Neo-Expressionism, Appropriationism, recent movements. Considerations of Modernism and Post-Modernism; problems of the late avant-garde; and changing relationships between the artist and society. Extensive readings in contemporary theory and criticism.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period from 15F through 17S

ARTH 59 - Modern Architecture

Instructor: Heck

Architectural historians disagree about the origins of the modern era. For many, "modern" suggests principally the built works of the twentieth century. Others find the great projects of the nineteenth-century industrial revolution a more suitable place to begin. Still others—as will we—push the beginnings of "modern" architectural thought and practice back to the late eighteenth century. In this way we place architectural transformation in the context of the great changes taking place in the political, artistic, social and intellectual life of the period. This course approaches architecture as a cultural product and investigates the relationship between buildings, the ideas embodied in buildings and the cultures that designed them. We will chart the history of modern design from the Age of Enlightenment to the present.

Distributive: Dist:ART; WCult:W

Offered: Not being offered in the time period from 15F through 16S

ARTH 60 - The Arts of China

Instructor: Hockley

Intended as a general introduction to Chinese art and culture, this course will survey major artistic developments from neolithic times to the Republican period. Among the topics to be considered are Shang and Chou bronzes, Buddhist sculpture, and the evolution of landscape painting from the Han to Ch'ing Dynasties.

Distributive: Dist:ART; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARTH 61 - Introduction to Korean Art

Instructor: Kim

This course will introduce the arts and culture of Korea from the prehistoric period through the twentieth century. Significant examples of painting, ceramics, sculpture, and architecture will be closely examined in their political,

social, and cultural contexts. We will explore how East Asian motifs were incorporated into traditional Korean art. We will see how Korea struggled to find its artistic identity within the international context during the 20th century.

Cross-Listed as: AMES 21.06

Distributive: Dist:ART; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARTH 62 - Sacred Architecture of Asia

Instructor: Hockley

This course provides an introduction to the sacred architecture of Asia and the Middle East through a series of case studies that include Buddhist monasteries, Hindu temples, Mosques, Daoist and Confucian temples, Shinto shrines, funerary architecture, and the sacred dimensions of political authority as manifested in palaces, city plans, and mausolea. The pan-Asiatic nature and long historical development of Buddhism, Hinduism, and Islam affords opportunities to examine national and sectarian adaptations of architectural practices. This course has no prerequisites and assumes no prior experience with Asian religions or architectural studies.

Prerequisite: x AMES 40.06

Distributive: Dist:INT or ART; WCult:NW

Offered: 15X: 12

ARTH 63 - Sacred Art and Architecture of Japan

Instructor: Hockley

This course examines Shinto and Buddhist architectural, sculptural, painting and print traditions from the prehistoric to the modern era. The primary emphasis will be on the relationship of these arts to their doctrinal sources and the ritual, social, and political contexts in which they were created and utilized.

Distributive: Dist:ART; WCult:NW

Offered: Not offered in the time period from 15F through 16S

ARTH 64 - The Japanese Painting Tradition

Instructor: Hockley

This course provides a comprehensive introduction to the Japanese painting tradition. Surveying a broad range of themes, formats, and styles and exploring the relationship between indigenous sensibilities and the traditions Japanese artists borrowed from continental Asia and the West, it defines the unique aesthetic experience offered by Japanese sacred and secular painting. Its focus on patronage and studio practice emphasizes the social, political, and cultural processes that underscored important developments in the painting tradition.

Offered: Not offered for the period from 15F through 17S

ARTH 65 - Japanese Prints

Instructor: Hockley

A survey of the Japanese print tradition from its inception in the seventeenth century through modern prints in the early twentieth century, this course emphasizes the relationship between prints and the political, social, and cultural milieu in which they circulated. The curriculum includes applications of recent critiques and theoretical approaches from fields as diverse as sexuality and gender studies, mass culture and media studies, aesthetics of popular arts, and the sociology of consumption.

Distributive: Dist:ART; WCult:NW

Offered: 15X: 10, 17W

ARTH 66 - The Camera in Nineteenth-Century Asia

Instructor: Hockley

This course examines the use of photography by colonial governments, anthropologists, commercial photographers, and tourists in nineteenth-century Asia. It also takes into account indigenous uses of photography that both conform with and react against Western uses of the medium. Consideration is also given to the diffusion of photographic images into other media including news publications, government documents, academic studies, travelogues, guidebooks, and museum displays.

Offered: Not offered in the period from 15F through 17S

ARTH 67 - Contemporary Arts of Asia

Instructor: Hockley/Shaffer

This course examines the contemporary art of Asia from a variety of historical, cultural, and critical perspectives. Lectures, readings and discussions range across broad themes such as identity, globalization, trans-nationalism, and feminism and include examination of both traditional and new media. Case studies examine the work of both well-established and emerging young artists. This course is designed to equip students with the critical skills necessary to appreciate, discuss, and analyze contemporary Asian art.

Distributive: Dist:ART; WCult:NW

Offered: 16S: 10

ARTH 68 - Modern and Contemporary Korean Art

Instructor: Kim

This course examines the art and culture of Korea from the late nineteenth century through the twentieth century. During this period Korea experienced the fall of its 500-year-long dynasty, annexation to Japan, the Korean war, division into two Koreas, and internationalization/globalization. The class will explore how visual art, including paintings, photographs, posters, ceramics, and film, reflected and expressed the political,

socio-economic, and cultural changes and concerns of each period, in both South and North Korea.

Cross-Listed as: AMES 21.07

Distributive: Dist:ART; WCult:NW

Offered: 17W: 10

ARTH 70 - American Art and Identity

Instructor: Coffey

This course surveys visual culture in North America from the sixteenth century to 1900. In addition to the development of Anglo-American culture and identity, the course also explores the influence of Dutch, Spanish, and French settlers as well as Native American, African, and Asian contributions to North American art. We will consider painting, sculpture, architecture, photography, graphic art, folk traditions, and material culture with special emphasis on race, nation, gender, and class.

Distributive: Dist:ART; WCult:CI

Offered: 16F: 12

ARTH 71 - The "American Century": Modern Art in the United States

Instructor: Coffey

This course surveys American art in the twentieth century within a social and political historical context. While the United States will be emphasized, we will also consider art produced in Canada and Mexico. In addition to mainstream artists, we will explore art produced by marginalized communities, in particular African Americans, Native Americans, Asian Americans, Mexican Americans, women, and Queer artists. Genres covered include: painting, sculpture, mural art, performance, installation, photography, and political graphics.

Distributive: Dist:ART; WCult:CI

Offered: 17W: 11

ARTH 72 - Mexican Muralism

Instructor: Coffey

This survey course introduces students to Mexican muralism. Students will learn about the fresco technique and how to visually analyze a mural. We will consider the following themes: cultural nationalism; art and class politics; the legacy of muralism in the US; the ethics of aesthetic indigenism; and the gender politics of public art. Student projects will concentrate on Jose Clemente Orozco's mural at Dartmouth College.

Prerequisite: x LACS 48

Distributive: Dist:ART; WCult:CI

Offered: Not offered in the time period from 15F through 17S

ARTH 75 - Twentieth Century Art from Latin America

Instructor: Coffey

This course surveys art produced by Latin Americans during the 20th century through case studies of the major figures and movements in the cosmopolitan centers of Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, Puerto Rico, Uruguay, and the U. S. We treat Latin America as a geopolitical construct rather than an essential unity, and examine how national identity, racial formation, class difference, gender inequality, political struggle, and state violence have been addressed by artists from the region and in diaspora.

Cross-Listed as: LACS 78

Distributive: Dist:ART; WCult:CI

Offered: Not offered in the period from 15F through 17S

ARTH 76 - Mexicanidad: Constructing and Dismantling Mexican National Identity

Instructor: Coffey

Since the Mexican Revolution (1910-17), artists, intellectuals, and state-actors have endeavored to define and re-define Mexican national identity, or what is known as *Mexicanidad*. From the 1920s and 30s, when an emphasis was placed on Mexico's rural and indigenous populations to the 1940s and 50s, when greater attention was given to Mexican modernization, through the years after 1968, when artists and intellectuals endeavored to reveal the repressive nature of *Mexicanidad* and its role in propagandizing an authoritarian state and ruling party. In this course we will place artists like José Clemente Orozco and Frida Kahlo within a broader visual cultural context that includes not only mural art and painting, but also sculpture, architecture, printmaking, photography, installation, film, and performance. We will cover art produced in Mexico from the turn of the 20th century through the "boom" years of the 1990s, with a focus on issues of race, class, gender, and sexuality throughout. Students will learn about the history of Mexican art, enhance skills in the visual analysis of modern and contemporary art, refine their ability to conduct original research and write effectively, and develop an understanding of how visual culture participates in the construction of national identity as well as how art can critique and queer that construction. This course has no pre-requisites and requires no prior knowledge of Art History or Mexican art and history.

Distributive: Dist:ART; WCult:CI

Offered: 16S: 11

ARTH 82.01 - Arts and Culture of Korea's Last Dynasty

Instructor: Kim

This course provides an introduction to the arts and culture of the Joseon dynasty (1392-1910), which was founded on Confucianism. We will examine Confucian philosophy and how Confucian ideas shaped the social hierarchy, gender roles, and aesthetic values through exploration of the architecture of royal palaces and aristocratic houses, paintings both sacred and secular, ceramics, textiles and other crafts. Use of colors, symbolic motifs, and stories in the arts and cultures will be investigated. Understanding Korea's final 500-year dynasty will deepen students' comprehension of contemporary Korean culture as it manifests the legacy of Joseon Korea.

No previous knowledge of Korean art, language, and history is required.

Distributive: Dist:INT or ART; WCult:NW

Offered: 16W: 10A

ARTH 84.02 - Ideals of Physical Beauty: Gender and the Body in Ancient Art

Instructor: Cohen

Since the foundation of Art History as a discipline, Greek art has been admired for its emphasis on physical beauty. Greek culture articulated criteria of beauty for both sexes and created mythological personas exemplifying those ideals. This seminar studies Greek views on beauty and ugliness, as well as the links between beauty and (im)morality. It focuses on how artists went about depicting physicality and explores the connection between perceived beauty and pictorial style, often in comparison with other Mediterranean cultures. Contemporary critical frameworks and theoretical approaches to gender and representation will guide class discussions.

Open to sophomores, juniors, and seniors with instructor's permission.

Distributive: Dist:ART; WCult:W

Offered: 16S: 3A

ARTH 85 - Senior Seminar in Art Historical Theory and Method

Instructor: Coffey

This course, identical to ARTH 86, constitutes the Culminating Experience in the Art History major.

Offered: 15F: 10A, 16F

ARTH 86 - Senior Seminar in Art Historical Theory and Method

This course, identical to ARTH 85, constitutes the Culminating Experience in the Art History major.

Offered: Not offered in the period from 15F through 17S

ARTH 89 - Independent Study

Independent Study is intended for advanced students who have demonstrated their ability to do independent research in art history and who wish to study some topic in greater depth than is possible in a regularly scheduled course or seminar. The Independent Study project should be preceded by at least one Art History course in an area related to the topic under consideration, and may even develop out of that course. A student interested in undertaking Independent Study must first submit a proposal to the faculty member with whom he or she wishes to study. Assuming agreement by that faculty member, the proposal will then be reviewed by the entire Art History faculty. Ordinarily, this must be done in the term immediately preceding the term in which the Independent Study course will be taken. The Independent Study course cannot be used to fulfill any of the requirements of the Art History major or minor.

Offered: All terms: Arrange

ARTH 90 - Honors

A sequence of two courses devoted to independent research and the writing of a thesis or execution of a project under direction of a departmental adviser. Students admitted to and participating in the departmental honors program must take these courses in consecutive terms of the senior year.

Prerequisite: Consult the statement of the Art History Honors Program. Only one of these courses may be counted as part of the major in Art History.

Offered: 15F, 16W, 16F, 17W: Arrange

ARTH 91 - Honors

A sequence of two courses devoted to independent research and the writing of a thesis or execution of a project under direction of a departmental adviser. Students admitted to and participating in the departmental honors program must take these courses in consecutive terms of the senior year.

Prerequisite: Consult the statement of the Art History Honors Program. Only one of these courses may be counted as part of the major in Art History.

Offered: 156W, 16S, 17W, 17S: Arrange

Asian and Middle Eastern Languages and Literatures - Arabic, Chinese, Hebrew, Japanese

Chair: James Dorsey

Professors S. Allan, L. H. Glinert, W. Xing; Associate Professors S. Blader, J. Dorsey, H. N. Kadhim, H. Mowry, J. Smolin; Assistant Professors L. Gibbs, S. Schmidt-Hori; Senior Lecturers N. Ben Yehuda, J. Chahboun, M. Ishida,

A. Li, M. Ouajjani, I. W. Watanabe; Lecturers Z. Chen, M. Al-Ghadeer, M. Baghdadi, F. Shi; Visiting Professor H. Zhang.

To view Asian and Middle Eastern Languages and Literature courses, click here. (p. 116)

To view Arabic courses, click here (p. 117).

To view Chinese courses, click here (p. 120).

To view Hebrew courses, click here (p. 125).

To view Japanese courses, click here (p. 127).

Majors

Major Options for Asian and Middle Eastern Languages and Literatures

Option 1. *The major in language and literature*

Prerequisite for all languages: 23 or the equivalent [Note: for Arabic, 23 or 25]

The major consists of eleven courses:

1. 10 [Note: these introductory courses are taught in English. The Department offers ARAB 10, CHIN 10, HEBR 10, and JAPN 10; students must take the offering that corresponds to the language they are studying for the major (e.g., students of Arabic must take ARAB 10, students of Japanese must take JAPN 10, etc.).]
2. Four upper-level language courses beyond 23 [Note: for majors in Arabic, beyond ARAB 25; for majors in Chinese, one of these four courses must be CHIN 51 (p. 123). Also see website or advisor for an alternative major option.]
3. Three literature-in-translation courses at the 60 level [Note: 60-level courses are basic surveys taught in English; majors in Chinese may substitute either CHIN 52, CHIN 53, or CHIN 54 for one of these three courses]
4. One course in another DAMELL literature that is not in the student's primary language area [Note: this requirement may be fulfilled by taking either one 10 or one 60-level course in any of the other language areas (e.g., students of Arabic may take HEBR 10, CHIN 10, or JAPN 10; or students of Japanese may take ARAB 10, CHIN 10, or HEBR 10)]
5. One course in literary theory or linguistics chosen from an approved list of departmental and non-departmental courses [Note: AMEL 17 fulfills this requirement;

examples of non-departmental courses include COLT 10, COLT 71, COLT 72, or COLT 73, ENGL 15 or ENGL 17, LING 1]

6. One seminar at the 80-level [this course will serve as the culminating experience]

Students doing the Honors track for Option 1 will substitute the 80-level seminar with thesis research and writing (AMEL 85 and AMEL 87)

Note: Substitutions of courses under option 1 of the DAMELL major may be made with the approval of the major advisor and the Chair

Option 2. *The major in two languages and literatures*

Prerequisite: 23 [Note: 23 or 25 for Arabic] or the equivalent for both languages

The major consists of eleven courses:

1. 10 in both languages (10 in each of the two major languages)
2. Four upper level language courses beyond 23 [or 25 for Arabic. These courses may be all in one language or split equally between the two languages]
3. Three courses at the 60 level [these must be split between the two languages, two in one literary tradition and one in the second]
4. One course in literary theory or linguistics chosen from an approved list of departmental and non-departmental courses [Note: AMEL 17 fulfills this requirement; examples of non-departmental courses include COLT 10, COLT 71, COLT 72, or COLT 73, ENGL 15 or ENGL 17, LING 1]
5. One seminar at the 80-level that will serve as the culminating experience

Students doing the Honors track for Option 2 will substitute the 80-level seminar with thesis research and writing (AMEL 85 and AMEL 87)

Option 3. *The modified major*

AMELL allows students to modify the major in language and literature with offerings from other departments or programs. Students will design this major in consultation with a department adviser. All six AMELL courses must be in the student's primary area of study within AMELL. Possible partnering departments and programs include Anthropology, Art History, Comparative Literature, Economics, Environmental Studies, Film Studies, Geography, Government, History, Linguistics, Music, Philosophy, and Religion. Students will be required to take a combination of courses that provide training in basic theory and background on subjects related to the study of Arabic, Chinese, Hebrew, and Japanese.

Prerequisite for all majors: 23 or the equivalent

The major consists of eleven courses:

1. Six courses from AMELL: 10; no more than three language courses beyond 23; two courses at the 60 level. [For Chinese, CHIN 52 or above may count as non-language]
2. Four advanced courses, all four from among those offerings in another single department or program that deal with the culture of the student's chosen language and literature in AMELL [Note: students will not be permitted to count introductory-level courses that are used as prerequisites for the major in another department or program]
3. One advanced seminar either in AMELL or in the partnering department or program

Students doing the Honors track for Option 3 will substitute the 80-level seminar with thesis research and writing (AMEL 85 and AMEL 87).

Minor

Six AMELL courses approved by the Chair. All six language and literature courses must be in the student's primary area of study (i.e., students of Arabic language must take courses in Arabic literature). ARAB 10, CHIN 10, HEBR 10, or JAPN 10 is a required course for the minor. Only language courses beyond the first year count towards the minor; a minimum of two but no more than three of the six courses for a minor should be language courses. In the case of students who want to minor in Chinese language and literature, CHIN 52, CHIN 53 or CHIN 54 and above may be counted as a literature course. AMEL 17 or AMEL 18 cannot count towards the minor.

Foreign Study Programs

Dartmouth Language Study Abroad Plus (LSA+) Program in Rabat, Morocco

Prerequisites: ARAB 1, ARAB 2, ARAB 3, and ARAB 10, with a B+ average or permission of the director.

The Dartmouth Language Study Abroad Plus Program, pending approval, is held in Rabat, Morocco during the summer term. The LSA+ offers two credits in Modern Standard Arabic at the intermediate level (ARAB 22 and ARAB 23) and one credit for ARAB 11, a seminar taught by the program director in residence. Students will live with Moroccan families and will participate in a wide variety of cultural events, regional trips, and extracurricular activities, such as volunteering for local

NGOs. For application and further information, please contact the Off Campus Programs Office, 44 North College Street.

Dartmouth Foreign Study Program and Advanced Language Study Abroad (LSA+) in Beijing, People's Republic of China

Prerequisite: CHIN 3 or the equivalent, with at least a B average, and CHIN 10, or the equivalent, with at least a B average, or permission of the director.

The Dartmouth Chinese Foreign Study Program (FSP) is conducted at Beijing Normal University (BNU) during the summer term; a Language Study Abroad + (LSA+) program is offered at BNU in the fall. Dartmouth-at-BNU includes nine-and-one-half weeks of instruction on the BNU campus, with short trips to places of historical or cultural interest in Beijing and vicinity. The program also includes a field trip within China (totaling 11-13 days) at the end of the term for summer, and during mid-term for fall. Students participating in Dartmouth-at-BNU will live in the foreign student dormitories on the BNU campus. For the Summer FSP, they will enroll in three courses: CHIN 11 (taught by the Dartmouth director in residence), and two language courses appropriate to their level of proficiency. Students at the second-year level will enroll in CHIN 22 and CHIN 23; students at the third-year level will enroll in CHIN 31 and CHIN 32; and students at the fourth-year level will enroll in CHIN 41 and CHIN 42 when the numbers allow. For the fall LSA+ students will enroll in three Chinese language courses at the appropriate level. Successful completion of the summer term BNU program will serve in satisfaction of the Summer Residence Requirement, even when taken in the summer following a student's first year or third year. For application and further information, contact the Off Campus Programs Office, 44 North College Street.

Dartmouth Advanced Language Study Abroad (LSA+) Program in Tokyo, Japan

Prerequisite: JAPN 1, JAPN 2, JAPN 3, or the equivalent, with at least a B average, and JAPN 10, or the equivalent, with at least a B average.

The Dartmouth Japanese LSA+ Program is conducted during the summer term at Kanda University of International Studies on the outskirts of Tokyo, Japan. The program includes nine-and-one-half weeks of instruction, as well as organized trips to areas of cultural interest. Students enroll in three courses: JAPN 11 (taught by the Dartmouth director in residence) and two second-year-level Japanese language courses (JAPN 22, JAPN 23). Successful completion of the Tokyo program will serve in

satisfaction of the Summer Residence Requirement (even when taken in the summer following the first year or third year). For application and further information, contact the Off Campus Programs Office, 44 North College Street.

Honors Program

Admission to the Honors Program is by application to the Department. Applicants must have a 3.0 GPA overall and a 3.3 GPA in the major to qualify for the Honors Program. The Honors Program, involving one credit over and above the regular major, is a two-term project, outlined as follows:

1. Senior fall or winter: AMEL 85: Independent Research (may serve as Advanced Seminar for the major)
2. Senior winter or spring: AMEL 87: Honors Thesis

Proposals must be submitted to the Department by the fifth week of the junior-year spring term. The proposal should be written in consultation with a prospective advisor, and is to include:

1. the title and nature of the project to be undertaken
2. the significance this research may have within the designated field of study
3. any relevant background (e.g., related courses; other preparation) which the student brings to the work
4. a tentative bibliography of studies germane to the project
5. the name of, and approval by, the thesis advisor

The Honors Program student must achieve and maintain a B+ in AMEL 85; otherwise, the project will be terminated. An informal, oral presentation to AMELL faculty and students is required upon completion of the thesis, usually during the second or third week of May. The thesis must be turned in to the department office no later than the last day of spring term classes. *Completion of the Honors Program is required for graduation with Honors or High Honors in the major.*

AMEL Asian and Middle Eastern Languages and Literatures Courses

To view Asian and Middle Eastern Languages and Literatures requirements, click here. (p. 113)

AMEL 7 - First-Year Seminars in Asian and Middle Eastern Languages and Literatures

Consult special listings.

AMEL 17 - Discourse, Culture, and Identity in Asia and the Middle East

Instructor: Glinert

This course introduces theories of identity, discourse, and communication, and illustrates how Asian and Middle Eastern cultures employ language to construct and reflect values, identities and institutions, to create relationships and project personal status, and to perform actions (such as ending a phone call, apologizing, paying compliments, and negotiating business deals). Particular attention will be paid to the beliefs people hold about their languages and scripts. No prior knowledge of a particular language or culture is assumed. Open to all classes.

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16F: 10A

AMEL 18 - Language, Conflict and Nation-Building in Asia and the Middle East

Instructor: Glinert

This course explores how Asian and Middle Eastern societies employ language to construct and reflect social structures and identities. Particular attention will be paid to multilingualism, literacy, language attitudes, and language planning -- with ethnicity, religion, and other social values playing key roles. The major focus will be on China, Japan, Korea, Israel and the Arab world, and students will be able to select these or other Asian/Middle Eastern societies for their final paper. No prior knowledge of a particular language or culture is assumed. Open to all classes.

Distributive: Dist:INT or SOC; WCult:CI

Offered: Not offered in the period from 15F through 17S

AMEL 85 - Independent Research

Instructor: Dorsey

Under the direction of members of the faculty, subject to faculty availability. Students should consult with a member of the faculty in the term preceding the term in which the independent work is to be done. A research proposal must be submitted to the Department for approval.

Offered: All terms [except summer] subject to faculty availability: Arrange

AMEL 87 - Honors Thesis

Instructor: Dorsey

Open only to AMELL majors who are participating in the Honors Program. See guide-lines under 'Honors Program.'

Offered: All terms [except summer]: Arrange

ARAB - Arabic Courses

To view Arabic requirements, click here (p. 113).

ARAB 1 - First-Year Courses in Arabic

Instructor: Chahboun, Ouajjani, Baghdadi

An introduction to written and spoken Modern Standard Arabic (MSA). In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Mandatory apprentice-teacher-run drill sessions meet four times/week (4 hours/week) for all beginning Arabic language classes.

Never serves in partial satisfaction of Distributive or World Culture requirements.

Offered: 15F, 16F: 9S, 9S, 10+

ARAB 2 - First-Year Courses in Arabic

Instructor: Chahboun, Ouajjani

An introduction to written and spoken Modern Standard Arabic (MSA). In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Mandatory apprentice-teacher-run drill sessions meet four times/week (4 hours/week) for all beginning Arabic language classes.

Never serves in partial satisfaction of Distributive or World Culture requirements.

Offered: 16W, 17W: 9S, 9S, 10+

ARAB 3 - First-Year Courses in Arabic

Instructor: Chahboun, Ouajjani

An introduction to written and spoken Modern Standard Arabic (MSA). In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Mandatory apprentice-teacher-run drill sessions meet four times/week (4 hours/week) for all beginning Arabic language classes.

Never serves in partial satisfaction of Distributive or World Culture requirements.

Offered: 16S, 17S: 9S, 9S

ARAB 10 - Introduction to Arab Culture

Instructor: Smolin

This course will provide a broad introduction to the historical, literary, artistic, and popular cultures of the Middle East, from pre-and early Islamic times to the present. The aim of the course is to give students an appreciation of Arab and Arabo-Islamic culture, but also to examine ways in which prevailing historical, political, economic, and social conditions have impacted cultural

production and expression in the Middle East. Sources and texts will include, but not be limited to, selections from the Quran, hadith, Arabic poetry and literature, historical chronicles, and film. Required for the LSA+ (pending approval), major and minor.

Cross-Listed as: AMES 4

Distributive: Dist:LIT; WCult:CI

Offered: 16S, 17S: 10A

ARAB 11 - Special Topics in Arabic Studies

Instructor: Smolin

Distributive: Dist: LIT; WCult: NW.

Offered: 16X, 17X: LSA+ (Dartmouth in Morocco)

ARAB 21 - Intermediate Arabic

Instructor: Baghdadi

Intermediate level of Modern Standard Arabic (MSA). Continuation of presentation of fundamentals of grammar and development of proficiency in reading, writing, spoken communication skills, and aural comprehension, including much authentic cultural material.

Distributive: WCult:NW

Offered: 15F, 16F:11

ARAB 22 - Intermediate Arabic

Instructor: Smolin

Intermediate level of Modern Standard Arabic (MSA). Continuation of presentation of fundamentals of grammar and development of proficiency in reading, writing, spoken communication skills, and aural comprehension, including much authentic cultural material.

Prerequisite: ARAB 3 or equivalent.

Distributive: Dist:LIT; WCult:NW

Offered: 16X, 17X: LSA+ (Dartmouth in Morocco)

ARAB 23 - Intermediate Arabic

Instructor: Chahboun, Smolin

Intermediate level of Modern Standard Arabic (MSA). Continuation of presentation of fundamentals of grammar and development of proficiency in reading, writing, spoken communication skills, and aural comprehension, including much authentic cultural material.

Prerequisite: ARAB 3 or equivalent.

Distributive: WCult:NW

Offered: 16S, 17S: 11 16X, 17X: LSA+ (Dartmouth in Morocco)

ARAB 24 - Formal Spoken Arabic

Instructor: Kadhim

This course provides training in Formal Spoken Arabic (FSA) with some attention to divergences of certain Arabic dialects. FSA is a register that encompasses interdialectal features, as well as features of Modern Standard Arabic. The course emphasizes the functional and situational aspects of language. In addition to standard drills, students engage in structured and semi-structured speaking activities, as well as content-based language activities built around regional topics.

Prerequisite: ARAB 3 or equivalent.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARAB 25 - Moroccan Arabic

Instructor: Chahboun

This course will introduce students to the colloquial language spoken today in Morocco. In addition to emphasizing grammar and vocabulary, this course will focus on daily communication and teach students how to interact with Moroccans in a wide variety of settings. Attention will also be paid to the role of culture in communication. ARAB 25 is a prerequisite for the LSA+ (pending approval).

Prerequisite: ARAB 3, or the equivalent, or permission of the instructor.

Offered: 16S, 17S: 10

ARAB 31 - Advanced Arabic

Instructor: Ouajjani

A continuation of the fundamentals of grammar and further acquisition of spoken communication skills, aural comprehension, and proficiency in reading and writing. Students will be expected to master a wide variety of reading materials.

Prerequisite: Two out of the following three courses: ARAB 21, ARAB 22, ARAB 23, or permission of the instructor, or the equivalent.

Distributive: WCult:NW

Offered: 15F, 16F: 10

ARAB 32 - Advanced Arabic

Instructor: Ouajjani

A continuation of the fundamentals of grammar and further acquisition of spoken communication skills, aural comprehension, and proficiency in reading and writing. Students will be expected to master a wide variety of reading materials.

Prerequisite: Two out of the following three courses: ARAB 21, ARAB 22, ARAB 23, or permission of the instructor, or the equivalent.

Distributive: WCult:NW

Offered: 16W, 17W: 10

ARAB 33 - Advanced Arabic

Instructor: Al-Ghadeer

A continuation of the fundamentals of grammar and further acquisition of spoken communication skills, aural comprehension, and proficiency in reading and writing. Students will be expected to master a wide variety of reading materials.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: 12

ARAB 34 - Media Arabic

Instructor: Chahboun

This course is an introduction to the language of the Arabic press and broadcast media. It offers training in the basic skills required to read, comprehend, and translate Arabic media texts. The course is intended as a supplement to language training based on Modern Standard Arabic (MSA).

Prerequisite: Two second-year level Arabic courses or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16X, 17X: 12

ARAB 41 - Advanced Arabic

Instructor: Kadhim

This three-course series (41, 42 and 43) may be taken non-sequentially. Readings for the courses are extensive and of a high level of complexity; they are drawn from a variety of genres and periods. The progression towards full proficiency in the language is a fundamental objective of the sequence. The courses will be conducted entirely in Arabic.

Prerequisite: Two third-year level Arabic courses, or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15F, 16F: 11

ARAB 42 - Advanced Arabic

Instructor: Al-Ghadeer

This three-course series (41, 42 and 43) may be taken non-sequentially. Readings for the courses are extensive and of a high level of complexity; they are drawn from a variety of genres and periods. The progression towards full

proficiency in the language is a fundamental objective of the sequence. The courses will be conducted entirely in Arabic.

Prerequisite: Two third-year level Arabic courses, or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16W, 17W: 10A

ARAB 43 - Advanced Arabic

Instructor: Kadhim

This three-course series (41, 42 and 43) may be taken non-sequentially. Readings for the courses are extensive and of a high level of complexity; they are drawn from a variety of genres and periods. The progression towards full proficiency in the language is a fundamental objective of the sequence. The courses will be conducted entirely in Arabic.

Prerequisite: Two third-year level Arabic courses, or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: 11

ARAB 59 - Independent Advanced Study in Arabic Language and Literature

Instructor: Staff

Available to students who wish to do advanced or independent study in Arabic. The student must first consult with a faculty member and then obtain departmental permission in the term before the course.

Distributive: Dist:LIT; WCult:NW

Offered: All terms except summer, and subject to faculty availability: Arrange

ARAB 61 - Topics in Modern Arabic Literature and Culture. May be repeated for credit if topic varies.

This course is an introduction to the study of modern Arabic literature through readings and discussion of key texts in prose and poetry from the 19th and 20th centuries. Each offering of the course will be organized around a particular author, genre, theme, or period. Topics may include, inter alia, the question of tradition and modernity, the construction of an Arab national identity, the colonial encounter, post-coloniality, and the status of women in Arab society. Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of the Arabic language. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

Distributive: Dist:LIT; WCult:NW

ARAB 61.01 - Modern Arabic Fiction

Instructor: Smolin

This course is an introduction to twentieth-century fiction across the Arab world. Looking at works from North Africa to the Middle East, we will examine how Arab writers and filmmakers have dealt with such themes as nationalism, immigration, freedom, sexuality, war, violence, and religion. Authors include Tayyib Salih, Mohamed Choukri, Ghassan Kanafani, Tahar Wattar, and Hanah al-Shaykh, among others.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARAB 61.04 - Palestinian Literature and Cinema

This course explores various aspects of Palestinian existence through literature and cinema. What does it mean to be "Palestinian"? What unifies a cultural output produced not only in Arabic, but also in Hebrew and English, by people who carry a variety of citizenships (or none at all)? How have Palestinian authors and filmmakers grappled with issues such as collective identity, the "Other," and internal social problems? How have these issues influenced their use of literature and film as art forms?

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARAB 61.05 - Race in Arab Women's Literature

Instructor: Al-Ghadeer

This course is primarily a comprehensive introduction to Arab women novelists and the representation of race and gender, foregrounding the discussion of race in classical and medieval Arabic literary and intellectual texts. We will explore the questions of blackness, race, and gender, allowing the students to develop critical understanding of how these concepts operate within institutional and cultural frameworks.

Distributive: Dist:LIT; WCult:NW

Offered: 16W: 2A

ARAB 61.06 - Invisible Societies in the Contemporary Arabic Novel

Instructor: Al-Ghadeer

The course will explore aspects of the contemporary Arabic novel and how authors fashion literary constructions of invisible communities, radicalized others, foreign labor, disability, queerness, and tensions between modernity and tribalism. This course will open an inquiry into the moment in which tropes of invisibility, anonymity, namelessness, and marginality are staged and performed while exploring the possibility of reading these novels

together and showing to what extent they display literary, cultural, and linguistic resemblances.

Distributive: Dist:LIT; WCult:NW

Offered: 16S: 2

ARAB 62.01 - Marvels and Wonder in Medieval Arabic Culture

This course explores a variety of medieval Arabic texts through the lens of wonder. It is through marveling at the foreign and inexplicable that we position ourselves in the world and separate the Self from the Other. Yet, wonder is also what prompts our curiosity for discovery and provokes our search for explanations. Where was the line drawn between the familiar and the strange in medieval Arabic culture? How was wonder defined? What role did it play?

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARAB 62.02 - The Arabian Nights East and West

Instructor: Kadhim

An introduction to Arabo-Islamic culture through its most accessible and popular exponent, *One Thousand and One Nights*. The course will take this masterpiece of world literature as the focal point for a multidisciplinary literary study. It will cover the genesis of the text from Indian and Mediterranean antecedents, its Arabic recensions, its reception in the West, and its influence on European literature. The course will be taught in English in its entirety. No prerequisites.

Distributive: Dist:INT or LIT; WCult:NW

Offered: 15F, 16F: 2

ARAB 63 - Themes in Arabic Literature and Culture

Arabic literature is widely regarded as the foremost intellectual and artistic accomplishment of the Arabs. In the course of over fourteen centuries of vigorous literary activity, Arab poets and writers have elaborated a set of themes that inform Arabo-Islamic culture in profound ways. Offerings of this course might range from the examination of a particular theme to broader comparative studies.

Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of the Arabic language. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

ARAB 81 - Topics in Arabic Literature and Culture

This seminar is designed to examine closely literary and cultural texts employing theoretical and historical sources.

Topics vary but might range from studies of individual authors to broader comparative themes.

ARAB 81.01 - The New Arabic Novel

Instructor: Smolin

In this seminar, we will read Arabic novels in translation published across the Middle East during the past decade. How have the authors of these texts grappled with recent transformations in post-9/11 Arab society, such as globalization, terrorism, gender relations, and war? How have old themes—including the clash between tradition and modernity, East-West relations, and the Israeli-Palestinian conflict—become renewed for the contemporary era? We will examine exciting recent novels from Egypt, Saudi Arabia, Iraq, Libya, Lebanon, and Palestine to answer these questions. This course has no prerequisites but familiarity with the history of the Middle East in the twentieth century and trends in contemporary Arabic prose during this period would be helpful.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period from 15F through 17S

ARAB 81.02 - The Arabic Novel: Narrating Tradition, Change, and Identity

Instructor: Kadhim

This seminar examines the modern Arabic narrative tradition through the close reading of a number of key texts by major twentieth-century authors. It will consider how perceptions of tradition, change, and identity are articulated and represented in this genre. Examination of themes, literary styles, and assumptions pertaining to the function of literature and to the nature of human experience will be undertaken. Readings for the seminar will be drawn from the works of Naguib Mahfouz (Egypt), Tayyib Salih (Sudan), Emile Habibi (Palestine), Hanan Al-Shaykh (Lebanon), Leila Abouzeid (Morocco), and others.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: 2A

CHIN - Chinese Courses

To view Chinese requirements, click here (p. 113).

CHIN 1 - First-Year Courses in Chinese

Instructor: Blader, Mowry

An introduction to spoken and written Modern Standard Chinese. Conversational drill and comprehension exercises in classroom and laboratory provide practice in pronunciation and the use of the basic patterns of speech. Intensive reading is conducted for textbook lessons. Grammar is explained, and written exercises given. Traditional characters are learned in Chinese 1 and 2; simplified characters are introduced in Chinese 3. Classes are conducted increasingly in Chinese. Mandatory student-

run drill sessions meet Monday to Thursday for fifty minutes each day for all beginning Chinese language classes. Students who plan to use these courses to fulfill the language requirement may not take it under the Non-Recording Option.

Satisfactory completion of Chinese 3 fulfills the language requirement.

Offered: 15F, 16F: 9S, 10+

CHIN 2 - First-Year Courses in Chinese

Instructor: Mowry

An introduction to spoken and written Modern Standard Chinese. Conversational drill and comprehension exercises in classroom and laboratory provide practice in pronunciation and the use of the basic patterns of speech. Intensive reading is conducted for textbook lessons. Grammar is explained, and written exercises given. Traditional characters are learned in Chinese 1 and 2; simplified characters are introduced in Chinese 3. Classes are conducted increasingly in Chinese. Mandatory student-run drill sessions meet Monday to Thursday for fifty minutes each day for all beginning Chinese language classes.

Satisfactory completion of Chinese 3 fulfills the language requirement.

Offered: 16W, 17W: 9S, 10+

CHIN 3 - First-Year Courses in Chinese

Instructor: Gibbs, Li

An introduction to spoken and written Modern Standard Chinese. Conversational drill and comprehension exercises in classroom and laboratory provide practice in pronunciation and the use of the basic patterns of speech. Intensive reading is conducted for textbook lessons. Grammar is explained, and written exercises given. Traditional characters are learned in Chinese 1 and 2; simplified characters are introduced in Chinese 3. Classes are conducted increasingly in Chinese. Mandatory student-run drill sessions meet Monday to Thursday for fifty minutes each day for all beginning Chinese language classes.

Satisfactory completion of Chinese 3 fulfills the language requirement.

Offered: 16S, 17S: 9S, 10+

CHIN 4 - Advanced First-Year Chinese

Instructor: Chen, Li

This course is designed for students with varying, minimal levels of competence in speaking, listening, reading, and writing. Weekly class hours include four sixty-five minute sessions with the master teacher and up to four fifty-minute drill and/or conversation sessions. There are weekly

exams, a midterm, and a final, as well as writing assignments, oral presentations, and supplementary work assigned as needed. This course seeks to achieve two goals: 1) to help students equalize their levels of the required speaking, listening, reading, and writing skills; 2) to allow them to raise these levels and thereby significantly increase their understanding of Modern Standard Chinese. Chinese 4 is an accelerated first-year course. Satisfactory completion of Chinese 4 satisfies the Foreign Language Requirement and places the student into the 20-level series.

Students who plan to use this course to fulfill the language requirement may not take it under the Non-Recording Option.

Offered: 15F, 16F: 9S, 10, 11

CHIN 10 - Introduction to Chinese Culture

Instructor: Gibbs

The aim of this course is to provide students with a basic knowledge and appreciation of Chinese culture. We will examine the evolution of Chinese culture and identity from the earliest Chinese dynasties, dating back more than 3500 years, to the present day. Through readings of literary texts in translation, students will be introduced to topics in language, history, literature and art, philosophy and social and political institutions. The course is open to students of all classes. It is required for participation in the LSA+ and FSP, for the major, and the minor.

Cross-Listed as: AMES 12

Distributive: Dist:LIT; WCult:CI

Offered: 16S, 17S: 12

CHIN 11 - Special Topics in Chinese Studies

Instructor: Gibbs

FSP director's course.

Distributive: WCult:NW

Offered: 16X, 17X

CHIN 22 - Intermediate Modern Chinese (Second-year level)

Instructor: Chen, Li, Shi

CHIN 22 and CHIN 23 cover a full second-year level course, using the textbook *Integrated Chinese, Level Two* and a variety of other materials. The course is designed for students who have completed CHIN 4 or the equivalent. Students who have only completed CHIN 3 may be eligible for this course with permission of the instructor. Class hours include four sixty-five or five fifty-minute sessions with the master teacher and up to four fifty-minute drill and/or conversation sessions. There are weekly exams, a midterm, and a final, as well as writing assignments, oral presentations, and supplementary work assigned as needed. This series is intended to raise the

student's levels in speaking, listening, reading, and writing skills and, thereby, significantly increase their understanding of Modern Standard Chinese.

Distributive: Dist:LIT; WCult:NW

Offered: 16W: 9S, 10+ 17W: 9S, 10 15F, 16F: LSA+ (Dartmouth in China)

CHIN 23 - Intermediate Modern Chinese (Second-year level)

Instructor: Zhang, Shi

CHIN 22 and CHIN 23 cover a full second-year level course, using the textbook *Integrated Chinese, Level Two* and a variety of other materials. The course is designed for students who have completed CHIN 4 or CHIN 21 or the equivalent. Students who have only completed CHIN 3 may be eligible for this course with permission of the instructor. Class hours include four sixty-five or five fifty-minute sessions with the master teacher and up to four fifty-minute drill and/or conversation sessions. There are weekly exams, a midterm, and a final, as well as writing assignments, oral presentations, and supplementary work assigned as needed. This series is intended to raise the student's levels in speaking, listening, reading, and writing skills and, thereby, significantly increase their understanding of Modern Standard Chinese.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: 9S 15F, 16F: LSA+ (Dartmouth in China)

CHIN 31 - Advanced Modern Chinese (Third-year level)

Instructor: Zhang, Shi

This series (31, 32 and 33) may be taken non-sequentially, and any single course repeated, if content is different. Readings will be selected from literary, political, and historical publications. There will be regular exams, writing exercises, oral presentations, and supplementary work assigned as needed.

Prerequisite: CHIN 23 or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15F, 16F: 10 15F, 16F: LSA+ (Dartmouth in China)

CHIN 32 - Advanced Modern Chinese (Third-year level)

Instructor: Zhang, Shi

This series (31, 32 and 33) may be taken non-sequentially, and any single course repeated, if content is different. Readings will be selected from literary, political, and historical publications. There will be regular exams, writing exercises, oral presentations, and supplementary work assigned as needed.

Prerequisite: CHIN 23 or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16W, 17W: 10 15F, 16F: LSA+ (Dartmouth in China)

CHIN 33 - Advanced Modern Chinese (Third-year level)

Instructor: Zhang, Shi

This series (31, 32 and 33) may be taken non-sequentially, and any single course repeated, if content is different. Readings will be selected from literary, political, and historical publications. There will be regular exams, writing exercises, oral presentations, and supplementary work assigned as needed.

Prerequisite: CHIN 23 or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: 11 15F, 16F: LSA+ (Dartmouth in China)

CHIN 41 - Advanced Chinese (Fourth-year level)

Instructor: Zhang, Shi

Advanced readings from literary, political, and historical publications.

Prerequisite: Two third-year level Chinese courses or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15X, 16X: 10 15F, 16F: LSA+ (Dartmouth in China)

CHIN 42 - Advanced Chinese (Fourth-year level)

Instructor: Zhang, Shi

Advanced readings from literary, political, and historical publications.

Prerequisite: Two third-year level Chinese courses or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15F, 16F: 11 15F, 16F: LSA+ (Dartmouth in China)

CHIN 43 - Advanced Chinese (Fourth-year level)

Instructor: Li, Shi

Advanced readings from literary, political, and historical publications.

Prerequisite: Two third-year level Chinese courses or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16W, 17W: 11 15F, 16F: LSA+ (Dartmouth in China)

CHIN 44.02 - Modern Chinese Poetry

Instructor: Xing

An introduction to modern Chinese poetry. Rebelling against over two thousand years of poetic tradition, Chinese poetry of the twentieth century represents one of the major achievements of modern Chinese literature and reflects the brilliance of young literary talent.

Prerequisite: Two third-year level Chinese courses or permission of the instructor.

Offered: Not offered in the period from 15F through 17S

CHIN 51 - Introduction to Classical Chinese

Instructor: Allan, Xing

An introduction to the basic grammar and vocabulary of the Classical Chinese language, using examples from a selection of texts from the Warring States Period (5th to 3rd century B.C.E.).

Prerequisite: First-year Chinese. This course is a requirement for majors in the Chinese language and literature track.

Distributive: Dist:LIT; WCult:NW

Offered: 16W: By arranged time 16F: 10A

CHIN 52 - Readings in Classical Chinese: Daoist Philosophical Texts

Readings in the Daoist classics, such as the *Laozi Daodejing* and the *Zhuangzi*. Readings will be in the original Chinese. Emphasis will be placed on key philosophical issues, such as the meaning of the Way in Daoist texts and the relationship of language to thought.

Prerequisite: CHIN 51, or consent of the instructor. CHIN 52 may be considered a non-language course.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

CHIN 53 - Readings in Classical Chinese: Confucian Philosophical Texts

Instructor: Allan

Readings in the Confucian classics, primarily Mencius and Xunzi. Readings will be in the original Chinese. Emphasis will be placed on key philosophical issues, such as the concept of kingship in ancient China and the debate on human nature.

Prerequisite: CHIN 51, or consent of the instructor. CHIN 53 may be considered a non-language course.

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 2A

CHIN 54 - Classical Chinese Poetry

Instructor: Xing

This is an introduction to classical Chinese poetry, from its beginning to the last imperial dynasty in China, Qing (1616-1911) dynasty. By reading, discussing and writing on the representative works of classical Chinese poetry, the students will familiarize themselves with the key genres of classical Chinese poetry, such as archaic style poem, fu rhapsody, modern style poem, ci lyric and qu musical lyric, as well as the major poets who have had an enduring impact on the Chinese literary tradition. We will study both the Chinese originals and their English translations in this course. The poems will be examined in their cultural, historical, intellectual and literal contexts.

Prerequisite: CHIN 51 or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 17S: 10A

CHIN 59 - Independent Advanced Study in Chinese Language and Literature

Instructor: Staff

Available to students who wish to do advanced or independent study in Chinese. Chinese 59 may be considered a non-language course with approval of the advisor. The student must first submit a proposal to the Major/Minor advisor, and the section faculty, before obtaining permission from the faculty member with whom he or she wishes to work.

Distributive: Dist:LIT; WCult:NW

Offered: All terms except summer, subject to faculty availability: Arrange

CHIN 61 - Topics in Modern Chinese Literature and Culture

Following the definition generally accepted by the Chinese themselves, "modern" in this context refers to two large periods: that preceding the founding of the People's Republic of China in 1949, and that following 1949. The former (i.e., *xiandai*) can be pushed as far back as the Opium War of 1839-42, and the latter (i.e., *dangdai*) can be extended to "today." Courses offered under this rubric examine the main literary and cultural phenomena and events taking place in China (including Taiwan and Hong Kong) over this period of one and a half centuries. Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of the Chinese language. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

CHIN 61.02 - Love and Desire in Modern Chinese Literature

Instructor: Gibbs

Spanning a selection of short stories and novels from the early twentieth century to the turn of the millennium, this course explores connections between themes of filial piety, nationalism, revolutionary idealism, nostalgia for the past, ideological constraints placed on love, and attempts to subvert those constraints. Lectures and readings will relate the works covered to key intellectual and political movements, connecting ideas of individual romance and disillusionment to larger issues of modernity and globalization.

Distributive: Dist: LIT; WCult: NW

Offered: 15F: 12

CHIN 62 - Topics in Traditional Chinese Literature and Culture

Traditional Chinese literature ranges from the earliest examples--divinations inscribed on turtle plastrons and ox scapulae dating back more than 3000 years--to the popular knight-errant novels of the early 19th century. The Opium War of 1839-42 is taken as the cut off point for courses in this topic category, which considers cultural as well as literary themes. Courses reflect the interests and expertise of the teaching staff and include the development of the Chinese script, historical prose, fiction and drama, poetry, and oral literature. Courses under this rubric are defined by historical period and/or literary genres. Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of the Chinese language. There are no prerequisites and courses are open to students of all classes.

CHIN 62.01 - Chinese Calligraphy

Instructor: Xing

Traditional Chinese literature ranges from the earliest examples--divinations inscribed on turtle plastrons and ox scapulae dating back more than 3000 years--to the popular knight-errant novels of the early 19th century. The Opium War of 1839-42 is taken as the cut off point for courses in this topic category, which considers cultural as well as literary themes. Courses reflect the interests and expertise of the teaching staff and include the development of the Chinese script, historical prose, fiction and drama, poetry, and oral literature. Courses under this rubric are defined by historical period and/or literary genres. Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of the Chinese language. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies. This course is a survey of the major script types in the Chinese writing system and an introduction to the art of Chinese calligraphy. Along with studying the history of

Chinese calligraphy, the student will learn about the similar technical origins of Chinese calligraphy and painting, study and practice the basic techniques of Chinese calligraphy, and learn the basic rules of formation of Chinese characters. Classroom practice will give the student hands-on experience of using traditional Chinese writing tools. Xing.

Distributive: Dist:ART; WCult:NW

Offered: 16W, 16F: 2A

CHIN 62.02 - Traditional Chinese Short Fiction

Instructor: Mowry

This is a survey course of the Chinese narrative tradition in the form of short fiction, spanning roughly from the 3rd century BCE to the second decade of the 20th century CE. We will discuss the birth and development of this literary genre, including its aesthetic and linguistic conventions, its themes, and its relationships to other literary and cultural forms and activities. We will also explore the philosophical, literary, aesthetic, socio-political atmospheres and circumstances in which Chinese short fiction evolved over the different stages of its long history.

The goal of the course is to acquaint the student with this unique and important genre of traditional Chinese literature. The material will be presented in chronological order. Knowledge of Chinese is not required.

Distributive: Dist:LIT; WCult:NW

Offered: 15X, 16X: 2A

CHIN 63.02 - Traditional Performance in China: Past and Present

Instructor: Gibbs

From Confucian times to current efforts at preserving Intangible Cultural Heritage, this course begins by introducing traditional ideas about the folk and folk culture in China, and how the relationship between folk and elite has changed over time, with special emphasis on the twentieth and twenty-first centuries. Through the examination of local traditions of storytelling, epic singing, folksongs, ritual, and local drama from various time periods and geographical areas, students will gain a deeper, more nuanced understanding of the diversity of regional and ethnic expressive forms within China and how they continue to develop over time through the present day.

Distributive: Dist:LIT; WCult:NW

Offered: 15F: 11

CHIN 63.06 - Women in China

Instructor: Mowry

This is a survey course of Chinese ideas and practices concerning women. The pursuit of this theme will take the student through a wide variety of Chinese literary genres

and materials, including the classics, poetry, fiction, drama, biography, and law. The use of women as a focus in the organization of the course provides the selectivity that makes such comprehensiveness possible. The aim is to provide the student with an intimate portrait of the development of Chinese culture as a whole through the examination of one of its central systems. The course is designed with the presumption that an understanding of Chinese thoughts about women will lead to an enhanced understanding of Chinese thoughts about Chinese people and life in general. The material will be presented in chronological order, keeping in mind the broader time perspectives.

Distributive: Dist:LIT; WCult:NW

Offered: 17S: 11

CHIN 81 - Lu Xun and Hu Shi

Instructor: Mowry

Courses numbered 81 or above are advanced seminar courses. May be repeated for credit if topic varies.

Through the writings of Lu Xun (1881-1936) and Hu Shi (1891-1962), two of the most important scholar-writers of the twentieth century, this course will examine several issues that were raised during the first two decades of this century by Chinese intellectuals who felt an acute, ever-increasing inadequacy of their own cultural heritage in the face of Western democracy and technological and scientific advancements. Those issues, raised more than seven decades ago, have persistently engaged the central attention of modern Chinese intellectuals, and include discussions of China's modernization (or Westernization) and of China's vernacular language movement, debates about various political and social philosophies, questions surrounding the so-called new culture movement, and other such issues. The seminar will be conducted in English; however, readings will include several original articles in Chinese. Permission of instructor required. Mowry.

Distributive: Dist:LIT; WCult:NW

Offered: 16S: 2

CHIN 82 - Chinese Calligraphy and Manuscript Culture: Orchid Pavilion

Instructor: Xing

Courses numbered 81 or above are advanced seminar courses. May be repeated for credit if topic varies.

As the most well-known masterpiece of Chinese calligraphy, the Orchid Pavilion by Wang Xizhi (Wang Hsi-chih), the Sage of Chinese Calligraphy, has become a unique epitome of Chinese art, culture and intellectual tradition. This advanced Chinese calligraphy seminar will

investigate the contents, contexts and controversies of the art, culture, style and technique of the Orchid Pavilion.

Distributive: Dist:ART; WCult:NW

Offered: 16W: 10A 17S: 2A

CHIN 83 - Topics in Chinese Literature and Culture

Courses numbered 81 or above are advanced seminar courses. May be repeated for credit if topic varies. *Key Concepts of Confucian and Daoist Philosophical Thought.* In this course, we will examine the imagery at the root of certain key concepts, such as the Way (*dao*), non-action (*wu wei*), the mind/heart (*xin*), energy/ether/breath (*qi*), in early Chinese philosophy, and explore the relationship between these images and the structure of early Chinese philosophical thought. Students will do readings in metaphor theory, as well as in early Chinese philosophical texts, such as the Analects, the Mencius, Laozi Daodejing, and Zhuangzi. Advanced level of Chinese is required.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period from 15F through 17S

HEBR - Hebrew Courses

To view Hebrew requirements, click here (p. 113).

HEBR 1 - First-Year Courses in Modern Hebrew

Instructor: Ben Yehuda

An introduction to spoken and written Modern Israeli Hebrew (MIH). In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Mandatory student-run drill sessions meet four times/week for one hour (4 hours/week) for all beginning Hebrew language classes.

Offered: 15F, 16F: 2

HEBR 2 - First-Year Courses in Modern Hebrew

Instructor: Ben Yehuda

An introduction to spoken and written Modern Israeli Hebrew (MIH). In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Mandatory student-run drill sessions meet four times/week for one hour (4 hours/week) for all beginning Hebrew language classes.

Offered: 16W, 17W: 2

HEBR 3 - First-Year Courses in Modern Hebrew

Instructor: Ben Yehuda

An introduction to spoken and written Modern Israeli Hebrew (MIH). In addition to mastering the basics of grammar, emphasis is placed on active functional

communication in the language, reading comprehension, and listening comprehension. Mandatory student-run drill sessions meet four times/week for one hour (4 hours/week) for all beginning Hebrew language classes.

Offered: 16S, 17S: 2

HEBR 10 - Introduction to Hebraic and Israeli Culture

Instructor: Glinert

This course explores the interaction of Hebrew literature, film, music, religion, and society. For millennia, Hebrew has had a unique spiritual hold on both the Jewish and Christian identity. We will focus on the Bible as wisdom, law, and poetry, the Talmud of the ancient Rabbis, Kabbalah and Hebrew alphabet mysticism, war and the Israeli cinema, Hebrew folk and rock culture, and a modern political mystery: how today's Hebrew created a new Jewish identity. Required for the major and minor. No knowledge of Hebrew is required. Glinert.

Cross-Listed as: AMES 17, JWST 16

Distributive: Dist:LIT; WCult:CI

Offered: 17S: 10A

HEBR 21 - Intermediate Modern Hebrew

Instructor: Ben Yehuda

Continued study of Modern Israeli Hebrew grammar and syntax. Emphasis is placed on acquisition of the spoken language and on listening and reading comprehension. The course includes selected readings from contemporary Hebrew authors.

Prerequisite: HEBR 3 or permission of instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15F, 16F: By arranged time

HEBR 22 - Intermediate Modern Hebrew

Instructor: Ben Yehuda

Continued study of Modern Israeli Hebrew grammar and syntax. Emphasis is placed on acquisition of the spoken language and on listening and reading comprehension. The course includes selected readings from contemporary Hebrew authors.

Prerequisite: HEBR 3 or permission of instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: by arranged time

HEBR 23 - Intermediate Modern Hebrew

Instructor: Ben Yehuda

Prerequisite: HEBR 22 or permission of instructor.

Distributive: Dist: LIT; WCult: NW

Offered: Not offered in the period from 15F through 17S

HEBR 31 - Advanced Modern Hebrew

Prerequisite: HEBR 23 or permission of instructor.

Distributive: Dist: LIT; WCult: NW

Offered: Not offered in the period from 15F through 17S

HEBR 32 - Advanced Modern Hebrew

Prerequisite: HEBR 31 or permission of instructor.

Distributive: Dist: LIT; WCult: NW

Offered: Not offered in the period from 15F through 17S

HEBR 33 - Advanced Modern Hebrew

Prerequisite: HEBR 32 or equivalent.

Distributive: Dist: LIT; WCult: NW

Offered: Not offered in the period from 15F through 17S

HEBR 51 - The Hebrew of the Bible

Instructor: Ben Yehuda

An introduction to the language of the Hebrew Bible. The course teaches basic Biblical grammar, script, and vocabulary for recognition. Readings will be taken from a sampling of Biblical texts. This course serves as a requirement for students wishing to major and minor in Hebrew language and literature.

Cross-Listed as: JWST 24.01

Distributive: Dist:LIT; WCult:NW

Offered: 16W, 17W: By arranged time

HEBR 52 - Readings in Biblical Hebrew

Instructor: Ben Yehuda

This course is a follow-up to the introductory course HEBR 51 "Hebrew of the Bible." It offers readings in some well-known narrative, prophetic, and legal passages of the Bible, with further attention to Biblical grammar and vocabulary in the context of the texts being studied, as well as to literary genre and thematic content.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period from 15F through 17S

HEBR 59 - Independent Advanced Study in Hebrew Language and Literature

Instructor: Glinert

Available to students who wish to do advanced or independent study in Hebrew. The student must first submit a proposal to the Major/Minor advisor, and the section faculty, before obtaining permission from the faculty member with whom he or she wishes to work.

Distributive: Dist:LIT; WCult:NW

Offered: All terms except summer, subject to faculty availability: Arrange

HEBR 61.01 - Film, Fiction, and the Arab-Israeli Conflict

Instructor: Glinert

This course explores Israeli cinema in the context of the social and historical backdrop of the Arab-Israeli conflict and the painful emergence of a new Jewish-Israeli identity in the shadow of the Holocaust and constant warfare. We will study a dozen films in depth, situate them in the evolution of an Israeli cinema, and consider the problems of turning fiction into film.

Cross-Listed as: JWST 42

Distributive: Dist:LIT; WCult:CI

Offered: 16F: 10A

HEBR 62.01 - Midrash: How the Rabbis Interpreted the Bible

Instructor: Glinert

(Identical to JWST 24.03 (p. 352)). Midrash is the ancient Jewish term for Biblical interpretation. We examine how the Bible was interpreted by the Rabbis 1500 to 2000 years ago, at the crucial juncture in history when the Bible was being canonized in the form it now has. We focus on powerful motifs such as Creation, the Flood, Jacob and Esau, the Sacrifice of Isaac, and the Exodus, and view them through two prisms: through a wide range of ancient Midrashic texts themselves; and through one influential modern Jewish literary reading of the Midrashic themes of Genesis. Glinert.

Cross-Listed as: Identical to JWST 24.03

Distributive: Dist: LIT; WCult: NW

Offered: Not offered in the period from 15F through 17S

HEBR 63.01 - Jewish Humor and its Roots: Rabbis, Rogues, and Schlemiels

Instructor: Glinert

What is Jewish humor, what are its roots, and what can it begin to tell us about Jewish society, its values and its self-image? Using Freudian and other humor theory, we examine 2000 years of Hebrew comedy and satire, from the Bible to contemporary Israel, in such genres as short stories, jokes, and strip cartoons, and its relationship to American Jewish humor.

Cross-Listed as: JWST 24.05

Distributive: Dist:LIT; WCult:W

Offered: 16F: 2A

HEBR 63.02 - Songs of the Jewish People

Instructor: Glinert

The songs of the Jewish people capture over a millennium of Jewish life. Using YouTube, DVDs, and the Dartmouth Jewish Sound Archive, the world's largest on-line resource for Jewish song (predominantly Hebrew but also in Yiddish, Ladino, English and other languages), we will identify major textual themes and genres, and explore musical forms and genres, performance and setting in Jewish life (such as Sephardic maqam, Hasidic niggun, contemporary Orthodox-American folk). We will also consider how the Jewish people have perceived their songs in terms of folk, pop and classic, sacred and secular, traditional and innovation. Several performers will contribute live workshops and discuss their art. No prerequisites. No knowledge of Hebrew required; all materials will be available in English.

Distributive: Dist:ART; WCult:NW

Offered: Not offered in the period from 15F through 17S

HEBR 81 - Topics in Hebrew Literature and Culture

Instructor: Glinert

Distributive: Dist: LIT; WCult: NW

Offered: Not offered in the period from 15F through 17S

JAPN - Japanese Courses

To view Japanese requirements, click here (p. 113).

JAPN 1 - First-Year Courses in Japanese

Instructor: Ishida, Watanabe

An introduction to written and spoken modern Japanese. In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Conversational drill and comprehensive exercises in classroom and laboratory provide practice in pronunciation and the use of the basic patterns of speech. Classes are conducted in Japanese. Reading in simple materials is extensive. Mandatory student-run drill sessions meet four times a week for fifty minutes for all beginning Japanese language classes.

Offered: 15F, 16F: 9S, 9S

JAPN 2 - First-Year Courses in Japanese

Instructor: Ishida, Watanabe

An introduction to written and spoken modern Japanese. In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Conversational drill and comprehensive exercises in classroom and laboratory provide practice in pronunciation and the use of the basic patterns of speech.

Classes are conducted in Japanese. Reading in simple materials is extensive. Mandatory student-run drill sessions meet four times a week for fifty minutes for all beginning Japanese language classes.

Offered: 16W, 17W: 9S, 9S

JAPN 3 - First-Year Courses in Japanese

Instructor: Ishida, Watanabe

An introduction to written and spoken modern Japanese. In addition to mastering the basics of grammar, emphasis is placed on active functional communication in the language, reading comprehension, and listening comprehension. Conversational drill and comprehensive exercises in classroom and laboratory provide practice in pronunciation and the use of the basic patterns of speech. Classes are conducted in Japanese. Reading in simple materials is extensive. Mandatory student-run drill sessions meet four times a week for fifty minutes for all beginning Japanese language classes. Students who plan to use this course to fulfill the language requirement may not take it under the Non-Recording Option. Satisfactory completion of Japanese 3 fulfills the language requirement.

Offered: 16S, 17S: 9S, 9S

JAPN 10 - Introduction to Japanese Culture

Instructor: Dorsey, Schmidt-Hori

Japanese cultural history through a broad survey of literature, art, social and political institutions, and popular culture. Modern conceptions of Japan and formations of Japanese identity have evolved under the pressures created by radical swings between periods of wholesale appropriation of foreign cultural forms and periods of extreme isolation. The course will trace the evolution of Japanese culture by examining the ways in which cultural archetypes are distinguished in Japan. Taught in English. Open to all classes. Required for the LSA+, major and minor.

Cross-Listed as: AMES 13

Distributive: Dist:LIT; WCult:CI

Offered: 16S, 17S: 11

JAPN 11 - Special Topics in Japanese Studies

Instructor: Dorsey

Distributive: WCult: NW

Offered: 16X, 17X: LSA+ (Dartmouth in Japan)

JAPN 22 - Intermediate Modern Japanese

Instructor: Dorsey, Staff

A continuation of the fundamentals of grammar and further acquisition of spoken communication skills, aural comprehension, and proficiency in reading and writing. This is an intensive course that integrates homestays and

the local environment into course materials. Students will be expected to master a wide variety of reading and video materials.

Distributive: WCult:NW

Offered: 16F: 10, and 16X, 17X: LSA+ (Dartmouth in Japan)

JAPN 23 - Intermediate Modern Japanese

Instructor: Dorsey, Staff

A continuation of the fundamentals of grammar and further acquisition of spoken communication skills, aural comprehension, and proficiency in reading and writing. This is an intensive course that integrates homestays and the local environment into course materials. Students will be expected to master a wide variety of reading and video materials.

Distributive: WCult:NW

Offered: 17S:10 and 16X, 17X: LSA+ (Dartmouth in Japan)

JAPN 31 - Advanced Japanese

Instructor: Ishida

A progression of materials from JAPN 23. Intensive review and continued study of modern Japanese at the advanced level. Conversation skills will continue to be an important aspect of this course, but more emphasis will be placed on reading and writing skills. Reading materials will be drawn from current newspapers, contemporary fiction, essays from journals, and excerpts from poetry. Short audiovisual selections will be used as well. Assigned work includes written compositions and oral presentations.

Prerequisite: JAPN 23 or permission of instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15F, 16F: 11

JAPN 32 - Advanced Japanese

Instructor: Watanabe

A progression of materials from JAPN 31. A variation of materials used in JAPN 31. Note: Although the materials used in this course differ from the materials used in JAPN 31, the general level of proficiency required to enroll in either JAPN 31 or JAPN 32 is roughly equivalent. Students may take JAPN 32 even if they have been unable to enroll in JAPN 31.

Prerequisite: JAPN 31 or permission of instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16W: 11

JAPN 33 - Advanced Japanese

Instructor: Ishida

A continuation and progression of materials used in JAPN 31 and JAPN 32. Note: the level of proficiency required to enroll in JAPN 33 is higher than the proficiency required for either JAPN 31 or JAPN 32.

Prerequisite: JAPN 32 or permission of instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: 11

JAPN 41 - Advanced Japanese

Instructor: Schmidt-Hori

A variation of materials used in JAPN 33. Note: although the materials used in this course differ from the materials used in JAPN 33, the general level of proficiency required to enroll in either JAPN 33 or JAPN 41 is roughly equivalent. Students may take JAPN 41 even if they have been unable to enroll in JAPN 33.

Prerequisite: Two third-year level Japanese courses, or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15F, 16F: 11

JAPN 42 - Advanced Japanese

Instructor: Staff

A progression of materials from JAPN 41. Designed to develop mastery of the spoken and written language. Assigned work includes written compositions and oral presentations.

Prerequisite: JAPN 41 or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 17W: 11

JAPN 43 - Advanced Japanese

Instructor: Watanabe

A progression of materials from JAPN 41 and JAPN 42. Designed to develop mastery of the spoken and written language. Assigned work includes written compositions and oral presentations.

Prerequisite: JAPN 41 or JAPN 42, or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16S: 2

JAPN 59 - Independent Advanced Study in Japanese Language and Literature

Instructor: Dorsey

Available to students who wish to do advanced or independent study in Japanese. The student must first submit a proposal to the Major/Minor Advisor, and the

section faculty, before obtaining permission from the faculty member with whom he or she wishes to work.

Distributive: Dist:LIT; WCult:NW

Offered: All terms except summer, subject to faculty availability: Arrange

JAPN 62 - Topics in Early Modern Japanese Literature and Culture

Classes offered under this rubric explore the emergence of modern Japan between the years 1600 and 1900 through an examination of literature, popular culture, and intellectual history. Techniques of critical reading and interpretation are studied as an integral part of these courses, which reflect the interests and expertise of the teaching staff. Since each offering is based on a particular theme or period, students may take this course more than once. Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of the Japanese language. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

JAPN 63 - Topics in Classical Japanese Literature and Culture

Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of the Japanese language. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

JAPN 63.02 - Gender, Sexuality, and Power in Premodern Japan

Instructor: Schmidt-Hori

With a mythical transgendered Sun Goddess, amorous noblemen in pursuit of beautiful ladies, vengeful women wreaking revenge on unfaithful lovers, and Buddhist priests and samurai in same-sex love affairs, classical Japanese literature is populated by figures with a surprisingly diverse range of gender types. The course will cover, in chronological order, myths, courtly tales, poetry, martial epics, ghostly drama, and medieval short stories from the 8th to 16th centuries, and through these texts depicting the interrelationship of gender, sexuality, and power, students will come to an understanding of how historical, political, linguistic and cultural forces shape subjectivity. The course is open to all students; it is taught in English and there are no pre-requisites.

Distributive: Dist:LIT; WCult:NW

Offered: 15F: 12

JAPN 81 - Topics in Japanese Literature and Culture

This seminar is designed to examine closely literary and cultural texts employing theoretical and historical sources. Topics vary according to instructor, but might range from

studies of single authors to broader comparative themes, where students will be urged to incorporate readings in the original language. Courses numbered 81 or above are advanced seminar courses. May be repeated for credit if topic varies.

Offered: Not offered in the period from 15F through 17S

Asian and Middle Eastern Studies

Chair: Jonathan Smolin

Professors S. Allan (AMEL), P. K. Crossley (History), D. F. Eickelman (Anthropology), L. H. Glinert (AMEL), D. E. Haynes (History), L. A. Higgins (French and Comparative Literature), T. C. Levin (Music), M. Parsa (Sociology), M. A. Sa'adah (Government), D. Washburn (AMES, Film and Media Studies, and Comparative Literature), W. Xing (AMEL); Associate Professors E. Z. Benor (Religion), S. Blader (AMEL), S. R. Craig (Anthropology), J. Dorsey (AMEL), S. J. Ericson (History), A. F. Hockley (Art History), Y. Horiuchi (Government), J. M. Lind (Government), C. MacEvitt (Religion), E. G. Miller (History), H. Mowry (AMEL), R. Ohnuma (Religion), D. A. Peterson (Linguistics and Cognitive Science), G. Raz (Religion), A. K. Reinhart (Religion), J. K. Ruoff (Film and Media Studies), J. Smolin (AMEL), C. S. Sneddon (Geography and Environmental Studies), G. R. Trumbull (History), D. J. Vandewalle (Government); Assistant Professors A. S. Bahng (English), S. Chauchard (Government), L. Gibbs (AMEL), S. L. Kim (AMES and Art History), J. N. Stanford (Linguistics), S. Suh (AMES and History), Z. Turkyilmaz (History); Senior Lecturers N. Ben Yehuda (AMEL), J. Chahboun (AMEL), J. Diamond (AMES and Music), W. Elison (AMES and Religion), M. Ishida (AMEL), A. Li (AMEL), M. Ouajjani (AMEL), I. W. Watanabe (AMEL), Lecturers K. Bauer (AMES), Z. Chen (AMEL), S. Nozawa (AMEL); Visiting Professors, W. P. Chin (AMES and English), J. J. Choi (AMES); Visiting Assistant Professor C. A. Fox (Geography); Visiting Lecturer F. Shi (AMEL); Mellon Postdoctoral Fellows H. Shaffer (ARTH), W. Tan (AMES), M. Yessayan (Women, Gender, and Sexuality Studies), H. Zhang (AMEL).

Note: AMEL refers to the Department of Asian and Middle Eastern Languages and Literatures.

To view Asian and Middle Eastern Studies courses, click here (p. 132).

Major and Minor

Study leading to a degree in Asian and Middle Eastern Studies (AMES) is interdisciplinary and is normally focused on one of the following areas: East Asia, the Middle East, and South/Southeast Asia. Each area is overseen by a faculty committee, and students majoring in

AMES work in cooperation with their committee of specialization in the development of their course plan, off-campus studies, and independent work. Majors work with advisors (selected from the above list of program participants) to design a program of study to ensure coherence of language study, disciplinary training, and off-campus experience. Students should choose advisors in their respective areas of concentration. Careful planning should begin in consultation with the advisor by early in the spring term of the sophomore year. Each program of study also requires review and approval by the AMES Chair.

The major in AMES requires a minimum of ten courses. Normally all ten courses will be in the student's area of concentration. A student who wishes to combine courses from more than one area must provide a written rationale for approval by the advisor and the AMES Chair. For each concentration, consult the Program web site for a list of already-approved courses as well as specific requirements. Students are strongly encouraged to include at least two years of a language offered by the Department of Asian and Middle Eastern Languages and Literatures; DAMELL language courses above the first-year level may be counted toward the AMES degree. At least six courses counted toward the major, including the culminating experience, must be non-language courses. With the concurrence of the AMES Chair, students can petition the AMES Steering Committee to have other appropriate courses count toward the AMES major. Students admitted to the Honors Program will complete a thesis as the culminating requirement for the degree. For other majors, AMES 91 will be the normal culminating requirement. Students with special concerns may submit a proposal to the Steering Committee to substitute AMES 86 for AMES 91 or petition the AMES Chair to substitute an advanced seminar from another department or program. For details on what to include in an AMES 86 proposal, see the AMES website: <http://www.dartmouth.edu/~asia/>.

AMES also offers a minor, consisting of six courses, that is normally focused on one of the areas listed above. The minor should include an interregional course (any AMES 40 offering or a preapproved substitute); and five non-language courses in the selected area. Like major programs, minors should be carefully planned in consultation with an advisor.

AMES majors and minors are required to take one interregional course as part of their program of study: either an AMES 40 offering or a preapproved substitute. A current list of possible substitutions for AMES 40 is available on the AMES website.

AMES can be modified with another major; students can also modify another major with AMES. Modified majors require completion of eleven courses: seven from the primary department or program and four from the secondary department or program. All courses must

qualify for major credit in both of the departments or programs comprising the modified major. Students modifying AMES with courses from another department or program must still complete the AMES culminating experience. Students must submit to the AMES chair a written rationale for their modified major that describes the intellectual coherence of the major they are constructing.

All AMES majors are encouraged to pursue study abroad. In most cases, this will occur in the context of an off-campus program offered either by the Department of Asian and Middle Eastern Languages and Literatures or by AMES. Students can petition the AMES Steering Committee to recognize study in other Dartmouth off-campus programs, in foreign study programs offered by other American undergraduate institutions, or in foreign universities. They need to do so at the latest on the tenth class day of the term preceding the actual transfer term. Retroactive credit for transfer terms or courses will not be granted.

Ames Honors Program

Students with a College average of 3.0 and a Program average of 3.5 will be eligible to apply to the AMES Program Steering Committee for entry into the AMES Honors Program. The application should be developed in consultation with the member of the AMES faculty who has agreed to direct the thesis. The application should include a proposal describing the thesis project in detail and relating it to the overall design of the student's AMES course plan. The deadline for the submission of proposals for thesis work in the fall and winter will be in the fifth week of spring term of the junior year, and for thesis work in the winter and spring, the first Monday of October in the senior year. Honors students normally complete AMES 85 and AMES 87. Completion of the thesis is a requirement for, but not a guarantee of, Honors or High Honors in the AMES major. Honors theses will need to be submitted one week before the end of spring term. For details on what to include in an AMES thesis proposal, see the AMES website: <http://www.dartmouth.edu/~asia/>.

Dartmouth Foreign Study Program in Fez, Morocco

The AMES Program offers an interdisciplinary Foreign Study Program in Fez, Morocco. Classes are taught at the American Language Institute in Fez, with faculty and guest lecturers drawn from the two universities in Fez and elsewhere in Morocco, as well as the Dartmouth faculty director. The Fez program stresses opportunities to integrate homestays and visits to shrines, schools, markets, and workplaces with conventional classroom learning.

Prerequisite: Completion of at least one of the following courses with a grade of B or higher: ANTH 15 (with Middle Eastern Studies faculty and topics), ANTH 19, ANTH 27, ARAB 10, ARAB 61 or ARAB 63 (when the designated topic includes a focus on North Africa), GOVT 46, HIST 5.02, HIST 68, HIST 69, HIST 71, HIST 89,

REL 8, or REL 16 (p. 451). Students also qualify if they have taken the full sequence of ARAB 1, ARAB 2, and ARAB 3. For an application or further information, visit the Off Campus Programs Office, 44 North College Street, or go to the OCP web site. Information is also available on the AMES website: <http://www.dartmouth.edu/~asia/>.

Dartmouth Foreign Study Program in Hyderabad, India

AMES also offers, in partnership with the Women's, Gender, and Sexuality Studies Program, an interdisciplinary Foreign Study Program in Hyderabad, India. Hyderabad is one of India's largest and most cosmopolitan cities, reflecting the intersection of North and South Indian cultures as well as both Hindu and Muslim influences. It is a center of many important academic institutions, of a dynamic economy increasingly based upon high-technology firms, and of an extensive Telugu film industry. It also possesses a rich tradition of political and social activism that is reflected in a wide range of social movements and non-governmental organizations.

The Program is based at the University of Hyderabad. Students take three academic courses: one course taught by the Dartmouth faculty director and one course taught by local faculty, "Gender and the Modern Media in India." The third course on the program will be chosen from among the University of Hyderabad offerings and will integrate Dartmouth students into a regular classroom with Indian students. Two courses taught by local faculty, "Gender and the Modern Media in India" and "Contemporary Social Movements in India." Students live in an international student dormitory on the University of Hyderabad campus and have a chance to get involved in campus activities and interact with Indian and other foreign students.

Prerequisite: Completion of at least two courses, with a grade of B or higher; one taken from a list approved by WGSS and one taken from a list approved by AMES. See the AMES and WGSS websites for a current list of approved prerequisites.

For an application or further information, visit the Off Campus Programs Office, 44 North College Street, or go to the OCP web site. Information is also available on the AMES website: <http://www.dartmouth.edu/~asia/>.

Foreign Exchange Program in Seoul, Korea

AMES sponsors a Foreign Exchange Program at Yonsei University in Seoul, Korea, in the fall term. Students take content classes in English at Yonsei's Underwood International College and also have the opportunity to study Korean at the university's Korean Language Institute.

For an application or further information, visit the Off Campus Programs Office, 44 North College Street, or go to

the OCP web site. Information is also available on the AMES website: <http://www.dartmouth.edu/~asia/>.

Other Courses Approved for AMES Majors and Minors

AMES has more than fifty affiliated faculty members in several departments and programs teaching a total of 190 courses that qualify for credit toward an AMES major or minor. These courses are listed by area of concentration on the AMES web site: <http://www.dartmouth.edu/~asia/>.

AMES - Asian and Middle Eastern Studies Courses

To view Asian and Middle Eastern Studies requirements, click here (p. 130).

AMES 4 - Introduction to Arab Culture

Instructor: Smolin

This course will provide a broad introduction to the historical, literary, artistic, and popular cultures of the Middle East, from pre-and early Islamic times to the present. The aim of the course is to give students an appreciation of Arab and Arabo-Islamic culture, but also to examine ways in which prevailing historical, political, economic, and social conditions have impacted cultural production and expression in the Middle East. Sources and texts will include, but not be limited to, selections from the Quran, hadith, Arabic poetry and literature, historical chronicles, and film. Required for the FSP, major and minor.

Cross-Listed as: Identical to ARAB 10

Distributive: Dist:LIT; WCult:CI

Offered: 16S, 17S: 10A

AMES 5 - Thought and Change in the Middle East and Central Asia

Instructor: Abusharaf

This course focuses on changing ideas of political and religious authority in the Middle East. Topics include how changing notions of personal, tribal, ethnic, and religious identities influence politics locally and internationally; religion and mass higher education; the multiple meanings and prospects of democracy; conflict over land and natural resources; political and economic migration; new communications media; the global and local bases for extremist movements; and the changing faces of Islam and other religions in the region's public spaces.

Cross-Listed as: Identical to ANTH 27

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period 15F through 17S

AMES 6 - Islam: An Anthropological Approach

This course integrates anthropological approaches to understanding Islam with textual and social historical ones. The anthropological approach values the study of sacred texts and practices as they are locally understood throughout the world and in different historical contexts. This course focuses on Islam as practiced in the Middle East, South and Southeast Asia, Africa, Central Asia, and in Europe and North America. It seeks to appreciate the contributions of religious leaders and activists as much as ordinary believers, showing the multiple ways in which Muslims throughout the world have contributed to the vitality of the Islamic tradition. Many different people and groups, including violent ones, claim to speak for Islam. This course suggests ways of re-thinking increasingly vocal debates concerning "authentic" Islam and who speaks for it.

Cross-Listed as: Identical to ANTH 19

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period from 15F to 17S

AMES 8 - Introduction to Islam

Instructor: Ayubi

This course will provide students with useful tools for reading about, thinking about, or otherwise engaging with Islam and Muslims. It is first a survey of important topics in the study of the religion of Islam, including the Qur'an and the Prophet, the role of Islamic mysticism, Islam and the state, Islamic law, and Islamic theories of family and person. We also discuss Orientalism and the western study of Islam, so that we can understand ourselves as students of the Islamic tradition.

Cross-Listed as: Identical to REL 8

Distributive: Dist:TMV; WCult:NW

Offered: 15F:10

AMES 9 - Hinduism

Instructor: Ohnuma

An introductory survey of the Hindu religious tradition of South Asia from 1500 B.C.E. down to the present day. Emphasis will be given to the historical development of elite, Sanskrit Hinduism and its constant interaction with popular and local traditions.

Cross-Listed as: Identical to REL 9

Distributive: Dist:TMV; WCult:NW

Offered: 17S:10

AMES 10 - The Religions of China

Instructor: Raz

An introduction to China's three major religions—Confucianism, Daoism, and Buddhism—through the reading of classic texts. Also, a look at important elements in Chinese folk religion: ancestor worship, temples, heavens and hells, and forms of divination. Special attention will be paid to the importance of government in Chinese religious thought and to continuity and change in the history of Chinese religion.

Cross-Listed as: Identical to REL 10

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 2

AMES 11 - Introduction to Korean Culture

Instructor: Kim and Suh

This course provides an introduction to Korean culture and history, examining Korea's visual and textual expressions from the pre-modern age to the twentieth century. What are the origins of Korean national and cultural identities? How have Korean claims of cultural distinctiveness been manifested and modified over time? Tracing answers to these questions simultaneously helps us consider how and why Korea has entered America's consciousness. As Korea matters to the US not simply as a fact but as a project, this course avoids portraying Korea through any generalized statements or uncritical categories. Rather, students are encouraged to explore novel perspectives on Korea and thereby unravel their own prejudices and agendas. No prior acquaintance with the Korean language is required.

Cross-Listed as: HIST 5.04

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 2A; 17W: 2A

AMES 12 - Introduction to Chinese Culture

Instructor: Gibbs

The aim of this course is to provide students with a basic knowledge and appreciation of Chinese culture. We will examine the evolution of Chinese culture and identity from the earliest Chinese dynasties, dating back more than 3500 years, to the present day. Through readings of literary texts in translation, students will be introduced to topics in language, history, literature and art, philosophy and social and political institutions.

Cross-Listed as: Identical to CHIN 10

Distributive: Dist:LIT; WCult:CI

Offered: 16S: 12

AMES 13 - Introduction to Japanese Culture

Instructor: Dorsey

Japanese cultural history through a broad survey of literature, art, social and political institutions, and popular

culture. Modern conceptions of Japan and formations of Japanese identity have evolved under the pressures created by radical swings between periods of wholesale appropriation of foreign cultural forms and periods of extreme isolation. The course will trace the evolution of Japanese culture by examining the ways in which cultural archetypes are distinguished in Japan. Taught in English.

Cross-Listed as: Identical to JAPN 10

Distributive: Dist:LIT; WCult:CI

Offered: 16S: 11

AMES 15 - Modern Islam

Instructor: Reinhart

In all the attention focused on Islam at present, a newspaper reader could be forgiven for supposing that between Muhammad and Usamah bin Laden, there has been no change in Islam. This course surveys developments in Islamic religious history, thought, and practice since 1800, with special emphasis on topics of current controversy, including the status of women, the nature of government, and the place of Islamic law. Readings will be mostly from primary texts written by contemporary Muslims, both modernists and Islamists.

Cross-Listed as: Identical to REL 16

Distributive: Dist:TMV; WCult:NW

Offered: 17S: 10

AMES 17 - Introduction to Hebraic and Israeli Culture

Instructor: Glinert

This course explores the interaction of Hebrew literature, film, music, religion, and society. For millennia, Hebrew has had a unique spiritual hold on both the Jewish and Christian identity. We will focus on the Bible as wisdom, law, and poetry, the Talmud of the ancient Rabbis, Kabbalah and Hebrew alphabet mysticism, war and the Israeli cinema, Hebrew folk and rock culture, and a modern political mystery: how today's Hebrew created a new Jewish identity. No knowledge of Hebrew is required.

Cross-Listed as: Identical to HEBR 10 and JWST 16

Distributive: Dist:LIT; WCult:CI

Offered: 17S: 10A

AMES 18 - History and Culture of Indonesia

Instructor: Diamond

The history and contemporary issues of the island nation of Indonesia—home to the world's fourth largest population—will be examined in religion, politics, literature and language, with particular attention to the independence movement and the development of a national identity. Course resources will include readings in fiction and non-

fiction, work-shops in performing arts, guest instructors, and multi-media materials both by and about Indonesians.

Distributive: WCult:NW

Offered: 16S, 17S: 12

AMES 19 - Introduction to South Asia

An introduction to the study of South Asia, with an emphasis on the formation of cultural identities. We will explore themes and debates from across a broad range of temporal, geographical, and social locations in the subcontinent. Interdisciplinary in scope, the course will survey aspects of South Asian religion, literature, social organization, and cinema. From the Rig Veda to Bollywood, what has defined being Desi?

Distributive: WCult:NW

Offered: Not offered in the period from 15F through 17S

AMES 21.01 - Cultural Struggles in Colonial Korea

Instructor: Kim

This course explores Korean history between 1876 and 1945, as Korea entered the modern period. First, we will examine how Japan, China, and Korea responded to Western imperialism in the 19th century, and then how China and Korea responded to Japanese imperialism early in the 20th century. The second half of the class will explore the Japanese colonial government's assimilation policy during the colonial period in Korea, and how Korea was affected by and reacted to various aspects of this policy. The establishment of historiography, formulation of aesthetic and cultural canons, and shaping of images of Koreans and their land will be explored by examining diverse media including literature, photographs, exhibition catalogues, and other primary sources. The class will conclude with the continuing legacy of the Japanese colonial period. All readings are in English. No prior knowledge of Korea or Korean language assumed.

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15F through 17S

AMES 21.02 - Science and Technology in the Making of Modern Korea

Instructor: Suh

Science has often been claimed to be universal. Jesuits, Protestant missionaries, scientists, revolutionaries, and policy makers often rely on scientific knowledge as they consider it to be objective and reasonable, hence it helps them easily cross cultural, linguistic, and national boundaries. By using science as a lens, this course aims to view innovations and dilemmas of Korean society. How has the history of science elaborated aspects of Korea that otherwise are overlooked or misunderstood? How does science help us understand Koreans' desires and despair in transforming knowledge making systems both in local and

global settings? Students who are interested in both "the history of science and technology in non-western settings" and "East Asian studies" are welcome. All readings are in English. No prior knowledge of Korea or Korean language assumed.

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15F through 17S

AMES 21.03 - Exploring Korea Through Film

Instructor: Kim

This course explores cinematic representations of Korean history and the diverse interpretations of social, cultural, and political issues portrayed in modern and contemporary Korean films. The course is structured by thematic issues, including: Korean ideas about politics and monarchy, North Korea's self-identity, rapid industrialism, South Korea's democratic movement, and Korean's concept of love. The class will view Korean films, and also read novels depicting similar issues and compare and contrast the theatrical and literary representations.

Distributive: Dist:SOC; WCult:NW

Offered: 16S, 17S: 3A

AMES 21.04 - North Korea, Origins and Transitions

Instructor: Suh

This course explores the history of the Democratic People's Republic of Korea (North Korea) from a global perspective. Topics include the Japanese colonial legacies; liberation, division, and foreign occupation between 1945 and 1950; the meanings of the Korean War; comparing Kim Il-Sung's North Korean revolution with Park Chung-hee's state building in the South; the reality of "Self-Reliance"; social control and everyday life; and issues around human rights, famine, and defectors.

Distributive: Dist:SOC; WCult:NW

Offered: 16W, 17W: 11

AMES 21.05 - Christianity in Korea

Instructor: Suh

This course examines Korean Christians' beliefs and practices, which have shaped and brought tensions to current socio-religious phenomena. Topics include the Korean origins of Christianity, the encounter between Catholicism and Neo-Confucianism in the eighteenth century, Protestant missionaries' role in medicine and education, the rise of nationalism and Christianity under Japanese colonialism, churches in North Korea, Pentecostalism under South Korea's rapid industrialization and democratization, Korean missionaries around the world, and Christian musicians and entertainers in Korea, as well as the interface between gender and Korean Christian culture.

Cross-Listed as: HIST 78

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 12

AMES 21.06 - Introduction to Korean Art

Instructor: Kim

This course will introduce the arts and culture of Korea from the prehistoric period through the twentieth century. Significant examples of painting, ceramics, sculpture, and architecture will be closely examined in their political, social, and cultural (Chinese and Japanese) contexts. We will explore how different cultures and ideas produced distinctive aesthetics, and how East Asian motifs were incorporated into traditional Korean art. We will see how Korea struggled to find its artistic identity within the international context during the 20th century. No prior knowledge of Korean art or history, or of the Chinese or Korean language, is expected.

Cross-Listed as: ARTH 61

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period 15F through 17S

AMES 21.07 - Modern and Contemporary Korean Art

Instructor: Kim

This course examines the art and culture of Korea from the end of the 19th century through the 20th century. During this period Korea experienced the fall of its last 500-year-long dynasty, annexation to Japan, the Korean war, division into two Koreas, democratization, and internationalization/globalization. The class will explore how visual art, including paintings, ceramics, architecture, photographs, posters, and film reflected and expressed the political, socio-economic, and cultural changes and concerns of each period, in both South and North Korea.

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period 15F through 17S

AMES 21.08 - Introduction to Korean Literature: Politics and Aesthetics from 1905 to the Present

Focusing on key historical moments that have shaped the relationship between aesthetics and politics, this course considers the “political” and the “aesthetic” both in their narrow and broad senses while examining major Korean texts of the twentieth and twenty-first centuries. Topics include war, violence, trauma, memory, community, industrialization, class, gender, representation, modernity, and post modernity.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period 15F through 17S

AMES 21.09 - Sexing Korea: Gender and Sexuality in Korean Popular Culture and Literature

Instructor: Choi

Through a series of case studies, this course explores competing conceptions of gender and sexuality that shape the literary, cinematic, television, and popular music genres of cotemporary Korea while simultaneously providing a broad introduction to the field of gender studies. Topics include love, marriage, family, work, class, sex, intimacy, and body politics in Korean popular culture and literature.

Cross-Listed as: WGSS 49.05

Distributive: Dist:LIT; WCult:NW

Offered: 15F: 3B

AMES 24 - Asian Performance Traditions

Instructor: Chin

This course studies the performance traditions of Asia, focusing on China, Japan, Indonesia and India. Classical forms studied include Noh, Bunraku, Beijing opera, Sanskrit drama, Balinese dance and Javanese puppet theater. Attention is paid to social, religious and aesthetic influences on these traditions, theories on which they are based, the history behind the theatrical practices, and training and dramatic techniques. Students gain an appreciation of the rich variety and scope of theatrical conventions of Asia.

Cross-Listed as: Identical to THEA 24

Distributive: Dist:ART; WCult:NW

Offered: 16S: TBD

AMES 25 - Unveiling the Harem Dancer

Instructor: Yessayan

The historical legacy of Orientalism continues to perpetuate a stereotypical image of the exotic female dancing body. We will consider the Oriental dancer as an entry point to examine contexts of the colonial encounter, global circulation, and postcolonial conditions. We will also explore issues of gender and sexuality in Arab Islamic culture and address questions about the social agency of the female dancer. Materials include theoretical texts, travel accounts, films, and performances.

Cross-Listed as: Identical to WGSS 59.03

Distributive: Dist:ART

Offered: 16W:12

AMES 26 - Anthropology of Tibet and the Himalayas

Instructor: Bauer

This course introduces students to the peoples and cultures of Tibet and the greater Himalayan region (Nepal, northern India, Bhutan). We examine the cultural, ecological, political, religious, and economic interfaces that define life on the northern and southern slopes of Earth's greatest mountain range. In addition to learning about Himalayan and Tibetan lifeways, we will also learn about how these mountainous parts of Asia have figured into occidental imaginings, from the earliest adventurers to contemporary travelers.

Cross-Listed as: Identical to ANTH 32

Distributive: Dist:SOC; WCult:NW

Offered: 16W:11

AMES 27 - Gender and Modern Media in India

Instructor: Fuechtner

Credit for this course is given to students who successfully complete this course at the University of Hyderabad while on the AMES/WGSS FSP.

Cross-Listed as: WGSS 91

Distributive: WCult:NW

Offered: 17W: D.F.S.P., in Hyderabad, India

AMES 28 - Contemporary Social Movements in India

Instructor: Vandewalle

Credit for this course is given to students who successfully complete this course at the University of Hyderabad while on the AMES/WGSS FSP.

Cross-Listed as: WGSS 92

Distributive: WCult:NW

Offered: 16W: D.F.S.P., in Hyderabad, India

AMES 29 - Foreign Study in India

Instructor: Vandewalle, Fuechtner

Credit for this course, taught by the FSP director, is given to students who successfully complete this course at the University of Hyderabad while on the AMES/WGSS FSP. Topics vary from year to year.

Cross-Listed as: WGSS 90

Distributive: WCult:NW

Offered: 16W, 17W: D.F.S.P., in Hyderabad, India

AMES 30 - Global Sounds

Instructor: Levin

A survey of music and music-making whose origins are in the non-European world. Examples include Indian raga, Middle Eastern maqam, West African drumming, Javanese gamelan, and Tuvan throat-singing. Course work will

include listening, reading and critical writing assignments. Where possible, visiting musicians will be invited to demonstrate and discuss the music under consideration.

Cross-Listed as: Identical to MUS 4

Distributive: Dist:ART; WCult:NW

Offered: 16S: TBD

AMES 36 - Topics in the Religions of India

Instructor: Elison

This course will focus in some depth on a particular aspect of religion in India—for example, a particular religion, sect, time period, body of literature, type of religion, or religious movement. The topic will change with each offering, and students may take the course more than once. Sample topics include: "Gods, Demons, and Monkeys: The Ramayana Epic of India," "Women In Indian Religions," and "Modern Hinduism."

Cross-Listed as: REL- 40.04

Distributive: Dist:TMV; WCult:NW

Offered: 16F:2

AMES 40.01 - Magic and Supernaturalism in Asian Literature and Film

Instructor: Chin

This course examines magical and supernatural elements in literature and films from China, Japan, India and Southeast Asia. It studies artistic, psychological and political implications and interregional traditions of folklore and fiction. Literary texts include Pu Song Lin's *Strange Tales from a Studio*, Catherine Lim's *The Howling Silence*, Batin Long bin Hok's *Jah Hut Tales* and Tunku Halim's *Dark Demon Rising*. Films may include Akira Kurosawa's *Dreams*, Masaki Kobayashi's *Kwaidan* and contemporary works such as Chan Wook Park's *Thirst*.

Distributive: Dist:INT; WCult:NW

Offered: 16S: 10A

AMES 40.02 - Nomads from Central Asia to the Middle East: Historical and Contemporary Perspectives

Instructor: Bauer

This course examines nomadic pastoralism as an economic system adapted to ecologically marginal environments and as a socio-political system adapted to the culturally heterogeneous regions of Central Asia and the Middle East. We will survey the changing roles of nomadic peoples to gain insight into the political and social dynamics of historical and contemporary societies in this region. Nomad society, its origins and development, the ecology of the pastoralism, gender, and identity issues as well as the relationship between nomad and sedentary

societies and the role of pastoralism as a route of cultural transmission and economic exchange are examined.

Distributive: Dist:INT; WCult:NW

Offered: 17S: 11

AMES 40.06 - Sacred Architecture of Asia

Instructor: Hockley

This course provides an introduction to the sacred architecture of Asia through a series of case studies that include Buddhist monasteries, Hindu temples, Mosques, Daoist and Confucian temples, Shinto shrines, funerary architecture, and the sacred dimensions of political authority as manifested in palaces, city plans, and mausolea. The pan-Asiatic nature and long historical development of Buddhism, Hinduism, and Islam affords opportunities to examine national and sectarian adaptations of architectural practices. Focusing on relationships between sacred architecture and religious doctrine, ritual practice, and the communities that use sacred sites this course introduces an array of analytical approaches to sacred architecture that students will learn to employ in class discussion and written assignments. This course has no prerequisites and assumes no prior experience with Asian religions or architectural studies.

Cross-Listed as: ARTH-62

Distributive: Dist:INT or ART; WCult:NW

Offered: 15X: 12

AMES 40.07 - Discourse, Culture and Identity in Asia & the Middle East

Instructor: Glinert

This course introduces theories of identity, discourse and communication and illustrates how Asian and Middle Eastern cultures employ language to construct and reflect values, identities and institutions, to create relationships and project personal status, and to perform actions (such as ending a phone call, apologizing, paying compliments and negotiating business deals). Particular attention will be paid to the language of health and healing. No prior knowledge of a particular language or culture is assumed. . Linguistics 1 would be helpful but by no means essential. Open to all classes

Cross-Listed as: AMELL-17

Distributive: Dist:INT or SOC; WCult:CI

Offered: 17S:2A

AMES 40.08 - Language, Conflict and Nation-Building in Asia and the Middle East

Instructor: Glinert

How do multilingual societies function? Who speaks which language to whom and why? Is 'one state one

language' an economically or politically rational policy and how can language and literacy be planned? Why do languages thrive or decline -- and what of language oppression and language rights? What role do religion, ethnicity, gender etc have in all of this? The major focus will be on China, Japan, Korea, Israel, Iran and the Arab states, and students will be able to select these or other Asian/Middle Eastern societies for their final paper. No prior knowledge of a particular language or culture is assumed.

Cross-Listed as: AMELL-18

Distributive: Dist:INT or SOC; WCult:CI

Offered: 17F:TBD

AMES 41.01 - Feminism, Islam and Modernity in the Muslim World

Instructor: Yessayan

This course examines the relationship between feminism in relation to Islam and state modernizing projects in modern nations-states of the Middle East and North Africa. We will identify problems and promises in theoretical paradigms and methodologies of writing about MENA women in feminist scholarship. We will study how the condition of MENA women have been shaped by the gendered nature of nationalist, Islamic, and imperialist discourses and how women have responded and participated in national debates, pious movements, social struggles, global impacts, and with feminism to voice their rights, narrate their selfhood, and articulate their own desires. Topics include: the family, veil, ritual, dance, education, citizenship, law, marriage, women's work, and activism. Case studies are from a variety of modern Arab or Muslim states with a strong focus on Egypt, including Algeria, Iran, Jordan, Turkey, Lebanon, and Sudan.

Cross-Listed as: WGSS 52.03

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W:10

AMES 42.01 - Modern Hinduism

Instructor: Elison

The names "Hinduism," a religion, and "India," a nation, come from the same word. What's at stake in mapping one onto the other? We will study the consolidation of Hindu traditions as a modern religion—how the "ism" got in the "Hinduism"—in historical context, examining the writings of thinkers like Gandhi, Radhakrishnan, and Vivekananda. One of the most compelling things about Hinduism's global image is its association with nonviolence. But a major focus will be the development of Hindutva ideology, which recasts the religion in a militant, masculinized mode. Who speaks—within the academy and outside it—for Hinduism?

Cross-Listed as: Identical to REL 19.06

Distributive: Dist:TMV; WCult:NW

Offered: Offered: 15F: 10

AMES 42.10 - Arts of South Asia

Instructor: Shaffer

This course is an introduction to the arts of South Asia from the Taj Mahal to Gandhi's spinning wheel. From the thirteenth century, and the advent of Islam in India, through the Mughal dynasty and British colonial rule to Independence in 1947, we will examine courtly art and architecture alongside popular arts and material culture. No background in Asian or South Asian art is necessary.

Cross-Listed as: ARTH 17.03

Distributive: Dist:ART; WCult:NW

Offered: 15F:2A

AMES 43.01 - Environment and Development in the Himalaya and Tibet

Cross-Listed as: GEOG 80

Offered: Not offered in the period from 15F to 17S

AMES 43.03 - Tokyo and Shanghai as Ideas: Urban Space/Imagined Modernity

Instructor: Washburn

Tokyo and Shanghai are not just major centers of political and economic activity. They are also ideas, functioning as imagined space that is backdrop for and symbol of the desires, aspirations, and dislocations characteristic of contemporary Asian societies. This course examines the hold Tokyo and Shanghai have had on East Asian writers, artists, and intellectuals, and the role these metropolises currently play in the globalization of modern culture.

Distributive: Dist:INT or LIT; WCult:NW

Offered: 16W: 2

AMES 43.04 - Politics of Japan

Instructor: Horiuchi

This course offers a survey of Japanese politics with a focus on understanding the electoral and policy-making processes in Japan from theoretical and comparative perspectives. No prior knowledge of Japanese politics is required. The course will explore electoral systems and voting behavior, candidate selection and electoral campaign, dynamics of party competition, executive-legislative relationships, local politics and central-local relationships, the roles of the mass media and civil society in policy making, etc.

Cross-Listed as: GOVT 40.03

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W:2

AMES 43.06 - China in the Japanese Imagination: Translations of Identity

Instructor: Washburn

China has profoundly influenced every formative element of identity in Japan: language, legal and political institutions, religion, philosophy, and the visual and literary arts. This course surveys key historical moments -- the Taika Reforms of the seventh century, mid-Heian appropriations of Tang court society, Tokugawa adaptations of Ming and Qing culture -- to examine how the process of translating Chinese cultural forms radically reshaped Japanese society and impacted the vexed modern relationship between the two nations.

Distributive: Dist:INT or LIT; WCult:NW

Offered: 17W: 12

AMES 43.08 - Food and Beverages in Asia

Instructor: Fuess

This course is a survey of food and beverages from about 1800 to the present. Through lectures, readings, and films, we will examine the transformation of consumer culture in Asia under the influence of Western Modernity. The class is especially interested to explore the global and regional connections that shaped local cuisine in Asia and its interaction with the West.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period 15F through 17S

AMES 45 - The Music of Central Asia

Instructor: Levin

The course will focus on music in Central Eurasia—the core region of the historical Silk Road—and on musical connections between Central Asia and regions to which it has been historically linked by trade and cultural exchange. Course work includes reading and critical writing as well as listening and viewing assignments. No prerequisite. Dist: ART; WCult: NW.

Cross-Listed as: MUS-45.03

Distributive: Dist:ART; WCult:NW

Offered: 15F:2A, 16F:TBD

AMES 53 - Discovering an Islamic City

Instructor: Reinhart, Vandewalle

This course analyzes the historical and contemporary urban life of a traditional Islamic city as seen through the eyes of the town's scholars, planners, educators, writers, and crafts people, as well as scholarly readings that have shaped

discussions in anthropology, history, and the history of religions. Fez is the locus of classical discussions of urbanism, public space, and civic life in the Muslim world. Participating in the life of the city, students have an opportunity to experience first hand its educational, economic, religious, kinship, and political institutions.

Distributive: Dist:SOC; WCult:NW

Offered: 16S, 17S: D.F.S.P.

AMES 54 - Arabic as a Cultural System

Instructor: Reinhart/Vandewalle

Examines the historical and cultural factors and forces that have molded and continue to mold colloquial Moroccan Arabic. This course includes an appreciation of the nonverbal aspects-gestures and body language-of communication and identity in the Moroccan setting. It also offers a minimal functional mastery of practical communicative skills-the sound system, basic sentence patterns, and everyday vocabulary of colloquial Moroccan Arabic-as well as a knowledge of the Arabic script, a key element of Islamic civilization and identity.

Distributive: WCult:NW

Offered: 16S, 17S: D.F.S.P. in Fez

AMES 55.01 - Religion, Reason and Reform in Morocco

This course introduces religion in Morocco, and how Islam (and other faiths) relate to Moroccan society, politics, and culture and to the Middle East and Mediterranean worlds. Secular and religious movements in Morocco, as in Tunisia and Algeria - France's other former colonies - show profound political contrasts and have a vital impact on European societies today. The course also explores how the study of North Africa, particularly Morocco, has contributed significantly to ongoing debates over understanding the role of religion and politics in contemporary social life.

Cross-Listed as: ANTH 50.02

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15F through 17S

AMES 55.02 - Topics in the Study of Islam

Instructor: Reinhart

This course will focus on a particular topic in Islamic studies, with an emphasis on the most recent research in that field. The topic will vary with each offering, so the course may be taken more than once. Sample topics include: "The Islam of Morocco," "Shi'ism," and "Problems in Popular Islam."

Cross-Listed as: REL 28

Offered: 16S: D.F.S.P., in Fez

AMES 55.03 - Political Economy of Development in the Middle East

Instructor: Vandewalle

The economies of the Middle East and North Africa (MENA) have historically enjoyed unique roles in their relationship to the global economy: either as colonies or dependencies, with their economies geared toward the interests of the métropole or, more recently, as peripheral economies after their independence, or as energy suppliers to the world. This course focuses on the challenges and opportunities of the most current phase of globalization economies in MENA face that started with the oil boom of 2003. We investigate initially the prognostications of the Washington Consensus, particularly its central argument that the need for neo-liberal reform in the region would lead to, and be reinforced, by political liberalization. Using institutional theories, we then discuss how a unique combination of historical legacies, the nature of resources, and financial crisis, led to a re-evaluation of development paradigms in MENA that increasingly included attention to good governance and human resource development. The case studies include distinct sets of countries across the region: the Arab republics, the MENA monarchies, and the Arab Gulf countries. The final section of the course looks at the interaction between national, regional, and global economies of the region.

Offered: 15S: D.F.S.P., in Fez

AMES 85 - Independent Research

Independent research under the direction of members of the staff. Students should consult with a member of the staff in the term preceding the term in which the independent work is to be done.

Offered: All terms: Arrange

AMES 86 - Advanced Independent Research

Advanced independent research under the direction of members of the staff. Proposals must be developed by the student in consultation with a faculty advisor and must be approved by the Steering Committee by the fifth week in the term preceding the term in which the independent study is to be taken. This course is a possible substitute for AMES 91.

Offered: All terms: Arrange

AMES 87 - Honors Thesis

Open only to AMES majors who are participating in the Honors Program. See guidelines under "AMES Honors Program."

Offered: All terms: Arrange

AMES 91 - Senior Seminar: Research Topics in Asian and Middle Eastern Studies

Open to AMES majors, this is the normal culminating course for majors. All participants will complete research projects related to their specialization within AMES. If space permits, non-AMES majors may enroll after obtaining permission of the instructor.

AMES 91.01 - Colonial Photography in Asia and the Middle East

Instructor: Hockley

This course examines the uses of photography by colonial governments, anthropologists, commercial photographers, and tourists in nineteenth-century Asia and the Middle East. It also addresses indigenous uses of photography that conform with and/or react against colonialist uses of the medium. The primary focus of the course is on photographs but consideration is also given to the diffusion of photographic images into other media including news publications, government documents, scientific studies, travelogues, fiction, textbooks, and museum displays.

Distributive: Dist:INT or ART; WCult:CI

Offered: Not offered in the period 15F through 17S

AMES 91.02 - Dilemmas of Development: India, China, and the Middle East

Instructor: Vandewalle

China and India have witnessed extraordinary economic growth and development during the last two-three decades, and now rank as two of the world's fastest growing economies. In contrast, the Middle East has economically stagnated, seemingly incapable to implement economic reforms that could lead to sustained growth and development. What prompted these different outcomes? This seminar investigates the multiple strategies and elements behind the economic success of China and India, and those that explain the lack of economic performance in the Middle East.

Offered: 16S: 10A

Biological Sciences - Undergraduate

Chair: Kathryn L. Cottingham

Professors M. P. Ayres, K. L. Cottingham, M. R. Dietrich, M. L. Guerinot, T. P. Jack, R. A. Maue, C. R. McClung, M. A. McPeck, D. R. Peart, K. J. Peterson, G. E. Schaller, R. D. Sloboda, E. F. Smith, L. A. Witters; Associate Professors S. E. Bickel, R. G. Calsbeek, P. J. Dolph, A. S. Gladfelter; Assistant Professors E. E. Griffin, M. B. Hoppa, H. M. ter Hofstede, O. Zhaxybayeva; Senior Lecturer N. M. Grotz; Lecturer B. Calsbeek; Professor Emeritus J. J. Gilbert; Research Professor and Professor

Emeritus R. T. Holmes; Adjunct Professors D. T. Bolger, N. J. Dominy, A. J. Friedland, T. U. Gerngross, W. R. Green, A. R. Kapuscinski, D. A. Leib, L. R. Lynd, G. A. O'Toole, G. C. Ruben, P. R. Sundstrom, R. K. Taylor, R. A. Virginia; Adjunct Associate Professors K. E. Griswold, R. E. Irwin; Adjunct Assistant Professors G. Grigoryan, J. H. Matthes, N. J. Reo, B. W. Taylor; Research Professor C. Y. Chen; ; Research Assistant Professor T. Punshon.

To view Biological Sciences Undergraduate courses, click here. (p. 142)

To view Biological Sciences Graduate requirements, click here. (p. 541)

To view Biological Sciences Graduate courses, click here. (p. 542)

Requirements for Majors in the Department of Biological Sciences

The biological sciences are a diverse collection of scientific disciplines that interact and intermingle in tremendously complex and interesting ways. To provide the maximum potential for students to explore this vast area of science, the Department of Biological Sciences offers a flexible major that allows students to select coursework to fit their individual interests and career aspirations. Before declaring an area of concentration, students develop their course plan in consultation with one or more faculty advisors.

Prerequisites: CHEM 5 and CHEM 6 (or equivalent), and one quantitative course from among BIOL 29, COSC 1, COSC 5, ENGS 20, EARS 17, MATH 4, MATH 8 or above. MATH 10 (or equivalent) satisfies the quantitative requirement. Students who elect to include BIOL 29 in their area of concentration (see below) must fulfill this prerequisite with one of the other courses listed above. Students who have completed BIOL/CHEM 8 and 9 will receive credit for one major course in Biology (equivalent to BIOL 11) and will have fulfilled the major prerequisite requirements of CHEM 5, but not CHEM 6. Although not required for the major, some upper-level Biology courses require CHEM 51-52 (or equivalent). In addition, because many graduate and professional schools require CHEM 51-52 for admission, we highly recommend that students consider taking these courses. Students must pass all prerequisite courses for the major in order to graduate.

Biology 11: For many students, BIOL 11 will be the entrance course to the major. To help students determine if they are sufficiently prepared to enter a foundation course directly, the Biology department has established an online self-assessment exam for students. Students who have any concerns about their preparedness should take BIOL 11 before enrolling in a foundation course. BIOL 11 may be counted toward the biology major if it is taken as the first

biology major course. BIOL 11 will not count towards the major if taken after completion of any Biology course numbered above 11.

Foundation Courses: Students take three courses from among five foundation courses: BIOL 12 (Cell Structure and Function); BIOL 13 (Gene Expression and Inheritance); BIOL 14 (Physiology); BIOL 15 (Genetic Variation and Evolution); BIOL 16 (Ecology). The foundation courses are not sequenced and may be taken in any order. In deciding which three courses to select from this list, students should discuss with their faculty advisors which foundation courses would be most appropriate for their area of concentration. Not all foundation courses need to be completed before the student moves on to courses in their area of concentration.

Area of Concentration: To complete the major, students focus in an area of concentration by taking seven additional courses, including two courses numbered 50 or above. Biology courses numbered 10 or below may not be counted towards the major (Biology/Chemistry 8 and 9 are the exceptions). Students taking BIOL 11 as their first major course may count it as one of the seven courses. Below we list a number of possible areas of concentration that students may find useful in guiding their course selection. Please keep in mind that this list is not rigid or exhaustive. The courses listed for each area are suggestions to help you get started. Students are not required to limit themselves to the courses listed under a single area. Students may also develop an area of concentration that is not listed. Any Biology faculty member may serve as your advisor even if they are not listed under a specific area of concentration (provided they feel comfortable advising you in that area). Our hope is that together with your advisor you will design a major that fulfills your unique interests and goals. Faculty members with interests in the listed areas are given below; students interested in other areas should ask the Department Chair or the departmental Undergraduate Committee to suggest a faculty member who would be appropriate to advise the student in developing their course plan. In recognition of the interdisciplinary nature of the life sciences, up to two suitable advanced courses from other departments may be included in the area of concentration when appropriate to the student's objectives, or a modified major may be constructed (see below). One term of Independent Research (BIOL 95) or Honors Research (BIOL 97) may also be included among the seven courses.

Culminating Experiences

To satisfy the culminating experience requirement, students must take a course numbered 50 or above normally during their senior year. Any Biology course numbered 50 or above that is appropriate for the student's area of concentration will satisfy the culminating experience requirement. Each student will determine with their faculty advisor which course is suitable as a culminating experience for their area of concentration and

interests. These courses include the Biology foreign study program, independent research courses, courses that focus on the primary literature in a discipline, and courses with substantial laboratory components and/or individual projects. The culminating experience course should be taken in a student's senior year, although a course taken in the junior year may in exceptional circumstances satisfy the culminating experience and requires the approval of the Department Chair or the departmental Undergraduate Committee.

Independent Research and the Biology Honors Program

Biology majors are encouraged to undertake independent research in biology either as part of the Honors Program or separately. Participants in the Honors Program should enroll in BIOL 97. The subject of the honors research project should be directly relevant to the student's area of concentration. Those who conduct research outside of the Honors Program should enroll in BIOL 95.

Work on an Honors thesis normally extends through three terms or more. Candidates for Honors must meet the minimum College requirements. *Application to enroll in BIOL 95 or BIOL 97 should be made at least one month prior to the beginning of the term in which the course is to be elected.* Plans for research should be made in the term before the project begins. Independent research conducted off campus during a leave/transfer term without the direct supervision of a faculty advisor from the Dartmouth College Department of Biological Sciences cannot be used to earn credit for BIOL 95, BIOL 96, or BIOL 97.

BIOL 97 (or BIOL 95) may be counted only once among the seven courses for the area of concentration, but two terms of Independent Research may be taken for course credit towards graduation.

Each Honors candidate shall submit a thesis to a committee at least two weeks before the end of the last term. The committee will be composed of three faculty members, including the thesis supervisor. At least two members of this committee must be members of the Biology faculty. Each candidate's Honors Program concludes with the candidate making a public presentation of her or his work, followed by an oral examination, conducted by the thesis committee, on the thesis work and related topics. The quality of the written thesis and the student's grasp of his or her research program as determined by their performance on the oral exam determines if the student's degree is awarded with honors.

Requirements for a Biology Modified Major

Students who wish to complement their interest in the life sciences with several courses in one or more disciplines, may consider a modified major. For a modified major, the area of concentration consists of five Biology courses and four suitable advanced courses from another department or combination of departments. Students taking BIOL 11 as

their first major course may count it as one of the five courses. Prerequisite and foundation course requirements remain the same. Courses outside the Biology Department may not be substituted for foundation courses, or the five additional Biology courses.

Biology Major Modified with Math

Mathematics is the “Language of Science”. Students who are more quantitatively oriented may want to consider modifying their Biology major with Mathematics. To facilitate this, the Biological Sciences and Mathematics Departments have agreed on the following structure for a Biology modified with Mathematics major. In addition to the biology courses in their area of concentration, students choosing this option will take four courses from among the offerings in Mathematics. Prerequisites and foundation course requirements for the Biology major remain the same. All students choosing this option must take MATH 22 (Linear Algebra with Applications) and MATH 23 (Differential Equations). The other two mathematics courses should be chosen in consultation with your Biology advisor depending on your area of concentration. Any two courses in the following list of Mathematics Department courses are appropriate:

Discrete Methods and Modeling: MATH 20 (Discrete Probability), MATH 36 (Mathematical Models for the Social Sciences), MATH 76 (Topics in Applied Mathematics)

Probability and Statistics: MATH 20 (Discrete Probability), MATH 28 (Introduction to Combinatorics), MATH 30 (Introduction to Linear Models), MATH 40 (Probability and Statistical Inference), MATH 50 (Introduction to Linear Models), MATH 70 (Elements of Multivariable Statistics and Statistical Learning)

Dynamics: MATH 46 (Introduction to Applied Mathematics), MATH 53 (Chaos!), MATH 76 (Topics in Applied Mathematics)

Requirements for the Biology Minor

The prerequisites for the Biology minor are CHEM 5 and CHEM 6 (or equivalent) and one quantitative course from among BIOL 29, COSC 1, COSC 5, ENGS 20, EARS 17, MATH 4, MATH 8 or above. MATH 10 (or equivalent) satisfies the quantitative requirement. In addition, students will complete two foundation courses and four additional Biology courses (BIOL 11 or above). Students may choose to use BIOL 29 as a prerequisite or as one of the four additional Biology courses, but not both. Students who elect to count BIOL 29 as one of the four additional courses must fulfill the quantitative prerequisite with one of the other courses listed above. Students do not need to develop an area of concentration for the minor but they may do so if they wish. Courses outside the Biology Department may not be substituted for foundation courses, or the four additional Biology courses.

Academic Standing Satisfactory completion of the Biology major or modified major requires obtaining a final grade point average of at least 2.00 in BIOL 11 (if taken for the major) and all foundation and area of concentration courses applied to the major. Post-matriculation transfer credits may not be used for BIOL 11 or the Foundation courses. No more than two transfer credits may be used for area of concentration courses.

Credit and Advanced Placement Beginning with the Class of 2018, Dartmouth will no longer grant course credit for AP or IB examinations. For the classes of 2017 and earlier, the Department will give one unspecified credit for a biology course to students who receive a score of 5 on the CEEB Advanced Placement Test or a score of 6 or 7 on the Higher Level International Baccalaureate (IB) exam. This unspecified credit satisfies no prerequisite or major course requirements and allows no placement into advanced courses. *The Department gives no credit for courses taken at another college or university prior to first year matriculation at Dartmouth.*

SOME EXAMPLES OF COURSES THAT WOULD CONTRIBUTE TO VARIOUS AREAS OF CONCENTRATION

(possible faculty mentors are listed in parentheses):

*Note that BIOL 40 requires CHEM 51-52/57-58 as a prerequisite.

BIOL - Biological Sciences - Undergraduate Courses

To view Biological Sciences Undergraduate requirements, click here. (p. 140)

To view Biological Sciences Graduate requirements, click here. (p. 541)

To view Biological Sciences Graduate courses, click here. (p. 542)

BIOL 1 - Clinical Biomedical Research

Instructor: Knapp

This course teaches the fundamentals of clinical biomedical research (CBR). The CBR curriculum offers a unique combination of direct involvement in ongoing clinical research studies with a comprehensive didactic program and experience conducting and designing clinical studies. Designated as Academic Associates, the students will spend time in the DHMC Emergency Department (ED) playing an integral role in patient identification, enrollment, and data collection for the ongoing clinical research studies. Coupled with this "hands-on" data collection in the ED, the didactic program consists of weekly classes focusing on research design, data collection

techniques, statistical analysis, and scientific poster preparation. At the completion of the course, each student will develop a "mock clinical research study." BIOL 1 does not count for biology major or minor credit.

Prerequisite: BIOL 12 and BIOL 13 and permission of the instructor. BIOL 2 and either BIOL 29 or MATH 10 are also recommended.

Distributive: Dist:SCI

Offered: Will not be offered 2015-2016.

BIOL 2 - Human Biology

Instructor: Witters

A course designed to help students (biologists and non-biologists) understand the biological basis of human health and disease. The course will emphasize the fundamental aspects of biochemistry, genetics, cell and molecular biology, physiology, anatomy, reproductive biology, and structure/function of various organs as they relate to humans. Particular emphasis will be placed on specific topics in human health and disease and how these issues affect us all individually in our own health and collectively in our international society. Open to all students without prerequisite. BIOL 2 does not count for biology major or minor credit.

Distributive: Dist:SCI

Offered: 15F, 16F: 11

BIOL 3 - Independent Research in History and Philosophy of Biology

Instructor: Dietrich

Original and independent investigation of a problem in the history and/or philosophy of biology with associated study of primary literature sources under supervision for one academic term. BIOL 3 does not count for biology major or minor credit.

Prerequisite: Permission of the Undergraduate Committee and the supervising instructor. The application and research proposal must be submitted at least one month prior to the beginning of the term in which the course is to be elected.

Offered: All terms: Arrange

BIOL 5 - Philosophy of Biology

Instructor: The staff

This course will consider philosophical issues pertinent to the biological sciences. Topics may include genetic determinism, biology and ideology, the nature of experiment in bio-logical practice, adaptationism, the species problem, the nature of biology as a historical science, concepts of fitness and function, the units of selection debate, and phylogenetic inference. Open to all

students without prerequisite. BIOL 5 does not count for biology major or minor credit.

Distributive: Dist:SCI

Offered: Will not be offered in 2015-2017.

BIOL 6 - Dinosaurs

Instructor: Peterson

This course is designed for the non-major. The goal of this course is to teach the basic principles of science in general, and evolutionary biology in particular, using dinosaurs as exemplars. We will focus largely on the evolutionary patterns and processes that underlie dinosaur biology, including their phylogeny, behavior, physiology and their extinction. As dinosaurs will be placed within their proper biological and geological contexts, other covered topics include the fossil record and the notion of "deep" time, the construction of the tree of life, and mass extinctions. Open to all students without prerequisite. Offered in alternate years. BIOL 6 does not count for biology major or minor credit.

Cross-Listed as: EARS 4

Distributive: Dist:SCI

Offered: Will not be offered in 2016.

BIOL 11 - The Science of Life

Biology, like all of science, is a problem-solving endeavor. This course introduces students to a major problem in biology and considers it from many different perspectives, viewpoints and biological levels of organization. Along the way, students are exposed to many of the major concepts in biology, from molecules to ecosystems. Each offering will address a different major problem. No prerequisites. NOTE: Biology 11: For many students, BIOL 11 will be the entrance course to the major. To help students determine if they are sufficiently prepared to enter a foundation course directly, the Biology department has established an online self-assessment exam for students. Students who have any concerns about their preparedness should take BIOL 11 before enrolling in a foundation course. BIOL 11 may be counted toward the biology major if it is taken as the first biology major course. BIOL 11 will not count towards the major if taken after completion of any Biology course numbered above 11. Only one offering of BIOL 11 may be taken for credit.

Distributive: Dist:SCI

Offered: Please see individual course listings.

BIOL 11.01 - DNA to Diversity

Instructor: Jack, Peart

How does information encoded in DNA direct the development of a single fertilized egg into a complex adult? In this offering we focus on the development and

evolution of complex animal body forms. We explore the kinds of genetic and environmental changes that have produced the astonishing variety of species and life forms that now exist on earth.

Prerequisite: No prerequisites.

Distributive: Dist:SCI

Offered: 15F: 10

BIOL 11.03 - Emerging Infectious Diseases: How Microbes Rule the World

Instructor: Guerinot, McClung

Emerging infectious diseases, which have shaped the course of humanity and caused untold suffering and death, will continue to challenge society as long as humans and microbes co-exist. This course will explore why infectious diseases emerge and re-emerge. The viruses, bacteria and eukaryotes that cause these diseases continually evolve in response to their hosts. Dynamic interactions between rapidly evolving infectious agents and changes in the environment and in host behavior provide such agents with favorable new ecological niches. In addition, dramatic increases in the worldwide movement of people and goods drive the globalization of disease. NOTE: Biology 11: For many students, BIOL 11 will be the entrance course to the major. To help students determine if they are sufficiently prepared to enter a foundation course directly, the Biology department has established an online self-assessment exam for students. Students who have any concerns about their preparedness should take BIOL 11 before enrolling in a foundation course. BIOL 11 may be counted toward the biology major if it is taken as the first biology major course. BIOL 11 will not count towards the major if taken after completion of any Biology course numbered above 11. Only one offering of BIOL 11 may be taken for credit.

Prerequisite: No prerequisites

Distributive: Dist:SCI

Offered: 16W, 17W: 10

BIOL 11.06 - Why can't we all just get along? Cooperation and Conflict across the Biological Sciences

Cooperation and conflict are universal themes that arise when considering how entities at various levels of organization interact. This is particularly true in biology, from atoms interacting within a molecule, molecules interacting within a cell, or cells interacting within a multicellular organism, individuals interacting within groups, disease organisms interacting within their host, or nations interacting with one another. We will explore how the concepts of game theory apply at the biochemical, cellular and organismal levels to explore how groups of entities at these various levels interact, and how groups transition to individuals. All along the way we will discuss

a lot of biology and see how biologists apply what they know to new problems.

NOTE: Biology 11: For many students, BIOL 11 will be the entrance course to the major. To help students determine if they are sufficiently prepared to enter a foundation course directly, the Biology department has established an online self-assessment exam for students. Students who have any concerns about their preparedness should take BIOL 11 before enrolling in a foundation course. BIOL 11 may be counted toward the biology major if it is taken as the first biology major course. BIOL 11 will not count towards the major if taken after completion of any Biology course numbered above 11. Only one offering of BIOL 11 may be taken for credit.

Prerequisite: No prerequisites

Distributive: Dist:SCI

Offered: Will not be offered 2015-2016.

BIOL 11.07 - Major Events in the History of Life and the Human Genome

Instructor: Peterson

Over the course of the last 4.5 billion years, life has faced a number of challenges, and in response has evolved a number of remarkable innovations. These innovations are written in DNA, and thus molecular fossils for many of the major events in the history of life can be found within our very own genomes. This course will survey the human nuclear and mitochondrial genomes, using a gene or region from a chromosome as a "ticket" to a particularly important event or process in the history of life including the origin of life itself (Chromosome 14), the advent of protein synthesis (Chromosome 22), the invention of DNA (Chromosome 8), the rise of atmospheric oxygen (mitochondrion), the origin of species (Chromosome 2), the origin of animals and the rise of macroecology (Chromosome 12), and the origin of humans and human language (Chromosome 7).

NOTE: Biology 11: For many students, BIOL 11 will be the entrance course to the major. To help students determine if they are sufficiently prepared to enter a foundation course directly, the Biology department has established an online self-assessment exam for students. Students who have any concerns about their preparedness should take BIOL 11 before enrolling in a foundation course. BIOL 11 may be counted toward the biology major if it is taken as the first biology major course. BIOL 11 will not count towards the major if taken after completion of any Biology course numbered above 11. Only one offering of BIOL 11 may be taken for credit.

Prerequisites: None. *Dist: SCI*. Peterson.

Prerequisite: No prerequisites.

Distributive: Dist:SCI

Offered: 16S: 10A

BIOL 12 - Cell Structure and Function

Instructor: Bickel, Sloboda, Gladfelter

BIOL 12 will provide a foundation in the fundamental mechanisms that govern the structure and function of eukaryotic cells. Topics include membrane transport, energy conversion, signal transduction, protein targeting, cell motility and the cytoskeleton, and the cell cycle. Emphasis will be placed on discussion of the experimental basis for understanding cell function. The laboratory section will provide students with hands-on experience in modern laboratory techniques including microscopy, cell fractionation, and protein purification. Open to all students without prerequisite. Note: BIOL 12, BIOL 13, BIOL 15, BIOL 16 may be taken in any order.

Distributive: Dist:SLA

Offered: 15F, 16S, 16F, 17S: 9L; Laboratory: Arrange

BIOL 13 - Gene Expression and Inheritance

Instructor: Dolph, Griffin, Jack

This course provides a foundation in genetics and molecular biology. Topics covered include the flow of genetic information from DNA to RNA to protein, transmission of genetic information from one generation to the next and the molecular mechanisms that control gene expression in bacteria and eukaryotes. These concepts will be integrated into a discussion of contemporary problems and approaches in molecular genetics. Laboratories utilize basic molecular biology techniques to further investigate topics discussed in lecture. Open to all students without prerequisite. Note: BIOL 12, BIOL 13, BIOL 15, BIOL 16 may be taken in any order.

Distributive: Dist:SLA

Offered: 16W: 9L, 10; 16S: 10; 16X: 10, 17W: 9L;
Laboratory: Arrange

BIOL 14 - Physiology

Instructor: Maue, ter Hofstede

This course introduces students to the complexity of organisms by studying how their different organ systems strive to maintain internal homeostasis in the face of different environmental demands. The adaptive responses of selected organisms (humans, different animals and plants) to a variety of environmental factors will be studied from the molecular, cell, tissue, organ, and systems level of organization. Some of the topics to be covered include biological control systems (hormones, neurons) and coordinated body functions (circulation, respiration, osmoregulation, digestion). All systems studied will be integrated by analyzing how different organisms adapt to living in extreme environments (deserts, high altitude) or facing environmental demands (navigation, exercise).

Note: This course replaces BIOL 30. Students who have received BIOL 30 credit may not enroll in BIOL 14. Open to all students without prerequisite. Note: BIOL 12, BIOL 13, BIOL 14, BIOL 15, BIOL 16 may be taken in any order.

Instructor

Maue, ter Hofstede

Distributive: Dist:SLA

Offered: 15X, 15F, 16F, 17W: 10A; Laboratory: Arrange

BIOL 15 - Genetic Variation and Evolution

Instructor: Zhaxybayeva

This course focuses on fundamental processes and mechanisms of evolution on a population level that give rise to variation and diversity of living organisms. Topics include the source and distribution of phenotypic and genotypic variation in nature; the forces that act on genetic variation (mutation, migration, selection, drift); the genetic basis of adaptation, speciation, and phyletic evolution. Throughout the course we will exemplify the topics with data on natural populations, emphasizing humans and their microbial commensals and pathogens. The concepts will be integrated with in-class problem solving and discussions of seminal scientific papers. Laboratories will be a mix of population process modeling and measuring evolution in natural systems. Open to all students without prerequisite. Note: BIOL 12, BIOL 13, BIOL 15, BIOL 16 may be taken in any order.

Distributive: Dist:SLA

Offered: 16W: 11; Laboratory: Arrange

BIOL 16 - Ecology

Instructor: Ayres

This course examines fundamental concepts in the rapidly developing areas of ecology. These topics include the factors that limit the distributions and abundances of organisms, the effects that organisms have on ecosystems, the integration of ecosystems around the globe, and the conservation of species diversity. The class will also explore how the behavior and physiology of individual organisms shape both local and global patterns of distribution and abundance. Laboratories focus on experimental and quantitative analyses of local ecosystems, with an emphasis on field studies. Open to all students without prerequisite. Note: BIOL 12, BIOL 13, BIOL 15, BIOL 16 may be taken in any order.

Distributive: Dist:SLA

Offered: 15F, 16S: 10; Laboratory: Arrange

BIOL 21 - Population Ecology

Instructor: McPeck

This course explores the description of populations, population growth, and the determination of abundance. Examples will be drawn from a diversity of plant and animal taxa to illustrate the broad scope of population ecology, including its role as a foundation for evolutionary ecology and community ecology, and its contributions to applied problems in conservation biology, pest management, human demography, and the management of harvested populations. Throughout, this course will emphasize the development of verbal, graphical, and mathematical models to describe populations, generate predictions, test hypotheses, and formalize theory. No student may receive course credit for both BIOL 21 and BIOL 51. Offered in alternate years.

Prerequisite: BIOL 15 or BIOL 16

Distributive: Dist:SCI

Offered: 15F: 9L

BIOL 22 - Methods in Ecology

Instructor: Cottingham

This course is an introduction to sampling and survey methodologies for populations and communities in both aquatic and terrestrial environments. The course will be divided into week-long modules, each focusing on a particular group of organisms in the environment. A great deal of emphasis will be placed on hypothesis generation, experimental design and statistical analysis. Participation in the laboratory/field component is both required and critical as one of the primary benefits of this course will be "on the ground" training in field methods.

Prerequisite: BIOL 16

Distributive: Dist:SLA

Offered: 15X: 12; Laboratory: M 1:45-5:45

BIOL 23 - Plant Biology and Human Health

Instructor: The staff

This course provides a general survey of the plant kingdom from the level of molecules to plant diversity. The course has four themes: (1) exploring the origin and diversification of plants in an ecological and phylogenetic context, (2) understanding plant form and function, (3) learning representative plant families and genera, and (4) investigating the human health effects of plants. The lab emphasizes the anatomy and physiology of plants, species interactions, plants and human health, and using keys and manuals to identify plants, especially New England species, in the greenhouse and on local field trips. Students must develop a plant collection of 20 species for the course. No student may receive course credit for both BIOL 23 and BIOL 54.

Prerequisite: One of BIOL 12, BIOL 13, BIOL 30, BIOL 15, BIOL 16 OR one of ENVS 2, ANTH 6, EARS 18, GEOG 3 or GEOG 4 OR permission of the instructor

Distributive: Dist:SLA

Offered: Will not be offered 2015-2016.

BIOL 24 - Vertebrate Zoology

Instructor: Calsbeek

This course will examine origins, diversity, structure and function within and among the vertebrate classes (including fish, amphibians, reptiles, birds and mammals). We will consider the evolution of the vertebrate body plan and innovations associated with common organ systems (e.g., skeletal, muscular, digestive, sensory, etc.) shared by different taxa. In addition, we will consider specialization of form and function to the diverse ecology of vertebrates as well as the manner in which very different taxa cope with similar habitats and environmental demands. In so doing, we will draw on evolutionary principles such as adaptation, convergent and parallel evolution and evolutionary constraints. The course will primarily consist of lecture and readings with examination of specimens and opportunities for off-campus field trips. Offered in alternate years.

Prerequisite: BIOL 15 or BIOL 16

Distributive: Dist:SCI

Offered: 15F: 10

BIOL 25 - Introductory Marine Biology and Ecology

Instructor: Chen

A course designed both for biology majors and other students interested in the interrelationships between marine organisms and their physical and biological environments. The course emphasizes the marine environment as an ecosystem with special focus on communities in coastal margin, open ocean, and deep sea habitats ranging from polar to tropical latitudes. Applied issues relevant to human impact and conservation in marine ecosystems will also be covered. Offered in alternate years.

Prerequisite: One of the following: BIOL 12, BIOL 13, BIOL 15, BIOL 16, or BIOL 30

Distributive: Dist:SCI

Offered: 16F: 11

BIOL 27 - Animal Behavior

Instructor: Calsbeek

Behavioral sciences are extremely broad and the study of animal behavior requires an interdisciplinary approach that integrates psychology, ecology, evolutionary biology, neural science and the underpinnings of learning and memory science. We will draw on each of these fields as

we explore topics ranging from signaling and cognition to mating behaviors and sexual selection to foraging and optimality theory. We will consider how proximate and ultimate causality structure behavior throughout the animal kingdom. Thus, the course will take an evolutionary approach to understand behavior in vertebrates and insects and other invertebrates; in fresh water and marine systems, and in terrestrial groups. Offered in alternate years.

Prerequisite: BIOL 15 or BIOL 16

Distributive: Dist:SLA

Offered: Will not be offered in 2015-2016.

BIOL 28 - Macroevolution

Instructor: Peterson

Macroevolution focuses on the evolutionary process from the perspective of the species and through the lens of deep time. More specifically, it focuses on the issue of whether life is organized hierarchically, and if so, can selection occur at any/all of these other levels, in addition to the level of the organism. This course is especially well suited for discussion and question, as the definition of macroevolution, as well as its very existence, is under intense discussion by both microevolutionists and macroevolutionists alike. Topics covered include punctuated equilibrium, species-level selection, homology, and mass extinctions.

Prerequisite: One from BIOL 12, BIOL 13, BIOL 14, BIOL 15, BIOL 16 or instructor permission.

Cross-Listed as: EARS 28

Distributive: Dist:SCI

Offered: 16W: 12

BIOL 29 - Biostatistics

Instructor: The staff

The course will cover basic descriptive statistics, simple probability theory, the fundamentals of statistical inference, regression and correlation, t-tests, one-way analysis of variance, basic analyses of frequency data and non-parametric statistics, and the general philosophy of experimental design. We will explore these topics from the perspective of biological applications. Examples will be drawn from all subdisciplines of biology (e.g. biochemical kinetics, development, physiology, ecology, and evolution).

Prerequisite: Two courses in biology numbered 11 or higher.

Distributive: Dist:QDS

Offered: 16W:10A; Laboratory - Arrange

BIOL 31 - Physiological Ecology

Instructor: Ayres

What factors determine the distribution and abundance of organisms? What are the consequences of climate change for biological communities? This course is an exploration of environmental effects on fundamental physiological processes in plants and animals. Abiotic factors, such as temperature and water availability, interact with biotic forces, such as predation, herbivory, and competition, to constrain the ability of organisms to survive, grow, and reproduce. Physiological solutions that allow success in one environment may preclude it in another. This course seeks to build up from physiological principles to understand characteristics of populations, communities, and ecosystems. Laboratories will challenge students to generate and test their own hypotheses using contemporary theoretical frameworks and modern research apparatus. Offered in alternate years.

Prerequisite: One of the following: BIOL 12, BIOL 13, BIOL 30, BIOL 15, or BIOL 16.

Offered: Will not be offered 2015-2016.

BIOL 32 - Animal Communication

Instructor: ter Hofstede

Animals, including humans, have evolved to communicate with each other in a multitude of ways. Using examples from across the animal kingdom, this course will consider the variety of communication systems observed in nature from physical, neurobiological, and evolutionary perspectives. Comparisons will be made between animals with similar or different solutions to problems in communication, including comparisons with human examples. The course consists of four parts. Part I will look at the physics behind signal generation/transmission in different modalities and the neural basis of signal reception, part II will consider evolutionary constraints in generating, receiving and processing signals, part III will consider these principles in the main contexts of communication (mating, conflict, social situations, interspecific interactions), and part IV will integrate this information and these concepts in the context of human communication. Offered in alternate years.

Prerequisite: One of BIOL 12, BIOL 13, BIOL 15, BIOL 16, or PSYC 6

Distributive: Dist:SCI

Offered: 16S: 10

BIOL 34 - Neurobiology

Instructor: The staff

This course emphasizes a cellular approach to the study of nervous systems. The study of the cellular basis of neuronal activity will form the foundation for studies on sensory physiology, the control of muscle movement, and neuronal integration. Selected topics of current research activities with vertebrate and invertebrate species will be

discussed in order to provide a perspective on how the field of neuroscience is developing. Laboratory exercises will provide the opportunity to learn extracellular and intracellular electrophysiological recording techniques.

Prerequisite: BIOL 12 or BIOL 30

Distributive: Dist:SLA

Offered: Will not be offered 2015-2016.

BIOL 35 - Human Physiology

Instructor: The staff

This course is an introduction to the biochemical aspects of human physiology. The adaptive responses of different human organ systems will be studied from the molecular, cellular, organ and systems level of organization. Topics to be covered include biological control systems (nerves, hormones, sensory and muscle cells) and coordinated body functions (circulation, respiration, osmoregulation, digestion). All the different organ systems working together during exercise will provide a framework for the final course synthesis. Offered in alternate years.

Prerequisite: BIOL 12 or BIOL 30

Distributive: Dist:SCI

Offered: Will not be offered 2015-2016.

BIOL 36 - History of Genetics

Instructor: Dietrich

This course is a survey of the history of genetics for students with some knowledge of genetics such as BIOL 13 or BIOL 15. Proceeding from Galton to the present, this course will emphasize the main intellectual trends in genetics as well as the interconnection between genetics and society. Topics for discussion will include whether Gregor Mendel was a Mendelian, the importance of Thomas Hunt Morgan's *Drosophila* network, the relationship between eugenics and genetics, the effect of Atomic Energy Commission report on human genetics, and the impact of molecular biology.

Prerequisite: BIOL 13 or BIOL 15

Distributive: Dist:SCI

Offered: 16S: 10A

BIOL 37 - Endocrinology

Instructor: Witters

The molecular, biochemical, genetic and physiologic aspects of the endocrine system will be explored with an emphasis on human and mammalian biology. We will use examples of pathobiology arising from dysfunction of this system to draw attention to the normal modes of endocrine regulation. Topics will be drawn from seminal publications in the biomedical literature. The course will employ a hypothesis-based, problem-solving paradigm, involving, in

part, the study of experimental techniques used in investigation.

Prerequisite: BIOL 12. A prior course that emphasizes genetics is recommended. Otherwise permission of instructor.

Distributive: Dist:SCI

Offered: 16S, 17S: 10A

BIOL 38 - Experimental Genetic Analysis

Instructor: McClung

This course provides in-depth coverage of the analysis of gene transmission and function. BIOL 38 will build on material covered in BIOL 13, emphasizing the use of model organisms to obtain information relevant to important problems in human genetics. Investigative laboratory exercises will reinforce and complement material covered in lecture.

Prerequisite: BIOL 13

Distributive: Dist:SLA

Offered: Will not be offered 2015-2017.

BIOL 39 - Computational Molecular Biology

Instructor: The staff

Computers and computer programs have become essential tools in modern molecular biology. As the amount of DNA and protein sequence data continues to grow, the use and understanding of these computational tools is becoming increasingly important. Deriving biological understanding from sequence data requires sophisticated computer analyses while demanding from molecular biologists the ability to interpret intelligently the results from these analyses. Not only can these programs provide the biologist with information about his or her sequence of interest, but a solid understanding of these tools can also be used to make predictions of biological phenomena that can be tested in the lab. This course will explore computational molecular biology through both lectures and hands-on computer experimentation through homework assignments. This course will discuss approaches to analyzing protein and DNA sequences and will foster an understanding of how to extract biologically relevant information from the numerous databases containing all this information. Topics will include basic computer architecture and operating systems, database design and searching, sequence comparisons, pattern discovery, genome comparisons, gene discovery, determining evolutionary relationships, RNA and protein structure predictions, data mining, and DNA array analysis. No computer programming experience is needed, but familiarity with using the Internet is recommended.

Distributive: Dist:SCI

Offered: Will not be offered 2015-2016.

BIOL 40 - Biochemistry

Instructor: Schaller, The staff

This course studies molecular structure and function from a biochemical point of view, emphasizing the biochemistry of proteins, lipids, and carbohydrates. Topics include protein structure and function, enzymes and enzyme kinetics, lipids and membranes, and carbohydrates and cell walls. The participation of these biomolecules in metabolism is also discussed, and focuses on the metabolic pathways of glycolysis, gluconeogenesis, fatty acid oxidation, amino acid catabolism, the TCA cycle, and oxidative phosphorylation. The course concludes with a look at the integration of metabolism in mammals. Students with credit for CHEM 41 may not receive credit for BIOL 40.

Prerequisite: BIOL 12 and CHEM 52 or CHEM 58 or permission of the instructor.

Distributive: Dist:SCI

Offered: 15F, 16W, 16F: 10; Discussion W or Th 2:00-3:00

BIOL 42 - Biology of the Immune Response

Instructor: Green, Pioli, Turk

This course will consider immunoglobulin structure, antigen-antibody reactions, complement, hypersensitivity, immunogenetics, immunodeficiency, tumor immunology and therapy, and autoimmunity.

Prerequisite: BIOL 12 or BIOL 13, or permission of the instructor.

Distributive: Dist:SCI

Offered: 16W, 17W: 9L

BIOL 43 - Developmental Biology

Instructor: Griffin

The course of study will take a comparative approach in dissecting the molecular, cellular and genetic basis of animal embryogenesis and other processes of development. The course will analyze the sequential steps of fertilization; specification events of early embryogenesis and basic development of the germ layers; body plan specification; morphogenesis; neurogenesis; stem cells; cell type specification and differentiation; tissue development leading to organ differentiation; and gametogenesis.

Prerequisite: BIOL 12 or BIOL 13

Distributive: Dist:SCI

Offered: 16S, 17S: 10

BIOL 45 - Molecular Biology

Instructor: Grotz

This course will build upon the material presented in BIOL 13 with in depth analysis of the molecular mechanisms underlying fundamental processes including DNA replication, transcription and translation in bacteria and eukaryotes. Key regulatory events that influence gene expression will be discussed including the function of promoters and enhancers, chromatin structure and epigenetics, RNA mediated silencing and mRNA processing. Emphasis will be placed on understanding how molecular techniques are used to elucidate critical aspects of these processes. Selected papers from the primary literature will be presented to illustrate current advances.

Prerequisite: BIOL 13

Distributive: Dist:SCI

Offered: 15X, 16W, 16X, 17W: 10

BIOL 46 - Microbiology

Instructor: Guerinot, Leib, O'Toole, R. Taylor

A lecture, discussion, and laboratory course considering the biology of microorganisms, with emphasis on bacteria. Topics such as structure, function, genetics, and metabolism of bacterial cells will be covered. The ecological role of various species of microorganisms will also be discussed.

Prerequisite: BIOL 12, BIOL 13, or BIOL 16

Distributive: Dist:SLA

Offered: 15F, 16F: 12; Laboratory: Arrange

BIOL 47 - Genomics: From Data to Analysis

Instructor: Zhaxybayeva

Massive amounts of genomic data pervade 21st century life science. Physicians now assess the risk and susceptibility of their patients to disease by sequencing the patient's genome. Scientists design possible vaccines and treatments based on the genomic sequences of viruses and bacterial pathogens. Better-yielding crop plants are assessed by sequencing their transcriptomes. Moreover, we can more fully explore the roots of humanity by comparing our genomes to those of our close ancestors (e.g., Neanderthals, Denisovans). In this course, students will address real-world problems using the tools of modern genomic analyses. Each week students will address a problem using different types of genomic data, and use the latest analytical technologies to develop answers. Topics will include pairwise genome comparisons, evolutionary patterns, gene expression profiles, genome-wide associations for disease discovery, non-coding RNAs, natural selection at the molecular level, and metagenomic analyses.

Prerequisite: BIOL 13 OR BIOL 15

Distributive: Dist:SCI

Offered: Will not be offered in 2015-2016.

BIOL 48 - Principles of Evolutionary Medicine

Instructor: Dietrich

This course considers human health and disease from the perspective of evolutionary biology. Topics will include adaptive explanations for the life history traits, the evolution of nutrition metabolism, host-pathogen co-evolution, models of disease dynamics and the ecology of disease, the evolution of sexual reproduction and sexual dimorphism, and the evolution of altruism.

Prerequisite: BIOL 15 or BIOL 16 or permission of instructor.

Distributive: Dist:SCI

Offered: 15F: 10A

BIOL 49 - Cellular and Molecular Neuroscience

Instructor: Hoppa, Maue

This course focuses on cellular and molecular mechanisms that underlie the development and function of the nervous system. This includes aspects of gene expression (transcription, mRNA metabolism) and cell biology (cellular transport and cytoskeleton, cell cycle, signal transduction, and signaling pathways) as they pertain to neurons and glia. Lectures supplemented by in-class discussion of primary research articles will also serve as an introduction to microscopic, electrophysiological, molecular biological, and genetic techniques and animal models used to study the nervous system and neurological disorders.

Prerequisite: BIOL 34, PSYC 6

Cross-Listed as: PSYC 46

Distributive: Dist:SCI

Offered: 16S, 17S: 11

BIOL 51 - Advanced Population Ecology

Instructor: McPeck

This course explores theory and data regarding properties of biological populations. Topics of lectures and analytical exercises include: descriptions of abundance, dispersion, and demographic schedules; applying life tables and matrix models to understand population growth and age structure; life history theory; influence of endogenous feedbacks and exogenous forces on population dynamics; spatial patterns and processes; and contributions of population ecology to applied issues in conservation, pest management, human demography, and the management of harvested populations. No student may receive course credit for both BIOL 21 and BIOL 51. Offered in alternate years.

Prerequisite: BIOL 16 and one course from among: BIOL 22, BIOL 23, BIOL 24, BIOL 25, BIOL 27, BIOL 28, BIOL 29, or BIOL 31

Distributive: Dist:SCI

Offered: 15F: 9L

BIOL 52.01 - Niche Construction: Organisms That Change Their World

Instructor: Laidre

Organisms are not merely passive pawns of natural selection; their behavior can also fundamentally shape the surrounding physical and social world through a process known as 'niche construction'. Niche construction can have important evolutionary consequences, transforming the natural selection pressures that organisms are exposed to and hence creating novel evolutionary trajectories. This course will highlight the active role that behavior plays in the evolutionary process by examining key examples of niche construction in behavioral ecology, spanning from termite mound building to human cultural inheritance. Topics covered will include non-genetic inheritance; ecosystem engineering; animal architecture and remodeling; tool use; signal evolution and gossip; cooperation and collective behavior; and gene-culture co-evolution, all unified under the theoretical umbrella of niche construction. This course will expose students not only to empirical studies of niche construction but also to computational, mathematical, and conceptual models that formalize niche construction and its dynamic interplay with natural selection. Also, one field trip and one in-class laboratory demonstration will give students direct empirical exposure to the concepts covered in class.

Prerequisite: One from the following: BIOL 21, BIOL 22, BIOL 24, BIOL 27, BIOL 31 or BIOL 32

Distributive: Dist:SCI

Offered: Will not be offered in 2015-2016.

BIOL 52.02 - Evolution of Cooperation and Gossip

Instructor: Laidre

Cooperation represents a fundamental problem in ecology and evolutionary biology. Indeed, Darwin regarded cooperation as one of the greatest puzzles for his theory of evolution. If natural selection favors individuals that selfishly maximize their own reproductive success, then why should organisms cooperate at all? Yet evidence for cooperation is ubiquitous in biology, both across taxa (from bacteria to humans) and across hierarchical levels of biological organization (from genes to cells to multi-cellular organisms to societies). This course will explore how and why cooperation evolves, with the goal of understanding general ecological and evolutionary principles, especially the conditions under which organisms work together and help one another despite

competition and conflicting interests. A central focus of the course will be on social interactions among unrelated individuals, particularly how cooperation co-evolves with a form of communication known as 'gossip'-in which third parties are spoken about behind their backs. The course will explore when and why gossip has a positive versus negative impact on cooperation. Students will learn key experimental studies of cooperation and communication (both in nonhumans and humans) and will also be exposed to the conceptual, mathematical, and computational models that predict when cooperation and gossip will be evolutionarily favored. In-class laboratories (involving experimental cooperation-gossip games as well as analyses of conversations) will give students direct empirical exposure to the concepts covered in class.

Prerequisite: One of: BIOL 21, BIOL 24, BIOL 27, or BIOL 32

Distributive: Dist:SCI

Offered: 15F: 2

BIOL 53 - Aquatic Ecology

Instructor: The staff

The study of interactions between biological communities and their freshwater environment. Lecture and readings provide the scientific background necessary for understanding the physical, chemical and biological dynamics of freshwater habitats. Emphasis is placed on application of fundamental concepts to problems in conservation and management of aquatic ecosystems. The laboratory and fieldwork, including a weekend field trip during the first week of classes, will acquaint students with modern methodological approaches for studying aquatic ecosystems. Offered in alternate years.

Prerequisite: BIOL 15 or BIOL 16 and one course from among BIOL 21, BIOL 22, BIOL 23, BIOL 24, BIOL 25, BIOL 27, BIOL 28, BIOL 29, BIOL 31, or BIOL 46.

Distributive: Dist:SLA

Offered: Will not be offered in 2015-2016.

BIOL 54 - Advanced Plant Biology and Human Health

Instructor: The staff

This course provides a general survey of the plant kingdom from the level of molecules to plant diversity. The course has four themes: (1) exploring the origin and diversification of plants in an ecological and phylogenetic context, (2) understanding plant form and function, (3) learning representative plant families and genera, and (4) investigating the ways that people use plants, including agriculture and plant domestication, secondary compounds and psychoactive pharmaceuticals, and forensic botany. The lab emphasizes the molecular composition of plant cells, the anatomy and physiology of plants, and using keys and manuals to identify plants, especially New England

species, in the greenhouse and on local field trips. Students must develop a plant collection of 35 species and conduct an extensive student-initiated independent research project. Students who have taken Biol 23 (Plant Biology and Human Health) cannot sign up for this course.

Prerequisite: One of BIOL 21, BIOL 22, BIOL 23, BIOL 24, BIOL 25, BIOL 27, BIOL 28, BIOL 29, BIOL 31, BIOL 32, BIOL 34, BIOL 35, BIOL 36, BIOL 37, BIOL 38, BIOL 40, BIOL 42, BIOL 43, BIOL 45, BIOL 46, BIOL 47, BIOL 48, OR permission of the instructor

Distributive: Dist:SLA

Offered: Will not be offered 2015-2016.

BIOL 55 - Ecological Research in the Tropics I

Instructor: B. Calsbeek

The Biology Foreign Studies Program (BIOL 55, BIOL 56, BIOL 57) exposes students, through intensive, full-immersion study, to Earth's most diverse biological communities. BIOL 56 is a continuation of BIOL 55; these courses comprise the first two-thirds of the FSP, and focus on land (tropical forests) and tropical freshwater ecosystems in Costa Rica. BIOL 57 focuses on coral reef ecosystems in the Caribbean. Students are challenged to know, understand and appreciate the diversity of form and function in organisms, and the interactions that generate the often-spectacular patterns they see in the field. Habitats in Costa Rica include lowland rain forest, cloud forest, dry forest, montane forest, alpine paramo, streams and wetlands. The schedule is full, including fieldwork, laboratories, lectures and discussions, with emphasis on original research, mostly in small groups of 2-3. Faculty and advanced graduate TAs share field accommodations with students, and are in continuous contact as mentors, day and evening, throughout the program. Students master field and analytical methods (including hypothesis testing, statistical and software skills) for observational and experimental research. We pursue a great variety of research topics, including plant-pollinator and plant-herbivore interactions, processes driving coral reef structure (and coral reef decline), determinants of species distributions, animal behavior, and conservation ecology. Students practice the classic scientific approach: making observations, asking testable questions, generating hypotheses, developing experimental protocols, collecting data, making statistical inferences, writing scientific papers, and presenting seminars. Research papers are published in an annual book. Accommodations are at field stations in Costa Rica, and at a marine laboratory in the Caribbean.

Prerequisite: BIOL 16, one course from among BIOL 21, BIOL 22, BIOL 23, BIOL 24, BIOL 25, BIOL 27, BIOL 28, BIOL 31; acceptance into program, BIOL 15 and BIOL 29 recommended

Distributive: Dist:SLA

Offered: 16W, 17W: D.F.S.P.

BIOL 56 - Ecological Research in the Tropics II

Instructor: R. Calsbeek

A continuation of BIOL 55. See BIOL 55 for a description of the Biology Foreign Study Program.

Prerequisite: BIOL 55 (taken in same term)

Distributive: Dist:SLA

Offered: 16W, 17W: D.F.S.P.

BIOL 57 - Ecological Research on Coral Reefs

Instructor: Chen

Field and laboratory investigations of marine organisms and coral reef communities. Lecture and research topics include studies of algae, aquatic plants, invertebrates, and fish, with emphasis on populations, species interactions, community structure and energetics, and reef conservation and management. The course is based at the Little Cayman Research Center, Little Cayman Island. Scuba diving is optional. See BIOL 55 for an overview of the Biology Foreign Study Program.

Prerequisite: BIOL 55 and BIOL 56 (taken in same term)

Distributive: Dist:SLA

Offered: 16W, 17W: D.F.S.P.

BIOL 58 - Advanced Community Ecology

Instructor: The staff

This course will examine the various mechanisms structuring ecological communities of plants and animals. The course will consist of regular lectures, readings from the primary literature, and individual projects. Topics to be covered include simple two-species interactions (e.g. predation, competition, parasitism, mutualisms), simultaneous multispecies interactions, food web structure, regulation of species diversity on ecological and evolutionary time scales, community succession, and biogeography. Emphasis will be placed on the development of mathematical models and their relationship to empirical studies. Offered in alternate years.

Prerequisite: BIOL 15, BIOL 16 and one course from among BIOL 21, BIOL 22, BIOL 23, BIOL 24, BIOL 25, BIOL 27, BIOL 28, BIOL 29, BIOL 31

Distributive: Dist:SCI

Offered: Will not be offered 2015-2016.

BIOL 59 - Biostatistics II

Instructor: The staff

This is an advanced course in statistics and experimental design, as applied to biological systems. There will be lectures and computer laboratories, regular homework

assignments, and a major term project of statistical analysis. Topics covered include analysis of variance, generalized linear models and logistic regression, multivariate analysis methods, experimental design, and an introduction to Bayesian methods. Emphasis will be placed on the use of statistical programming for performing analyses. Offered in alternate years.

Prerequisite: BIOL 29

Distributive: Dist:QDS

Offered: Will not be offered in 2015-2016.

BIOL 60.01 - Evolutionary Ecology

Instructor: The staff

Theodosius Dobzhansky said "nothing in biology makes sense except in the light of evolution." Evolutionary ecology explores the fundamental and diverse role of evolutionary process in the natural world. We will explore the importance of natural and sexual selection acting in natural communities on land and in the water. Lecture topics will include the evolution of life history variation, competition, predation, behavior, physiology, migration and dispersal, and molecular evolution. Because the course covers a wide range of topics, students should have a solid foundation in basic ecology and evolution prior to taking BIOL 60.01. Prerequisites required: One from the following: BIOL 21, 27, 28, 31, 32, 36, 38, 47, or 48.

Prerequisite: One from the following: BIOL 21, BIOL 27, BIOL 28, BIOL 31, BIOL 32, BIOL 36, BIOL 38, BIOL 47 or BIOL 48

Distributive: Dist:SCI

Offered: Will not be offered in 2015-2016.

BIOL 63 - RNA: The Real Secret of Life

Instructor: Peterson

Legend has it that after the discovery of the structure of DNA Francis Crick announced to the patrons of the Eagle Pub in Cambridge, England that they had discovered the secret of life. But what has been learned since this February day in 1953 is that although DNA is the bedrock of modern molecular biology, it is actually RNA that allowed for the emergence of life, and is *the* central molecule in life's Central Dogma. Indeed, with the application of new deep sequencing technologies we are discovering that much of the genome is transcribed into functional RNA that does not code for proteins, but instead is involved in gene regulation and genomic architecture, in addition to the maintenance of genome integrity and even possibly the evolution of morphological complexity. In fact, the very question of "what is a gene?" is even being reconsidered, as the fundamental unit of genomic organization appears not to be the classical DNA-based "gene" but instead is the RNA-based transcript. In this course we will explore these issues and more through

lectures, literature discussions, student-led presentations, and student writing assignments.

Prerequisite: One from among BIOL 28, BIOL 36, BIOL 38, BIOL 40, BIOL 45, BIOL 47 or CHEM 41

Distributive: Dist:SCI

Offered: 16S: 12

BIOL 65 - Current Topics in Molecular Genetics

Instructor: The staff

This course will cover in depth one or more specific topics in molecular genetics. Material will be presented in a manner designed to encourage student participation and to demonstrate how modern molecular, biochemical, immunological and genetic techniques are employed to study problems in molecular biology and genetics. Assignments will be based on readings from the current research literature.

Distributive: Dist:SCI

Offered: Will not be offered 2015-2017.

BIOL 66 - Molecular Basis of Cancer

Instructor: Grotz

In this course we will explore how cancer develops on a cellular level. Using primary literature as a guide, we will examine the basic cellular processes malignant tumors exploit to promote their rapid, invasive growth and ultimately disease. Topics that will be considered include the genetic factors that initiate cancer cell formation, cell cycle regulation, programmed cell death, cell signaling, angiogenesis, cytoskeletal rearrangements as well as how current cancer therapies work on a cellular level.

Prerequisite: BIOL 12 and BIOL 13 and one from among BIOL 38, BIOL 40, BIOL 45, CHEM 41

Distributive: Dist:SCI

Offered: 16S, 17S: 2A

BIOL 67 - The Biology of Fungi and Parasites that Cause Disease

Instructor: Sundstrom

This course will focus on the molecular features of fungi and parasites that form the basis of strategies for adhering to and invading human host cells and tissues. The difficulties associated with development of drugs that neutralize eukaryotic fungi and parasites, but do not harm mammalian cells, heighten the importance of research on fungi and parasites and emphasize the unique aspects of eukaryotic pathogens compared to bacteria. Fungi, which are major pathogens in AIDS and other immunosuppressed patients, and parasites, such as malaria, which devastate human populations world-wide, will be emphasized.

Prerequisite: BIOL 12 and BIOL 13 and one from among BIOL 40, BIOL 45, or CHEM 41. BIOL 46 and BIOL 42 are both recommended but not required.

Distributive: Dist:SCI

Offered: 16W: 2A

BIOL 69 - Cell Signaling

Instructor: Dolph

This course will focus on how signals are transmitted from the cell surface into changes in cellular function. Detailed analysis of specific membrane receptors, second-messenger systems, and protein kinases will be presented as well as how these components are integrated into larger "systems" such as apoptosis, metabolic signaling, synaptic transmission, and sensory transduction. Particular emphasis will be on the biochemical analysis of the pathways and their individual components as well as how these pathways are impaired in certain disease states. The course will consist of lectures and weekly discussions of recent primary literature.

Prerequisite: BIOL 12 and BIOL 13, and at least one course from among: BIOL 37, BIOL 40, BIOL 45, CHEM 41.

Distributive: Dist:SCI

Offered: 16S, 17S: 10A

BIOL 71 - Current Topics in Cell Biology

Instructor: Sloboda

This course will cover in depth one or more specific topics in cell biology such as cell division, chromosome structure and function, signal transduction, the cytoskeleton, membrane assembly, and intracellular protein targeting. Material will be presented in a manner designed to encourage student participation and to demonstrate how modern molecular, biochemical, immunological, and genetic techniques are employed to study problems in cell biology. Reading assignments will be taken from the current research literature.

Prerequisite: BIOL 12 and BIOL 13 and one from among BIOL 38, BIOL 40, BIOL 45, CHEM 41.

Distributive: Dist:SCI

Offered: 16W, 17W: 2

BIOL 74 - Advanced Neurobiology

Instructor: Hoppa

Seminar class on selected topics in neurobiology focusing on the connection between molecule and malady in diseases ranging from schizophrenia to epilepsy. We will focus on connecting basic research with outstanding questions in the field with an emphasis on synaptic

transmission, neural excitability, channelopathies and gliopathies.

Preference will be given to upper level neuroscience and biology majors. Prerequisites one of the following: Bio34, Psych46, Bio49 or permission from the instructor.

Prerequisite: BIOL 34, BIOL 49, PSYC 46 or permission from the instructor

Distributive: Dist:SCI

Offered: 15F, 16F: 10A

BIOL 76 - Advanced Genetics

Instructor: McClung

Methods and strategies for the analysis of gene structure, function and genetic interactions. The course will examine how the genetic manipulation of model organisms, including yeast, *Drosophila*, *C. elegans*, and mouse, is used to explore the mechanisms of fundamental biological processes such as cell division, development, and intercellular communication. Emphasis will be placed on the application of classical genetic methods, including mutant screens, recombination and complementation analysis, genetic mosaics, and the use of conditional mutations. Modern molecular-based approaches, including gene knockout, gene dosage and misexpression studies will also be included. Three hours of lecture and one hour of discussion per week.

Prerequisite: BIOL 12 and BIOL 13 and one from among BIOL 38, BIOL 45, or permission of instructor.

Distributive: Dist:SCI

Offered: 15F, 16F: 11

BIOL 78 - Molecular Mysteries of Human Biology

Instructor: Witters

Knowledge of molecular mechanisms allows new approaches to understanding human biology and disease. This course will explore the normal and abnormal biology of several human conditions relying on biochemistry, molecular genetics, and physiology as tools of inquiry. Examples will be drawn from the histories of Mona Lisa, Michel-Eugène Chevreul, Otto Warburg, Hendrickje Stöffels, Bobby Sands, Paul Cézanne, Pearl Buck, Auguste D and Luigi Cornaro among others.

Prerequisite: BIOL 13 and BIOL 40 (or CHEM 41) or permission of instructor. A prior course on some aspect of mammalian physiology is recommended (e.g. BIOL 2, BIOL 35 or BIOL 37). Priority will be given to senior Biology majors.

Distributive: Dist:SCI

Offered: 16W, 17W: 9L

BIOL 95 - Independent Research in Biology I

Original and independent investigation of a biological problem with associated study of primary literature sources under the supervision of a faculty member for one academic term. Open only to Dartmouth Biology majors and minors. Projects may include laboratory or field research or modeling that will further understanding of a relevant basic or applied research problem. May be taken as one course in the major by students not enrolled in the honors program. Students electing both BIOL 95 and BIOL 97 may count only one among the seven courses in the area of concentration. In no case may a student elect more than two courses among BIOL 95, 96, and 97.

Prerequisite: At least two Biology courses number 20 or above, a 2.67 average in previous biology courses, and permission of the Undergraduate Committee and the supervising instructor. The application and research proposal must be submitted at least one month prior to the beginning of the term in which the course is to be elected.

Offered: All terms: Arrange

BIOL 96 - Independent Research in Biology II

A second term of original and independent investigation of a biological problem under the supervision of faculty member. Open only to Dartmouth Biology majors who have satisfied the requirements for BIOL 95 and who wish to continue their independent research for a second term. Does not count for credit in the major.

Prerequisite: Satisfactory completion of BIOL 95 (including research paper) and permission of the Undergraduate Committee and the supervising instructor(s). The application and research proposal must be submitted at least one month prior to the beginning of the term in which the course is to be elected.

Offered: All terms: Arrange

BIOL 97 - Honors Research in Biology

Original and independent investigation of a biological problem with associated study of primary literature sources under the supervision of a faculty member. Open only to Dartmouth Biology majors. Projects may include laboratory or field research or modeling that will further understanding of a relevant basic or applied research problem. Required of honors students as part of the major. Students taking both BIOL 95 and BIOL 97 may count only one term toward the elective courses for their major. In no case may a student elect more than two from courses among BIOL 95 and 97. Students who have completed or are taking BIOL 97 may enroll and receive college credit for BIOL 99 during spring term of their senior year.

Prerequisite: At least two Biology courses numbered 20 or above, a 3.0 average in previous Biology courses, and permission of the Undergraduate Committee and the supervising instructor, obtained at least one month prior to

the beginning of the term in which the course is to be elected.

Offered: All terms: Arrange

BIOL 99 - Senior Seminar in Biology

Instructor: Schaller

This course will focus on presentation techniques and critical evaluation of other students' research and presentations. Students who have conducted Independent Research will present background information related to their research projects, develop seminars based on their own findings, and receive feedback. All students taking BIOL 97 are encouraged to enroll in this course. The course does not count towards the major.

Prerequisite: Senior standing and previous or current enrollment in BIOL 97

Offered: 16S, 17S: Arrange

Chemistry - Undergraduate

Chair: Dale F. Mierke

Professors J. J. BelBruno, R. S. Cantor, R. Ditchfield, D. S. Glueck, G. W. Gribble, P. A. Jacobi, J. E. G. Lipson, G. C. Micalizio, D. F. Mierke, D. E. Wilcox, J. S. Winn; Associate Professors I. Aprahamian, E. V. Pletneva, J. Wu; Assistant Professors C. Ke, K. A. Mirica, M. Ragusa; Senior Lecturer C. O. Welder; Lecturer W. S. Epps; Adjunct Professors T. U. Gerngross, U. J. Gibson, D. R. Madden, H. M. Swartz; Adjunct Associate Professor M. R. Spaller, Adjunct Research Associate Professor B. P. Jackson; Research Professors R. P. Hughes, D. M. Lemal, T. A. Spencer; Research Associate Professor M. Pellegrini.

To view Chemistry Undergraduate courses, click here. (p. 158)

To view Chemistry Graduate requirements, click here. (p. 546)

To view Chemistry Graduate courses, click here. (p. 548)

Requirements for the Chemistry Major

The Chemistry Department offers five major programs. All major programs require an average GPA of 2.0 in all courses counted toward the major, including prerequisites taken in Chemistry. Normally, all courses that would serve as prerequisites to, or count toward a major in Chemistry, and that are presented at the time the student declares a major must individually have a GPA of 2.0 or higher. Three of the major programs are offered as majors in chemistry: Plan A, for those who wish a broad and

thorough training in chemistry; Plan B, for those whose scientific interests are only partially based in chemistry; and a modified major, which is similar to Plan B, but also includes a second program involving another college department.

Plan A should be chosen by students who plan to do graduate work in chemistry or a closely allied science. Such students should normally take additional courses in chemistry, physics, and mathematics to augment the plan's minimum requirements. Plan A is also a suitable choice for premedical students.

Plan B is less structured and is suitable for students planning to engage in chemically-related careers, such as medicine, environmental science, life science, or industrial science, or professions for which the study of chemistry may prove desirable, such as teaching, law, or business.

The fourth program offered by the Chemistry Department is a major in biophysical chemistry. This is a relatively structured major designed for students interested in biophysical chemistry and associated methodologies for studying life processes. It provides a strong background for graduate work in biophysical chemistry, structural biology, biochemistry, and biomedical science, and is suitable for premedical students. Students are encouraged to take additional courses in chemistry, biochemistry, biological sciences, mathematics, and physics to augment the plan's minimum requirements.

The fifth program is a major in biological chemistry. This major is designed for students interested in applications of chemistry to fundamental biological processes, similar to the biophysical chemistry option, but with less emphasis on the physical chemical underpinnings. In addition to being suitable for premedical students, it provides the framework for further graduate study in all areas of biological chemistry and biomedicine.

Dartmouth College requires that all majors must complete a substantial, graded culminating or integrating activity in their major. Many chemistry majors will satisfy this requirement by participating in undergraduate research by registering for one or more terms of CHEM 87, Undergraduate Investigation in Chemistry. Often such students will be enrolled in the Chemistry Honors Program as well.

Other chemistry majors will satisfy the requirement for a culminating or integrating experience by including in their major programs one of the three-course groups listed below. The course groups, each of which provides an integrated presentation of an important area of modern chemical sciences, are: *Biophysical Chemistry* CHEM 40 (or CHEM 75), CHEM 76 and CHEM 67; *Biological Chemistry* CHEM 40, CHEM 41, and CHEM 42; *Physical Chemistry* CHEM 75, CHEM 76 and CHEM 96; *Chemical Applications, Synthesis and Characterization* CHEM 63,

CHEM 64, and one additional course from among CHEM 90, CHEM 91, CHEM 92, CHEM 93.

Students must indicate their preliminary plans for satisfying the requirement for the culminating or integrating experience when they declare a major in the sophomore year. Since a student may not enroll in CHEM 87 until after they have been accepted into the Chemistry 87 Program (see later), the initial declaration of a major will satisfy the culminating experience requirement using one of the three-course groups mentioned above. Students must confirm their final plans for satisfying the culminating experience at the beginning of the fall term of the senior year. Modified majors with Chemistry as the primary department must define a culminating or integrating experience as part of the coherent and unified whole of their modified major, and must email a statement to the Department's Undergraduate Advisory Committee at chemistry@dartmouth.edu and to the Registrar, explaining their rationale for the courses selected for the modified major. This is required as they submit their modified major plans in DegreeWorks.

The computation of the average in the major will be based upon all courses that are eligible to be counted toward the major.

1. Plan A Major

Prerequisite: CHEM 5-6, or CHEM 10; MATH 3, MATH 8, and MATH 13 (or equivalents); and PHYS 13-14 (*strongly recommended*) or PHYS 3-4 or PHYS 15-16. (*Students who matriculated before fall 2014 may replace CHEM-5-6 with CHEM 9-6.*)

Required Courses: CHEM 51 or CHEM 57, CHEM 52 or CHEM 58, CHEM 64, CHEM 75, CHEM 76 and CHEM 96.

Two additional courses selected from among CHEM 41, CHEM 42, CHEM 63, CHEM 67, CHEM 87, CHEM 90, CHEM 91, CHEM 92, CHEM 93 and CHEM 96; graduate-level courses in Chemistry; PHYS 19; BIOL 40; MATH 20, MATH 22 or MATH 24, MATH 23, and MATH 46; and, with *prior written permission*, relevant major credit (or graduate-level) courses in other departments in the Division of the Sciences. CHEM 41 cannot be taken in conjunction with BIOL 40.

2. Plan B Major

Prerequisite: CHEM 5-6, or CHEM 10; MATH 3 and MATH 8 (or equivalent); and PHYS 13-14 (*strongly recommended*) or PHYS 3-4 or PHYS 15-16. (*Students who matriculated before fall 2014 may replace CHEM 5-6 with CHEM 9-6.*)

Required Courses: Of the eight courses, a minimum of six must be in chemistry to include a) CHEM 51 or CHEM 57, CHEM 75 or CHEM 40, and CHEM 76, and CHEM 64; b) two additional courses from the following group: CHEM 41, CHEM 42, CHEM 52 or 58, CHEM 63, CHEM 67,

CHEM 87, CHEM 90, CHEM 91, CHEM 92, CHEM 93, CHEM 96 and graduate-level courses in chemistry. Note that CHEM 76 is a prerequisite to some offerings of CHEM 96.

The remaining two courses may be additional chemistry courses from group b) above or may be chosen from the following: PHYS 19; BIOL 40; MATH 20, MATH 22 or MATH 24, MATH 23 and MATH 46; and, with *prior written permission*, relevant major credit (or graduate-level) courses in other departments in the Division of the Sciences. CHEM 41 cannot be taken in conjunction with BIOL 40.

3. Modified Major

Modified Major with Chemistry as the primary department

Prerequisite: As required by courses elected.

Required Courses: Six in total, which must include CHEM 51 or CHEM 57, CHEM 64, and CHEM 75 or CHEM 40. The other three courses must be Chemistry Department courses. CHEM 41 cannot be taken in conjunction with BIOL 40.

Four additional courses from the secondary department selected with the approval of any member of the Undergraduate Advisory Committee (and under certain circumstances by the secondary department; see the Regulations under Department Major).

Modified Major with Chemistry as the secondary department

Prerequisite: As required by courses elected.

Required Courses: Four courses, which must be chemistry offerings, suitable (beyond prerequisites to the major) for completion of the Plan A or Plan B major.

4. Biophysical Chemistry Major

Prerequisite: CHEM 5-6, or CHEM 10; MATH 3 and MATH 8 (or equivalent); PHYS 13-14 (*strongly recommended*) or PHYS 3-4 or PHYS 15-16. (BIOL 12 and BIOL 13 are recommended but not required; *students who matriculated before fall 2014 may replace CHEM 5-6 with CHEM 9-6.*)

Required Courses: CHEM 41, CHEM 51 or CHEM 57, CHEM 52 or CHEM 58, CHEM 75 (or CHEM 40), CHEM 76 (instructor permission required for students who elect CHEM 40), CHEM 64, and CHEM 67.

One additional course selected from among CHEM 42, CHEM 63, CHEM 87, CHEM 90, CHEM 91, CHEM 92, CHEM 93 or CHEM 96; graduate-level courses in chemistry; ENGS 35; MATH 20, MATH 22 or MATH 24, MATH 23, or MATH 46; PHYS 19; and with *prior written permission*, relevant major credit (or graduate-level)

courses in other departments in the Division of the Sciences.

5. Biological Chemistry Major

Prerequisite: CHEM 5-6, or CHEM 10; BIOL 12, and BIOL 13; MATH 3 and MATH 8 (or equivalent); PHYS 13-14 (*strongly recommended*) or PHYS 3-4 or PHYS 15-16. (*Students who matriculated before fall 2014 may replace CHEM 5-6 with CHEM 9-6.*)

Required Courses: CHEM 51 or CHEM 57, CHEM 52 or CHEM 58, CHEM 64, CHEM 40 (or CHEM 76), CHEM 41, and CHEM 42.

Two additional courses selected from the following two groups, with at least one from group (a): (a) CHEM 67, CHEM 161, CHEM 92, CHEM 87, CHEM 153, or CHEM 159; (b) CHEM 63, CHEM 87, CHEM 90, CHEM 91, CHEM 93, CHEM 96, graduate courses in chemistry, or *with prior written permission*, relevant major credit (or graduate level) courses in other departments in the Division of the Sciences. If CHEM 87 is the *only* course selected from group (a), the research project must have a biochemical focus.

There are many different ways in which one can complete a major in Chemistry. In order to better inform your decision, the department has prepared a document showing various paths students can take through the major; not only does this emphasize that the major is more flexible than it might appear at first glance, but also it shows that there are several major plans that do not require taking two major courses in a term. This document is available at <http://chemistry.dartmouth.edu/undergraduate/major>.

Students considering a Chemistry Department major are strongly encouraged to take CHEM 5-6 (or CHEM 10) in their first year. Students with credit-on-entrance in a foreign language or in chemistry are urged to consider taking PHYS 13-14 during the first year. This is also advisable for those students who delay completion of the language requirement until sophomore year in Language Study Abroad. Students who plan to participate in Language Study Abroad should give early attention to the need for careful curriculum planning. In some cases it may be advisable to postpone the LSA term to the fall term of the junior year. If so, it is necessary to obtain (routine) approval from the Registrar for deferral of completion of the Language requirement.

All Chemistry Department majors have required courses, some of which must be taken in a particular order. While many sequences are possible, and the Department's Undergraduate Advisory Committee is happy to give advice on this, it is essential to complete prerequisite courses before taking certain major courses. As a general guideline, it is recommended for majors that the physics and mathematics prerequisites for Physical Chemistry (CHEM 75 *and* CHEM 76, or CHEM 40), as well as CHEM 51 or CHEM 57, be completed by the end of the

sophomore spring term. Specifically, majors must complete PHYS 13 (or PHYS 15, or PHYS 3 *and* PHYS 4) and MATH 8 before they take CHEM 75 or CHEM 40. *Any changes of courses from those listed in the major approved in the sophomore year must be discussed with a departmental adviser before the course is taken for credit.*

Many Chemistry Department majors do research projects. This research is usually done during the senior (and sometimes junior) year and often for credit (see CHEM 87), though occasionally a stipend is available to allow a student to do full-time research during a leave term. All majors are urged to investigate the numerous possible research projects offered by chemistry faculty members. A brochure describing faculty research interests and the CHEM 87 application form are available at <http://www.dartmouth.edu/~chem> and from the Department staff (102 Burke). The brochure enables a student to identify research areas of particular interest. A final choice of research project is made after consultation with the faculty member(s) concerned. The completed application form is submitted to the Chair for approval.

Certification as a public school Chemistry teacher is available through partnership with the Education Department. Contact the Education Department for details about course requirements.

Requirements for the Chemistry Minor

The Chemistry Department offers a single minor program. Any student wishing to enroll in the minor program must obtain approval from a member of the Chemistry Department's Undergraduate Advisory Committee by no later than the *end of the first week of the last term in residence prior to graduation*.

Prerequisite: CHEM 5-6, or CHEM 10 and MATH 3. (*Students who matriculated before fall 2014 may replace CHEM 5-6 with CHEM 9-6.*)

Required Courses: CHEM 51 or CHEM 57 and CHEM 64

Two additional courses selected from among CHEM 40, CHEM 41, CHEM 42, CHEM 52 or CHEM 58, CHEM 63, CHEM 75, CHEM 76, CHEM 87, CHEM 90, CHEM 91, CHEM 92, and CHEM 93; or graduate-level courses in chemistry. The NRO option is disallowed for any required course taken to fulfill the chemistry minor. Students should note that many of the courses listed above have prerequisites in addition to CHEM 6 and MATH 3.

Requirements for the Materials Science Minor

The minor in Materials Science is sponsored by faculty in Chemistry, Physics and Engineering with an interest in interdisciplinary education and research in materials science.

Chemistry Department Honors Program

A student whose grades meet the minimum College requirement for honors work may apply to be admitted to the Honors Program. An honors major follows the basic pattern outlined in the requirements for the chemistry major but is very strongly urged to elect additional courses in chemistry and allied sciences.

An honors student carries out one of two individual projects. Usually an original experimental or theoretical investigation is undertaken in a well-defined area of interest under the guidance and supervision of a member of the faculty. A student with a strong interest in teaching may, however, formulate and carry out under the direction of a member of the faculty a program combining the development of instructional materials with actual experience in classroom or laboratory teaching. In either case, on completion of the work the student will write a thesis and take an oral examination.

A student electing an original experimental or theoretical investigation may conduct it by electing CHEM 87 up to a maximum of three times (counting as three courses toward graduation, but only once toward the minimum group of major courses) or during a leave term of full-time effort. He or she may also request consideration of any appropriate combination of CHEM 87 and noncredit research. A project concerned with the development of educational materials and experience in teaching will be similar in extent.

Ordinarily, the Honors Program will be undertaken by seniors, but juniors who have progressed sufficiently far in satisfying the normal requirements may be permitted to participate. A student who wishes to participate in the Honors Program must apply for admission to the Program by submitting a form, available at <http://chemistry.dartmouth.edu/undergraduate/undergraduate-research-credit>, or from the Department staff, *before* beginning work on an honors project, unless special permission has been obtained from the Chair. Before or at the time of application the student must arrange for the supervision of the work, normally by a member of the faculty of the Department. *The deadline for applications is the third day of the winter term of the senior year.* Additional information is available at chemistry@dartmouth.edu and from the Department administrative office.

Those students who satisfactorily complete the Honors Program with a 'B+' average or better in the grade(s) assigned to their honors work at the time of examination will earn Honors recognition in the major or, in appropriate cases, High Honors. High Honors will be granted only by vote of the Department on the basis of outstanding independent work and outstanding performance in the major. An interim evaluation of honors students will be made after one term and continuation will be recommended for those students whose work demonstrates the capacity for satisfactory (B+) work. Students who satisfactorily complete the Honors Program will have Honors in Chemistry or Biophysical Chemistry or Biological Chemistry, or, when appropriate, High Honors in Chemistry or Biophysical Chemistry or Biological Chemistry, entered on their permanent record.

CHEM - Chemistry - Undergraduate Courses

To view Chemistry Undergraduate requirements, click here. (p. 155)

To view Chemistry Graduate requirements, click here. (p. 546)

To view Chemistry Graduate courses, click here. (p. 548)

CHEM 2 - Quantitative Reasoning in Chemistry

Instructor: Pletneva

A course for students who intend to take CHEM 5-CHEM 6, but who need additional preparation for quantitative and analytical aspects of general chemistry. CHEM 2 develops the quantitative basis of chemistry relationships and the skills to solve chemistry problems. Much of the course will be devoted to mathematical manipulations and functional relationships that are integral to the quantitative applications of chemistry concepts. In-class experiments will introduce the analysis, interpretation and presentation of chemical data. Students are placed into CHEM 2 based on their pre-matriculation mathematics and science record.

Distributive: Dist:SCI

Offered: 15F: 10, 16F: Arrange

CHEM 5 - General Chemistry

The first term of a two-course sequence to introduce the fundamental principles of chemistry, including chemical stoichiometry; the properties of gases, liquids, and solids; solutions; chemical equilibria; atomic and molecular structure; an introduction to thermodynamics; reaction kinetics; and a discussion of the chemical properties of selected elements. The laboratory work emphasizes physical-chemical measurements, quantitative analysis, and synthesis. An outline of topics for review of secondary school background in preparation for college general

chemistry is available from the Department of Chemistry. Students who are eligible to receive credit-on-entrance for CHEM 5-6 may not enroll in CHEM 5-6 or CHEM 10 for course credit without permission of the Department. Credit-on-entrance for CHEM 5-6 will be withdrawn for students who subsequently enroll in CHEM 5-6 or CHEM 10. Students with credit for BIOL 9/CHEM 9 may not enroll in CHEM 5. Prerequisite for CHEM 5: MATH 3, or MATH 1 and 2, or MATH 1 and CHEM 2. (First year students taking MATH 1 will be placed in CHEM 2). Prerequisite for CHEM 6: MATH 3 (or MATH 1 and MATH 2) and CHEM 5 or BIOL 9/CHEM 9. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 15F: 10 16W: 9L, 10 16F: 10 17W: 9L, 10;
Laboratory: Arrange

CHEM 6 - General Chemistry

The second term of a two-course sequence to introduce the fundamental principles of chemistry, including chemical stoichiometry; the properties of gases, liquids, and solids; solutions; chemical equilibria; atomic and molecular structure; an introduction to thermodynamics; reaction kinetics; and a discussion of the chemical properties of selected elements. The laboratory work emphasizes physical-chemical measurements, quantitative analysis, and synthesis. An outline of topics for review of secondary school background in preparation for college general chemistry is available from the Department of Chemistry. Students who are eligible to receive credit-on-entrance for CHEM 5-6 may not enroll in CHEM 5-6 or CHEM 10 for course credit without permission of the Department. Credit-on-entrance for CHEM 5-6 will be withdrawn for students who subsequently enroll in CHEM 5-6 or CHEM 10. Students with credit for BIOL/CHEM 9 may not enroll in CHEM 5. Prerequisite for CHEM 5: MATH 3, or MATH 1 and 2, or MATH 1 and CHEM 2. (First year students taking MATH 1 will be placed in CHEM 2). Prerequisite for CHEM 6: MATH 3 (or MATH 1 and MATH 2) and CHEM 5 or BIOL/CHEM 9. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 15F: 9L 16S: 9L, 10 16F: 9L 17S: 9L, 10;
Laboratory: Arrange

CHEM 7 - First-Year Seminars in Chemistry

Offered: Consult special listings

CHEM 10 - Honors First-Year General Chemistry

CHEM 10 is a general chemistry course for students with a strong background in chemistry and mathematics who may have an interest in majoring in the sciences. The course will cover selected general chemistry topics important for higher level chemistry courses. These include thermodynamics, reaction kinetics, quantum mechanics,

and bonding. Laboratory work will emphasize physico-chemical measurements and quantitative analysis. CHEM 10 is open only to first-year students and enrollment is limited. Admission is by satisfactory performance on a general chemistry proficiency test given during Orientation. Adequate mathematics preparation, equivalent to MATH 3, is also required. CHEM 10 is offered in the fall term and is the prerequisite equivalent to CHEM 5-6. Students who successfully complete CHEM 10 will also be granted a credit-on-entrance for CHEM 5.

Prerequisite: Satisfactory performance on the general chemistry proficiency test and credit for MATH 3 or equivalent. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 15F, 16F: 10; Laboratory M or Tu 2:00-6:00 p.m.

CHEM 40 - Physical Chemistry of Biochemical Processes

Topics in physical chemistry of relevance to fundamental biochemical processes. These will include the thermodynamics and statistical thermodynamics of macromolecular aqueous solutions, ligand binding and adsorption equilibria, intermolecular interactions and the hydrophobic effect, and transport properties such as diffusion and viscosity. Laboratory exercises apply these concepts to important biophysical problems, using calorimetric, spectroscopic and computational techniques.

Prerequisite: CHEM 6 (or CHEM 10) and PHYS 13 (or PHYS 15, or PHYS 3 and PHYS 4) and MATH 8, or permission of the instructor. Students with credit for CHEM 75 are not eligible to receive credit for CHEM 40. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16W, 17W: 11; Laboratory Tu or W 2:00 - 6:00 p.m.

CHEM 41 - Biological Chemistry I

This course is a one-term introduction to biochemistry presented from a chemical perspective. This course is intended for chemistry majors and will be divided into three sections, using specific examples to demonstrate and stress the role and integration of organic, inorganic and physical chemistry as applied to biochemical processes. Laboratories cover chemical methods applied to biological chemistry problems.

Prerequisite: CHEM 52 or CHEM 58, or permission of the instructor. Students with major credit for BIOL 40 are not eligible to receive credit for CHEM 41. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16S, 17S: 12; Laboratory M, Tu, W or Th 2:00-6:00 p.m.

CHEM 42 - Biological Chemistry II

A one term advanced course with in-depth treatment of a number of important concepts in modern biological chemistry, including structural biology (both theoretical and experimental methods), protein folding, ligand binding, allostery, enzyme kinetics, and an introduction to molecular modeling and chemoinformatics. Laboratories will entail application of these methods/techniques.

Prerequisite: CHEM 40 (or CHEM 76), and CHEM 41, or permission of the instructor. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 15F, 16F: 11; Laboratory M or Tu 2:00-6:00 p.m

CHEM 51 - Organic Chemistry

The first term of a two-term introduction to the chemistry of carbon compounds. The lectures deal with the preparation, properties, and reactions of most of the important classes of organic compounds. There is considerable emphasis upon reaction mechanisms and some attention is given to naturally occurring substances of biological importance. The laboratory work will introduce the student to experimental techniques and instrumental methods including several types of chromatography and spectroscopy, organic synthesis, and the systematic identification of organic compounds.

Prerequisite: CHEM 6 (or CHEM 10). Supplemental course fee required.

Distributive: Dist:SLA

Offered: 15F, 16S, 16F, 17S: 11; Laboratory in fall term: M, Tu or Th 2:00-6:00 p.m. Laboratory in spring term: W or Th 2:00-6:00 p.m.

CHEM 52 - Organic Chemistry

The second term of a two-term introduction to the chemistry of carbon compounds. The lectures deal with the preparation, properties, and reactions of most of the important classes of organic compounds. There is considerable emphasis upon reaction mechanisms and some attention is given to naturally occurring substances of biological importance. The laboratory work will introduce the student to experimental techniques and instrumental methods including several types of chromatography and spectroscopy, organic synthesis, and the systematic identification of organic compounds.

Prerequisite: CHEM 6 (or CHEM 10). CHEM 51 (or CHEM 57 with permission of instructor) is a prerequisite to CHEM 52. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16W, 16X, 17W: 11; Laboratory in winter term: Tu, W or Th 2:00-6:00 p.m. Laboratory in summer term: M or Tu 2:00-6:00 p.m.

CHEM 57 - Honors Organic Chemistry

The first term of a two-term introduction to the chemistry of carbon compounds intended for students planning a chemistry major or career of research in a chemically-related science, including medical science. The lectures deal with the preparation, properties, and reactions of most of the important classes of organic compounds. There is considerable emphasis on reaction mechanisms and some attention is given to naturally occurring substances of biological importance. Topics are covered in greater depth, both in lecture and in the textbook, than in the CHEM 51-52 sequence. The laboratory work introduces the student to experimental techniques and instrumental methods including several types of chromatographic and spectroscopy techniques, organic synthesis, and identification of organic compounds. Enrollment in CHEM 57-58 is limited.

Prerequisite: Permission of instructor and either a grade of at least B+ in CHEM 6 (or B in CHEM 10) or a high score on the CHEM 6 credit test is required for CHEM 57.

Distributive: Dist:SLA

Offered: 16W, 17W: 11; Laboratory: M 2:00-6:00 p.m.

CHEM 58 - Honors Organic Chemistry

The second term of a two-term introduction to the chemistry of carbon compounds intended for students planning a chemistry major or career of research in a chemically-related science, including medical science. The lectures deal with the preparation, properties, and reactions of most of the important classes of organic compounds. There is considerable emphasis on reaction mechanisms and some attention is given to naturally occurring substances of biological importance. Topics are covered in greater depth, both in lecture and in the textbook, than in the CHEM 51-52 sequence. The laboratory work introduces the student to experimental techniques and instrumental methods including several types of chromatographic and spectroscopy techniques, organic synthesis, and identification of organic compounds. Enrollment in CHEM 57-58 is limited.

Prerequisite: CHEM 57 (or CHEM 51 with permission of instructor) is a prerequisite to CHEM 58. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16S, 17S: 11; Laboratory: M 2:00-6:00 p.m.

CHEM 63 - Environmental Chemistry

A study of the chemistry of natural environmental processes and the impact of human activities on the atmosphere, hydrosphere and lithosphere. The course will consider the chemistry of topics such as air pollution in the troposphere and stratosphere, pesticides and herbicides, environmental and human health impact of toxic metals,

acquisition and use of energy resources, chemicals and cancer, and climate change. The laboratory consists of a term-long, team-based experimental project using instrumental analysis of environmental samples to investigate an environmental chemistry issue or problem.

Prerequisite: CHEM 51 or CHEM 57, or permission of the instructor. Supplemental course fee required.

Distributive: Dist:TLA

Offered: 16X: 9L; Laboratory: M, Tu, W, Th or F 2:00-6:00

CHEM 64 - Basic Inorganic Chemistry

A study of bonding, structure, physical and chemical properties, and chemical reactions of inorganic compounds. Examples will be drawn from main group and transition metal compounds. The laboratory will involve preparations of inorganic compounds which illustrate appropriate experimental techniques for syntheses and manipulations, and instrumental methods for characterization of inorganic compounds.

Prerequisite: CHEM 51 or CHEM 57, or permission of the instructor. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16W, 17W: 9L; Laboratory Th or F 2:00-6:00

CHEM 67 - Physical Biochemistry

CHEM 67 covers the structural and chemical properties of proteins and nucleic acids, including ligand binding, enzymatic catalysis, the structural basis and functional significance of protein-nucleic acid recognition, and protein folding. The course also covers the application of physical and spectroscopic techniques, including X-ray crystallography, nuclear magnetic resonance, microscopy, fluorescence and circular dichroism, to the study of biological macromolecules. The laboratory introduces these experimental methods in the study of proteins.

Prerequisite: CHEM 41, and CHEM 64, and CHEM 76 or CHEM 42, and CHEM 52 or CHEM 58, or permission of the instructor. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16W, 17W: 11; Laboratory W 2:00-6:00

CHEM 75 - Physical Chemistry I

An examination of the laws of classical thermodynamics, followed by applications to the properties of gases, liquids, and solids, as well as to solutions, phase, and chemical equilibria. Chemical reaction thermodynamics and the kinetic theory of gases at equilibrium. An introduction to statistical thermodynamics, phenomenological transport and electrochemical reactions are discussed. Laboratories

cover physical chemistry techniques drawn from these areas.

Prerequisite: CHEM 6 (or CHEM 10) and PHYS 13 (or PHYS 15, or PHYS 3 and PHYS 4) and MATH 8, or permission of the instructor. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16W, 17W: 11; Laboratory M or Th 2:00-6:00

CHEM 76 - Physical Chemistry II

Topics in chemical reaction kinetics and the application of quantum mechanics to chemical bonding and spectroscopy. The examination of the fundamental ideas of quantum mechanics and their application to simple model systems such as the linear harmonic oscillator and a confined particle, and to atomic and molecular structure. Application of quantum theory to electronic, vibrational, rotational, and magnetic resonance spectroscopies. Laboratories cover physical chemistry techniques drawn from these areas.

Prerequisite: CHEM 75 or CHEM 40 with permission of the instructor, and CHEM 64, or permission of the instructor. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16S, 17S: 11; Laboratory M or Tu 2:00-6:00

CHEM 87 - Undergraduate Investigation in Chemistry

Instructor: Chair and staff of the Department

An original and individual investigation with associated literature study in one of the fields of chemistry under the supervision of a member of the staff. Students electing the course will carry out preliminary reading during the preceding term and normally participate in a weekly colloquium. Open to qualified majors and minors, normally seniors, with permission of the Chair. The course may be elected more than once, but may be counted only once in satisfying the minimum major requirements. It may be elected for the last term in residence only if elected previously, or if the student has been doing research outside of this course. Students electing the course write a report and take an oral examination at the end of the term in which they last elect the course.

Prerequisite: Sufficient training in the area of chemistry to be investigated, and permission of the Chair

Offered: All terms: Arrange

CHEM 90 - Advanced Inorganic Chemistry: Organometallic Chemistry

A study of the structure, bonding, and chemical properties of organometallic compounds of the main group and transition elements. Applications to organic synthesis and homogeneous catalysis will be discussed, and

organometallic compounds of the lanthanide and actinide elements may also be discussed.

Prerequisite: CHEM 64, or permission of the instructor

Cross-Listed as: CHEM 130

Distributive: Dist:SCI

Offered: 17S: 10. Offered in alternate years

CHEM 91 - Advanced Inorganic Chemistry: Catalysis

The role of metals in homogeneous and heterogeneous catalysis, with an emphasis on mechanisms of catalytic reactions. Applications to industrial processes, organic synthesis, and asymmetric synthesis will be discussed.

Prerequisite: CHEM 64, and either CHEM 52 or CHEM 58, or permission of the instructor

Cross-Listed as: CHEM 131

Offered: 17F: 10. Offered in alternate years

CHEM 92 - Inorganic Biochemistry

The role of metal ions in biological systems. Topics include metal ion transport, storage, and interaction with proteins and nucleic acids; metalloproteins involved in oxygen transport and electron transfer; metalloenzymes involved in activation of oxygen and other substrates; and medicinal, toxicity, and carcinogenicity aspects of metals; as well as inorganic model chemistry of bioinorganic systems. Several physical methods are introduced, and their application to current research on the above topics is considered.

Prerequisite: CHEM 64, and CHEM 41 or BIOL 40, or permission of the instructor

Cross-Listed as: CHEM 132 and BIOC 132

Distributive: Dist:SCI

Offered: 16S: 10. Offered in alternate years

CHEM 93 - Physical Organic Chemistry

Modern theories of organic reaction mechanisms, particularly the use of physical-chemical principles to predict the effect of changing reaction variables, especially reactant structures, on reactivity. The structure, stability, and reactivity of carbanions and carbocations, as well as SN1 and SN2 reactions, are discussed.

Prerequisite: CHEM 52 or CHEM 58, or permission of the instructor

Cross-Listed as: CHEM 151

Distributive: Dist:SCI

Offered: 16F: 9L. Offered in alternate years

CHEM 96 - Special Topics in Physical Chemistry

An in-depth exploration of a specific topic in physical chemistry. This course provides an introduction into the areas of current research in the field. The course is offered in most fall and winter terms, but the content changes according to the chosen topic.

CHEM 96.1 Quantum Chemistry

CHEM 96.2 Statistical Thermodynamics

CHEM 96.3 Molecular Spectroscopy

CHEM 96.4 Chemistry of Macromolecules

CHEM 96.7 Introduction to Materials Chemistry

CHEM 96.8 Chemical Kinetics

Distributive: Dist:SCI

CHEM 96.01 - Quantum Chemistry

Instructor: Ditchfield

An introduction to the quantum mechanics of molecular systems. Approximate methods for calculating the electronic structure of molecules are discussed. Particular emphasis is placed on molecular orbital methods at various ab-initio levels. Methods which include the effects of electron correlation will also be presented. Evaluation of such methods for studies of molecular geometry, conformational problems, thermochemical data, and spectroscopic parameters is presented. Other topics considered may include the electronic structure of hydrogen bonded systems and of excited states.

Prerequisite: MATH 13 and CHEM 76 or equivalent, or permission of the instructor

Cross-Listed as: CHEM 101.1

Distributive: Dist:SCI

CHEM 96.02 - Statistical Thermodynamics

Instructor: Cantor

Elements of equilibrium statistical thermodynamics for classical and quantum mechanical systems, with applications to ideal gases, crystalline solids, imperfect gases and liquids.

Prerequisite: MATH 13 and CHEM 76 or equivalent or permission of instructor

Cross-Listed as: CHEM 101.2

CHEM 96.03 - Molecular Spectroscopy

Instructor: Winn

A study of optical spectroscopy including selected topics from amongst point group theory, vibrational spectra of polyatomic molecules, electronic and vibronic spectra of molecules and rotational spectra. May be offered on tutorial basis.

Prerequisite: CHEM 76 or equivalent, or permission of the instructor

Cross-Listed as: CHEM 101.3

Distributive: Dist:SCI

CHEM 96.04 - Chemistry of Macromolecules

Instructor: Lipson

Light scattering and other characterization techniques; thermodynamic and transport properties of macromolecular solutions. Structure-property correlations in amorphous and crystalline polymers.

Prerequisite: CHEM 75 or permission of the instructor

Cross-Listed as: CHEM 101.4

Distributive: Dist:SCI

CHEM 96.07 - Introduction to Materials Chemistry

Instructor: BelBruno

This course begins with a review of fundamental concepts in material science, provides an introduction to some of the more advanced concepts, especially in regard to nanomaterials and, finally, focuses on the chemistry involved both in production of modern materials and their uses. The latter topics include the chemistry of thin films, self-assembled chemical systems, surface chemistry and cluster chemistry.

Prerequisite: Background in Chemistry equivalent to CHEM 76 or Physics equivalent to PHYS 24 or Engineering equivalent to ENGS 24 or permission of instructor

Cross-Listed as: CHEM 101.7

Distributive: Dist:SCI

Offered: 15F: Arrange

CHEM 96.08 - Chemical Kinetics

Instructor: BelBruno

Kinetics of chemical reactions in various media: reaction rate expressions, mechanisms, elementary processes. Elementary theories of rate processes: activated complex theory, elementary collision theory, unimolecular decomposition. Such topics as diffusion control of reactions, catalysis and photochemistry will be treated as time allows.

Prerequisite: MATH 13 and CHEM 76 or equivalent or permission of the instructor

Cross-Listed as: CHEM 101.8

Classics - Classical Studies; Greek; Latin

Chair: P. Christesen

Professors P. Christesen, M. R. Graver, R.L. Stewart, R. B. Ulrich, L. J. Whaley; Emeriti Professor E. Bradley, N.A. Doenges, J.B. Rutter, W.C. Scott, J.H. Tatum; Associate Professors P. Chaudhuri, H. P. Tell; Associate Professor Emerita M. Williamson; Assistant Professors J. Hruby, M. Lurie; Lecturer T.G. Hendrickson, Visiting Lecturer: R. Cioffi; Affiliated Faculty: Professor I. Kacandes; Associate Professor M. Otter; Senior Lecturer T.J. Pulju

Additional information regarding the Classics Department can be found at the World Wide Web location classics.dartmouth.edu/

To view Classical Studies courses, click here (p. 166).

To view Greek courses, click here (p. 171).

To view Latin courses, click here (p. 172).

Requirements for the Major in Classical Languages and Literatures

1. Any six language courses in Greek and/or Latin numbered 10 or higher (excluding GRK 11).
2. Two courses distributed as follows: one course selected from CLST 2 through CLST 5; one course selected from CLST 14 through CLST 26.
3. Two additional courses selected from: any Classical Studies numbered 2 or higher; any course in Greek or Latin numbered 10 or higher (excluding GRK 11); ARTH 21, ARTH 22, ARTH 25, COLT 10, PHIL 11.
4. Completion of Culminating Experience Requirement (description following all major and minor requirement listings).

Requirements for the Modified Major in Classical Languages and Literatures

1. Any five courses in Greek and/or Latin numbered 10 or higher (excluding GRK 11).
2. Completion of Culminating Experience Requirement (description following all major and minor requirement listings).

Requirements for the Minor in Classical Languages and Literatures

1. Any four courses in Greek and/or Latin numbered 10 or higher (excluding GRK 11).
2. One course selected from: CLST 2 through CLST 5, CLST 29 through CLST 31; any course in Greek or Latin numbered 10 or higher (excluding GRK 11); COLT 10's, PHIL 11.
3. One course in ancient history or archaeology selected from CLST 14 through CLST 26.

Requirements for the Major in Ancient History

Prerequisite: GRK 10 *or* LAT 10, or equivalent.

Requirements:

1. CLST 14 and CLST 17.
2. Three additional courses in ancient history selected from: CLST 11's, CLST 15, CLST 18, CLST 29 (*if* written on an historical topic), and CLST 31.
3. CLST 19.
4. Two Greek or Latin courses numbered 20 or higher.
5. Two additional courses selected from: courses in Ancient History listed under (2) above; courses in Classical Archaeology (CLST 6, CLST 20 through CLST 26); courses in Greek or Latin numbered 20 or higher; CLST 3.
6. Completion of Culminating Experience Requirement (description following all major and minor requirement listings).

One related course from outside the Classics Department may, with departmental approval, serve in partial satisfaction of this requirement (for example, a thematically appropriate offering of HIST 95).

Requirements for the Minor in Ancient History

1. Four courses in ancient history selected from CLST 11's, CLST 14, CLST 15, CLST 17 through CLST 19.
2. Two courses in Classical archaeology selected from CLST 6, CLST 20 through CLST 26.
3. One additional course selected from: ancient history (listed in 1 above); Classical archaeology (listed in 2 above); courses in Greek and Latin numbered 10 or higher (excluding GRK 11); CLST 2 through CLST 5 or CLST 12.

Participation in either of the Classics Department's Foreign Study Programs will meet the requirements for two of the above seven courses, one in archaeology and one in ancient history (CLST 30's and CLST 31 respectively).

Requirements for the Major in Classical Archaeology

Prerequisite: CLST 6, GRK 3 or LAT 3, or equivalent.

Requirements:

1. One course in ancient history selected from CLST 14, CLST 15, CLST 17, CLST 18, or CLST 19.
2. Three courses in Classical Archaeology selected from CLST 20 through CLST 26.
3. Two courses from the Greek or Roman Foreign Study Programs (CLST 29, CLST 30's, CLST 31).
4. Two courses in ancient Greek or Latin numbered 10 or higher (excluding GRK 11).

5. Two additional courses selected from: all remaining Classical Studies offerings, CLST 2 or higher; courses in Greek or Latin numbered 10 or higher (excluding GRK 11); ARTH 20, ARTH 21, ARTH 22, or ARTH 25.
6. Completion of Culminating Experience Requirement (description following all major and minor requirement listings).

Requirements for the Modified Major in Classical Archaeology

Prerequisite: GRK 10 *or* LAT 10, or equivalent.

Requirements:

1. Four courses selected from CLST 20 through CLST 26.
2. One course in ancient history selected from CLST 14, CLST 15, CLST 17, CLST 18, or CLST 19.
3. One additional course selected from: all remaining Classical Studies offerings, CLST 2 or higher; courses in Greek or Latin numbered 10 or higher (excluding Greek 11).

Participation in either of the Department's two Foreign Study Programs will meet the requirements for two of the above six courses, one in archaeology and one in history (CLST 30's and CLST 31 respectively).

Requirements for the Minor in Classical Archaeology

Prerequisite: CLST 6.

Requirements:

1. Two courses in ancient history selected from CLST 11, CLST 14, CLST 15, CLST 17, CLST 18, or CLST 19.
2. Four courses in Classical archaeology: two in Greek archaeology (CLST 20 through CLST 23) and two in Roman archaeology (CLST 24-26).

Participation in either of the Department's two Foreign Study Programs will meet the requirements for two of the above six courses, one in archaeology and one in history (CLST 30's and CLST 31 respectively).

Requirements for the Major in Classical Studies

Prerequisite: Two courses selected from CLST 1, CLST 4, CLST 6; LAT 3; GRK 3.

Requirements:

1. Two courses in ancient history selected from CLST 11, CLST 14, CLST 15, CLST 17, CLST 18, CLST 19 and CLST 31.
2. Two courses in Classical archaeology selected from CLST 20 through CLST 26; CLST 30's.

3. Two courses in classical languages and literature selected from CLST 2 through CLST 5, CLST 10's, and CLST 12, exclusive of the courses selected prerequisites; courses in Greek or Latin numbered 10 or higher (excluding GRK 11).
4. Two additional courses selected from: all remaining Classical Studies offerings, courses in Greek or Latin numbered 10 or higher (excluding GRK 11); ARTH 20, ARTH 21, ARTH 22, or ARTH 25; COLT 10's (when the content of the course focuses on Classical literature); PHIL 11
5. Completion of Culminating Experience Requirement (description following all major and minor requirement listings).

No more than two courses from a Classics Foreign Study Program may count towards the major (four courses can be counted by participation on both the Greek and Rome FSP programs).

Requirements for the Minor in Classical Studies

Prerequisite: One course selected from CLST 1 through CLST 5; LAT 3; GRK 3.

Requirements:

1. Two courses in ancient history selected from CLST 11's, CLST 14, CLST 15, CLST 17, CLST 18, CLST 19 and CLST 31
2. Two courses in Classical archaeology (CLST 20 through CLST 26; CLST 30's).
3. Two courses in Classical languages and literature selected from: CLST 2 through CLST 5, CLST 10's, exclusive of the course selected as a prerequisite; courses in Greek or Latin numbered 10 or higher (excluding GRK 11).

Participation in either of the Department's two Foreign Study Programs will meet the requirements for two of the above six courses, one in archaeology and one in history (CLST 30's and CLST 31 respectively).

Culminating Experience Requirement

In order to complete the Culminating Experience Requirement, students must enroll in an Honors Project (*or*) Participate in both Foreign Study Programs (Greece and Rome) (*or*) enroll during their junior or senior year in one additional course from among the offerings designated by the department as appropriate for that year. In all cases the Culminating Experience will include a significant research paper or equivalent project. All students must confirm their choice of culminating course with their advisor (or the Chair) not later than May 1 of their junior year; their selection is subject to final approval by the Department.

Requirements for All Modified Major Programs

Students wishing to design a Modified Major in Classical Languages and Literatures, Classical Archaeology, or Classical Studies must submit a written rationale demonstrating the intellectual coherence of their proposed program. The complete proposal must be formally approved by the Department of Classics. The program must include at least five courses offered by other departments and programs in addition to the prerequisites and major courses in Classics. One of these courses in other departments may be identified as prerequisite.

Study Programs Abroad

The Department of Classics sponsors two foreign study programs, one during the fall (odd numbered years) and one during the spring term (odd numbered years), each directed by a member of the faculty of the Department of Classics. Participation in either of the Department's two Foreign Study Programs will meet major requirements, one in archaeology and one in history (CLST 30's and CLST 31 respectively).

The Greek Program

This program, while loosely based in Athens, consists for the most part of extensive field trips under the direction of a member of the Department of Classics to various parts of the ancient Greek world, including Crete, northern Greece (Macedonia and Epirus), western Turkey, and the Aegean islands. The itinerary varies from offering to offering depending upon the interests of the students and the accompanying Dartmouth faculty member. It is designed for qualified students interested in Greek archaeology, art, history, and literature. Archaeologists resident in Greece are invited to provide special tours and offer lectures about important sites or museum collections that are especially well known to them. Two weeks are set aside during the program for independent travel and research related to each student's independent study project.

The Roman Program

By means of extensive field trips throughout the Italian peninsula (e.g., Latium, Tuscany, Campania, Umbria) students engage in a systematic investigation of the sites, monuments, and artifacts of the Etruscan, Roman, and palaeo-Christian cultures of Italy under the direction of Dartmouth faculty. The aim of the program is to develop a coherent understanding of the processes of origin and growth, conflict and change in ancient Italy. To this end, the monuments of post-Classical Italy are also examined whenever possible, so that students may begin to understand the profound and continuing influence of ancient Italic cultures upon the development of western Europe.

The curriculum embraces architecture, the visual arts, history, religion, and the basic techniques of archaeological analysis. Students learn to see and understand the Roman world in its own context through informal lectures and

discussion in situ, under the open sky. The academic requirements consist of short weekly papers, oral reports, and an optional independent study project.

Senior Honors Program

Students eligible for the honors program in Classical Languages and Literatures, Ancient History, Classical Archaeology, or Classical Studies may elect one of three projects for their senior year: a thesis, a comprehensive examination, or an honors essay and a written examination on connected subjects. They should identify their principal advisor and submit a formal proposal to the chair of the department *by May 1 st of their junior year* for admission to the program.

Only those students who satisfactorily complete an honors program with a B+ average or better will earn Honors in their major or, in appropriate cases, High Honors. High Honors will be granted only by vote of the Department on the basis of outstanding independent work.

Students in the honors program are responsible for selecting their principal advisers from among the departmental faculty; the Department will assign a second reader to each honors student. The principal adviser will approve a reading list for the student and check his or her progress at regular intervals during the year in order to assure adequate progress towards completion of the honors program on schedule.

Transfer Credit for Majors

Transfer credit in Classical Studies, Greek and Latin is granted by prior arrangement to majors in the Department of Classics. Exceptions to this policy can be made only by petition to the Department.

CLST - Classical Studies Courses

To view Classics requirements, click here (p. 163).

CLST 1 - Antiquity Today: An Introduction to Classical Studies

Instructor: Christesen

Which ancient faces and personalities come alive for us when we look back at Greek and Roman antiquity? How were the Greeks and Romans like us, and how different? How and why does their world-and what we have inherited from their world-intrigue, repel, awe, amuse, or disturb us, and how much is that to do with our own preoccupations? Taking as its starting point the interface between Classical antiquity and the twenty-first century, this course explores a selection of topics that will introduce you to the different areas and disciplines that make up Classics in the new millennium. Open to all classes.

Distributive: Dist:INT or LIT; WCult:CI

Offered: 16W, 17W: 10

CLST 2 - The Tragedy and Comedy of Greece and Rome

Instructor: Lurie

The course studies in translation selected works of Aeschylus, Sophocles, Euripides, Seneca (tragedy), Aristophanes and Plautus (comedy), and some of their central themes and questions: law, community, revenge, passion, and justice. We will approach them both as texts and as scripts/librettos, considering their relationship to other types of performance (ritual, rhetoric, music, dance) and genres (history, philosophy) as well as to theatrical space. There will be practical workshop opportunities for those interested. Open to all classes.

Distributive: Dist:ART; WCult:W

Offered: 16S, 17S: 12

CLST 3 - Reason and the Good Life: Socrates to Epictetus

Instructor: Graver

An introduction to philosophical thought in antiquity, especially that of Socrates, Epicurus, and the Stoics. We will concentrate especially on ethical questions; e.g. what kind of life is best for humans to pursue, how thoughtful persons should weigh the potentially competing claims of reason, pleasure, and emotion; and on how intellectual activity was perceived at Athens and at Rome. Readings to include Aristophanes' *Clouds*, Plato's *Apology* and *Meno*, and selected writings of Epicurus, Lucretius, Cicero, Seneca, and Epictetus. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 16F: TBD

CLST 4 - Classical Mythology

Instructor: Cioffi, Staff

An introduction to Greek myths and the way in which their use in literature developed, from the use of myths as religious story to the utilization of myth in drama and its exploitation in poetry. Open to all classes.

Distributive: Dist:TMV; WCult:CI

Offered: 16X: 12

CLST 5 - The Heroic Vision: Epics of Greece and Rome

Instructor: Hendrickson

Homer's *Iliad* and *Odyssey*, Vergil's *Aeneid*, and Ovid's *Metamorphoses* are among the best known and most influential works to survive from the ancient world. Yet as products of societies vastly different from our own, they remain challengingly unfamiliar. This course offers the

chance to study these four epics in their entirety, together with the *Argonautica* of Apollonius of Rhodes and extensive selections from Lucretius' *De Rerum Natura*. Emphasis will be placed on the historical and cultural contexts in which the poems were produced and on how each poet uses the works of his predecessors to define his own place in the epic tradition.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 2

CLST 6 - Introduction to Classical Archaeology

Instructor: Hruby

This course addresses the basic methods and principles of Classical archaeology through a survey of the sites and artifacts of Greco-Roman antiquity. Approaches useful for the interpretation of material evidence and the problems inherent in such interpretation will be explored. Through the study of major sites in chronological sequence, students will survey the development of material culture in the Mediterranean world from prehistory to the collapse of the Roman Empire. The course thus serves as an introduction both to Greek and Roman civilization and to the goals of the discipline of archaeology. Open to all classes.

Distributive: Dist:INT or ART; WCult:W

Offered: 15F, 16F: 10

CLST 7 - First-Year Seminars in Classical Studies

Offered: Consult special listings

CLST 10.02 - Seeing Nature: Aristotle and Darwin

Instructor: Tell

In this class, we will explore how Aristotle (the father of science) and Darwin (the father of modern biology) developed their ideas about the organization of nature and human society. We will analyze the assumptions they made, what facts and knowledge were available to them, and the dominant social views of their time. In addition, we will consider how our own understanding of the world is shaped by the same forces - with its constraints and possibilities

Cross-Listed as: BIOL 10.01

Distributive: Dist:TMV; WCult:W

Offered: 16S: 2

CLST 10.03 - Ancient Texts on Mind and Emotion

Investigates psychological models put forward by major thinkers from Greece and Rome, from Plato's "tripartite psyche" to Galen's reading of Medea's mental conflict. Topics to be studied include sense perception, action and emotion, anger management, and consolation for personal loss. Graver.

Offered: Not offered in the period 2015-17

CLST 11.04 - Sport and Democratization

Instructor: Christesen

(Identical to Sociology 49.19). The relationship between democratization in society and in sports forms the subject matter of this course. We will begin to explore that relationship by looking at the various ways in which democratization in society and in sports influence each other in the modern world. Then we will turn our attention to the past and examine the relationship between democratization in society and in sports in sixth- and fifth-century BCE Greece, in nineteenth-century CE Britain, and in twentieth-century CE America. The course will end with a consideration of the lessons we have learned about democratization in society and in sports for public policy in the United States and elsewhere.

Cross-Listed as: SOCY 49.19

Distributive: Dist:INT or SOC; WCult:W

Offered: 16W: 12; 16F: 9

CLST 11.05 - Greek and Roman Engineering and Technology

Instructor: Ulrich

This special topics course offers an introduction to the most important machines and processes of Greek and Roman technology. Emphasis will be on the practical implications and applications of ancient technologies and engineering. Within the broad range of technologies surveyed, students will focus on specific case studies to provide deeper analysis and understanding of individual topics. Reading will be based on a textbook and selected chapters and articles from secondary sources. Greek and Roman writers will also be read in translation. Open to all students.

Distributive: Dist:TAS; WCult:W

Offered: 16S: 10

CLST 11.07 - Slave Societies Ancient and Modern: Imperial Rome and Brazil

Instructor: Stewart/Smolin

Although slavery has existed in virtually all cultures, scholars of comparative world slavery have identified only five societies in all of human history as "slave societies": two were in the ancient world (classical Athens, Rome) and three were in the New World (the American South, the Caribbean, Brazil). This course examines slave systems in the ancient and modern worlds comparatively, focusing on Rome and Brazil. In Rome, the emergence of the state, including the development of the concept of the citizen, coincided with the development of the slave society. African slavery in Brazil was introduced soon after the establishment of the colonial government and drew heavily from classical legal definitions. In this course we compare

the social and political structures of these two slave systems (high art, popular culture, institutions). We examine how each slave society was legitimated, perpetuated-and ultimately challenged. Specific topics include: the construction of the slave and the emergence of racializing discourse, the slave trade and the commodification of the body, trickster narratives, modern theories of power and domination, resistance and rebellion, and the problem of freedom for previously dominated peoples. Through comparison, students will not only become aware of the similarities between these two slave societies, but will also be better equipped to evaluate their unique qualities and particular achievements.

Cross-Listed as: LACS 30.10

Distributive: Dist:TAS; WCult:W

Offered: 16S: 12

CLST 14 - Greek History: Archaic and Classical Greece

Instructor: Christesen

This course is designed to survey the major events in the history of ancient Greece from c.1600 B.C. (the emergence of palatial culture in the Mycenaean World) to 404 B.C. (the end of the Peloponnesian War). During this period, the Greeks formed individual communities and developed unique political structures, spread their culture, language, and religion throughout the Mediterranean, invented democracy (at Athens) and enshrined these values in their art and literature. This course will cover the physical setting of and the archaic legacy to the classical city-state, its economy, its civic and religious institutions, the waging of war between cities, the occurrence and ancient analysis of conflict within the city, and the public and private lives of its citizens and less well-known classes, such as women, children, slaves, etc. Open to all classes.

Cross-Listed as: HIST 94.03

Distributive: Dist:SOC; WCult:W

Offered: 15F: 11

CLST 15 - Alexander the Great and the Macedonian Kings

Instructor: Christesen

This course has two aims: (1) to establish a basic understanding of the history of Alexander the Great and of Greek-speaking peoples in the eastern Mediterranean during the fourth through first centuries BCE and (2) to explore the cultural, military, political, and economic innovations of what was a singular age of experimentation. May be taken in partial fulfillment of the major in History. Open to all classes.

Cross-Listed as: HIST 94.04

Distributive: Dist:INT or SOC; WCult:W

Offered: 16F: 11

CLST 17 - Roman History: The Republic

Instructor: Stewart

This course surveys the history of the Roman people from 753 (traditional date of the founding of Rome) to 44 B.C. (the assassination of Julius Caesar). Topics include the development of Roman law, the conquest of all lands bordering on the Mediterranean, and the civil wars that destroyed Republican government. Particular emphasis is placed on the Roman political community: the political, religious and social factors that influenced the definition of the Roman aristocracy in the fourth century, the institutions that maintained the ascendancy of the elite, the military and political values inherent in the citizenship, the social and political mechanisms that militated against civil dissent, and the role of political values in the eventual destruction of Republican government from within. May be taken in partial fulfillment of the major in History. Open to all classes.

Cross-Listed as: HIST 94.05

Distributive: Dist:SOC; WCult:W

Offered: 17W: 12

CLST 18 - History of the Roman Empire: Roman Principate to Christian Empire

Instructor: Stewart

This course is designed to survey the major events in the history of Rome from 31 B.C. (Octavian/Augustus' success at the battle of Actium) through the accession and rule of Septimius Severus. During this period, the Roman empire (signifying the territorial extent conquered by Roman armies and administered by Roman officials) became a political community extending throughout the Mediterranean and northwards into Europe as far as Scotland. This course considers the logic of the Roman system: the mechanisms promoting the political identity of diverse peoples as Roman, and the endurance of local traditions within the Roman world; the reasoning whereby the overarching leadership of a single individual was conceived as necessary and good, and the evolving relationship between the princeps and the Roman senatorial aristocracy with a tradition of competitive participation and self identity in politics at Rome; the definition of the Roman frontiers and the role of the army in the assimilation of non-Roman peoples. May be taken in partial fulfillment of the major in History. Open to all classes.

Cross-Listed as: HIST 94.06

Distributive: Dist:INT or SOC; WCult:W

Offered: 16W: 12

CLST 19 - Methods and Theory in Ancient History

Instructor: Stewart

This course is designed to introduce the student to the various types of documentary evidence available to the ancient historian and to the various perspectives for framing and answering historical questions. We consider the interpretive methodologies for each type of document (coin, inscription, papyrus) as well as the particular historical context in which these documents were produced. Topics include the function of coinage and economic thinking in the ancient world and the political significance of the publication of law. The final weeks of the term allow for in-depth consideration of a specific problem in ancient history. May be taken in partial fulfillment of the major in History. Open to all classes.

Cross-Listed as: HIST 94.07

Distributive: Dist:SOC; WCult:W

Offered: 17S: 12

CLST 20 - Greek Prehistoric Archaeology: The Emergence of Civilization in the Aegean

Instructor: Hruby

This course traces the cultural evolution of humanity in the Aegean basin from the era of hunting and gathering (Palaeolithic-Mesolithic) through the early village farming stage (Neolithic) and the formative period of Aegean civilization (Early Bronze Age) into the age of the great palatial cultures of Minoan Crete and Mycenaean Greece. The emphasis in the early part of the course will be on the different economic bases of early life in the Aegean and on regional variation within it. In the latter half of the course, study of the palaces, fortified citadels, and royal tombs at such sites as Knossos, Mycenae, Tiryns, and Troy will lead to discussions of the Greek myths about Atlantis, King Minos' sea empire, and the Trojan War, and their basis in historical fact. May be taken in partial fulfillment of the major in Art History. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 12

CLST 21 - From Disaster to Triumph: Greek Archaeology from the Destruction of Mycenae to the Persian Wars

Instructor: Hruby

This course examines in detail through archaeology the cultural process whereby Greece evolved from a scattered group of isolated and backward villages in the Dark Ages (ca. 1100-750 B.C.) to a series of independent, often cosmopolitan city-states united against the threat of Xerxes' invasion of Greece in 480 B.C. Where did the Greeks acquire the concept of monumental temple architecture and why did they choose to build temples in

only two or three different architectural styles? Where did the Greeks learn to write in an alphabetic script and what did they first write down? Who taught the Greeks the art of sculpture and why did they begin by carving what they did? When and why did the Greeks begin to portray their myths in art? May be taken in partial fulfillment of the major in Art History. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 11

CLST 22 - Greek Classical Archaeology: City-States and Panhellenic Sanctuaries

Instructor: Hruby

From the allied Greeks' expulsion of Persian invaders through their great victories at Plataea and Mykale in 479 B.C. to their catastrophic defeat by Philip, Alexander, and the Macedonians at Chaeronea in 338 B.C., the history of Greek culture is that of dozens of individual city-states in constant competition for hegemony in a wide variety of different arenas, from battlefield to stadium to pan-Hellenic sanctuary. In this course, particular attention is paid to the material cultural achievements of the richest and artistically most influential of these poleis, the city of Athens, when that city developed the western world's first democracy, built the Parthenon, and played host to the schools established by Plato and Aristotle. May be taken in partial fulfillment of the major in Art History. Open to all classes.

Distributive: Dist:ART; WCult:W

Offered: 17W: 11

CLST 24 - Etruscan and Early Roman Archaeology: The Rise of Rome

Instructor: Ulrich

This course begins with the archaeology of Late Neolithic and Iron Age Italy, then focuses upon the Etruscans, early Latium and the development of Republican Rome and her colonies, concluding with the death of Caesar in 44 B.C. In addition to the chronological development of the material culture of Italy, we will explore at least two important cultural topics: 1) Etruscan religion and its influence on the Roman sacro-political system; 2) the machinery of Roman government as expressed in the spaces in Rome (and other sites) that played host to political ritual: the Arx, the Forum, the Comitium, the Curia, the Tribunal and the Basilica. May be taken in partial fulfillment of the major in Art History. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 16F: 12

CLST 25 - Early Roman Imperial Archaeology: The First Emperors

Instructor: Ulrich

Through archaeological sites and related artifacts, this course examines the Roman empire as it was transformed under the rule of the emperors. This course begins with a close look at the first emperor, Augustus, then continues with an examination of the reigns of the Julio-Claudians, Flavians, and Trajan. Discussion focuses on how ancient Italic traditions were transformed to suit the needs of the Imperial government (for example, the adaptation of the Republican, Hellenized Domus to the Imperial Palatia). The most dramatic change in religious practice is the development of the Imperial cult. Site analysis will stress the need for an imperial idiom, the accommodation of urban masses and the promotion of a sense of a shared cultural experience. The course will also examine the technological developments that led to Rome's 'architectural revolution.' May be taken in partial fulfillment of the major in Art History. Open to all classes.

Distributive: Dist:ART; WCult:W

Offered: 17S: 11

CLST 26 - Later Roman Imperial Archaeology: The Golden Age and Beyond

Instructor: Ulrich

This course surveys Roman archaeology from Hadrian to Constantine. Emphasis is placed upon the Antonine and Severan emperors, then shifts rapidly over most of the mid-third century to focus on Diocletian and the tetrarchy, Constantine and the move of the capital to Constantinople. The course ends with a look at the great church of Hagia Sophia, and consideration of the debt of early Christianity to pagan religious traditions. A major component of the course is the study of the Romanization of the provinces, and, more specifically, the complex process of cultural hybridization (imported Roman traditions melding with local practices). Such sites as Baalbek, Petra, Dura-Europos, Palmyra, Roman Egypt, Tripolitania, Tunisia and Algeria, Constantinian Jerusalem, Trier, Spalato, etc., may be included. May be taken in partial fulfillment of the major in Art History. Open to all classes.

Distributive: Dist:ART; WCult:W

Offered: 16S: 12

CLST 29 - Independent Study Project

Instructor: Stewart

The independent study project to be completed by a student while a member of the Dartmouth Foreign Study Program in Greece or Italy. Prerequisite membership in the Foreign Study Program.

Offered: 15F: D.F.S.P. (Italy)

CLST 30.01 - Classical Art and Archaeology: Study Abroad (with CLST 30.02, 2 course credits)

Instructor: Stewart and Ulrich; Christesen and Hruby

Credit for this course is awarded to students who have successfully completed the work of the Dartmouth Foreign Study Program in Greece or Italy. May be taken in partial fulfillment of the major in Art.

Prerequisite: membership in the Foreign Study Program.

Distributive: Dist:ART; WCult:W

Offered: 15F: D.F.S.P. (Italy); 17S: D.F.S.P. (Greece)

CLST 30.02 - Classical Art and Archaeology: Study Abroad (with CLST 30.01, 2 course credits)

Instructor: Stewart and Ulrich; Christesen and Hruby

Credit for this course is awarded to students who have successfully completed the work of the Dartmouth Foreign Study Program in Greece or Italy. May be taken in partial fulfillment of the major in Art.

Prerequisite: membership in the Foreign Study Program.

Distributive: Dist: ART; WCult: W

Offered: 15F: D.F.S.P. (Italy); 17S: D.F.S.P. (Greece)

CLST 31 - Ancient Literature and History: Study Abroad

Instructor: Stewart and Ulrich; Christesen and Hruby

Credit for this course is awarded to students who have successfully completed the work of the Dartmouth Foreign Study Program in Greece or Italy.

Prerequisite: membership in the Foreign Study Program

Distributive: WCult:W

Offered: 15F: D.F.S.P. (Italy), 17S: D.F.S.P. (Greece)

CLST 40 - Translation: Theory and Practice

Translation is both a basic and highly complicated aspect of our engagement with literature. We often take it for granted; yet the idea of meanings "lost in translation" is commonplace. In this course we work intensively on the craft of translation while exploring its practical, cultural and philosophical implications through readings in theoretical and literary texts. All students complete a variety of translation exercises, and a substantial final project, in their chosen language. Students who wish to use the course for CLST 40 credit must work from Greek or Latin, and should normally have completed at least 2 courses in Greek or Latin above the level of 10, or equivalent.

Prerequisite: Good reading knowledge of a foreign language (usually equivalent to fulfilling the Dartmouth language requirement). Students unsure of their linguistic preparation should consult the instructor.

Cross-Listed as: COLT 19.01

Distributive: Dist:INT or LIT; WCult:W

Offered: Not offered in the period 2015-17

CLST 85 - Independent Reading and Research

Instructor: 16F: Cioffi, Other Terms: Christesen

Offered: All terms: Arrange

CLST 87 - Thesis

Instructor: 16F: Cioffi, Other Terms: Christesen

Independent research and writing under supervision of a member of the Classics faculty. Open to honors students in their senior year and to other qualified students by consent of the Department.

Prerequisite: permission of the instructor.

Offered: All terms: Arrange

GRK - Greek Courses

To view Classics requirements, click here (p. 163).

GRK 1 - Introductory Greek

Instructor: Whaley, Staff

Study of Greek grammar, syntax, and vocabulary accompanied by reading of simple Greek prose selections. Never serves in partial satisfaction of the Distributive or World Culture Requirement.

Offered: 15F: 9S, 16F: 9

GRK 1.02-3.02 - Intensive Greek

Instructor: Tell

This course will introduce students to the fundamentals of Greek grammar in an intensive mode. Students are required to enroll for both time sequences. Through intensive drills and graded readings, the basic features of Greek grammar will be presented rapidly. Completion of this double course will allow a student to enroll in Greek 10 or to read simple Greek prose independently. The course satisfies the college language requirement. *Never serves in partial satisfaction of the Distributive Requirement.*

Offered: 16W, 17W: 9 and 2

GRK 3 - Intermediate Greek

Instructor: Lurie, Staff

Continued study of Greek grammar and syntax. Readings in Greek prose authors. Completion of Greek 3 satisfies the College language requirement and serves as a prerequisite to the major in Classical Archaeology. Never serves in partial satisfaction of the Distributive or World Culture Requirement.

Prerequisite: GRK 1, or equivalent

Offered: 16W, 17W: 9

GRK 10 - Readings in Greek Prose and Poetry

Instructor: Graver, Whaley, Staff

Readings in Greek prose and poetry at the intermediate level, typically including selections from Plato and/or Euripides.

Prerequisite: GRK 3, or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 15F, 16F, 17S: 2; 16S: 10

GRK 11 - Modern Greek I

No previous knowledge of Greek is assumed. Never serves in partial satisfaction of the Distributive or World Culture Requirement.

Offered: Not offered in the period 2015-17

GRK 20 - Homer

Instructor: Tell

Reading in Greek and discussion of selections from the Iliad or Odyssey. Reading of the whole poem in translation and discussion of its character, style, and composition.

Prerequisite: GRK 10, or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 2A; 17S: 10

GRK 22 - The Lyric Age of Greece

Prerequisite: GRK 10, or equivalent.

Distributive: Dist: LIT; WCult: W

Offered: Not offered in the period 2015-17

GRK 24 - Theatre

Instructor: Lurie

A study of the tragedy and comedy of Classical Greece through detailed reading of at least one play of Aeschylus, Euripides, Sophocles, or Aristophanes.

Prerequisite: GRK 10, or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 17W: 2

GRK 26 - Intellectual Enquiry in Classical Athens

Instructor: Lurie

This course centers on the period of intellectual ferment and enquiry in fifth and fourth century Athens, when traditional beliefs came under scrutiny and many different figures laid claim to truth telling, from orators and sophists to poets and the practitioners of philosophy and history. Texts studied will be taken from the following: philosophy (the sophists, the early dialogues of Plato); history (Herodotus and/or Thucydides); the medical writers;

dramatists (Euripides, Aristophanes): orators. Prerequisite: Greek 10 or equivalent.

Prerequisite: GRK 10 or equivalent.

Distributive: Dist:TMV; WCult:W

Offered: 16W: 2

GRK 28 - Philosophy

Instructor: Graver

Our goals are to learn to read Plato's Greek with accuracy and comprehension, and to become engaged with Plato's thought through a close study of one of his dialogues. We will have occasion to consult other Platonic texts in translation and in Greek.

Distributive: Dist:TMV; WCult:W

Offered: 15F: 2

GRK 29 - New Testament

Instructor: Whaley

A brief introduction to the language, vocabulary, and idiom of New Testament Greek, followed by readings in the Gospels and the Epistles of St. Paul.

Prerequisite: GRK 10, or equivalent.

Distributive: Dist:TMV; WCult:W

Offered: 16F: 2

GRK 30.03 - Studies in Greek and Latin Literature

A joint seminar for students in Greek and Latin on a topic that will involve common meetings of both Greek students and Latin students, as well as selected texts in Greek for those electing Greek 30, and texts in Latin for those electing Latin 30. Previous topics have been such themes as "Tragicomedies" (a cross reading of Euripides and Plautus) and "The Poet and the City."

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period 2015-17

GRK 30.04 - Ancient Fiction: The Greek and Roman Novels

Instructor: Cioffi

Close reading of Greek and Roman novels in the original in addition to wider-reading in translation, with particularly attention to narrative, genre, and literary and cultural context.

Cross-Listed as: LAT 30.03

Distributive: Dist:LIT; WCult:W

Offered: 15X: Arrange

GRK 85 - Independent Reading and Research

Instructor: 16F: Cioffi, Other Terms: Christesen

Offered: All terms: Arrange

GRK 87 - Thesis

Instructor: 16F: Cioffi, Other Terms: Christesen

Independent research and writing under the supervision of a Department member. Open to honors students in their senior year and other qualified students by the consent of the Department.

Prerequisite: permission of the instructor.

Offered: All terms: Arrange

LAT - Latin Courses

To view Classics requirements, click here (p. 163).

LAT 1 - Introductory Latin

Instructor: Christesen, Staff, Hendrickson, Staff

Introduction to Latin grammar, vocabulary, and syntax through prose readings of gradually increasing difficulty. Never serves in partial satisfaction of the Distributive or World Culture Requirement.

Offered: 15F, 16F: 9, 2; 16W: 9, 17W: 9

LAT 3 - Intermediate Latin

Instructor: Cioffi, Staff

Continued study of Latin grammar, vocabulary, and syntax with reading of selected literary texts. Completion of Latin 3 satisfies the College language requirement. Never serves in partial satisfaction of the Distributive or World Culture Requirement.

Prerequisite: LAT 1, or equivalent.

Offered: 16W: 9, 2; 16S, 17S: 9; 17W: 9, 2

LAT 10 - Readings in Latin Prose and Poetry

Instructor: Lurie, Stewart, Staff

Readings in Latin prose and poetry at the intermediate level, typically including selections from Catullus, Cicero, Livy, or Ovid.

Prerequisite: LAT 3, or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10, 2 17S: 9

LAT 15 - Literature and the Romans

Instructor: Hendrickson, Staff

This course introduces some new ways of thinking about reading and writing in the Roman world. Beginning with the physical history of ancient books and publication

methods, we will proceed to examine typical tricks and strategies of Roman writers to inform, move, or amuse their readers. Readings are a mixture of poetry (e.g. Catullus, Vergil's Eclogues, short poems of Martial) and prose (e.g. Cicero's personal letters, biographical notices), supported by a structured vocabulary program and review of key grammatical concepts.

Prerequisite: LAT 3 or LAT 10, or equivalent preparation in secondary school.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 9L; 16F: 9

LAT 20 - Vergil

Instructor: Chaudhuri

We will consider how Vergil's tripartite career (Eclogues, Georgics, Aeneid) relates to his difficult political situation and how it sets him apart from earlier Roman poets. We will read from all three of these major works, but will spend most time on Aeneid IX, which is especially interesting for its searching questions about the intersections between heroism and the realities of war.

Prerequisite: LAT 10 or equivalent

Distributive: Dist:LIT; WCult:W

Offered: 17W: 10A

LAT 22 - Literature of the Republic

Instructor: Graver, Staff

In this class we will read Cicero's speech on behalf of Aulus Cluentius (*Pro Cluentio*) as an example of Roman legal argument. In his speech Cicero provides a witty reprise of the previous trials involving the litigants and a summary of the judicial system and the mechanisms that monitored it. Analyzing Cicero's arguments, students will come away familiar with an important Ciceronian speech, the principles of Latin rhetorical speech, and the relationship between Roman law and courtroom oratory.

Prerequisite: LAT 10 or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 15F, 16F: 10A

LAT 24 - The Augustan Age

Instructor: Cioffi

Representative texts from the rich literary output of Vergil's contemporaries during the principate of Augustus: Horace, Livy, and/or the love elegists Tibullus, Propertius, and Sulpicia.

Prerequisite: LAT 10 or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10A

LAT 26 - Literature of the Early Empire

Instructor: Staff

The particular interest of the course is in the inner dynamics of literary works that gesture toward an emperor as the premier internal reader. Readings include Horace's *Epistle to Augustus*, Ovid's *Letters from Pontus*, Seneca's *On Clemency*, Martial's humorous epigrams, and selections from Lucan and Tacitus.

Prerequisite: LAT 10 or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 17S: 2A

LAT 28 - Literature of the Later Empire and the Middle Ages

Instructor: Hendrickson

Readings from the late Empire to the high Middle Ages that may include selections from the Vulgate, St. Augustine's *Confessions*, the *Passion of Saints Perpetua and Felicity*, Hrotsvitha's *Dulcinius*, and the *Carmina Burana*.

Prerequisite: LAT 10 or equivalent.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10A

LAT 30.02 - Studies in Greek and Latin Literature

Instructor: Staff

A joint seminar for students in Greek and Latin on a topic that will involve common meetings of both Greek students and Latin students, as well as selected texts in Greek for those electing Greek 30, and texts in Latin for those electing Latin 30. Previous topics have been such themes as "Tragicomedy" (a cross reading of Euripides and Plautus) and "The Poet and the City."

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period 2015-17

LAT 30.03 - Ancient Fiction: The Greek and Roman Novels

Instructor: Cioffi

Close reading of Greek and Roman novels in the original in addition to wider-reading in translation, with particularly attention to narrative, genre, and literary and cultural context.

Cross-Listed as: GRK 30.04

Distributive: Dist:LIT; WCult:W

Offered: 15X: Arrange

LAT 85 - Independent Reading and Research

Instructor: 16F: Cioffi, Other Terms: Christesen

Offered: All terms: Arrange

LAT 87 - Thesis

Instructor: 16F: Cioffi, Other Terms: Christesen

Independent research and writing under the supervision of a member of the Classics faculty. Open to honors students in their senior year and to other qualified students by consent of the Department.

Prerequisite: permission of the instructor.

Offered: All terms: Arrange

Cognitive Science

Chair: Adina Roskies (Philosophy)

Professors S. J. Brison (Philosophy), D.J. Bucci (Psychological and Brain Science), M. A. Casey (Music, Computer Science), H. Farid (Computer Science), R. H. Granger (Psychology), H. C. Hughes (Psychology), J. H. Moor (Philosophy), A. L. Roskies (Philosophy), L. Whaley (Classics, Linguistics); Associate Professors D. Balkom (Computer Science), J. V. Kulvicki (Philosophy), D. A. Peterson (Linguistics), L. Torresani (Computer Science), P. U. Tse (Psychology), T. Wheatley (Psychological and Brain Sciences); Assistant Professor: F. Briggs (Physiology and Neurobiology), D. Kraemer (Education), A. Soltani (Psychological and Brain Sciences), J. N. Stanford (Linguistics), C. J. Thomas (Philosophy), K. Walden (Philosophy); Research Assistant Professor: E. A. Cooper (Cognitive Science, Psychological and Brain Sciences)

To view Cognitive Science courses, click here. (p. 175)

Cognitive Science

Cognitive Science is the study of cognition from the point of view of information processing. It combines the traditional fields of cognitive and physiological psychology, computer science, philosophy, and linguistics, among others. Topics of focus include perception, memory, reasoning and language.

The cognitive science program is issue-oriented and relies on methods drawn from a number of disciplines. Students pursuing a major should become familiar with the basic approaches of psychology, philosophy, computer science and linguistics; while the electives allow students to gain specialized knowledge in a particular area of cognitive science. Thus, with guidance of an adviser in the program, the student designs a course of study concentrating on such a field as computer simulations of psychological processes, computational linguistics, or philosophy and psychology.

The prerequisites for the cognitive science major are: (a) COGS 2 and (b) PSYC 10 or SOCY 10 or equivalent.

Core:

1. LING 1
2. COSC 1 (formerly COSC 5)
3. PHIL 26 (Philosophy and Computers) *or* 35 (Philosophy of Mind)
4. PSYC 60 (Principles of Human Brain Mapping with fMRI) or PSYC 64 (Experimental Study of Human Perception and Cognition), or approved equivalent
5. One course that satisfies the requirement for a culminating activity, which may be met in one of three ways:
 - a. completing a senior Honors thesis (COGS 87)
 - b. taking an advanced seminar on perception and cognition (COGS 81); or a relevant advanced seminar in Linguistics (LING 80) or Philosophy (PHIL 80) (or PBS?)
 - c. carrying out a one or two term independent study project (COGS 85).

Electives: Five additional courses selected from those listed below. At least two of the four areas must be represented:

1. PSYC 21, PSYC 25, PSYC 26, PSYC 40, PSYC 51, PSYC 52, PSYC 60, PSYC 64, PSYC 65, and relevant seminars in PSYC
2. PHIL 6, PHIL 26, PHIL 27, PHIL 30, PHIL 32, PHIL 33, PHIL 34, and relevant seminars in Philosophy
3. COSC 10 (formerly COSC 8), COSC 31 (formerly COSC 25), COSC 39, COSC 59 (formerly COSC 68), COSC 76 (formerly COSC 44), and COSC 79 (formerly COSC 53)
4. LING 10, LING 20-26 and relevant seminars in Linguistics

Honors Program

The Honors Program in Cognitive Science offers qualified students the opportunity to undertake independent research under the direction of a faculty member. Students who plan to undertake such a project should have a 3.0 grade average in all courses taken at the College and an average of 3.3 for courses within the major. It is important to consult with a prospective adviser as early as possible, preferably during the junior year; applications to the Honors Program may be submitted to the Chair either during the spring of the junior year or the fall of the senior year. The project itself normally lasts two terms. Students will take COGS 86 the first term and COGS 87 the second. The completed thesis is to be submitted during the spring

term, and then an oral presentation is given at a special seminar of students and faculty.

COGS - Cognitive Science

To view Cognitive Science Requirements, click here (p. 174).

COGS 2 - Cognition

An introduction to the study of thought, memory, language, and attention from the point of view of information processing. In surveying research in cognitive psychology, substantial contact is made with related cognitive sciences, such as artificial intelligence, linguistics, neuroscience, and contemporary philosophy. In the course of examining general principles of cognition, the following topics are discussed: mental imagery; concepts; reasoning; discourse, monetary and courtroom decision making; eye-witness testimony; social attribution and stereotyping; language in chimpanzees; expert systems; the relationship between information processing and conscious experience; and the philosophical foundations of cognitive science.

Prerequisite: PSYC 1 or PSYC 6 or COSC 1

Cross-Listed as: PSYC 28

Distributive: Dist:SOC

COGS 11.01 - Philosophy and Cognitive Science

Instructor: Roskies

What is the mind and how can we model it? This course will cover the classical foundations of cognitive science, and some of the more recent developments in the field. The course is designed to introduce students to central debates and arguments in the philosophy of cognitive science. We will study philosophical views of the relationship between the mind and the physical world, the computational theory of the mind and its implications, connectionism, theories of embodiment, dynamical systems, and recent statistical approaches to cognition. Open to all.

Cross-Listed as: PHIL 10

Offered: 16S: 10

COGS 11.02 - Representation and the Brain

Neuroimaging, and with it cognitive neuroscience, is undergoing a conceptual revolution. This course uses philosophical and neuroscientific approaches to explore the changes in our conceptions of mental and neural representation that are prompted by recent advances in brain imaging that use multivariate approaches to analyzing brain imaging data. These new methods radically change the way we conceive of the nature of mental representation. Using a combination of philosophical texts, scientific review papers, and primary

research papers, we try to re-conceptualize how the brain represents the world.

Cross-Listed as: COCO 5.02, PSYC 51.06

COGS 26 - Philosophy and Computers

Instructor: Moor

The accomplishments of artificial intelligence research and the widespread use of computers in our society confront us with many interesting philosophical questions. What are the limits of artificial intelligence? Could computers ever think or feel? Is the Turing test a good test? Are we really computers? Are there decisions computers should never make? Do computers threaten our privacy in special ways? This course will consider such issues in order to explore the philosophical implications of computing. Open to all classes.

Prerequisite: One Philosophy course, one Cognitive Science course, one Computer Science course, or permission of the instructor.

Cross-Listed as: PHIL 26

Distributive: Dist:TAS

Offered: 16S: 10

COGS 44 - Artificial Intelligence

An introduction to the field of Artificial Intelligence. Topics include games, robotics, motion planning, knowledge representation, logic and theorem proving, probabilistic reasoning over time, understanding of natural languages, and discussions of human intelligence.

Prerequisite: COSC 10. COSC 30 is recommended.

Cross-Listed as: COSC 76

Distributive: Dist:TAS

COGS 85 - Independent Study and Research

This course offers qualified students of cognitive science the opportunity to pursue work on a topic of special interest through an individually designed program. Requires permission of the instructor and the Chair.

Offered: All terms: Arrange

COGS 86 - Honors Research

COGS 86 and COGS 87 consist of independent research and writing on a selected topic under the supervision of a Program member who acts as advisor. Open to honors majors in Cognitive Science. Permission of the thesis advisor and the Chair required.

Offered: All terms: Arrange

COGS 87 - Honors Thesis

COGS 86 and COGS 87 consist of independent research and writing on a selected topic under the supervision of a

Program member who acts as advisor. Open to honors majors in Cognitive Science. Permission of the thesis advisor and the Chair required.

Offered: All terms: Arrange

College Courses

College Courses, introduced in 1968-1969, are interdisciplinary in nature and are intended to appeal to students of widely differing backgrounds and interests. Courses scheduled to be offered from 2014 Fall through 2015 Summer are listed below; courses for later terms will be announced during 2015 winter term.

To view College Courses courses, click here (p. 176).

COCO - College Courses

To view College Courses information, click here (p. 176).

COCO 1.02 - The Analysis and Creation of Biopix: Gauguin and Van Gogh

Instructor: Phillips, B; Ehrlich, D

The class will first study the psychological and dramatic interaction between Van Gogh and Gauguin at Arles as evidenced by Van Gogh's letters to Theo and Gauguin's journals. They will then analyze the interpretations of that interaction in the scripts, direction and acting in films directed by Vincente Minnelli and Robert Altman. Utilizing the knowledge and the empathy gained from these studies, students will then compose an informed series of their own dialogues between these artists, leading to the creation of original scripts for short live-action films. Weekly assigned readings and film viewings should be done prior to each Tuesday's class.

Distributive: DIST: ART

Offered: 15F; 2A

COCO 1.03 - The Sartorial Body: Fashion and the Social Construction of Identity

Instructor: Carroll, J; O'Rourke, K

Everyone wears clothing, but not everyone consciously decodes its messages. This course will use an interdisciplinary approach to examine fashion as material culture, the history of "things" and their meanings. We will analyze clothing as a type of text that contributes to society's discourses through materials, symbols and the expression of Western culture. Objects provide insights into identities, values and relationships in any given society. Clothing is used consciously and unconsciously to articulate status, to represent gender roles, to create culture

and even to intervene in politics. By examining production and presentation of fashion in various media, we will decipher the meanings both hidden from and disseminated to viewers. Fashion's material values make it a component of visual culture. While the course is bracketed by analyses of contemporary communication through fashion, we will focus on historical studies to insure dispassionate evaluation. Use will be made of Dartmouth's historical and theatrical Costume Collection and the Realia collection in Rauner Library.

Our goal is to give you the knowledge and skills that will enable you to understand and appreciate the nuances and complexity encoded in Western fashion over time and still today. We will explore economic, cultural, social, political and art histories. In addition to the mastery of scholarly materials, you will acquire the tools and critical vocabulary needed to analyze visual culture, practice your writing skills and perfect your oral communication. Our focus will be on reception, context and invention.

Offered: 15F; 10

COCO 2 - Seeing Nature: How Aristotle and Darwin Understood Nature and Human Society

Instructor: McPeck, M; Tell, H

In this class, we will explore how Aristotle (the father of science) and Darwin (the father of modern biology) developed their ideas about the organization of nature and human society. We will analyze the assumptions they made, what facts and knowledge were available to them, and the dominant social views of their time. In addition, we will consider how our own understanding of the world is shaped by the same forces - with its constraints and possibilities.

Distributive: TMV; WC=W

Offered: S16; 2

COCO 5 - Visualizing American Cities: Creating Modern Identities

Instructor: Domosh, M; Desjardins, M

Offered: S16; 10A

COCO 5.03 - Slave Societies, Ancient and Modern: Imperial Rome and Brazil

Instructor: Stewart, R; Smolin, J

Although slavery has existed in virtually all cultures, scholars of comparative world slavery have identified only five societies in all of human history as "slave societies": two were in the ancient world (classical Athens, Rome) and three were in the New World (the American South, the Caribbean, Brazil). This course examines slave systems in the ancient and modern worlds comparatively, focusing on Rome and Brazil. In Rome, the emergence of the state, including the development of the concept of the citizen,

coincided with the development of the slave society. African slavery in Brazil was introduced soon after the establishment of the colonial government and drew heavily from classical legal definitions. In this course we compare the social and political structures of these two slave systems (high art, popular culture, institutions). We examine how each slave society was legitimated, perpetuated and ultimately challenged. Specific topics include: the construction of the slave and the emergence of racializing discourse, the slave trade and the commodification of the body, trickster narratives, modern theories of power and domination, resistance and rebellion, and the problem of freedom for previously dominated peoples. Through comparison, students will not only become aware of the similarities between these two slave societies, but will also be better equipped to evaluate their unique qualities and particular achievements.

Cross-Listed as: CLST 11.07

Distributive: LIT or SOC; INT

Offered: S16; TBD

COCO 6 - Autism: Science, Story, and Experience

Instructor: Chaney, S; Hudenko, W

Offered: 16S; TBD

COCO 15 - Introduction to Public Health: An Experiential Approach to Individual, Community, and Population-Based Health

Instructor: Pipas, C

This course will enhance Dartmouth undergraduates' knowledge of public health and foster skills and commitment to improving health, particularly the health of the Upper Valley Community. We will use experiential and collaborative community-based approaches to apply the principles of public health, determinants of health, behavior change, and systems improvement. We will promote a learning environment from which collaborative interventions can occur among Dartmouth undergraduates, graduate school professionals, faculty, physicians and community members, leaders, and organizations.

Distributive: DIST: SOC

Offered: 15F; 10A

Comparative Literature - Undergraduate

Chair: Dennis Washburn

Professors J. V. Crewe (English, Comparative Literature), G. Gemünden (German, Comparative Literature), L. A. Higgins (French and Italian, Comparative Literature), K. Jewell (French and Italian, Comparative Literature), I. Kacandes (German, Comparative Literature), J. M. Kopper (Russian, Comparative Literature), L. D. Kritzman (French and Italian, Comparative Literature), D. P. LaGuardia

(French and Italian, Comparative Literature), A. Lawrence (Film and Media Studies), G. Parati (French and Italian, Comparative Literature), B. Pastor (Spanish and Portuguese, Comparative Literature), S. Spitta (Spanish and Portuguese, Comparative Literature), R. Verona (French and Italian, Comparative Literature), M. R. Warren (Comparative Literature), D. Washburn (AMELL, Comparative Literature, Film and Media Studies); Associate Professors J. Aguado (Spanish and Portuguese), R. E. Biron (Spanish and Portuguese, Comparative Literature), N. Canepa (French and Italian), A. A. Coly (AAAS, Comparative Literature), L. Edmondson (Theater), V. Fuechtner (German), A. Gomez (Spanish and Portuguese), A. Halasz (English), A. Martin (Spanish and Portuguese, Comparative Literature), K. Mladek (German, Comparative Literature), M. Otter (English, Comparative Literature), I. Reyes (Spanish and Portuguese, Comparative Literature), A. Tarnowski (French and Italian, Comparative Literature), M. Williamson (Classics, Comparative Literature); Assistant Professors S. Diaz, (Spanish and Portuguese), Y. Komska (German), S. Munoz (Spanish and Portuguese), J. Smolin (AMELL); Senior Lecturer K. Milich (Liberal Studies), Lecturers P. Carranza (Spanish and Portuguese), J. J. Choi (AMES, Comparative Literature, WGSS), T. Rutler (Comparative Literature), J. C. Smolin (Spanish and Portuguese); Visiting Professor M. Salgueiro, A. Lelchuck; Visiting Associate Professor: W. Phillips

Courses in Comparative Literature are designed to meet the needs of students whose literary interests are broader than those that can be met by the curriculum of any single department.

To view Comparative Literature Undergraduate courses, click here. (p. 178)

To view Comparative Literature Graduate requirements, click here. (p. 552)

To view Comparative Literature Graduate courses, click here. (p. 553)

Requirements for the Major in Comparative Literature

The major seeks to provide an opportunity for selective and varied study of two or more literatures in their relation to each other, or for the study of a foreign literature in its relationship to an extraliterary discipline, such as film, music, or history (see the three options below). Each student's major plan is designed individually around a particular focus of interest. Students planning to major in Comparative Literature will normally enroll in an Honors Program, which entails writing a thesis (60 to 80 pages) during their senior year. Some students may choose to

write two senior essays (about 25 pages each) in lieu of the thesis. Students pursuing the two-paper option will substitute another Comparative Literature course for COLT 87. One senior essay will be written in COLT 85. The second will be written in a course taken senior year that is relevant to the student's course of study. The two-paper option does not carry honors credit.

The major is administered by the Comparative Literature Steering Committee. Students design their major plan in consultation with an advisor and the Chair. All applications to the major must be approved by the Steering Committee. Major cards can be signed only by the Chair. Students interested in becoming majors should consult the Chair well in advance of their intended declaration of a major.

Prerequisite for the major: any from among the COLT 10's.

Required courses: any from among the COLT 72's, COLT 85, and, for honors majors only, COLT 87.

COLT 85 (Senior Seminar) is required to fulfill the culminating experience requirement for students who do not meet the honor requirements, and COLT 85 and COLT 87 (Thesis Tutorial) for students meeting honors requirements.

Major Options

1. Two foreign literatures.

We require fluency in the primary language and competence in the secondary language. Fluency and competence are determined by the chair in consultation with the chair of the relevant foreign language department. Competence is ordinarily defined as completion of the fourth quarter of language study, and fluency as three courses beyond the fourth quarter of study. One course from an LSA+ or FSP may be counted toward work in a language, as long as the course content is primarily literary. This major consists of 10 courses: any from among the COLT 72's, COLT 85, COLT 87; at least 2 additional Comparative Literature courses; 3-4 courses in the primary literature; and 1-2 courses in the secondary literature.

Students interested in graduate study in Comparative Literature are strongly encouraged to choose Major option A.

2. Two literatures (one of which is a literature in English).

We require fluency in the non-anglophone language. Fluency is determined by the chair in consultation with the chair of the relevant foreign language department. One course from an LSA+ or FSP may be counted toward work in a language, as long as the course content is primarily literary. This major consists of 12 courses: any from among the COLT 72's, COLT 85, COLT 87; at least 2 additional Comparative Literature courses; 3-4 courses in the non-anglophone literature; and at least 3 courses in the anglophone literature.

3. A foreign literature and a nonliterary discipline (e.g. literature and music; literature and film; literature and history, etc.). We require fluency in the foreign language. Fluency is determined by the chair in consultation with the chair of the relevant foreign language department. One course from an LSA+ or FSP may be counted toward work in a language, as long as the course content is primarily literary. This major consists of 12 courses: any from among the COLT 72's, COLT 85, COLT 87; at least 2 additional Comparative Literature courses; 3-4 courses in the foreign literature; and at least 3 courses in the nonliterary discipline.

COLT - Comparative Literature - Undergraduate Courses

To view Comparative Literature Undergraduate requirements, click here. (p. 177)

To view Comparative Literature Graduate requirements, click here. (p. 552)

To view Comparative Literature Graduate courses, click here. (p. 553)

COLT 1 - Read the World

Instructor: Biron, Washburn

Do you know how to read? Faces. Words. Pictures. Bodies. Games. Books. People. What are you really doing when you *read the world*? This course teaches comparative methods designed to confront the (mis)understandings and (mis)translations that constitute reading across the world's languages, locations, cultures, historical periods, and expressive forms. Classwork consists of hands-on exercises that engage ancient and modern myths and materials drawn from various media: text, movies, video games, anime, and digital arts.

Distributive: Dist:INT or LIT; WCult:CI

Offered: 15F, 16F: 11

COLT 7 - First Year Seminars

Offered: Consult special listings

COLT 10 - What is Comparative Literature?

Particular offerings of this course seek to introduce the student to the aims, assumptions and methodologies of reading and the study of literature. This course is designed as an introductory course to the Comparative Literature major and other literature and humanities majors. It is recommended that students complete English/WRIT 5 before enrolling in COLT 10.

Distributive: Dist:LIT; WCult:W

COLT 10.11 - Male Friendship from Aristotle to Almodovar

Instructor: Kritzman

This course examines representations of male relationships in literature, philosophy, psychoanalysis, and film. Ranging from classical texts such as the Bible and Cicero's "De Amicitia," to the cinema of Almodovar and Truffaut, we will study the rhetorical and social construction of male friendship and its relationship to gender, class and cultural politics. Texts will be drawn from the following literary and critical works: Aristotle, Martial, Montaigne, Balzac, Twain, Whitman, Nietzsche, Freud, D.H. Lawrence, Waugh, Ben Jalloun, Alan Bennett, and Derrida.

Distributive: Dist:LIT; WCult:W

Offered: 16F: 2A

COLT 10.12 - Race in the Middle Ages

From canonical English authors (Chaucer) to Arab travelers (Ibn Battuta) to modern American thinkers (W. E. B. DuBois). What are the differences between medieval and modern conceptions of race? How did medieval religious metaphors impact modern anthropology? What do fictional romances tell us about social realities? This course serves as an introduction to comparative literature by asking questions across time periods, genres, languages, and cultural identities.

Distributive: Dist: LIT; WCult: CI

Offered: Not Offered in the Period 2015-17

COLT 10.13 - Debate and Dialogue in Emerging Europe

Instructor: Tarnowski

Discussion - whether adversarial or pleasurable – plays an important role in early literature. What is the highest expression of love? What human qualities are most important? Is it style or substance that best sways a listener? These questions are examined in debates staged in literature or pursued in political arenas, learned circles and court settings. Readings will include Boethius, Peter Abelard, Jean de Meun, Guillaume de Machaut, Chaucer, Christine de Pizan, Alain Chartier

Distributive: Dist:LIT; WCult:W

Offered: Not Offered in the Period 2015-17

COLT 10.14 - The Literary Fairy Tale

Instructor: Canepa

This course surveys the development of the fairy tale in Europe and North America, from the first collections in early modern France and Italy (Basile, Perrault) through the Brothers Grimm to the extraordinary regeneration of fairy-tale subjects and motifs in the 20th and 21st centuries (Disney, Sexton, Carter). We will discuss the role of this

marvelous genre in interrogating reality and engaging in the "civilizing process," and put our encounters to dynamic use by writing and performing tales.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 2

COLT 18 - Literature and Other Media**COLT 19 - Translation: Theory and Practice**

Translation is both a basic and highly complicated aspect of our engagement with literature. We often take it for granted; yet the idea of meanings lost in translation is commonplace. In this course we work intensively on the craft of translation while exploring its practical, cultural and philosophical implications through readings in theoretical and literary texts. All students will complete a variety of translation exercises, and a substantial final project, in their chosen language.

Distributive: Dist:INT or LIT; WCult:W

COLT 19.01 - Translation: Theory and Practice

Instructor: Canepa

Translation is both a basic and highly complicated aspect of our engagement with literature. We often take it for granted; yet the idea of meanings "lost in translation" is commonplace. In this course we work intensively on the craft of translation while exploring its practical, cultural and philosophical implications through readings in theoretical and literary texts. All students will complete a variety of translation exercises, and a substantial final project, in their chosen language.

Prerequisite: Good reading knowledge of a foreign language (usually equivalent to fulfilling the Dartmouth language requirement). Students unsure of their linguistic preparation should consult the instructor.

Cross-Listed as: CLST 40 only when Classical material is covered

Distributive: Dist:INT or LIT; WCult:W

Offered: 16W: 12, 16F: TBD

COLT 20 - The Middle Ages**COLT 21 - Topics in Medieval Literatures**

This course will focus on a specific topic, theme, or literary genre in the medieval period.

Distributive: Dist:LIT; WCult:W

COLT 22 - The Renaissance**COLT 23 - Topics in Early Modern Literatures****COLT 25 - The Enlightenment****COLT 26 - Romanticism****COLT 27 - Topics in Nineteenth-Century Literatures**

This course will concentrate on major nineteenth-century movements and genres in the context of the period's historical upheavals. Topics covered might be realism, naturalism, symbolism, the fantastic, the notion of Bildung, and the influence of such figures as Marx, Nietzsche or Darwin on literary developments.

Distributive: Dist:LIT; WCult:W

COLT 28 - Modernism**COLT 29 - Postmodernism**

Reacting to the horrors of World War II and the period of decolonization, postmodernism has been questioning the humanistic assumptions of modernism while extending and sometimes transforming the earlier period's avant-garde techniques through such currents as the new novel, absurdism, minimalism, magic realism, etc. Each offering of this course will study postmodern literature and culture from a specific perspective.

Distributive: Dist:LIT; WCult:W

COLT 29.03 - Postmodernism

Reacting to the horrors of World War II and the period of decolonization, postmodernism has been questioning the humanistic assumptions of modernism while extending and sometimes transforming the earlier period's avant-garde techniques through such currents as the new novel, absurdism, minimalism, magic realism, etc. Each offering of this course will study postmodern literature and culture from a specific perspective.

Distributive: Dist:LIT; WCult:W

Offered: Not Offered in the Period 2015-17

COLT 31 - Topics in Poetry

Poetry was the first form of literary expression and is the most enduring. This course will explore the power of poetic expression through such topics as poetry and song, love and nature as poetic themes, theories of poetry, women poets from Sappho to Plath, poetry and graphic art, and political poetry.

COLT 31.01 - Poetry and Poetic Theory

Instructor: Crewe

In this course, we will primarily examine theories of poetry, relying mainly on *The Norton Anthology of Criticism and Theory and Poetry in Theory, 1900-2000* (Blackwell). These volumes provide a rich, comprehensive

overview of poetic theory from its beginnings in Greek antiquity virtually to the present, covering Anglo-American, Continental, and other theorists. No single poetry anthology will be used, but poetic examples will be studied at every stage, generally posted on Blackboard. We will consider the "philosophy" of poetic composition in different historical periods and contexts, and will examine the continuing interplay between poetic theory and practice. The point of the course will be to get a grip on ways in which people have thought about poetry from the earliest times to the present, and to consider the sometimes antagonistic interplay between theorizing about poetry and writing it.

Cross-Listed as: ENGL 54.11

Distributive: Dist:LIT

Offered: Not Offered in the Period 2015-17

COLT 33 - Modern Drama

Distributive: Dist: ART or INT; WCult: W

COLT 34 - Topics in Drama

In 14F, *Theater of Ideas in Britain and France*. An exploration of the main intellectual movements, dramatic forms, and playwrights that shaped the evolution of British and French theatre in the post war period. Particular attention given to modern drama history, theory, and performance and how they relate to the wider social and political context. Writers drawn from some of the following: Osborne, Pinter, Stoppard, Churchill, Hare, Bennett, Ravenhill, Sartre, Beckett, Genet, Cixous and Mnouchkine, Koltes, Reza, and Ndiaye. Kritzman.

COLT 34.01 - Theater of Ideas: Britain and France

Instructor: Kritzman

An exploration of the main intellectual movements, dramatic forms, and playwrights that shaped the evolution of British and French theatre in the post war period. Particular attention given to modern drama history, theory, and performance and how they relate to the wider social and political context. Writers drawn from some of the following: Osborne, Pinter, Stoppard, Churchill, Hare, Bennett, Ravenhill, Sartre, Beckett, Genet, Cixous and Mnouchkine, Koltes, Reza, and Ndiaye.

Distributive: Dist:LIT; WCult:W

Offered: 17W: 2A

COLT 34.02 - Human Rights and Performance

Instructor: Edmondson

This course explores performance texts and theater scholarship that engage with the discourse of human rights. The course examines various case studies of state-sanctioned violations of human rights and how theater and performance artists have responded to those violations. In

addition to a series of short response essays, each student will develop an independent research project throughout the term.

Distributive: Dist:INT or ART

Offered: Not Offered in the Period 2015-17

COLT 35 - History of Narrative

Individual offerings of this course might concentrate on the historical development of narrative, oral and written traditions, medieval epic, romance, and the early novel. In each case the relation between narrative forms and history will be foregrounded.

COLT 35.02 - The Novel: Memory, Desire and Narrative Time

Instructor: Washburn

Does its resistance to generic classification distinguish the novel as a genre? We will address this question by reading five works—excerpts from *The Tale of Genji* (Murasaki Shikibu), *Crime and Punishment* (Fyodor Dostoevsky), *Swann's Way* (Marcel Proust), *The Song of Everlasting Sorrow* (Wang Anyi), and *Love in the Time of Cholera* (Gabriel Garcia Marquez)—through the lens of various critical theories that attempt to identify rhetorical elements and themes common to the form.

Distributive: Dist:LIT

Offered: 15F: 10A

COLT 36 - The Novel I: Eighteenth and Nineteenth Centuries

COLT 37 - The Novel II: The Modern Novel

COLT 39 - Topics in Narrative

This course will approach the study of narrative from the perspective of a specific technique or theme; it might explore narrative genres such as autobiography, memoir, letters, epistolary fiction, and oral narrative traditions.

Distributive: Dist:LIT; WCult:W

COLT 40.01 - History of the Book

Instructor: Halasz

This course examines the book as a material and cultural object. We'll consider various practical and theoretical models for understanding the book form and investigating the materials, technologies, institutions, and practices of its production, dissemination, and reception. We'll focus primarily on the printed book in Western Europe and North America, but we'll also discuss the emergence of the codex (book), medieval manuscript books, twentieth and twenty-first century artist's books and the challenges posed by digitality to the book form. The readings for the course will be balanced by frequent use of exemplars drawn from

Rauner Library and practical experience setting type in the Book Arts workshop.

Cross-Listed as: ENGL 54.15

Distributive: Dist:LIT; WCult:W

Offered: 15F: 2

COLT 40.04 - Infernal Affairs: Police on Film

International representations of police-work and the role of police in society. Films from Japan, Hong Kong, France, Italy, Germany, Poland and England illustrate the relationship between fictional film, history, and a range of different kinds of literary texts. The course will focus on methods of investigation, surveillance, and interrogation; definitions of crime and the idea of order; the politicization and/or militarization of police; police corruption; and metaphysical issues such as good, evil, and fate. Readings will include fiction, non-fiction works on the psychology and ethics of interrogation, histories and poetry about life in a police state.

Cross-Listed as: FILM 41.01

Distributive: Dist:LIT; WCult:W

Offered: Not Offered in the Period 2015-17

COLT 41 - The Comic Tradition

COLT 42 - Topics in Popular Culture

Applying critical literary theories to the study of popular culture, this course will examine how popular culture is produced, disseminated, and consumed.

COLT 42.03 - Robbers, Pirates, and Terrorists: Forms of Individual Resistance in Literature and Film

Robin Hood, the archetypal, courteous, pious and swashbuckling outlaw of the medieval era, has become an English (literary) folk hero by way of robbing the rich to provide for the poor and fighting against injustice and tyranny. From Robin Hood via actual and legendary robbers, rebels, pirates, and corsair in the 17th and 18th centuries, to present day pirates, terrorists and guerilla groups in Somalia, Latin America, Italy, Germany, and the U.S., individuals have always been involved with what they considered legitimate (though illegal) resistance against poverty, authority, patriarchy, feudalism, capitalism, and imperialism. Whether one calls them rebels or outlaws evokes a question that has already been at the center of Aeschylus' Orestes: what legitimizes individual justice versus socially controlled jurisdiction, vigilantism versus politics, or antinomianism versus legalism? Starting from the political-philosophical dichotomy between legitimacy and legality—what is ethically or religiously legitimate isn't necessarily legal, and vice versa—this course will focus on representations of rebels in different cultural and historical contexts and genres such as novels, movies, dramas, and diaries, and operas.

Distributive: Dist:LIT; WCult:W

Offered: 15X, 16X: 2A

COLT 42.04 - Forbidden Romance on a Global Stage

Instructor: Choi

This course explores the international perspectives on the romance genre from antiquity to the present. We will investigate how the genre has been constructed, institutionalized, appropriated, and re-invented in international socio-cultural and historical contexts. Situating romance literature in both regional and global contexts, the course will look at the genre's enduring popularity across different historical periods and national boundaries while examining topics such as: gender, sexuality, marriage, loyalty, family, class, nation, censorship, the commodification of desire, and homoeroticism.

Distributive: Dist:LIT; WCult:CI

Offered: 16S: 2A

COLT 45 - The Quest for Utopia

COLT 46 - Psychology, Society and Literature: The Family

This course will explore the intersections of literary and familial structures in social and psychological contexts. It will study ideologies which both support and contest the family's cultural hegemony. Individual offerings might concentrate on mothers and daughters, fathers and sons, family romances, marriage, family and society. Readings will range from myth and fairy tale to some of the great family novels or dramas.

COLT 46.03 - Writing Kinship

Instructor: Rutler

This course will explore the intersections of literary and familial structures in social and psychological contexts. It will study ideologies which both support and contest the family's cultural hegemony. Individual offerings might concentrate on mothers and daughters, fathers and sons, family romances, marriage, family and society. Readings will range from myth and fairy tale to some of the great family novels or dramas.

Patriarchy has become so embedded in the fabric of our society that its processes have become invisible; and yet we see its traces in fictional literature on family. This literature course will help us to understand how kinship bonds are formed, become burdened, and are rebuilt. We will analyze fiction from various time periods and literary traditions, focusing on structural, psychoanalytic, and feminist and gender studies perspectives.

Distributive: Dist: LIT; WCult: CI

Offered: Not offered in the period 2015-17

COLT 47 - Myths and Transformations

Myth has inspired literature from ancient times to the present. This course examines original mythic material and how that material has been transformed in later versions. Possible topics include: the legend of Troy, Odysseus through the ages, the Faust theme, the trickster figure, Antigone and Medea, the legend of Don Juan.

COLT 49 - Special Topics: Themes

Distributive: varies

COLT 50 - Europe and its Cultural Others

COLT 51.01 - Masterpieces of African Literature

This course is designed to provide students with a specific and global view of the diversity of literatures from the African continent. We will read texts written in English or translated from French, Portuguese, Arabic and African languages. Through novels, short stories, poetry, and drama, we will explore such topics as the colonial encounter, the conflict between tradition and modernity, the negotiation of African identities, post-independence disillusion, gender issues, apartheid and post-apartheid. In discussing this variety of literatures from a comparative context, we will assess the similarities and the differences apparent in the cultures and historical contexts from which they emerge. Readings include Chinua Achebe's *Things Fall Apart*, Naguib Mahfouz's *Midaq Alley*, Calixthe Beyala's *The Sun Hath Looked Upon Me*, Camara Laye's *The African Child*, and Luandino Vieira's *Luanda*.

Cross-Listed as: AAAS 51, ENGL 53.16

Distributive: Dist:INT or LIT; WCult:NW

Offered: Not offered in the period 2015-17

COLT 52 - Latin American Literatures

Instructor:

Some of the most fascinating literary works of this century have been written by Latin American authors such as Neruda, García Márquez, Fuentes, Allende, etc. This course will analyze modern Latin American literature, its connection to or rejection of European traditions, the ways in which individual works illuminate third world realities and challenge accepted Western views of the world. Offered periodically with varying content.

Cross-Listed as: varies

Distributive: Dist:LIT; WCult:CI

COLT 53 - Middle Eastern Literature**COLT 54 - Jewish Literatures****COLT 55 - Asian Literatures****COLT 55.02 - Mapping Korean Literature: World Literatures and National Contexts**

Instructor: Choi

This course provides students with a translational and transcultural view of modern and postmodern Korean literature through the key texts by important Korean writers, as well as the Chinese, Japanese, and Western writers who influenced them. While reading short stories, poems, novels, and critical essays, we will consider the following questions: How can we rethink Korean literature and culture in a world perspective?; How can the recent turn toward "Global Korea" reshape our ways of approaching modern Korean literature? Topics will include the colonial modernity and negotiations of Korean identities; post-independence and the role of arts in democratic change; economic growth, transnational aspirations, and literature in the spirit of global citizenship.

Distributive: Dist:LIT; WCult:NW

Offered: 16W: 3B

COLT 56.01 - The "New Man" on the Moon: Science Fiction Under Socialism

Instructor: Komska

Cyborgs, intergalactic vistas, and overextended futurities ostensibly characterize western science fiction. Yet space age put cosmic agendas on writing and film-editing desks all over the former Socialist bloc as well. We will explore the East/West differences in generic conventions and investigate the uneasy fit between Socialist Realism—the state-sponsored style for picturing the real life of the "New Socialist Man"—and the questionable political orders and subversive desires unleashed by fictions of deregulated space travel.

Distributive: Dist:INT or LIT

Offered: Not offered in the period 2015-17

COLT 57.07 - Memories from the Dark Side: Political and Historical Repression in Europe

On a continent where war, exile, extermination, and political and cultural repression have been pervasive over the centuries, new identities of resistance can emerge if Europeans place at their center the unforgivable memories of their shared atrocities. This course will address European integration not only as an economic or political concept but instead as a cultural practice of resistance in the arts, particularly in literature and film. Authors include Semprun, Livì, Amery, Kis, Jelloun, Saramago and films by Resnais, Wajda, von Trotta, and Costa-Gavras

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in the period 2015-17

COLT 60 - Literature and Music

The affinities between literature and music have always held a special fascination for poets, writers, musicians, and critics. By studying the two arts as comparable media of expression, this course will test the legitimacy of interart parallels. An introduction to the major aspects, aesthetic implications, and interpretive methods comparing the two arts. Topics for lectures and discussion will include: musical structures as literary form; verbal music, word music, and program music; word-tone synthesis in the Lied; music and drama in opera; music in fiction; and the writer as music critic. Music-related poetry and prose examples, complemented by musical illustrations and ranging from the German and English Romantics through the French symbolists and the Dadaists to contemporary writing, will be selected from texts by Goethe, Brentano, Hoffmann, DeQuincey, Poe, Baudelaire, Mallarmé, Proust, Thomas Mann, Joyce, Eliot, Huxley, Shaw, and Pound. No particular musical background or technical knowledge of music required.

Distributive: Dist:INT or LIT; WCult:W

COLT 60.01 - Literature and Music

Instructor: Kopper

The affinities between literature and music have always held a special fascination for poets, writers, musicians, and critics. By studying the two arts as comparable media of expression, this course will test the legitimacy of interart parallels. An introduction to the major aspects, aesthetic implications, and interpretive methods comparing the two arts. Topics for lectures and discussion will include: musical structures as literary form; verbal music, word music, and program music; word-tone synthesis in the Lied; music and drama in opera; music in fiction; and the writer as music critic. Music-related poetry and prose examples, complemented by musical illustrations and ranging from the German and English Romantics through the French symbolists and the Dadaists to contemporary writing, will be selected from texts by Goethe, Brentano, Hoffmann, DeQuincey, Poe, Baudelaire, Mallarmé, Proust, Thomas Mann, Joyce, Eliot, Huxley, Shaw, and Pound. No particular musical background or technical knowledge of music required.

Cross-Listed as: MUS 13

Distributive: Dist:INT or LIT; WCult:W

Offered: 16S: 2A

COLT 61 - Literature and the Visual Arts**COLT 62 - Literature and Film**

Instructor:

A study of selected major film traditions from a literary perspective. By examining themes, structures, montage, and other literary and filmic elements, students will become familiar with important concepts in film analysis. Individual offerings of the course may focus on filmmakers, movements, periods, or themes. The goal will be to appreciate the aesthetic and social significance of film as a twentieth-century medium and to explore various intersections of film and literature.

Distributive: Dist:INT or ART; WCult:W

COLT 63 - Literature and Politics

This course will be offered periodically and with varying content. It will explore the rich relations that exist between literature and politics, focusing on literature both as an instrument of political interest and as a product of political contexts.

Distributive: Dist:LIT

COLT 64 - Literature and History

The course will explore the relationship between literature and history, focusing both upon the interplay of historiographical and fictional discourses and upon conceptualization and representation of history in some major literary texts.

Distributive: Dist:INT; WCult:W

COLT 66.01 - What is Psychoanalysis?

Instructor: Kritzman

This course aims to explore the relationship between literature and the theoretical and clinical writings of psychoanalysis. Through readings representing a range of psychoanalytic and literary traditions, we will examine the connections that can be made between psychic structures and literary structures, between the language of the mind and the emotions and the language of the literary, cultural or cinematic text. What is the relationship between "literary" works and the theoretical and clinical writings of psychoanalysis? How do they inform one another? This large question will be examined through readings of essays and case histories by theorists such as Freud, Lacan, Kristeva, Butler, Phillips, Bersani and Zizek. The course will focus on the theme of the family romance and its relationship to the question of gender in works by authors such as Sophocles, Shakespeare, Montaigne, Kafka, Woolf, Mann, Proust, Duras, and Almadovar.

Distributive: Dist:INT or LIT; WCult:W

Offered: 15F: 2A

COLT 67.01 - Colonial and Postcolonial Masculinities

Instructor: Coly

In this course, we will develop an understanding of masculinity as a construct which varies in time and space,

and is constantly (re)shaped by such factors as race, class, and sexuality. The contexts of the colonial encounter and its postcolonial aftermath will set the stage for our examination of the ways in which social, political, economic, and cultural factors foster the production of specific masculinities. Texts include Achebe's *Things Fall Apart*, Conrad's *Heart of Darkness*, Lafferiere's *How to Make Love to a Negro*, and additional writings by Irish, Indian, and Australian authors. Our study will be organized around the questions of the production of hegemonic and subaltern masculinities, the representation of the colonial and postcolonial male body, the militarization of masculinity, and the relation between masculinity and nationalism. Theoretical material on masculinities will frame our readings

Distributive: Dist:LIT

Offered: 17W: 2A

COLT 67.02 - Race, Class, Gender and Sexuality in Contemporary Brazilian Film

Instructor: Salgueiro

In this course film will be viewed as text and used to analyze discourses around race, sex, gender, and class in contemporary Brazil. It is the hope that film will offer students an additional cultural context to critically examine the development of nation and national ideologies such as "the myth of racial democracy." Class discussions based on scholarly readings and film screenings will focus on how Brazilians view themselves and the construction and function of social institutions within the contemporary nation

Distributive: Dist:INT; WCult:CI

Offered: Not Offered in the period 2015-17

COLT 67.05 - The Karma of Love: Japanese Women Authors and the Literary Canon

Instructor: Washburn

(Identical to WGSS 49.4). This course will focus on the cultural construction of gender as it is manifested in various texts and traditions. Topics may include one or more aspects of gendered literary study: writing (male/female authorship), reading, literary form, masculine and feminine subjectivity, representation, or feminist literary and cultural criticism. Japanese literature is unique for the dominant position women writers occupy in its classical canon – a canon interrupted and co-opted by male-dominated cultures from the 13th century until late 19th century, when literary production by women reemerged as a significant modern cultural phenomenon. This course is a survey that draws on contemporary feminist criticism and gender theory to analyze the social, political, and economic forces that have shaped the history of female authorship in Japan. Dist: LIT; WCult: NW. Washburn.

Cross-Listed as: WGSS 49.04

Distributive: Dist: LIT; WCult: NW

Offered: Not offered in the period 2015-17

COLT 70.03 - European Jewish Intellectuals

Instructor: Kritzman

The course will examine the role of the Jewish intellectual in twentieth central Europe. We shall focus on several paradigmatic figures (Arendt-, Benjamin, Adorno, Levinas, Derrida) who confront- the redefinition of politics and civil society in modern times. Some attempt- to deal with these changes through a critical reflection on the concepts of democracy and ethics and on how justice can be practiced either within or outside of the geographical and spiritual boundaries of the modern nation state. We shall examine how Jewish self-consciousness and a deep attachment to biblical tradition enables these intellectuals to reconcile ethical imperative with political realities. Particular attention will be paid to topics such as the challenges of Eurocentric Christian humanism and universalism to Jewish assimilation; the promises of totalitarianism, Marxism and messianism; the politics of biblical exegesis; history and Jewish mysticism; Zionism, anti-Zionism and the Arab-Israeli conflict.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period 2015-17

COLT 71 - History of Literary Criticism: The Western Tradition to 1900

COLT 72 - Contemporary Literary Criticism and Theory

Covering some of the major theoretical movements of the second half of the twentieth century, this course focuses on the issues and questions motivating theoretical debate in literary and cultural studies. Movements studied may include New Criticism, structuralism, semiotics, poststructuralism and deconstruction, Marxist criticism, psychoanalysis, narratology, reader-response theory, feminist criticism, African American criticism, film criticism, and the new historicism.

Distributive: Dist:LIT; WCult:W

COLT 72.01 - Global Literary Theory

Instructor: Warren

Disparate theories of literature have shared a certain number of fundamental questions since long before the twentieth century: what is a text? what is an author? what is a reader? what is context? How does literature itself imply theoretical concepts? By studying a range of different answers, we will seek to formulate productive

questions. How can we use these questions to join critical conversations already under way among established scholars?

Distributive: Dist:LIT; WCult:W

Offered: 15F: 12

COLT 73.04 - Violence

Instructor: Coly

This course will focus on a specific preoccupation of contemporary theory or on a particular theoretical movement. This course explores different forms of violence, with a focus on structural, symbolic and physical violence. Our study will be organized around the notions of "regimes of violence," "permissible and impermissible violence," "emancipatory and reformist violence" and the intersections between violence, civilization and the project of modernity. We will probe the persistence (and even the rebound), in the 21st century, of prisons, ghettos, camps, genocides, wars and terrorism. Authors may include Coetzee, Wiesel, Roy, Borges, Bolaño, O'Connor, and Danticat. Our study of violence will be framed by theoretical readings from Fanon, Arendt, Levinas, Bourdieu, Latour, Butler, Didi-Houliès, Mbembe, Norbert, Agamben, Morrison, Benjamin and Puar. Coly.

Prerequisite: COLT 72.03

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period 2015-17

COLT 79 - Independent Study

Instructor: Washburn

A tutorial course designed by the student with the assistance of a member of the Comparative Literature faculty who is willing to supervise it. Offers the student an opportunity to pursue a subject of special interest through a distinctive program of readings and reports. During the term prior to the course, applicants must submit a course outline to the Chair for written approval.

Offered: All term: Arrange

COLT 80 - Advanced Seminar: Special Topics

COLT 85 - Senior Seminar in Research and Methodology

Instructor: Washburn

Offered: 16W, 17W: Arrange

COLT 87 - Thesis Tutorial

Instructor: Washburn

Permission of the Chair is required.

Offered: All terms: Arrange

Computer Science - Undergraduate

Chair: Hany Farid

Professors C. J. Bailey-Kellogg, A. T. Campbell, M. Casey, A. Chakrabarti, T. H. Cormen, R. L. Drysdale III, H. Farid, P. Jayanti, D. F. Kotz, D. Rockmore, S. W. Smith, P. Winkler; Associate Professors D. Balkcom, L. Torresani; Assistant Professors G. Grigoryan, W. Jarosz, Q. Liu, E. Whiting, X. Yang, X. Zhou; Lecturers P. Hannaway, J. Mahoney; Research Professor L. Loeb; Research Associate Professor S. L. Bratus; Adjunct Professors M. Cohen, A. Gettinger, M. D. McIlroy, W. M. McKeeman, C. E. Palmer; Adjunct Assistant Professors R. Halter, O. Zhaxybayeva.

To view the Computer Science Undergraduate courses, click here. (p. 189)

To view the Computer Science Graduate requirements, click here. (p. 554)

To view the Computer Science Graduate courses, click here. (p. 558)

Introductory Courses

Students wishing to devote one course to the study of Computer Science may choose COSC 1 or COSC 2, depending on their background and interests. Students wishing to devote two or more courses to the study of Computer Science should begin with COSC 1 and COSC 10. Students wishing to take courses in Digital Arts should start by taking COSC 1 or COSC 2. ENGS 20 may substitute for COSC 1 in any program of study.

Undergraduate Courses

Computer Science undergraduate courses are numbered as follows:

- 1–19: Introductory and non-major courses.
- 20–29: Courses in Digital Arts.
- 30–49: Courses in theory and algorithms.
- 50–69: Courses in systems and hardware.
- 70–89: Courses in applied computer science.
- 90–99: Reading course and culminating experience courses.

Wherever COSC 1 is listed as a prerequisite, it may be replaced by ENGS 20 or by credit (for the classes of 2017 and earlier) and placement (for all classes) from either the Computer Science Advanced Placement examination or a local placement examination.

Elective Courses

Many of the majors and minors involving Computer Science allow for one or more elective courses. In all cases, an elective course is any Computer Science course numbered from 30 to 89 that is not used to fulfill another requirement. With the approval of the Department's Undergraduate Advisor, a Mathematics course or COSC 94 may substitute for one elective course; at most one such substitution is allowed. With the approval of the Departmental Undergraduate Advisor, any graduate course in Computer Science (courses numbered above 100) may substitute for an elective course, as long as the graduate course is not cross-listed as an undergraduate course that is used to fulfill another requirement.

Major in Computer Science

The major in Computer Science is intended for those students who plan careers in Computer Science or in fields that make use of computing, for those who plan graduate study in Computer Science, and also for those who simply find Computer Science interesting. Undergraduates majoring in Computer Science will have opportunities to participate with faculty in activities outside formal coursework. These activities include assisting in courses, writing a thesis or doing a project under the guidance of a faculty member, and assisting a faculty member in research or in a programming project.

To fulfill the major in Computer Science, a student must complete the courses prerequisite to the major and satisfy the requirements of the major. For additional requirements for the Honors Program see the section 'The Honors Program in Computer Science' below.

Requirements for the Computer Science Major

Prerequisite courses: COSC 1 or ENGS 20; COSC 10.

Requirements: A student who wishes to major in Computer Science must obtain approval of her or his program of study from the Departmental Undergraduate Advisor. To complete the major, it is necessary to pass at least ten courses in addition to taking the two prerequisite courses. Among these ten courses must be the following:

1. Two Computer Science courses numbered 30 to 49;
2. Two Computer Science courses numbered 50 to 69;
3. Two Computer Science courses numbered 70 to 89;
4. Three elective courses (see 'Elective Courses' above);
5. Computer Science culminating experience: either two terms of COSC 98, or one or two terms of COSC 97 (Thesis Research) or COSC 99 (Honors Thesis Research).

Minors in Computer Science

The Computer Science, Computational Methods, and Operations Research minors are available to all students

who are not majoring in Computer Science and who do not have a modified major with Computer Science. The Digital Arts minor is available to all students, including those majoring in Computer Science. Students may modify any major, including Computer Science, with Digital Arts. For each minor, the prerequisites and required courses are listed below. Approval of a minor in Computer Science, Computational Methods, or Operations Research can be obtained through the Departmental Undergraduate Advisor. Approval of a minor in Digital Arts can be obtained through the Director of the Digital Arts Minor.

I. Computer Science

Prerequisites: COSC 1 or ENGS 20; COSC 10.

Courses: Any five elective courses (see 'Elective Courses' above) as approved by the Departmental Undergraduate Advisor and drawn from at least two of the following three sets of courses: COSC 30 to COSC 49; COSC 50 to COSC 69; COSC 70 to COSC 89.

II. Digital Arts

Prerequisites: COSC 1, COSC 2, or ENGS 20.

Courses: COSC 22, COSC 24, COSC 27; two from the following list: FILM 30, FILM 31, FILM 32, FILM 35, FILM 36, FILM 38, FILM 39, FILM 51, MUS 9, MUS 14, MUS 31, MUS 34, SART 15, SART 16, SART 20, SART 21, SART 22, SART 23, SART 25, SART 29, SART 30, SART 31, SART 65, SART 66, ENGS 12, ENGS 75, THEA 26, THEA 27, THEA 30, THEA 31, THEA 34, THEA 42, THEA 43, THEA 44, THEA 45, COSC 20, COSC 29, COSC 77, COSC 83. No more than one of the two courses may be COSC.

III. Computational Methods

Prerequisites: One of COSC 1, COSC 3, ENGS 20, or equivalent; one of MATH 22 or MATH 24.

Courses: COSC 70 and COSC 84; one of COSC 31, COSC 71, or COSC 74; and two courses from one of the following groups:

1. BIOL 39, BIOL 47, BIOL 75; COSC 75;
2. EARS 64, EARS 66, EARS 67, EARS 76;
3. ENGS 22, ENGS 23, ENGS 26, ENGS 27, ENGS 41, ENGS 52, ENGS 67, ENGS 68, ENGS 91 (if COSC 71 is not used as one of the courses above), ENGS 104, ENGS 105, ENGS 106, ENGS 110, ENGS 145, ENGS 150;
4. LING 22, LING 25, LING 26;
5. MATH 75 and one of MATH 25, MATH 31, MATH 71, MATH 81;
6. MATH 23, MATH 46, MATH 53, MATH 76;

7. MATH 36, MATH 76, MATH 86, MATH 96;
8. PHYS 68, PHYS 73, PHYS 74, PHYS 75; ASTR 74, ASTR 75;
9. PSYC 28, PSYC 40, PSYC 60;
10. Two other courses, as approved for inclusion in the minor by the offering department(s) and the Computer Science department.

IV. Operations Research

Prerequisites: MATH 3, MATH 8, MATH 13; COSC 1 or ENGS 20; COSC 10.

Courses: COSC 30 or MATH 19; COSC 31; COSC 84; MATH 20, MATH 22; and one of MATH 38 or MATH 88 or COSC 49 with approval of the Undergraduate Advisor.

The Honors Program in Computer Science

For completion of the Honors Program in Computer Science, and to be eligible to graduate with Honors or High Honors, a student must complete either an independent study project or a written thesis (for High Honors the thesis is required), and have his or her program of study approved as an Honors Program by the Undergraduate Advisor. In addition, the recommendation of the thesis/project advisor to award Honors or High Honors must be ratified by a departmental vote. College requirements for the Honors Program are discussed in the Regulations section of this catalog. The Honors project is undertaken by a student under the guidance of a faculty member. The subject of the project or thesis often will be motivated by the concepts or content of an advanced course taken as a part of the student's major, though a variety of activities can lead to a project or thesis. Student suggestions for both projects and theses are welcome. The project or thesis will normally be completed over a period of two or three terms. The student should consult with his or her prospective project advisor and submit to the Undergraduate Advisor a brief written proposal of the project that has the written approval of the project advisor. The Undergraduate Advisor will review the student's proposal and the courses that have been selected for the Honors major. Approval of the proposal and course selection will constitute formal admission into the Honors Program. This procedure is normally completed before the end of fall term, senior year. The student may then register for (at most two terms of) COSC 99, Honors Thesis Research.

Admission to the Honors Program in Computer Science requires a general College average of B+, and a B+ average in the major at the time of admission and at the time of graduation. Moreover, a B+ average is required in the work of the Honors project/thesis. The B+ average in the major is determined as follows: Courses prerequisite to the major are not counted, but all other courses used as part of the major are counted, as are all courses titled Computer

Science (beyond prerequisites, excluding COSC 99), including courses cross-listed with Computer Science. Note that in the case of modified majors, courses used as part of the major may include courses from other departments. The B+ average required in the work of the Honors program is defined to be a grade of B+ given by the thesis/project advisor on the thesis or project. Questions about this requirement should be addressed to the Departmental Undergraduate Advisor.

Modified Majors

Many students have created modified majors with Computer Science being either the primary or the secondary part. Particularly common modified majors are with engineering, mathematics, or economics, but modified majors with philosophy, music, film studies, psychology, physics, geography, studio art, and many other subjects have been approved.

Modified Major with Computer Science as the Primary Part

A modified major with Computer Science as the primary part must satisfy the following requirements, and it must be approved by the Departmental Undergraduate Advisor to ensure a coherent major.

Prerequisites: COSC 1 or ENGS 20; COSC 10.

Requirements: Along with at least four modifying courses, as approved, the requirements are as follows:

1. One Computer Science course numbered 30 to 49;
2. One Computer Science course numbered 50 to 69;
3. One Computer Science course numbered 70 to 89;
4. Three elective courses (see 'Elective Courses' above);
5. Computer Science culminating experience: either two terms of COSC 98, or one or two terms of COSC 97 (Thesis Research) or COSC 99 (Honors Thesis Research).

Modified Major with Computer Science as the Secondary Part

Prerequisites: COSC 1 or ENGS 20; COSC 10.

Requirements: Four electives (see 'Elective Courses' above) that complement the primary part of the modified major, subject to the approval of the Departmental Undergraduate Advisor.

Modified Major with Digital Arts as the Secondary Part

Prerequisites: COSC 1 or COSC 2.

Requirements:

1. Three Computer Science courses numbered 20–29;
2. One of the approved additional courses for the Digital Arts Minor. The additional course may not be from the department of the primary part of the modified major. (For example, a "Film Studies modified by Digital Arts" major may not use a Film Studies course to satisfy this requirement.)

The Computer Science Major Modified with Engineering

The Computer Science major modified with Engineering requires satisfying most of the requirements of the Computer Science major, along with four Engineering courses related to Computer Science. The prerequisites are COSC 1 or ENGS 20; COSC 10; MATH 3, MATH 8, MATH 13; and PHYS 13, PHYS 14. The requirements are as follows:

1. One Computer Science course numbered 30 to 49;
2. One Computer Science course numbered 50 to 69, but not including COSC 56, which is identical to ENGS 31;
3. One Computer Science course numbered 70 to 89;
4. Three elective courses (see 'Elective Courses' above), not including COSC 56;
5. ENGS 22;
6. ENGS 31;
7. ENGS 62 or ENGS 63;
8. ENGS 26, ENGS 32, ENGS 61, ENGS 62, ENGS 63 or ENGS 91. (The same course cannot satisfy both requirements 5 and 6);
9. Computer Science culminating experience: either two terms of COSC 98, or one or two terms of COSC 97 (Thesis Research) or COSC 99 (Honors Thesis Research).

The Computer Science Major Modified with Digital Arts

The Computer Science major modified with Digital Arts requires satisfying most of the requirements of the Computer Science major, along with four courses from the Digital Arts minor. The prerequisites are COSC 1 or ENGS 20; and COSC 10. The requirements are as follows:

1. Two Computer Science courses, either both numbered 30 to 49 or both numbered 50 to 69;
2. COSC 22;
3. COSC 24;
4. COSC 27;

5. COSC 77;
6. One Computer Science course numbered 70 to 89, but not COSC 77;
7. One elective course (see 'Elective Courses' above);
8. Two of the approved additional courses for the Digital Arts Minor, other than COSC 77. No more than one of the two courses may be COSC;
9. Computer Science culminating experience: either two terms of COSC 98, or one or two terms of COSC 97 (Thesis Research) or COSC 99 (Honors Thesis Research).

COSC - Computer Science - Undergraduate Courses

To view the Computer Science Undergraduate requirements, click here. (p. 186)

To view the Computer Science Graduate requirements, click here. (p. 554)

To view the Computer Science Graduate courses, click here. (p. 189)

COSC 1 - Introduction to Programming and Computation

Instructor: Farid (fall), Cormen (winter), Balkcom (spring)

This course introduces computational concepts that are fundamental to computer science and are useful for the sciences, social sciences, engineering, and digital arts. Students will write their own interactive programs to analyze data, process text, draw graphics, manipulate images, and simulate physical systems. Problem decomposition, program efficiency, and good programming style are emphasized throughout the course. No prior programming experience is assumed.

Distributive: Dist:TLA

Offered: 15F: 12; 16W, 16S: 2

COSC 2 - Programming for Interactive Audio-Visual Arts

Instructor: Casey

This course presents topics related to interactive visual art generated on a computer. Although it briefly covers computer-generated media art, the course focuses on the programming skills required for creating interactive works. Rather than using commercial software, students write their own programs, using the Processing language, to create compositions with which users can interact. The course introduces fundamental concepts of how to represent and manipulate color, two-dimensional shapes,

images, motion, and video. Coursework includes short programming assignments to practice the concepts introduced during lectures and projects to explore visual compositions. The course assumes no prior knowledge of programming. This course is not open to students who have passed COSC 1 or ENGS 20 or who have received credit for one of these courses via the Advanced Placement exam or the local placement exam.

Cross-Listed as: MUS 8

Distributive: Dist:TLA

Offered: 16W: 2

COSC 10 - Problem Solving via Object-Oriented Programming

Instructor: Jayanti (fall), Drysdale (winter), Torresani (spring)

Motivated by problems that arise in a variety of disciplines, this course examines concepts and develops skills in solving computational problems. Topics covered include abstraction (how to hide details), modularity (how to decompose problems), data structures (how to efficiently organize data), and algorithms (procedures for solving problems). Laboratory assignments are implemented using object-oriented programming techniques.

Prerequisite: COSC 1, ENGS 20, or placement through the Advanced Placement exam or the local placement exam.

Distributive: Dist:TLA

Offered: 15F, 16W, 16S: 2

COSC 16 - Introduction to Computational Neuroscience

Instructor: Granger

Your brain is composed of low-precision, slow, sparsely-connected computing elements, yet it outperforms any extant computer on tasks ranging from perception to planning. Computational Neuroscience has as its twin goals the scientific understanding of how brains compute thought, and the engineering capability to reconstruct the identified computations. Topics in the class included anatomical circuit design, physiological operating rules, evolutionary derivation, mathematical analyses, and emergent behavior, as well as development of applications from robotics to medicine.

Prerequisite: One of PSYC 1, PSYC 6, BIOL 34, COSC 1, or ENGS 20.

Cross-Listed as: PSYC 40

Distributive: Dist:SCI

Offered: 15F: 2A

COSC 20 - Motion Study: Using Motion Analysis for Science, Art and Medicine

Motion Capture is the process of recording movement in physical space and transforming that information into a digital form that can be analyzed and adapted. Recent technological advances have increased the use of motion capture in movies, cartoon animation, and scientific applications. In this class, students will learn the foundations of this new field from basic anatomical principles of motion to how motions express a variety of human qualities (e.g., status, emotion). Students will work with a motion capture system to record and analyze their own movement to gain a hands-on understanding of how motion capture can enhance art and science.

Distributive: Dist:TAS

Offered: Not offered every year

COSC 22 - 3D Digital Modeling

Instructor: Loeb (fall), Mahoney (spring)

This projects-based lab course teaches the principles and practices of 3D modeling. Lectures focus on principles of modeling, materials, shading, and lighting. Students create a fully rigged character model while learning their way around a state-of-the-art 3D animation program.

Assignments are given weekly. Students are graded on the successful completion of the projects, along with a midterm examination. Work will be evaluated on a set of technical and aesthetic criteria.

Distributive: Dist:TLA

Offered: 15F: 3A, 16S: 2A

COSC 24 - Computer Animation: The State of the Art

Instructor: Hannaway

This hands-on course focuses on state-of-the-art computer animation, presenting techniques for traditional animation and how they apply to 3D computer animation, motion capture, and dynamic simulations. Facial and full-body animation are covered through projects, readings, and presentations, including physical simulation, procedural methods, image-based rendering, and machine-learning techniques. Students will create short animations. This course focuses on methods, ideas, and practical applications, rather than on mathematics.

Distributive: Dist:ART

Offered: 15X: 2A; 16W: 10A, 2A

COSC 27 - Projects in Digital Arts

Instructor: Mahoney

This is the culminating course for the Digital Arts Minor. Students from Arts and Sciences come together to complete projects in digital arts, including: 3D computer animations; innovative digital installations; creative mobile

media; interactive pieces; 2D digital projects. Students work in small teams to complete work of a high production quality or work that incorporates innovations in technology. This course has a required laboratory period.

Prerequisite: COSC 22 and COSC 24 plus one of the approved additional courses for the Digital Arts Minor.

Distributive: Dist:ART

Offered: 16S: 3B

COSC 28 - Advanced Projects in Digital Arts

Instructor: Loeb

This independent study course is for students who have completed all the courses in the Digital Arts minor and want to continue working on projects in digital arts. Projects may include computer animations, interactive digital arts, installations, or research projects. Students work alone or in teams. This course may be taken at most twice.

Prerequisite: COSC 27 and permission of the instructor is required

Offered: All terms: Arrange

COSC 29 - Topics in Digital Arts

Instructor: Mahoney (fall), Hannaway (spring)

This course studies an advanced topic in Digital Arts that is not covered in the regular curriculum. Students may take this course multiple times, subject to the restriction that the topics are distinct.

Prerequisite: Vary according to the topic. Consult with the instructor.

Cross-Listed as: COSC 129

Offered: 15F: 2A, 3B; 16S: 2A

COSC 30 - Discrete Mathematics in Computer Science

Instructor: Chakrabarti (fall), Jayanti (winter)

This course integrates discrete mathematics with algorithms and data structures, using computer science applications to motivate the mathematics. It covers logic and proof techniques, induction, set theory, counting, asymptotics, discrete probability, graphs, and trees. MATH 19 is identical to COSC 30 and may substitute for it in any requirement.

Prerequisite: COSC 1, ENGS 20, or placement through the Advanced Placement exam or the local placement exam.

Cross-Listed as: ENGS 66

Distributive: Dist:QDS

Offered: 15F: 10A, 16W: 11

COSC 31 - Algorithms

Instructor: Cormen (fall), Chakrabarti (spring)

A survey of fundamental algorithms and algorithmic techniques, including divide-and-conquer algorithms, lower bounds, dynamic programming, greedy algorithms, amortized analysis, and graph algorithms. Presentation, implementation and formal analysis, including space/time complexity and proofs of correctness, are all emphasized.

Prerequisite: COSC 10 and COSC 30. Students who have not taken COSC 30 but have a strong mathematical background may take COSC 31 with the instructor's permission.

Distributive: Dist:QDS

Offered: 15F: 2; 16S: 10

COSC 35 - Data Stream Algorithms

Instructor: Chakrabarti

This course studies algorithms that process massive amounts of data; so massive that they will not fit in a computer's storage. The course will cover a wide variety of techniques for summarizing such large amounts of data into succinct "sketches" that nevertheless retain important and useful information. The course starts from the basics, assuming only a basic knowledge of algorithms, and builds up to advanced techniques from recent research. The necessary mathematical tools are developed within the course.

Prerequisite: COSC 31 or permission of the instructor.

Cross-Listed as: COSC 135

Offered: 15F: 2A

COSC 39 - Theory of Computation

Instructor: Winkler

This course serves as an introduction to formal models of languages and computation. Topics covered include finite automata, regular languages, context-free languages, pushdown automata, Turing machines, computability, and NP-completeness.

Prerequisite: COSC 30 and/or COSC 31. Students who have not taken COSC 30 and/or 31, but have a strong mathematical background, may take COSC 39 with the instructor's permission.

Distributive: Dist:QDS

Offered: 16W: 2

COSC 40 - Computational Complexity

This course covers the basics of computational complexity, whose broad goal is to classify computational problems into classes based on their inherent resource requirements. Five key computational resources are studied: time, space,

nondeterminism, randomness, and interaction. Key concepts studied include reductions, the polynomial hierarchy, Boolean circuits, pseudorandomness and one-way functions, probabilistic proof systems, and hardness of approximation.

Prerequisite: COSC 39 or equivalent. Students need to be familiar with the formalism of the Turing Machine and with the notion of NP-completeness.

Cross-Listed as: COSC 140

Offered: Not offered every year

COSC 49 - Topics in Algorithms and Complexity

Instructor: Winkler (fall), Jayanti (winter), Cormen (spring)

This course studies an advanced topic in algorithms and complexity that is not covered in the regular curriculum. Students may take this course multiple times, subject to the restriction that the topics are distinct.

Prerequisite: Vary according to the topic. Consult with the instructor.

Cross-Listed as: COSC 149, MATH 100 (Winkler)

Distributive: Dist:QDS

Offered: 15F: 10; 16W, 16S: Arrange

COSC 50 - Software Design and Implementation

Instructor: Zhou (summer), Palmer (winter), Kotz (spring)

Techniques for building large, reliable, maintainable, and understandable software systems. Topics include UNIX tools and filters, programming in C, software testing, debugging, and teamwork in software development. Concepts are reinforced through a small number of medium-scale programs and one team programming project.

Prerequisite: COSC 10.

Distributive: Dist:TLA

Offered: 15X: 11; 16W: 10; 16S: 12

COSC 51 - Computer Architecture

Instructor: Smith

The architecture and organization of a simple computer system is studied. Topics covered include how information is represented in memory, machine-language instructions and how they can be implemented at the digital logic level and microcode level, assembly language programming, and input/output operations. Speedup techniques, such as pipelining and caching, are also covered.

Prerequisite: COSC 1, ENGS 20, or placement through the Advanced Placement exam or the local placement exam.

Distributive: Dist:TAS

Offered: 16S: 11

COSC 55 - Security and Privacy

Instructor: Palmer

The migration of important social processes to distributed, electronic systems raises critical security and privacy issues. Precisely defining security and privacy is difficult; designing and deploying systems that provide these properties is even harder. This course examines what security and privacy mean in these settings, the techniques that might help, and how to use these techniques effectively. Our intention is to equip computer professionals with the breadth of knowledge necessary to navigate this emerging area.

Prerequisite: COSC 50 and COSC 51, or instructor's permission. COSC 30 is recommended.

Distributive: Dist:TAS

Offered: 15F: 12

COSC 56 - Digital Electronics

Instructor: Hansen (summer), Staff (spring)

This course teaches classical switching theory including Boolean algebra, logic minimization, algorithmic state machine abstractions, and synchronous system design. This theory is then applied to digital electronic design. Techniques of logic implementation, from Small Scale Integration (SSI) through Application-Specific Integrated Circuits (ASICs), are encountered. There are weekly laboratory exercises for the first part of the course followed by a digital design project in which the student designs and builds a large system of his or her choice. In the process, Computer-Aided Design (CAD) and construction techniques for digital systems are learned.

Prerequisite: ENGS 20 or COSC 1 and COSC 10

Cross-Listed as: ENGS 31

Distributive: Dist:TLA

Offered: 15X: 9L; 16S 12; Laboratory

COSC 57 - Compilers

Instructor: Smith

Techniques for automatic translation of programming languages are discussed. The course includes a brief survey of various techniques and formalisms that can be used for describing the syntax and semantics of programming languages, for describing abstract and concrete machine architectures, and for describing program translation and transformation. This course includes a project to construct a compiler that will translate a program written in a high-level language into machine code for a conventional-architecture machine.

Prerequisite: COSC 50 and COSC 51.

Distributive: Dist:TAS

Offered: 16W: 10

COSC 58 - Operating Systems

Instructor: Smith

This course studies how computer operating systems allocate resources and create virtual machines for the execution of user jobs. Topics covered include storage management, scheduling, concurrent processing, shared access to files, synchronization, and data protection. Both abstract models and actual examples of operating systems will be studied.

Prerequisite: COSC 50 and COSC 51.

Distributive: Dist:TAS

Offered: 15F: 11

COSC 59 - Principles of Programming Languages

Instructor: Bratus

This course provides a study of the principles of programming languages. The course will focus on the similarities and differences among imperative, functional, logical, and object-oriented programming languages. Topics include formal definitions of languages and tools for automatic program translation, control structures, parameter passing, scoping, types, and functions as first-class objects. For each language category, implementation issues will be discussed, and program development strategies illustrated through programming exercises.

Prerequisite: COSC 10. COSC 30 and COSC 51 are recommended.

Distributive: Dist:TAS

Offered: 16S: 11

COSC 60 - Computer Networks

Instructor: Zhou

This course focuses on the communications protocols used in computer networks: their functionality, specification, verification, implementation, and performance; and how protocols work together to provide more complex services. Aspects of network architectures are also considered. Laboratory projects are an integral part of the course in which networking concepts are explored in depth.

Prerequisite: COSC 50. COSC 30 and COSC 51 are recommended.

Distributive: Dist:TAS

Offered: 16S: 2

COSC 61 - Database Systems

This course studies the management of large bodies of data or information. This includes schemes for the

representation, manipulation, and storage of complex information structures as well as algorithms for processing these structures efficiently and for retrieving the information they contain. This course will teach the student techniques for storage allocation and deallocation, retrieval (query formulation), and manipulation of large amounts of heterogeneous data. Students are expected to program and become involved in a project in which they study important aspects of a database system: ways to organize a distributed database shared by several computers; transactions that are processed locally and globally; robustness guarantees of the stored data against failure; security and data integrity guarantees from unauthorized access; privacy; object-oriented schemes for multimedia data; indexing, hashing, concurrency control, data mining, data warehousing, mobile databases and storage file structures.

Prerequisite: COSC 50 or equivalent, as approved by instructor.

Distributive: Dist:TAS

Offered: Not offered in 2015-2016

COSC 63 - Programming Parallel Systems

Multi-core processors are now ubiquitous in most personal computers. These are the fundamental computer-engineering building blocks for high-performance servers, blade farms, and cloud computing. In order to utilize these devices in large systems they must be interconnected through networking and collectively programmed. This hands-on system-engineering course offers students the opportunity to explore problem-solving techniques on a high-performance multi-computer containing quad-core processors. The course involves weekly programming laboratories that teach POSIX thread, UDP and TCP network, and MPI style programming techniques. These techniques are explored in the context of scalable problem solving methods applied to typical problems in science and engineering ranging from client-server sensing and data repositories, to numerical methods, gaming and decision support. All laboratories will be conducted in the C programming language and proficiency in C is required. Enrollment is limited to 30 students.

Prerequisite: ENGS 20 or COSC 50.

Cross-Listed as: ENGS 67

Distributive: Dist:TLA

Offered: Not offered in 2015-2016

COSC 65 - Smartphone Programming

Instructor: Yang

This course teaches students how to design, implement, test, debug and publish smartphone applications. Topics include development environment, phone emulator, key programming paradigms, UI design including views and

activities, data persistence, messaging and networking, embedded sensors, location based services (e.g., Google Maps), cloud programming, and publishing applications. Concepts are reinforced through a set of weekly programming assignments and group projects.

Prerequisite: COSC 10

Cross-Listed as: COSC 165, ENGS 69

Distributive: Dist:TAS

Offered: 16S: 9L

COSC 69 - Topics in Computer Systems

Instructor: Smith (summer), Zhou (fall)

This course studies an advanced topic in computer systems that is not covered in the regular curriculum. Students may take this course multiple times, subject to the restriction that the topics are distinct.

Prerequisite: Vary according to the topic. Consult with the instructor.

Cross-Listed as: COSC 169 (fall)

Distributive: Dist:TAS

Offered: 15X: 10A; 15F: 2A

COSC 69.07 - Risks of the Internet of Things to Society (RIOTS)

Instructor: Smith

In 15X, the course COSC 69, *Risks of the Internet of Things to Society* (prerequisite: COSC 1), students will explore the applications, risks, and potential countermeasures for this new world of computing, in partnership with DEN. The goal of the RIOTS in Residence community is to extend this exploration out of the classroom and into the community, just as the IoT extends computing beyond traditional boundaries.

Prerequisite: COSC 1

Distributive: Dist:TAS

COSC 69.08 - All Things Wireless

Instructor: Zhou

This is a topics course about use and development of wireless devices.

Prerequisite: COSC 60

Cross-Listed as: COSC 169

Distributive: Dist:TAS

Offered: 15F: 2A

COSC 70 - Numerical and Computational Tools for Applied Science

Instructor: Farid

This course provides a practical and principled coverage of useful numerical and computational tools of use in many disciplines. The first half of this course provides the mathematical (linear algebra) and computing (Matlab) framework upon which data analysis tools are presented. These tools include data fitting, Fourier analysis, dimensionality reduction, estimation, clustering, and pattern recognition. This course is designed for undergraduate and graduate students across the Sciences and Social Sciences.

Prerequisite: COSC 1, ENGS 20 or equivalent; MATH 8 or equivalent; MATH 22 or MATH 24 or equivalent, as approved by the instructor.

Cross-Listed as: COSC 170

Distributive: Dist:TAS

Offered: 16S: 2A

COSC 71 - Numerical Methods in Computation

Instructor: Shepherd

A study and analysis of important numerical and computational methods for solving engineering and scientific problems. The course will include methods for solving linear and nonlinear equations, doing polynomial interpolation, evaluating integrals, solving ordinary differential equations, and determining eigenvalues and eigenvectors of matrices. The student will be required to write and run computer programs.

Prerequisite: COSC 1 and COSC 10, or ENGS 20; ENGS 22 or MATH 23, or equivalent.

Cross-Listed as: ENGS 91 and MATH 26

Distributive: Dist:QDS

Offered: 15F: 12

COSC 73 - Computational Linguistics

The study of human language from a computational perspective. This course will survey formal models for representing linguistic objects, and statistical approaches to learning from natural language data. We will pay attention to the use of computational techniques to understand the structure of language, as well as practical engineering applications like speech recognition and machine translation. Students will implement simple algorithms for several key tasks in language processing and learning.

Prerequisite: COSC 1 or instructor permission for a comparable quantitative course.

Cross-Listed as: LING 50.01. In order to use this course for the Computer Science major, modified major, or minor, students must register for the COSC 73 section of COSC 73/LING 50.01.

Distributive: Dist:QDS

Offered: Not offered in 2015-2016

COSC 74 - Machine Learning and Statistical Data Analysis

Instructor: Liu (winter), Bailey-Kellogg (spring)

This course provides an introduction to statistical modeling and machine learning. Topics include learning theory, supervised and unsupervised machine learning, statistical inference and prediction, and data mining. Applications of these techniques to a wide variety of data sets will be described.

Prerequisite: COSC 1 or ENGS 20; MATH 22 or MATH 24.

Cross-Listed as: COSC 174

Distributive: Dist:QDS

Offered: 16W, 16S: 10A

COSC 75 - Introduction to Bioinformatics

Instructor: Bailey-Kellogg

Bioinformatics is broadly defined as the study of molecular biological information, and this course introduces computational techniques for the analysis of biomolecular sequence, structure, and function. While the course is application-driven, it focuses on the underlying algorithms and information processing techniques, employing approaches from search, optimization, pattern recognition, and so forth. The course is hands-on: programming lab assignments provide the opportunity to implement and study key algorithms.

Prerequisite: COSC 10. COSC 30 is recommended.

Cross-Listed as: COSC 175

Distributive: Dist:TLA

Offered: 15F: 2A

COSC 76 - Artificial Intelligence

Instructor: Balkcom

An introduction to the field of Artificial Intelligence. Topics include games, robotics, motion planning, knowledge representation, logic and theorem proving, probabilistic reasoning over time, understanding of natural languages, and discussions of human intelligence.

Prerequisite: COSC 10. COSC 30 is recommended.

Cross-Listed as: COGS 44

Distributive: Dist:TAS

Offered: 16W: 11

COSC 77 - Computer Graphics

Instructor: Whiting

This course is about how to mathematically model and computationally render (draw) two- and three-dimensional scenes and images. Two basic modes of rendering studied are (1) fast, interactive, real-time rendering, where realism is sacrificed for speed or (2) photo-realistic rendering, where the primary goal is a realistic image. Topics include two- and three-dimensional primitives, geometrical transformations (e.g., three-dimensional rotations, perspective and parallel projections), curves and surfaces, light, visual perception, visible surface determination, illumination and shading, and ray tracing. Assignments typically consist of a mixture of written work and "hands-on" projects. Knowledge of basic linear algebra is assumed.

Prerequisite: COSC 50 and Mathematics 22 or 24, or instructor's permission.

Cross-Listed as: COSC 177

Distributive: Dist:TAS

Offered: 15F: 12

COSC 78 - Deep Learning

Instructor: Torresani

This course provides an introduction to deep learning, a methodology to train hierarchical machine learning models using large collections of examples. Deep learning is a special form of machine learning where rich data representations are simultaneously learned with the model, thus eliminating the need to engineer features by hand.

The course begins with a comprehensive study of feedforward neural networks, which are the model of choice for most hierarchical representation learning algorithms. Other models covered in this course include convolutional neural networks, restricted Boltzmann machines, autoencoders, sparse codes. Several lectures are devoted to discuss strategies to improve the bias-variance tradeoff, such as regularization, data augmentation, pre-training, dropout, and multi-task learning. The course also studies modern applications of deep learning, such as image categorization, speech recognition, and natural language processing.

Prerequisite: COSC 74

Cross-Listed as: COSC 178

Distributive: Dist:TAS

Offered: Not offered in 2015-2016

COSC 81 - Principles of Robot Design and Programming

This course is a hands-on introduction to robotics. Students will build robots, program robots, and learn to mathematically model and analyze manipulation and locomotion tasks. Topics include kinematics and dynamics

of rigid-body motion, motion planning, control, mechanics of friction and contact, grasping, sensing, uncertainty in robotics, and applications of robots.

Prerequisite: COSC 10.

Distributive: Dist:TLA

Offered: Not offered every year

COSC 83 - Computer Vision

Instructor: Torresani

This course provides an introduction to computer vision, the art of teaching computers to see. Topics include image formation, feature detection, segmentation, 3D reconstruction from multiple views, motion estimation, and object recognition.

Prerequisite: COSC 1 or ENGS 20; COSC 70 or MATH 22.

Cross-Listed as: COSC 183

Distributive: Dist:TAS

Offered: 15F: 10A

COSC 84 - Mathematical Optimization and Modeling

Planning, scheduling, and design problems in large organizations, economic or engineering systems can often be modeled mathematically using variables satisfying linear equations and inequalities. This course explores these models: the types of problems that can be handled, their formulation, solution, and interpretation. It introduces the theory underlying linear programming, a natural extension of linear algebra that captures these types of models, and also studies the process of modeling concrete problems, the algorithms to solve these models, and the solution and analysis of these problems using a modeling language. It also discusses the relation of linear programming to the more complex frameworks of nonlinear programming and integer programming. These paradigms broaden linear programming to respectively allow for nonlinear equations and inequalities, or for variables to be constrained to be integers.

Prerequisite: COSC 1 or ENGS 20; MATH 22 or MATH 24; or permission of the instructor.

Cross-Listed as: COSC 184

Distributive: Dist:TAS

Offered: Not offered every year

COSC 86 - Computational Structural Biology

Instructor: Grigoryan

Computational methods are helping provide an understanding of how the molecules of life function through their atomic-level structures, and how those structures and functions can be applied and controlled.

This course will introduce the wide range of complex and fascinating challenges and approaches in computational structural biology, and will give hands-on experience applying and implementing some important methods.

Prerequisite: COSC 10 or permission of the instructor.

Cross-Listed as: COSC 186

Distributive: Dist:TAS

Offered: 16W: 2A

COSC 87 - Rendering Algorithms

Instructor: Jarosz

This course is designed for graduate and upper-level undergraduate students interested in obtaining an in-depth understanding of physically based rendering. Students will learn about the principles of how light interacts with a scene and how to translate the associated image formation problem into efficient rendering algorithms. Since this is an upper-level course, a focus is placed on state-of-the-art techniques and recent trends in research. By the end of the quarter, students will understand, and know how to implement, many of the core algorithms used for rendering visual effects and 3D animated films.

Prerequisite: MATH 8 and COSC 77, or instructor's permission.

Cross-Listed as: COSC 187

Distributive: Dist:TAS

Offered: 16S: Arrange

COSC 89 - Topics in Applied Computer Science

Instructor: Grigoryan, Jarosz (fall); Bailey-Kellogg, Torresani, Yang (winter); Liu, Palmer, Whiting (spring)

This course studies an advanced topic in applied Computer Science that is not covered in the regular curriculum. Students may take this course multiple times, subject to the restriction that the topics are distinct.

Prerequisite: Vary according to the topic. Consult with the instructor.

Cross-Listed as: COSC 189

Distributive: Dist:TAS

Offered: 15F: 2, 2A; 16W: 12, Arrange; 16S: Arrange

COSC 89.15 - Computational Aspects of Digital Photography

Instructor: Jarosz

This course studies the emerging applications of computation in digital photography. Likely topics include image formation and representation, how a (digital) camera works, image processing algorithms for photography, high-dynamic-range photography and tone mapping, and

advanced image editing algorithms. As part of the class, students will learn the math and algorithms behind popular image manipulation and processing software like Adobe Photoshop and Lightroom. Course work will include taking some photos, implementing several algorithms to manipulate those photos, reading, presenting and discussing recent research papers, and a final project.

Students will need access to a camera with manual control over exposure (most recent smartphones with an appropriate camera app will do, but a dSLR is preferable).

Prerequisites: COSC 10 (required), COSC 77 (recommended).

Prerequisite: COSC 10. COSC 77 is recommended.

Cross-Listed as: COSC 189

Distributive: Dist:TAS

Offered: 15F: 2A

COSC 94 - Reading Course

Advanced undergraduates occasionally arrange with a faculty member a reading course in a subject not occurring in regular courses.

Offered: All terms: Arrange

COSC 97 - Thesis Research

Open to students who are not registered in the Honors Program. Permission of the Undergraduate Advisor and thesis advisor required. This course does not serve for distributive credit, and may be taken at most twice.

Offered: All terms: Arrange

COSC 98 - Senior Design and Implementation Project

Instructor: Whiting (fall, winter), Grigoryan (winter, spring)

Participation in a software engineering group project to meet a real-world need. Group members are responsible for all aspects of a software system, including iterative requirements analysis, design, implementation, and testing. The course also stresses customer interactions, documentation, process, and teamwork. The result is a software product of significant scope and significant benefit to a user base.

Prerequisite: COSC 50 or permission of the instructor. COSC 31 is recommended. Open only to students pursuing a major in Computer Science or a modified major with Computer Science as the primary part. This course is normally taken in the senior year. This course must be taken in two consecutive terms, either fall/winter or winter/spring.

Offered: 15F, 16W, 16S: Arrange

COSC 99 - Honors Thesis Research

Open only to students who are officially registered in the Honors Program. Permission of the Undergraduate Advisor and thesis advisor required. This course does not serve for distributive credit, and may be taken at most twice.

Offered: All terms: Arrange

The John Sloan Dickey Center For International Understanding

Director: Daniel Benjamin

To view International Studies courses, click here (p. 198).

To view International Studies requirements, click here (p. 197).

The Dickey Center unites the many and diverse strengths of Dartmouth—its students, faculty, undergraduate and professional schools—in addressing the world’s challenges and ensuring that a rigorous understanding of the world is an essential part of the Dartmouth experience. The Center honors the commitment to international understanding and social responsibility exemplified by President John Sloan Dickey’s lifetime devotion to liberal arts education, scholarship and values.

The Dickey Center offers students opportunities for expanding their knowledge of international issues through an interdisciplinary minor in International Studies, international internships and research grants, student organizations and publications. Students may further refine their international studies with courses and activities on conflict (War and Peace Studies Fellows Program), polar environmental change (Institute of Arctic Studies), global health (The Global Health Initiative), and gender and development (the Human Development Initiative).

Through symposia, conferences, public events and extended visits by practitioners and scholars in the Dickey Visiting Fellows program, the Center brings the vital issues of the day to campus. It enhances the intellectual life of the faculty through its support of faculty research and publications, and curricular development in international studies. The Center’s multidisciplinary approach to complex international issues is exemplified by its research institutes. The Institute of Arctic Studies within the Dickey Center is home to an interdisciplinary graduate program in polar environmental science, and engages the work of scientists, humanists and policy makers in its work. The Global Health Initiative is a collaborative enterprise with Geisel School of Medicine that marshals the talents of the entire campus and of international partners to address global health concerns. A certificate in Global Health is available for undergraduates who fulfill a set of requirements (see Global Health Initiative). In its quest to understand the phenomenon of collective violence, the War

and Peace Studies program incorporates the study of both the global state system as well as the human condition, drawing on a variety of fields and disciplines.

The Center benefits from the advice of a distinguished Board of Visitors. The offices of the Dickey Center and its Institutes are located on the first floor of the Haldeman Center.

International Studies Minor

Coordinator: Amy Newcomb, Student Programs Officer, Dickey Center for International Understanding

Faculty Steering Committee: E. V. Edmonds (Chair), L. V. Adams, Daniel Benjamin, Director of the Dickey Center, C. A. Fox, S. E. Freidberg, A. Martín, D. L. Nichols, G. Parati, N. Pavcnik, R. A. Virginia, W. C. Wohlforth.

To view International Studies courses, click here (p. 198).

To view information on the John Sloan Dickey Center, click here (p. 197).

The International Studies Minor is open to students from all majors seeking to better understand the cross-cutting global forces that shape the vital issues of our day.

The Minor is coordinated by the Dickey Center for International Understanding and draws upon faculty expertise from across the College. Students graduating with a Minor in International Studies will be able to demonstrate that they are cognizant of the interplay between local and global-level processes, human and environmental interactions, and place, identity, and culture. They will further be able to apply this understanding to the complex global issues of our time in order to better understand their causes and consequences, and to assume the mantle of responsibility that comes with global citizenship.

Application for the Minor should ideally be made by the student’s sixth term of study. No course in the minor may be taken under the Non-Recording Option.

Prerequisite: None.

Requirements: A total of six (6) courses, to include the following:

Four (4) ‘core’ multidisciplinary courses:

INTS 15: Violence and Security

INTS 16: Introduction to International Development

INTS 17: Cultures, Places, and Identities

INTS 18: Global Health and Society

One (1) advanced language and literature course (a course beyond the 1, 2, 3 introductory sequence and excluding courses taught in English).

One (1) elective course selected from a list of courses approved by the Steering Committee.

Core Courses are offered annually. Students for whom the D-plan renders it impossible to take the specific courses above may petition the Steering Committee to substitute a similar course offered at the College. No more than two of the four core courses may be substituted. Substitutions are permitted at the discretion of the Steering Committee.

INTS - International Studies Courses

To view International Studies requirements, click here (p. 197).

To view information on the John Sloan Dickey Center, click here (p. 197).

INTS 15 - Violence and Security

Instructor: W. Wohlforth (16S)

Violence and Security is a multidisciplinary introduction to scholarship on the causes, consequences, and possible prevention of armed violence between groups. Using multiple social science disciplines, we will examine armed violence within, between, and across states, ranging from civil war, "ethnic" conflict, insurgency, and inter-state war. The course addresses the trade-offs created by different political solutions to the problem of security, and features a group simulation exercise to explore the challenges faced by governments and non-governmental organizations when they seek to ameliorate it.

Distributive: Dist:INT or SOC

Offered: 16S:10

INTS 16 - Introduction to International Development

Instructor: Freidberg (15F), Fox (16W)

Identical to, and described under, GEOG 6.

Cross-Listed as: GEOG 6

Distributive: Dist: SOC or INT; WCult:NW

Offered: 15F:10A 16W:10

INTS 17 - Cultures, Places & Identities

This course considers the role of culture and identity, migration, evolution of language, gender, race, and class issues, and studies the diverse cultural and artistic productions (literary, cinematic, musical, multi-media) that exemplify the tensions and negotiations between cultures and people. Identical to and described under COLT 057

INTS 17.02 - From Dagos to Sopranos: Italian American Culture

Instructor: Parati

Identical to, and described under, Comparative Literature 57

Distributive: DIST: LIT; WCult: CI

Offered: 16W 2; 16F 2

INTS INTS 17.04 - Migration Stories

Instructor: Spitta/Gemunden

Identical to, and described under, Comparative Literature 57

Distributive: DIST: INT; WCult: CI

Offered: 17S 2A

INTS 18 - Global Health and Society

Instructor: Adams, Butterly (16W), Fox (16S)

Identical to, and described under, GEOG 2.

Cross-Listed as: GEOG 2

Distributive: Dist:INT or SOC

Offered: 16W:2A 16S:2

INTS 80.01 - Violence and Prosperity

Instructor: Clark

Are we living in a violent age? And is economic globalization an impetus for our violent times? Although many would answer Yes in both cases, a generation of research in fields such as history, political science, and economics suggests a different approach. This course will join the exciting debate over whether violence has indeed declined, and if so, why.

Distributive: Dist:INT or SOC

Offered: 15F:11

The Institute of Arctic Studies

Director: Ross A. Virginia

Associate Director: Matt Ayres

Program Manager: Lee McDavid

Science Outreach Coordinator: Lauren Culler

A unit of the Dickey Center, the Institute of Arctic Studies was founded in 1989 in recognition of Dartmouth's distinguished history in Arctic and northern studies. Our aim is to facilitate faculty and student research, teaching, and an understanding of issues facing high latitude regions. We connect Dartmouth faculty from the College and the Professional schools with colleagues at the U.S. Cold Regions Research and Engineering Lab (CRREL, Hanover, NH) to develop programs that promote scholarship and engage students in the cultural, political and scientific issues of high latitude regions. The Institute's programmatic vision includes Canada,

Greenland, the Nordic countries, Russia, and the polar region of the south, Antarctica. As Dartmouth's representative at the University of the Arctic, the Institute provides access to polar studies around the world, and has partnered with the University of the Arctic to create the Institute for Arctic Policy, a forum for connecting scientists, policy-makers and indigenous leaders on issues of climate, security, and development. The Institute provides research and fellowship support to students interested in polar issues and guidance in selecting a course of study. Its undergraduate Stefansson Research Fellowship honors Dartmouth's distinguished Arctic explorer Vilhjalmur Stefansson by supporting student research in the polar regions. The Institute also sponsors seminars and other public events to highlight the importance of Arctic region in world affairs and the global ecosystem. A critical initiative of the Institute is graduate programming in Polar Environmental Change and international science education and outreach through the National Science Foundation's Joint Science Education Project in Greenland. The Institute also provides leadership for the U.S. State Department's Fulbright Arctic Initiative, a network of scholars, professionals and applied researchers from the U.S., Canada, Denmark, Finland, Iceland, Norway, Russia, and Sweden.

Global Health Initiative

Program Coordinator: Lisa V. Adams, M.D.
Program Manager: Anne Sosin

A joint enterprise of the Dickey Center for International Understanding and the Geisel School of Medicine, the Global Health initiative (GHI) marshals the resources of the campus and international partners to address global health concerns. The GHI offers both curricular and co-curricular opportunities for undergraduate, graduate, and professional school students. Current curricular offerings available through GHI are as follows:

- INTS 18/GEOG 2: Global Health and Society (16W, 16S)
- The Global Health Initiative offers a certificate for undergraduate students who fulfill a combination of coursework and a capstone project on a global health topic of their choice. Students awarded a certificate in global health will be able to demonstrate an understanding of research methods in global health, research ethics, and contemporary issues in global health.

Domestic and international global health internship and mentored-research fellowship opportunities are available through GHI and include a changing portfolio of projects with international and domestic partners. All undergraduate, graduate and professional school students are welcome to apply for GHI's funded opportunities. The Global Health Initiative also supports co-curricular

activities in global health including the student organization the Dartmouth Coalition for Global Health and Social Equity (DCGH) and Standpoints global health magazine.

War and Peace Studies

Coordinator: Benjamin A. Valentino

Steering Committee: D. Benjamin (Dickey Center), P. A. Bien (English, Emeritus), L. A. Butler (History), E. V. Edmonds (Economics), J. Fluri (Women and Gender Studies), C. S. Hammond (CFMED), J. W. Lamperti (Mathematics, Emeritus), E. G. Miller (History), J. E. Shepherd (Environmental Studies), B. A. Valentino (Government).

War and Peace Studies is administered by the John Sloan Dickey Center for International Understanding. The Jean Monnet Fund for War and Peace Studies, which is part of the Dickey Center's endowment, was established in 1985 by John C. Baker and Elizabeth Baker to honor the Dartmouth trustees who had the vision in 1961 to award Jean Monnet an honorary degree. It was also to honor the three founders of War and Peace Studies at Dartmouth College: Leonard Reiser, Elise Boulding, and Peter Bien.

The problems of peace and war demand multifaceted solutions that require the study of such diverse fields as government, history, literature, languages, sociology, environmental studies, geography, anthropology, psychology, and economics. Rather than being housed in any one department, War and Peace Studies is accordingly a synthesis of various disciplines concerned with the problems of peace and reconciliation, arms control, war, and, more generally, collective violence. Its broad objectives are to support teaching, research, and public discussion of important issues in these fields. War and Peace Studies administers a War and Peace Fellows program for students and presents a series of public speakers and other events.

Earth Sciences - Undergraduate

Chair: W. Brian Dade

Professors X. Feng, C. E. Renshaw, M. Sharma; Professor Emeritus J. L. Aronson, Professor Emeritus R. W. Birnie, Professor Emeritus G. D. Johnson; Associate Professors W. B. Dade, R. L. Hawley, M. A. Kelly, L. J. Sonder; Assistant Professors E. C. Osterberg, D. J. Renock, J. V. Strauss; Research Associate Professor B. P. Jackson; Visiting Professor E. S. Posmentier; Visiting Assistant Research Professor E. E. Meyer; Research Instructor V. F. Taylor; Adjunct Professors S. Bonis, A. J. Friedland, F. J. Magilligan, R. A. Virginia; Adjunct Assistant Professor J. W. Chipman; Adjunct Instructor D. R. Spyrell.

To view *Earth Sciences Undergraduate courses*, click [here](#). (p. 202)

To view *Earth Sciences Graduate requirements*, click [here](#). (p. 560)

To view *Earth Sciences Graduate courses*, click [here](#). (p. 561)

Requirements for the Earth Sciences Major, the Environmental Earth Sciences Major and the Earth Sciences Minor

The Earth Sciences Major

Prerequisites: Any one introductory Earth Science course (EARS 1-9 exclusive of EARS 7); EARS 40; CHEM 5 (or CHEM 10); and any one of the following courses taken at Dartmouth: MATH 3, MATH 8, MATH 9, MATH 11, MATH 12, MATH 13, MATH 14, MATH 23, or MATH 46.

Requirements: One Data Analysis course (EARS 10-19); Five Core Methods and Concepts courses (EARS 30-59), including EARS 45, 46, and 47 and at least one Advanced Core Methods and Concepts course (EARS 50-59); one Quantitative Analysis course (EARS 60-69); and one Advanced Topics course (EARS 70-79).

In addition, to fulfill the College's culminating experience requirement, all students must complete EARS 87 or EARS 88 or EARS 89 and attend the weekly research seminar in Winter and Spring of their senior year.

Within the Earth Sciences major, several tracks are suggested below. Note that majors need not be restricted to those listed below; other specialized tracks or a broader major plan can also satisfy the major.

Data Analysis (EARS 10-19) 1 course	Core Methods (EARS 30-59) Five courses (including EARS 45, 46, 47, plus at least one numbered \geq 50)	Quantitative Analysis (EARS 60-69) 1 course	Advanced Topics (EARS 70-79) 1 course	Culminating Experience 1 course
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Solid Earth

Any of EARS 10-19	Stretch or other geology field program*EARS 33, 37, or 38	EARS 62, 64, 65, or 67	EARS 73 or 74	EARS 87, 88, or 89
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EARS 51, 52, 58, or 59

Hydrology and Hydrogeology

EARS 16 or 17	Stretch or hydrology field camp*EARS 33 or 35 EARS 52	EARS 64, 65, 66, or 67	EARS 71, 74, 76, or 77	EARS 87, 88, or 89
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Oceans, Atmospheres, and Climate

EARS 14, or 15	Stretch or SEA Semester (sea.edu)*EARS 37 EARS 51, 52, 58, or 59	EARS 62, 64, or 65	EARS 74, 75, or 78	EARS 87, 88, or 89
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Glaciology and Climate

EARS 14 or 15	Stretch, Juneau Icefield Research Program, or other glaciology program*EARS 51, 52, 58, or 59	EARS 64	EARS 70, 75, or 78	EARS 87, 88, or 89
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Environmental Geology

EARS 14, 16 or 18	Stretch or other geology field program*EARS 33 or 35 EARS 51, 52, 58, or 59	EARS 62, 65, or 67	EARS 71, 73, 74, or 77	EARS 87, 88, or 89
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Paleobiology, Paleontology, Geobiology

EARS 15 or 17	Stretch or other geology field program*EARS 31 or 38	EARS 62 or 65	EARS 72	EARS 87, 88, or 89
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EARS 51 or
58

* Some students, e.g. for reasons of athletics or D-plans, are unable to enroll in the Stretch. Such students may instead complete a field program offered by another institution. The student must then transfer the academic credits for the course to Dartmouth. Students should be aware that: 1) field courses often transfer as only one or two course equivalents, so the student may have to take additional EARS courses for a total course count equal to the three courses of the Stretch, and 2) the Registrar charges up to \$2200 to transfer course credit to Dartmouth, *in addition to* tuition charged by the other institution.

The Environmental Earth Sciences Major

Prerequisites: Any one introductory Earth Science course (EARS 1-9, exclusive of EARS 7); EARS 40; CHEM 5 (or CHEM 10); and any one of the following courses taken at Dartmouth: MATH 3, MATH 8, MATH 9, MATH 11, MATH 12, MATH 13, MATH 14, MATH 23, or MATH 46.

Requirements: One Data Analysis course (EARS 10-19); EARS 45, EARS 46, and EARS 47; one Quantitative Analysis course (EARS 60-69); one Advanced Topics course (EARS 70-79); and at least two additional courses that are either Earth Sciences courses numbered 30 or higher or relevant courses above the introductory level from qualifying courses in Geography, Environmental Studies, Engineering, Chemistry or Biology. Such courses may include CHEM 63; ENGS 37, ENGS 41, ENGS 43; BIOL 53; ENVS 25, ENVS 30; MATH 53, or other courses with the permission of the Chair.

In addition, to fulfill the College's culminating experience requirement, all students must complete EARS 87 or EARS 88 or EARS 89 and attend the weekly research seminar in Winter and Spring of their senior year.

****Advisory****

First-year students planning a major in either of the two above Earth Sciences majors are advised to complete the prerequisite courses, exclusive of EARS 40, by the end of their sophomore year. It is highly recommended that all majors take the required EARS 45, EARS 46 and EARS 47 sequence (the Fall F.S.P.). However, a student may substitute a summer field methods course offered by another institution and approved by the Chair. Since this course will likely receive one Dartmouth course credit, a student will usually need two additional Earth Sciences courses numbered 30 or above to meet Dartmouth's eight course major requirement.

Students contemplating a professional career in earth sciences are advised that:

1. Training at the Master's level or above is becoming increasingly necessary.

2. Most graduate schools have minimum entrance requirements equivalent to MATH 3 and MATH 8, CHEM 5-6, and PHYS 3-PHYS 4 or PHYS 13-14. Minimal expectations for Earth Sciences preparation include material taught in EARS 40, EARS 51, EARS 52, EARS 58, and EARS 69.

The Earth Sciences Minor

Prerequisite Courses: Any one introductory Earth Science course (EARS 1-9 exclusive of EARS 7); EARS 40; CHEM 5 (or CHEM 10); and any one of MATH 3, MATH 8, MATH 9, MATH 11, MATH 12, MATH 13, MATH 14, MATH 23, or MATH 46, taken at Dartmouth.

Requirements: Four Earth Sciences courses numbered above 10, of which three must be numbered 30 or higher.

The Environmental Earth Sciences Minor

Prerequisite courses: Any one of EARS 1-19 exclusive of EARS 7; any one of MATH 3, MATH 8, MATH 9, MATH 11, MATH 12, MATH 13, MATH 14, MATH 23, or MATH 46, taken at Dartmouth; CHEM 5 (or CHEM 10) or PHYS 13 (or PHYS 3 or PHYS 15) or BIOL 16

Required courses: A total of 5 courses in addition to the prerequisite courses is required for the Environmental Earth Sciences minor. Three or more of these must be in Earth Sciences. The Earth Sciences courses must be numbered greater than 10; of these, two courses must be Core Methods and Concepts (EARS 30-59) and one must be numbered 60 or above (Quantitative Analysis of Earth Systems or Advanced Topics). Up to two of the five required courses may be from other departments; the following are specifically recommended for the Environmental Earth Sciences minor but other courses are permitted, subject to the permission of the Chair:

CHEM 63 (Environmental Chemistry); ENVS 20 (Conservation of Biodiversity) or ENVS 25 (Ecological Agriculture); BIOL 21 (Population Ecology), BIOL 25 (Introductory Marine Biology and Ecology), BIOL 51 (Advanced Population Ecology) or BIOL 53 (Aquatic Ecology); ENGS 37 (Introduction to Environmental Engineering) or ENGS 43 (Environmental Transport and Fate); GEOG 31 (Forest Geography).

The Modified Major

Modified Major with Earth Sciences as the primary department (in addition to the general rules in the Regulations section of this catalog).

Prerequisites: same as Earth Sciences Major

Required Courses: EARS 45, EARS 46, EARS 47 plus three additional courses above 10, of which two must be above 30.

In addition, to fulfill the College's culminating experience requirement, all students must complete EARS 87 or EARS 88 or EARS 89 and attend the weekly research seminar in Winter and Spring of their senior year.

Modified Major with Earth Sciences as the secondary department (in addition to the general rules in the Regulations section of this catalog.)

Prerequisites: same as Earth Sciences Major

Required Courses: four Earth Sciences courses numbered 10 or above, at least one of which must be a Core Methods and Concepts course (Earth Sciences 30-59) and at least one of which must be a Quantitative Analysis or Advanced Topics course (Earth Sciences 60-79).

Modified Major with Environmental Earth Sciences as the primary department (in addition to the general rules in the Regulations section of this catalog.)

Prerequisites: same as Environmental Earth Sciences Major

Required Courses: six, of which three must include EARS 45, EARS 46, EARS 47. Of the other three, all must be above the introductory level and one may come from a third department (neither the primary nor secondary department); the following courses are specifically recommended but others are permitted subject to the permission of the Chair:

CHEM 63 (Environmental Chemistry); ENVS 20 (Conservation of Biodiversity) or ENVS 25 (Ecological Agriculture); BIOL 21 (Population Ecology), BIOL 25 (Introductory Marine Biology and Ecology), BIOL 51 (Advanced Population Ecology), or BIOL 53 (Aquatic Ecology); ENGG 37 (Introduction to Environmental Engineering) or ENGG 43 (Environmental Transport and Fate); GEOG 31 (Forest Geography).

In addition, to fulfill the College's culminating experience requirement, all students must complete EARS 87 or EARS 88 or EARS 89 and attend the weekly research seminar in Winter and Spring of their senior year.

Modified Major with Environmental Earth Sciences as the secondary department (in addition to the general rules in the Regulations section of this catalog.)

Prerequisites: same as Environmental Earth Sciences Major

Required Courses: four courses numbered 10 or above, at least one of which must be a Core Methods and Concepts course (EARS 30-59) and at least one of which must be a Quantitative Analysis or Advanced Topics course (EARS 60-79). At most one of these courses may come from a third department (neither the primary nor the secondary department).

Earth Sciences Honors Program

A candidate for the Honors Program in Earth Sciences must satisfy the College requirements of at least a 3.0 (B) overall grade point average and at least a 3.0 (B) grade point average in the major at the beginning of senior year. Those students who a) enroll in and satisfactorily complete Earth Sciences 89, b) satisfactorily complete and submit a

written senior thesis and c) have a 3.3 (B+) average or higher in the 8 courses constituting their major will earn Honors or, in appropriate cases, High Honors, in Earth Sciences at the end of senior year. High Honors will be granted only by vote of the Department faculty on the basis of overall academic performance including both classroom and independent work. Earth Sciences 89 may be taken twice, both for course credit, but will only count once toward the major. An interim evaluation of Honors Students will be made after one term and continuation will be recommended for those students whose work demonstrates the capacity for satisfactory (B+) work. Note: enrollment in Earth Sciences 89 in and of itself does not constitute admission to the Honors Program, nor does completion of a senior thesis guarantee the awarding of Honors.

EARS - Earth Sciences - Undergraduate Courses

To view Earth Sciences Undergraduate requirements, click here. (p. 199)

To view Earth Sciences Graduate requirements, click here. (p. 560)

To view Earth Sciences Graduate courses, click here. (p. 561)

EARS 1 - How the Earth Works

Instructor: Kelly and Meyer

This course introduces the principles of physical geology by describing the Earth's components and analyzing the processes that control its evolution. Mountain ranges and deep sea trenches, volcanism and earthquakes, surficial and deep-seated geologic processes provide the evidence we will use to interpret the Earth's makeup and history. Earth resources, geologic hazards, and environmental protection will be discussed in connection with a variety of general geologic topics.

Distributive: Dist:SLA

Offered: 15F, 16S: 10; Laboratory (three hours weekly) M 1-4; Tu 9-11:55; Tu 2-5

EARS 2 - Evolution of Earth and Life

Instructor: Osterberg

The presence of life on Earth potentially makes it unique in this solar system. The reasons that life emerged, persisted, and evolved on Earth are tied to Earth's geochemical and geophysical processes, such as the rock cycle and carbon cycle, which have been active on Earth since its formation 4.5 billion years ago. By examining how the biosphere has interacted with key geochemical and geophysical processes over this time, this course investigates how the evolution of the biosphere and geosphere has been a synergistic

process throughout the entire history of the Earth that continues today.

Distributive: Dist:SCI

Offered: 16W: 11; one weekly hour discussion period

EARS 3 - Elementary Oceanography

Instructor: Osterberg

Oceanography is one of the studies in which natural processes are investigated with interdisciplinary approaches by scientists of a wide range of specialties. Physical, chemical, biological and geological processes in the oceans and their interactions are studied in this course. Students will gain appreciation of the complexity of the ocean as a natural system and necessity of interdisciplinary to investigate it. Oceans as a source of resources, as a fundamental part of the global climate engine, as a book of Earth's environmental history, and as a bed of the origin of life are discussed. Use and abuse of ocean resources and associated environmental problems, such as ocean water pollution, over-fishing and whaling are also discussed.

Distributive: Dist:SCI

Offered: 16S: 11

EARS 4 - Dinosaurs

Described under BIOL 6

Cross-Listed as: BIOL 6

Distributive: Dist:SCI

Offered: 16W:10A

EARS 5 - Natural Disasters and Catastrophes

Instructor: Sonder

This course will examine several different kinds of natural hazards, including volcanic eruptions, earthquakes, floods, hurricanes, and meteorite impacts. We will attempt to understand the reasons for the occurrence of these events, the reasons for the wide variations in our ability to accurately predict them, and the role of the scientist in broader societal issues relating to disaster preparation, forecasting events, and damage and cost mitigation.

Distributive: Dist:SCI

Offered: 15X, 16X, 17X: 12

EARS 6 - Environmental Change

Instructor: Hawley

This course will investigate the science of natural and human induced environmental change on a global scale. The Earth has never existed in a pristine balanced state, and an understanding of pre-industrial changes in the Earth's environment provides important information that we can use to interpret current environmental change.

Topics that will be discussed include: the evolution of the atmosphere, global temperature variation, sea level change, atmospheric trace gases and global warming, stratospheric ozone, acid rain and tropospheric ozone, human migration and landscape development, and global catastrophes.

Distributive: Dist:SCI

Offered: 16F, 17F: 11

EARS 7 - First-Year Seminars in Earth Sciences

Instructor: S. Taylor

Offered: Consult special listings

EARS 8 - Geology of New England and Surrounding Regions

The continuous geological development of our continent over the past several billion years has played a significant role in influencing the character of agriculture, commerce, and transportation, the availability of mineral, energy, and water resources, and even the ecological communities that occupy this varied landscape. In this course we will develop an understanding of the geological history of a portion of the North American continent and its continental shelves, as a basis for understanding some of the natural controls that constrain our interaction with this landscape and that continue to modify it through a variety of geological processes. Field trips.

Distributive: Dist:SCI

Offered: Not offered in the period from X15 through X16

EARS 9 - Earth Resources

Instructor: Sharma

The over-arching goal of this course is to make students-many of them future leaders in their fields-keenly aware of how the foundation and progress of society are based on the utilization of the earth resources. The fact that such resources are finite and unevenly distributed around the globe has been a major driver for not only human exploration and innovation but also wars. Also, the exploitation of earth resources has profoundly altered the earth's natural geochemical cycles with ramifications to our health, security, economy and well-being. We will discuss these issues along with the origin of Earth resources.

Distributive: Dist:SCI

Offered: 16W: 12

EARS 14 - Meteorology

Instructor: Staff

Introduction to the science of the atmosphere, emphasizing weather and weather forecasting, but including atmospheric variations on all scales from tornadoes, through the Little Ice Age, to Snowball Earth. We begin by discussing the properties of air and a few basic physical

principles that control all atmospheric phenomena. These principles enable us to understand weather systems and associated fronts, clouds, winds, and precipitation, and to forecast weather using simple visual observations, satellite data and supercomputers. They are also the basis for the global circulation of air, energy and water, as well as the restlessly changing, diverse climate zones of our planet. Labs will provide hands-on experience observing the weather, building and using simple meteorological instruments, interpreting network data and satellite images, and forecasting the weather in real time. Additional topics may include air pollution, deliberate and inadvertent weather and climate modification, aviation and marine weather, and atmospheric chaos.

Distributive: Dist:SLA

Offered: 16S: 2A; Laboratory: W 2:00-5:00

EARS 15 - Earth's Climate - Past, Present and Future

Instructor: Doughty

Understanding what drives climate change is one of the major scientific questions of the 21st century. Evidence for past (paleo) climate change provides essential information about Earth's climate system and the potential for future change. In this course, we will investigate paleoclimate changes and the chemistry and physics of the modern climate system. We will explore the mechanisms that influence climate on various time scales and the projections for future change. Laboratory projects will focus on collecting and analyzing data from local sites to develop paleoclimate records.

Distributive: Dist:SLA

Offered: 16W: 10A; Laboratory: W 1:45-4:15

EARS 16 - Hydrology and Water Resources

Instructor: Renshaw

This course explores both the physical and technical dimensions of the Earth's surface water resources and water resource management to demonstrate that ensuring sustainable water resources requires not only a firm understanding of the physical-chemical characteristics of water, but also of its social arena. Focus is given to the array of environmental problems resulting from human impacts on water resources and contextualizes them both in terms of their physical underpinnings and in terms of social requirements driving the development of technical analyses. Topics include floods, droughts, domestic water supply, dams and dam removal, habitat degradation, snowmaking, and climate change. Weekly field studies of local streams and lakes are used to introduce hydrological field methods and to illustrate fundamental principles and phenomena. Field studies are complemented with technical analyses of water resources.

Distributive: Dist:TLA

Offered: 17S: M, W 2:00-3:50; Laboratory: W 3:50-5:50

EARS 17 - Analysis of Environmental Data

Instructor: Feng

Topics such as acid deposition, air and water pollution, water quality, acid mine drainage and climate change are used to introduce the fundamentals of environmental data analysis. Basic subjects include descriptive statistics, uncertainty, error propagation, hypothesis testing, regression, and experimental design. Advanced methods for spatial and time series data analysis are briefly introduced.

Prerequisite: One course in Earth Sciences and MATH 3 or permission of instructors.

Distributive: Dist:QDS

Offered: 17W: 9L

EARS 18 - Environmental Geology

Instructor: Feng

This course takes an interdisciplinary approach toward understanding the Earth's present and past environments as systems controlled by natural processes and impacted by human actions. Environmental issues, such as global climate change, acid rain, ozone depletion, and water resources and pollution, are discussed in this context. In the process of developing this understanding, students will gain skills in collecting, interpreting, and reporting scientific data. This course does not emphasize environmental policies, but instead the scientific knowledge and arguments behind them. However, case studies will allow students to gain appreciation of the complexity of scientific, social, cultural and political interactions surrounding local and global environmental issues and sustainability.

Prerequisite: Introductory course in Earth Sciences or a related field course recommended.

Distributive: Dist:TLA

Offered: 15F: 10A; Laboratory: W 2:00-5:00

EARS 28 - Macroevolution

Instructor: K. Peterson

Macroevolution focuses on the evolutionary process from the perspective of the species and through the lens of deep time. More specifically, it focuses on the issue of whether life is organized hierarchically, and if so, can selection occur at any/all of these other levels, in addition to the level of the organism. This course is especially well suited for discussion and question, as the definition of macroevolution, as well as its very existence, is under intense discussion by both microevolutionists and macroevolutionists alike. Topics covered include

punctuated equilibrium, species-level selection, homology, and mass extinctions.

Cross-Listed as: BIOL 28 Macroevolution

Distributive: Dist:SCI

Offered: 16W

EARS 31 - Paleobiology

Instructor: Staff

The study of fossil flora, invertebrate and vertebrate fauna, and their utility in understanding ancient rock sequences of paleontologic or archaeologic significance. Emphasis is placed on the nature of the fossil record, the environmental context, and the evolutionary history of certain major groups of organisms, paleoecology, paleogeography, and the use of fossils for geologic dating and correlation. Stratigraphic principles are developed.

Prerequisite: One introductory level science course or its equivalent or permission of the instructor.

Distributive: Dist:SLA

Offered: 16S: 11; Laboratory: ARR

EARS 33 - Earth Surface Processes and Landforms (Identical to, and described under, Geography 33)

Instructor: Magilligan

Cross-Listed as: GEOG 33

Distributive: SLA

Offered: Not offered in the period between 14F and 16S

EARS 35 - The Soil Resource

Instructor: Renock

Soils are a critical natural resource; feeding our growing population depends fundamentally on soils; in fact, soils provide nutrients to all ecosystems. Agriculture and land management has increased soil erosion around the world, potentially influencing the history and fate of civilizations. In the modern era, this use is not sustainable; the physical and chemical degradation of soils far outpaces soil production. This course will explore the nature and properties of soils and examine how these processes occur in natural and human-influenced soils, and identify reasonable limits on what can influence the sustainable utilization of soils as a resource. We will begin by developing an understanding of the geologic, biologic, and chemical processes that lead to soil formation and the development of specific soil properties. The second portion of the course will examine the relationship between soils and underlying bedrock and overlying vegetation and the role of soils in ecosystems. The final section of the course will examine the situations in which soils are used to reduce the impact of human activities and the way in which humans can reduce their impact on soils: the

importance of soils in septic tanks and leach fields; the use of soils as solid waste landfill caps and liners; the use of soils in the storage of hazardous wastes; and the conservation and management of soils.

Prerequisite: ENVS 2 or one course from EARS 1, EARS 2, EARS 3, EARS 4, EARS 5, EARS 6, EARS 8, EARS 9, or CHEM 5 and an advanced course from the environmental sciences or Earth Sciences; or permission of the instructor.

Cross-Listed as: ENVS 79

Distributive: Dist:SLA

Offered: 16S: 12; Laboratory: ARR

EARS 37 - Marine Geology

Instructor: Osterberg

This course investigates the geology, processes, and paleoarchives hidden beneath the world's oceans. The course material is necessarily broad, covering marine geography, plate tectonics, active and passive margins, coastal processes, ocean processes, sediment processes, and climate interactions. We will investigate a few specific concepts (case studies) in detail to relate the course material to current events and the recent scientific literature. A key objective of this course is for you to use case studies to practice how to critically evaluate and synthesize published marine geological data, and to construct, in writing, sound, logical, succinct arguments based on your analyses. We do not have a lab for this course, but I will introduce you to marine geological field methods throughout the term.

Prerequisite: One course from EARS 1, EARS 2, EARS 3, EARS 4, EARS 5, EARS 6, EARS 8, EARS 9 or permission of the instructor.

Distributive: Dist:SCI

Offered: TBD; 11

EARS 38 - Sedimentary Systems

Instructor: Strauss

This course considers the evidence, preservation, and temporal record of environmental change as preserved in sedimentary rocks. Various biological and physical processes, occurring at or near the earth's surface, involving the complex interaction between the atmosphere, hydrosphere, and lithosphere, will be evaluated so as to understand their occurrence within the ancient sedimentary rock record—a record that may be extended to several billion years before the present. The principles of various paleontological and chronological techniques will also be illustrated through a consideration of certain modern and ancient sedimentary assemblages of geologic, archeological, paleontologic, or paleoenvironmental significance. This course will also introduce a

consideration of the geologic controls on the formation, geochemical maturation, and natural preservation of fossil energy resources.

Prerequisite: One course from EARS 1, EARS 2, EARS 3, EARS 4, EARS 5, EARS 6, EARS 8, EARS 9 or permission of the instructor.

Distributive: Dist:SCI

Offered: 16S: 2A

EARS 40 - Materials of the Earth

Instructor: Renock and Sonder

This course will prepare students for the Earth Sciences FSP and for further study in Earth Sciences. It consists of two integrated modules, structural geology and earth materials. In the Structural Geology component, students will learn how to observe and analyze the arrangement of rock units in order to gain insight into the chronology of events occurring in the geological past and the implications for kinematics (e.g., plate tectonic history) and dynamics (e.g., origin and evolution of tectonic forces). Practical skills include making and analyzing geological maps, constructing cross-sections, and analyzing three-dimensional geological data and geometries. In the Earth Materials component, students will develop an understanding of the nature and formation of solid-earth's raw materials in the context of earth's major tectonic, petrologic, hydrologic and biogeochemical systems. This will involve an understanding of the nomenclature of materials and their textures, and systems of classification, the physical and chemical properties of earth materials, associations and occurrences, and an understanding of processes of formation of earth materials resources. Field (hand-and outcrop-scale) and petrographic microscope-based laboratory procedures will be introduced. Field excursions.

Prerequisite: One course from EARS 1, EARS 2, EARS 3, EARS 4, EARS 5, EARS 6, EARS 8, EARS 9. CHEM 5 recommended.

Distributive: Dist:SLA

Offered: 16X, 17X: 10 (MWF 10-11:05); Laboratory: M, W, TH 3pm-5pm

EARS 45 - Field Methods: Techniques of Structural and Stratigraphic Analysis

Instructor: staff

The study of geologic phenomena and field problems associated with the solid Earth. The analysis of outcrop evidence of the structural, stratigraphic, and geomorphic history of selected regions. The integrated use of geologic instruments, topographic maps, aerial photography, and satellite imagery to enable geomorphic and structural analysis. Because of the nature of this course, class

meetings, assignments, readings, and reports are scheduled irregularly.

Prerequisite: EARS 40. Must be taken concurrently with EARS 46 and EARS 47.

Distributive: Dist:SLA

Offered: 15F, 16F, 17F: D.F.S.P.

EARS 46 - Field Methods: Environmental Monitoring

Instructor: staff

The study of surface processes and products through the integration of geomorphic, hydrologic, and environmental chemistry techniques. The analysis of field evidence of the interaction between the atmosphere, hydrosphere, and lithosphere at the Earth's surface. The integrated use of geologic instruments, topographic maps, aerial photography, and satellite imagery to enable geomorphic and environmental assessment. Because of the nature of this course, class meetings, assignments, readings, and reports are scheduled irregularly.

Prerequisite: EARS 40. Must be taken concurrently with EARS 45 and EARS 47.

Distributive: Dist:SLA

Offered: 15F, 16F, 17F: D.F.S.P.

EARS 47 - Field Methods: Resource and Earth Hazards Assessment

Instructor: staff

Field studies of rock associations, geologic structures, active and fossil volcanism, and mineral resources in the western United States. The interrelationship between upper crustal processes and earth materials in the development of landforms and landscapes, and rock and mineral provinces. The integrated use of geologic instruments, topographic maps, aerial photography, and satellite imagery to enable resource assessment. Because of the nature of this course, class meetings, assignments, readings, and reports are scheduled irregularly. EARS 45, EARS 46, and EARS 47, the Earth Sciences Off-Campus Study Program (D.F.S.P.), require considerable logistical planning for proper execution. It is therefore imperative that Earth Sciences majors planning to be enrolled in this program register in the Off-Campus Programs Office (44 N. College Street, Hinman 6102) no later than February 1 of the sophomore year. All prerequisites for EARS 40 must be met by the end of spring term of the sophomore year; failure to complete prerequisites may cause a student to be denied permission to participate in the Off Campus Program. Enrollment may be limited. Preference given to Earth Science majors.

Prerequisite: EARS 40. Must be taken concurrently with EARS 45 and EARS 46.

Distributive: Dist:SLA

Offered: 15F, 16F, 17F: D.F.S.P.

EARS 51 - Mineralogy and Earth Processes

Instructor: Renock

Crystallography, mineral chemistry, and physical properties of the principal rock forming minerals, especially the silicates. In the laboratory, technique of hand identification, the petrographic microscope, and X-ray diffraction are mastered. The course culminates with three case studies that relate mineralogic change to the geologic cycle, such as in regional metamorphism during mountain building; the origin of petroleum; and soil formation.

Prerequisite: EARS 40 and CHEM 5 or permission of instructor.

Distributive: Dist:SLA

Offered: 16W: 11 Offered alternate winter terms

EARS 52 - Structural Geology

Instructor: Dade

This course examines various aspects of regional-scale geologic processes and structures, or tectonics. Topics of study include the history of relevant geologic thought, rock deformation, the origin and evolution of mountain belts, the growth of continents and ocean basins, the causes of earthquakes and volcanic eruptions, and tectonic geomorphology. Students learn that tectonic analysis requires the synthesis of a wide range of information in an attempt to reconstruct the history and driving dynamics of the large-scale, geologic architecture of a particular region. Format: faculty- and student-led presentations, and discussion of selected articles from the peer-reviewed literature.

Prerequisite: EARS 40 or equivalent or permission of the instructor.

Distributive: Dist:SLA

Offered: 17S: 9L; Laboratory: Arrange. Offered alternate spring terms

EARS 58 - Sedimentary Petrology

Instructor: TBA

This is a combined lecture and laboratory course on the origin and diagenetic modification of sediments and sedimentary rocks. The course will cover theoretical and practical aspects of sedimentary geology that are critical to understanding the nature of soils, hydrocarbon reservoirs and groundwater aquifers, as well as the record of ancient climate and environments. We will build upon an understanding acquired in EARS 40 as well as our off-campus field program. Lectures will be combined with the study of field relationships, hand specimen and petrographic thin sections of select sedimentary assemblages. In addition to employing standard

petrographic microscopy, we will also introduce some of the other major instrumental methods commonly used in the field (e.g. electron microscopy and X-ray diffraction). Laboratory study will involve the use of lithologic and paleontological materials, subsurface and surface outcrop data, optical and electron microscopy. Field trips and field project.

Prerequisite: EARS 40 or permission of instructor.

Distributive: Dist:SLA

Offered: 16W: 2A Laboratory: Arrange; Offered alternate winter terms

EARS 59 - Igneous and Metamorphic Petrology

Instructor: Sharma

An overview of high-temperature geochemistry with particular emphasis on the processes that form igneous and metamorphic rocks. We will learn how a combination of rock fabric, texture, mineralogy, phase equilibria, and chemical composition are used to investigate the origin and evolution of rocks. We will also examine the relationship between rock forming and tectonic processes and the origin of the Earth's crust. The course consists of lectures and laboratory; the latter includes examination of a large number of rocks in hand-samples and their corresponding thin-sections. Additionally, we will have a week-end field trip to the metamorphosed igneous rocks of the Adirondack Mountains.

Prerequisite: EARS 40 or permission of instructor.

Distributive: Dist:SLA

Offered: 17S: 11; Laboratory: Arrange. Offered alternate spring terms

EARS 62 - Geochemistry

Instructor: Sharma

The intent of this course is to further our understanding of the Earth by utilizing the principles of chemistry. We will place particular emphasis on how to obtain quantitative information about the processes controlling the composition of Earth's mantle, crust, ocean and atmosphere. We will examine how abundances of elements and isotopes and chemical equilibria can provide such information.

Prerequisite: CHEM 6 or equivalent or permission of the instructor.

Distributive: Dist:SCI

Offered: 15F, 16F: 10A

EARS 64 - Geophysics

Instructor: Sonder

Geological methods (mapping and analysis of samples collected at the earth's surface) tell us much about

processes occurring near the earth's surface, but very little about deeper parts of the earth. Almost all surface rocks come from depths of no more than a few tens of kilometers, yet 99% of the Earth is deeper than that! How can we learn about parts of the Earth to which there is no hope of ever traveling and from which we have no samples? Geophysics gives us the tools. In this course we will use the principles of gravity, magnetism, seismology, and heat transfer to "journey to the center of the Earth." Laboratory sessions will be focused more locally; we will collect geophysical data from the Hanover area and interpret them to learn about the rocks hidden below the Earth's surface.

Prerequisite: MATH 3 or permission of the instructor. PHYS 3 (or PHYS 13) and MATH 8 are helpful but not required.

Distributive: Dist:SLA

Offered: 16S: 10; Laboratory: Arrange Offered alternate spring terms

EARS 65 - Remote Sensing

Instructor: Chipman

Remote sensing involves the acquisition of information about the earth from airborne and satellite sensors. Both vector (GIS and GPS) and raster (image) data will be treated with an emphasis on their interpretation for various geographic and earth science applications. A significant part of the course will be devoted to practical exercises; there will be a final project involving the computer processing and interpretation of these data.

Prerequisite: One course from EARS 1, EARS 2, EARS 3, EARS 4, EARS 5, EARS 6, EARS 8, EARS 9, or GEOG 3.

Cross-Listed as: GEOG 51

Distributive: Dist:TLA

Offered: 16W: 10A; Laboratory: W 1:00-4:00 or Th 1:00-4:00

EARS 66 - Hydrogeology

Instructor: Renshaw

This course is an introduction to groundwater and the technical analyses of groundwater resources. A series of case studies are used to introduce the physical, chemical, and technical aspects of groundwater budgets, groundwater resource evaluation (including well hydraulics and numerical modeling), and the transport and fate of contaminants. The case studies also allow students to gain insight into the complexity of sustainable groundwater resource management through exploration of the ideas of safe yield, surface-groundwater interactions, and water quality standards.

Prerequisite: MATH 3 or permission of the instructor.

Distributive: Dist:SCI

Offered: 16W, 17W: Tuesdays/Thursdays 8:00am-9:50am

EARS 67 - Environmental Geomechanics

Instructor: Dade

The study of our Earth environment requires an understanding of the physical processes within and at the surface of the Earth. This course explores the physics of key Earth surface processes, including volcanic eruptions, landslides and debris flows, and turbulent flows in rivers and the sea. Advanced quantitative concepts are developed through applications in geomorphology, sedimentology, oceanography, and volcanology. Format: faculty lectures, challenging weekly problem sets, independent project, final exam.

Prerequisite: MATH 23 or permission of the instructor.

Distributive: Dist:SCI

Offered: 16W: 10; Laboratory: ARR. Offered alternate winter terms

EARS 70 - Glaciology

Instructor: Hawley

This course explores the unique nature and scientific importance of glaciers, ice sheets, snow, and frozen ground in the Earth system, collectively referred to as the Cryosphere. We explore how glaciers work, and how they interact with the climate system. We investigate how ice behaves from the molecular scale to the continental scale and compare and contrast this behavior to that of snowpacks. The practical skills and techniques used by glaciologists to study glaciers and ice sheets are considered along with transferable skills in advanced quantitative data analysis, including time series analysis and computational modeling of physical processes, with emphasis on practical application to real data.

Prerequisite: PHYS 3 and MATH 3, or equivalent. EARS 33 is recommended.

Distributive: Dist:QDS

Offered: 16S: 2A. Offered alternate spring terms

EARS 71 - River Processes and Watershed Science (Identical to, and described under, Geography 35)

Instructor: Magilligan

Prerequisite: EARS 16 or EARS 33 or BIOL 23 or permission of the instructor.

Cross-Listed as: GEOG 35

Distributive: SLA

Offered: 15F: 12; Laboratory: W 3-5

EARS 72 - Geobiology

Instructor: staff

This course will investigate the coevolution of life and other Earth systems (e.g. oceans and atmosphere). Concepts in geobiology are presented in the context of significant events in Earth's history. The course provides an introduction to molecular techniques (e.g. isotope analysis to genomics and proteomics) utilized to investigate significant events in Earth's history. The important geobiological processes and major events discussed in the course may include, for example, the formation of the solar system, the earliest records of life, evolution of photosynthesis and the oxygenation of Earth's environment, origin of animals at the Precambrian-Cambrian boundary, extinction of invertebrates at the Permian-Triassic boundary, and the Eocene- Paleocene thermal crisis to name a few.

Prerequisite: CHEM 5 or permission of the instructor.
EARS 31 or BIOL 16 recommended.

Distributive: Dist:SCI

Offered: TBD

EARS 73 - Environmental Isotope Geochemistry

Instructor: Feng

This course examines the use of stable, radiogenic and cosmogenic isotopes as tools to study Earth processes, particularly processes that are environmentally important. The theory of isotope principles are introduced followed by their applications in investigating Earth's systems. The main applications include studies of climate change, hydrological processes, biogeochemical cycles, Earth's early environment, origin of life, erosion and mountain building. Labs provide hands on opportunities for students to learn mass spectrometry and isotopic data collection and interpretation.

Prerequisite: CHEM 5 or permission of instructor.

Distributive: Dist:SLA

Offered: 17S: 10A; Laboratory: Arrange. Offered alternate spring terms

EARS 74 - Soils and Aqueous Geochemistry

Instructor: Renock

An overview of the basic principles that govern soil chemistry, with particular emphasis on the composition and mineralogy of soils, the chemical processes that function within soils, the reactions that describe the fate of elements (both nutrients and contaminants) within soils and soil solutions. The majority of the course will cover equilibrium soil processes. Occasional field trips will concentrate on the collection of soils and their characterization.

Prerequisite: CHEM 5 and EARS 62 or equivalents, or permission of instructor.

Distributive: Dist:SLA

Offered: 16S: 2A; Lab: TH 4:00-6:00

EARS 75 - Quaternary Paleoclimatology

Instructor: Kelly

Evidence for past (paleo) climate change provides essential information about Earth's climate system and the potential for future change. This course focuses on understanding paleoclimate changes during the Quaternary Period such as glacial-interglacial variability, rapid climate changes, and the recent "stable" climatic conditions of the Holocene epoch. We will rely on published scientific data to examine these various topics and critically evaluate hypotheses for mechanisms of climate change.

Prerequisite: EARS 15 or ENGS 172 or equivalent or permission of the instructor.

Distributive: Dist:SCI

Offered: 16W: 2A Offered alternate spring terms

EARS 76 - Advanced Hydrology

Instructor: Renshaw

A survey of advanced methods used to analyze the occurrence and movement of water in the natural environment. The watershed processes controlling the generation of runoff and streamflow are highlighted, and used to explore the transport and fate of sediment and contaminants in watersheds. Throughout the course the ideas and concepts are explored through the primary literature, with emphasis given to methods of observation, measurement, data analysis, and prediction.

Prerequisite: MATH 3, and one of EARS 16 or EARS 33 or BIOL 53 or ENGS 43 or permission of instructor.

Cross-Listed as: ENGS 46

Distributive: Dist:TLA

Offered: 16S, 18S: 2A; Laboratory: Th 3:50-5:50. Offered alternate spring terms

EARS 77 - Environmental Applications of GIS (Identical to, and described under, Geography 59)

Instructor: Dietrich

Prerequisite: GEOG 50 or GEOG 51/EARS 65, or permission of the instructor.

Cross-Listed as: GEOG 59

Distributive: TLA

Offered: 16W: 11; Laboratory M or TU: 2-4pm

EARS 78 - Climate Dynamics

Instructor: Osterberg

This course focuses on the physics that govern the circulation of the atmosphere and ocean, and the dominant patterns of climate variability that we observe today. We explore global-scale atmospheric dynamics that explain why the atmosphere behaves as observed. We also use the scientific literature to investigate the signature and causes of regional ocean-atmosphere variability including the El Nino- Southern Oscillation, monsoons, and North Atlantic Oscillation, and the influence of climate change on these patterns.

Prerequisite: Math 8 or equivalent and EARS 14 or EARS 15 or equivalent or Instructor Permission.

Distributive: Dist:SCI

Offered: 15F, 18W: 2A

EARS 79 - Special Topics

Offered: Not offered in the period from 15F through 16S

EARS 87 - Special Projects

Available every term as advanced study in a particular field of the earth sciences, not related to Senior Thesis research, and under the supervision of a faculty advisor. Conclusions from the project must be submitted in a suitable oral or written report. If taken in satisfaction of the culminating experience requirement, attendance at weekly earth sciences research talks during Winter and Spring terms of the senior year is required.

Prerequisite: Sufficient training in the area of the project and faculty approval.

Offered: All terms: Arrange

EARS 88 - The Earth System

Instructor: Dade

A culminating experience for seniors choosing not to pursue independent research, offered concurrently with EARS 201. We review regional geology of the Appalachians in the field, and then review key components of the Earth System, including the origin of our planet and the origin of life, plate tectonics, atmospheric and ocean circulation, Earth surface processes, and environmental change. Format: local field trips, faculty- and student-led presentations, and discussion of selected articles from the peer reviewed literature.

Prerequisite: Earth Science major and fourth-year standing.

Distributive: Dist:SLA

Offered: 15F: Arrange

EARS 89 - Thesis Research

Research related to preparation of a senior thesis. The initiative to begin some project should come from the student, who should consult the appropriate faculty member. May be taken two terms, both for course credit, but can only count once toward the major. Conclusions from the research must be submitted in a suitable report. Attendance at weekly earth sciences research seminars is required during Winter and Spring terms. Serves in satisfaction of the culminating experience requirement.

Prerequisite: permission of a faculty research advisor.

Offered: All terms: Arrange

Economics

Chair: Bruce I. Sacerdote

Vice Chair: James D. Feyrer

Professors P. M. Anderson, D. G. Blanchflower, D. Comin, E. V. Edmonds, W. A. Fischel, A. L. Gustman, D. A. Irwin, M. G. Kohn, A. T. Levin, E. F. P. Luttmer, N. P. Marion, N. Pavcnik, B. I. Sacerdote, A. A. Samwick, J. T. Scott, J. S. Skinner, C. M. Snyder, D. O. Staiger, R. W. Staiger, S. F. Venti, J. Zinman, E. W. Zitzewitz; Associate Professors E. U. Cascio; J. D. Feyrer; Assistant Professors T. L. Dinkelman, R. C. Johnson, E. G. Lewis, P. Novosad, S. G. Schaner, J. R. Schwartzstein, S. Sukhtankar, T. C. Youle; Visiting Professors A. Bar-Ilan, L. L. Kreicher, F. Passarelli, C. F. Zarnowski; Visiting Associate Professor D. Vollrath; Senior Lecturers E. S. Curtis, M. P. Doyle, M. B. Rose, C. J. Wheelan; Adjunct Associate Professor E. R. Meara; Lecturer F. B. Ulusoy

To view Economics courses, click here (p. 212).

Requirements for the Major

Prerequisites: ECON 1 and ECON 10, with an average grade no lower than C, and MATH 3. (A student who fails to achieve the minimum grade average for the prerequisites may, with the permission of the vice chair, substitute grades in ECON 21 and ECON 20 for those in ECON 1 and ECON 10, respectively. Another statistics course may be substituted for ECON 10 with permission of the vice chair.)

Requirements : Nine courses in addition to the prerequisites, with a GPA for these nine courses of no less than 2.0. The nine courses must include the following:

1. ECON 20, ECON 21, and ECON 22
2. Any *two* of the following sequences (depending on the sequences chosen, one or two additional courses may be needed): 71-28 or 71-24 or 71-27; 24-39, 24-44 or 24-27-44 or 24-39-44; 25-45 or 25-75 or 25-75-45 (35

can be substituted for 75); 26-76, 26-36 or 26-36-46; 27-47 or 24-27 or 24-27-47; 28-38 or 28-48 or 28-38-48 (72 or 75 can be substituted for 38); 29-39 or 29-39-49; 80-81 or 80-82 or 81-82 or 80-81-82. At least one of the sequences must include a 40 or an 80-level course in which a major paper is required. This requirement will serve as the culminating experience in the major.

Notes: ECON 2 and ECON 7 may not be counted toward fulfillment of the major requirement.

Requirements for the Modified Major

The modified major is intended to fit the needs of students who have a definite interest in economics but are interested also in studying some specific problem or topic that falls partly in the field of economics, the study of which depends also upon courses in related fields, e.g., mathematics or other social sciences. Each student's program must be approved by the vice chair of the department no later than fall of senior year; this approved program of courses constitutes the major.

Prerequisites : ECON 1 and ECON 10, with an average grade no lower than C, and MATH 3. (A student who fails to achieve the minimum grade average for the prerequisites may, with permission of the vice chair, substitute grades in ECON 21 and ECON 20 for those in ECON 1 and ECON 10, respectively. Another statistics course may, in certain instances, be substituted for ECON 10 with permission of the vice chair.)

Requirements:

1. A unified, coherent program of at least ten courses is required, of which at least six courses must be in economics (in addition to ECON 1, ECON 10 and MATH 3) and four courses in a field or fields related to the special topic approved by the department vice chair. The GPA for the six courses in Economics must be no less than 2.0. The additional courses in a field outside of economics must be chosen from those satisfying the major of the department offering the course.
2. The six courses in economics shall include:
 - a. ECON 20, ECON 21, and ECON 22.
 - b. Any one of the following sequences (depending on the sequence chosen, one additional course may be needed): 24-44 or 24-27-44 or 24-39-44; 25-45 or 25-75-45 (35 can be substituted for 75); 26-36-46; 27-47 or 24-27-47; 28-48 or 28-38-48 (72 or 75 can be substituted for 38); 29-39-49; 80-81 or 80-82 or 81-82 or 80-81-82. With the permission of the vice chair, a student may substitute a sequence of courses involving an alternative culminating experience.

Requirements for Another Major Modified with Economics

Prerequisites : ECON 1 and ECON 10, with an average grade no lower than C, and MATH 3. (A student who fails to achieve the minimum grade average for the prerequisites may, with the permission of the vice chair, substitute grades in ECON 21 and ECON 20 for those in ECON 1 and ECON 10, respectively. Another statistics course may, in certain instances, be substituted for ECON 10 with permission of the vice chair.)

Requirements : A unified, coherent program of at least four courses in economics in addition to the prerequisites, with a GPA of no less than 2.0. The four courses must either: contain both ECON 21 and ECON 22, or contain a sequence of at least 2 courses and one of either ECON 21 or ECON 22. Thus, there are three ways to complete the modification with economics:

1. ECON 21 and ECON 22, plus any two other Economics courses.
2. ECON 21, plus any of the following sequences: 24-39, 24-44 or 24-27-44 or 24-39-44; 25-45 or 25-75 or 25-75-45 (35 can be substituted for 75); 26-36 or 26-36-46; 27-47 or 24-27 or 24-27-47; 28-48 or 28-38 or 28-38-48 (72 or 75 can be substituted for 38); 29-39 or 29-39-49; 80-81 or 80-82 or 81-82 or 80-81-82, plus any other course if necessary to achieve the total of four Economics courses.
3. ECON 22, plus any of the following sequences: 24-39, 24-44 or 24-27-44 or 24-39-44; 25-45 or 25-75 or 25-75-45 (35 can be substituted for 75); 26-36 or 26-36-46; 27-47 or 24-27 or 24-27-47; 28-48 or 28-38 or 28-38-48 (72 or 75 can be substituted for 38); 29-39 or 29-39-49; 80-81 or 80-82 or 81-82 or 80-81-82, plus any other Economics course if necessary to achieve the total of four Economics courses. With the permission of the vice chair, a student may substitute other courses to fulfill these requirements.

Economics Minor

Prerequisites : ECON 1 and ECON 10, with an average grade no lower than C, and MATH 3. (A student who fails to achieve the minimum grade average for the prerequisites may, with the permission of the vice chair, substitute grades in ECON 21 and ECON 20 for those in ECON 1 and ECON 10, respectively. Another statistics course may be substituted for ECON 10 with permission of the vice chair.)

Requirements : Six courses in addition to the prerequisites, with a GPA for these six courses of no less than 2.0. No courses can be counted toward both a major and a minor. The six courses must include the following:

1. ECON 20, ECON 21, and ECON 22
2. Any one of the following sequences (depending on the sequence chosen, one additional course may be needed): 24-44 or 24-27-44 or 24-39-44; 25-45 or 25-75-45 (35 can be substituted for 75); 26-36-46; 27-47

or 24-27-47; 28-48 or 28-38-48 (72 or 75 can be substituted for 38); 29-39-49; 80-81 or 80-82 or 81-82 or 80-81-82. With the permission of the vice chair, a student may substitute a sequence of courses involving an alternative culminating experience.

No courses can be counted toward both a major and a minor. With the permission of the vice chair, a student may substitute other courses to fulfill these requirements.

Transfer Credit

Normally, no more than three courses transferred for Dartmouth credit from other institutions will be credited toward fulfillment of a regular or modified major in economics, including both prerequisites and courses counting for the major. Students are discouraged from transferring the equivalents of ECON 20, ECON 21, and ECON 22. No transfer credit is possible for a 40-level or an 80-level course to satisfy the culminating experience.

Economics Honors Program

The Honors Program in Economics provides qualified students with the opportunity of doing research in economics, either initiated during their 40-level course or in ECON 85, and then writing an Honors thesis (ECON 87) in the senior year.

To be eligible for the Program, a student must have a grade point average of at least 3.3 in courses counting toward the major (excluding ECON 1, ECON 10, and MATH 3), and an overall grade point average of at least 3.0 for courses taken through the term immediately preceding enrollment in ECON 85 or, in the case where the research is begun in the 40-level course, preceding enrollment in ECON 87. In order to be eligible for honors, one additional Economics course beyond those needed for the major is required. The economics courses must include ECON 20, ECON 21, and ECON 22. Students whose major paper in their 40-level course are considered worthy of developing into a thesis and who meet all other requirements will be invited to enroll in ECON 87. Prior to enrolling in ECON 85 or ECON 87, the student must have the written approval of the vice chair and a faculty member in the economics department who is willing to act as an adviser. Additionally, those students who do not take ECON 85 must have the written approval of the faculty member who taught the 40-level course in which the thesis topic and research were developed. The adviser may be the teacher of the 40-level course and would usually be a professor whose own research interests lie in the area in which the student wants to work.

Majors enrolled in a 40-level course or in ECON 80, ECON 81, or ECON 82 ("80-level") whose research papers for the course are deemed of exceptional merit by the instructor shall be granted honors in economics without necessarily enrolling in ECON 87. No more than two students per section may be granted honors in this way without a vote of the department. Students who achieve honors by this method must still complete ten major

courses (beyond prerequisites) to receive honors. Students may subsequently enroll in ECON 87 and extend their research from the 40-level or 80-level course in order to be eligible for high honors. Failure to enroll in or to complete ECON 87 will not forfeit the original honors designation unless the course is necessary to obtain a count of ten major courses.

A fourth method of obtaining honors is to complete the ECON 80-81-82 sequence with an average of B+, with a total of at least ten courses in the major, and having received a grade of A- or better in each of the prerequisite classes (i.e. ECON 20, ECON 21 and ECON 22 with no recorded W from any of these classes). The instructors of this sequence may recommend that students who have done outstanding work in these courses be granted, by a vote of the department, high honors.

Both regular majors and modified majors who wish to undertake the Honors Program will normally be expected to have taken all the courses relevant to their topic prior to enrollment in ECON 85, or ECON 87 if the student writes the Honors thesis directly after the 40-level course. An average grade of B+ (3.33) or better in ECON 85 and ECON 87, or a 40-level course and 87 for the alternative approach to developing the Honors thesis, will entitle the student to graduate with 'Honors in Economics.' A vote of the Department is necessary to achieve 'High Honors in Economics.' The Department will take into account the student's performance on the thesis and his or her record in Economics courses in awarding 'High Honors.'

ECON - Economics Courses

To view Economics requirements, click here (p. 210).

ECON 1 - The Price System: Analysis, Problems, and Policies

Instructor: Curtis, Novosad, Scott, Zarnowski

Emphasis will be placed on problems and policies of current interest as they relate to resource use and the distribution of income and output. Students will receive an introduction to the theory of supply and demand in both product and factor markets in order to examine selected topics drawn from such areas as industrial organization and antitrust policy, labor economics, international trade, economic development, agriculture, urban problems, poverty and discrimination, public sector economics, and environmental problems.

Distributive: Dist:SOC

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9, 10, 11, 12, 10A, 2A

ECON 2 - Economic Principles and Policies

Instructor: Fischel

This is a general survey course for students who have had no previous college level economics and who do not plan to take further economics courses. It is divided between microeconomic concepts-supply and demand, labor and capital markets, tax incidence, comparative advantage, international trade, and benefit-cost analysis-and macroeconomic issues such as economic growth, unemployment inflation, national income and product accounting, the banking system, and monetary and fiscal policy. Applications to current policy issues will be emphasized throughout. ECON 2 may be taken under the Non-Recording Option (NRO). It does not count towards the major or minor.

Prerequisite: Students who have previously taken ECON 1 or who have been exempted from ECON 1 at matriculation may not enroll in ECON 2. Completion of ECON 2 does not, however, preclude subsequent enrollment in ECON 1.

Distributive: Dist:SOC

Offered: 15F, 16S, 16F, 17S: 12

ECON 5 - Adam Smith and Political Economy

Instructor: Clark

The eighteenth-century Scottish philosopher Adam Smith was one of the founders of "political economy," the study of the interrelationship between society, government, and the economy. This course focuses on Smith's major ideas through his two important works, *The Theory of Moral Sentiments* and *The Wealth of Nations*, and deals with such topics as the origins and consequences of economic growth, and the role of government in a commercial society.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 2

ECON 10 - Introduction to Statistical Methods

Instructor: Cascio, Doyle, Ulusoy

This course introduces the student to the basic concepts and methods of statistics. It covers descriptive statistics and inference (estimation and hypothesis testing) for a single variable and for two variables. The probability theory required for these topics will be developed.

Prerequisite: ECON 1 and MATH 3 (or MATH 1 + MATH 2 or MATH 8 or MATH 11 or MATH 12 or MATH 13), or permission of the instructor. ECON 10 is a prerequisite to the major in Economics. This course should be taken early in the student's major program. Because of the large overlap in material covered, no student may receive credit for more than one of the courses ECON 10, GOVT 10, MATH 10, PSYC 10, MSS 15, or SOCY 10 except by special petition.

Distributive: Dist:QDS

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9, 10, 11, 12

ECON 20 - Econometrics

Instructor: Anderson, Lewis

Econometrics is the statistical analysis of economic data. This course focuses on regression analysis (specification, estimation, and hypothesis testing) and problems and pitfalls in its application in economics. The course involves extensive use of the statistical program STATA and will enable students to implement their own empirical research projects in preparation for the culminating experience in the economics major.

Prerequisite: ECON 10 and MATH 3 (or MATH 1 + MATH 2 or MATH 8 or MATH 11 or MATH 12 or MATH 13).

Distributive: Dist:QDS

Offered: 15F, 16W, 16S, 16F, 17W, 16S: 9, 10

ECON 21 - Microeconomics

Instructor: Doyle, Gustman, Luttmner, Ulusoy

This course is a study of the pricing and allocation process in the private economy. Topics include the theories of demand and production, and the determination of prices and quantities for commodities and factors of production in competitive and noncompetitive markets. Applications of the theory and its implications for empirical analysis are also considered.

Prerequisite: ECON 1 and MATH 3 (or MATH 1 + MATH 2 or MATH 8 or MATH 11 or MATH 12 or MATH 13).

Distributive: Dist:SOC

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9, 10, 11, 12, 10A, 2A

ECON 22 - Macroeconomics

Instructor: Comin, Feyrer, Levin, Marion, Rose

This course is concerned with the behavior of the economy as a whole, particularly fluctuations in economic activity. General equilibrium models are developed to analyze the determinants of GNP, unemployment, the rate of inflation, and the growth of output. The micro foundations of macro aggregates are developed, with special emphasis on the role of expectations. The analytic tools are used to evaluate monetary and fiscal policies and to understand current macroeconomic controversies.

Prerequisite: MATH 3 (or MATH 1 + MATH 2 or MATH 8 or MATH 11 or MATH 12 or MATH 13) and ECON 1.

Distributive: Dist:SOC

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9, 10, 11, 12, 10A, 2A

ECON 24 - Development Economics

Instructor: Novosad, Sukhtankar

This course uses economic analysis to understand contemporary issues in low-income countries. We consider why extreme poverty and hunger, child mortality, low-levels of education, gender inequality, environmental degradation, high fertility, and child labor are pervasive in the developing world. We also examine the economic consequences of globalization and infectious diseases such as malaria and HIV/AIDS. For each topic, we seek to understand the factors and constraints influencing decision-making in developing countries. We use this understanding to discuss the role of markets, civil organizations, government policy, and international institutions.

Prerequisite: ECON 1 and ECON 10 or equivalent.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F, 16W, 16S, 16F, 17S: 10A, 2A

ECON 25 - Competition and Strategy

Instructor: Snyder

This course examines the strategies that businesses use in choosing prices, advertising, research and development, and mergers to maximize their profits. The course studies how business strategy is constrained by market competition and antitrust policy (government policy toward monopoly, collusion, and mergers). The analysis is conducted using game theory, empirical methods, and experimental methods.

Prerequisite: ECON 1 and MATH 3 (or MATH 1 + MATH 2 or MATH 8 or MATH 11 or MATH 12 or MATH 13) and ECON 10 and ECON 21

Distributive: Dist:SOC

Offered: 16W, 17W: 10A, 2A

ECON 26 - The Economics of Financial Intermediaries and Markets

Instructor: Derin-Gure, Kohn, Zinman

This course examines the nature and function of financial intermediaries (e.g., banks, mutual funds, and insurance companies) and of securities markets (e.g., the money and capital markets and the market for derivatives). It analyzes liquidity and risk management and studies the efficiency, stability, and regulation of the financial system.

Prerequisite: ECON 1

Distributive: Dist:SOC

Offered: 15F, 16W, 16S, 16X, 16F, 17W, 16S: 12, 2.

ECON 27 - Labor Economics

Instructor: Anderson

This course studies the economic behavior of employers and employees as they interact in the labor market. The class will move beyond the basics of labor supply and

demand to cover such topics as human capital investment, the structure and determinants of financial compensation and benefits packages, contract negotiations and arbitration. Additionally, since many of the pressing problems facing the United States are labor market issues, this course will provide a basis for better understanding of nationally-debated issues such as reforms of the welfare system, the income tax system, immigration policy, and affirmative action programs.

Prerequisite: ECON 1.

Distributive: Dist:SOC

Offered: 15F, 16F: 10, 11

ECON 28 - Public Economics

Instructor: Luttmmer, Skinner

This course consists of the study of the public economy of the United States at the national, state, and local levels. The course is divided into the microeconomic topics of resource allocation and income distribution. The macroeconomic impact of selected tax and expenditure policies is also studied. Particular topics may include the rationale for government activity, theories of collective decision-making, cost-benefit analysis, and the efficiency and incidence of various tax structures.

Prerequisite: ECON 1 and ECON 21, or permission of the instructor.

Distributive: Dist:SOC

Offered: 15F, 16W, 16F, 17W: 11, 12

ECON 29 - International Finance and Open-Economy Macroeconomics

Instructor: Johnson, Kreicher

This course covers introductory material in the area of international monetary theory and policy. It examines the behavior of international financial markets, the balance of payments and exchange rates, interactions between the balance of payments, the exchange rate and domestic economic activity and ways of organizing the international monetary system.

Prerequisite: ECON 22 or permission of the instructor.

Distributive: Dist:INT or SOC

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9, 10

ECON 36 - Theory of Finance

Instructor: Kreicher, Venti

This course studies decision making under risk and uncertainty, capital budgeting and investment decisions, portfolio theory and the valuation of risky assets, efficiency of capital markets, option pricing, and problems of asymmetric information.

Prerequisite: ECON 10, ECON 21, and ECON 26, or permission of the instructor.

Distributive: Dist:SOC

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9, 10

ECON 38 - Urban and Land Use Economics

Instructor: Fischel

This course is about the location of economic activities. The central focus is on urban areas and attendant problems in public economics, but some attention is given to agricultural, natural resource, and environmental issues. Topics include housing markets, transportation, local government structure, property taxes, resource depletion, and zoning and land use controls. ECON 72 may be substituted for ECON 38 in the ECON 28-38 sequence.

Prerequisite: ECON 1.

Distributive: Dist:SOC

Offered: 15F, 16S, 16F, 17S: 11

ECON 39 - International Trade

Instructor: Irwin, Passarelli, Staiger R.

This course deals with the causes and consequences of international trade and factor movements. Topics covered include theories of why nations trade, the consequences of trade for economic welfare and the distribution of income, the determinants of trade patterns, the tariff and other forms of commercial policy, trade policies of selected countries, and the formation of the multinational corporation.

Prerequisite: ECON 1.

Distributive: Dist:INT or SOC

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9, 10

ECON 44 - Topics in Developing Economics

Instructor: Edmonds

This seminar considers microeconomic aspects of the causes and consequences of extreme poverty in the developing world. Recent research on topics such as child labor, credit, education, environmental degradation, fertility, gender discrimination, health, HIV/AIDs, insurance, malnutrition, social capital, and technology adoption will be considered in depth. Topics vary from year to year. Students are required to write a major research paper.

Prerequisite: ECON 20, ECON 21, and ECON 24.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W, 17W: 10A, 2A

ECON 45 - Topics in Industrial Organization

Instructor: Youle

This course examines selected topics in business strategy and public policies designed to facilitate competition. These topics include market power, price discrimination, entry, product differentiation, vertical integration, regulation, and anti-trust. Students will discuss a broad range of papers on empirical industrial organization, apply concepts in a competitive strategy game, and write a major paper.

Prerequisite: ECON 20, ECON 21 and ECON 25.

Distributive: Dist:SOC

Offered: 16S, 17S: 12, 2

ECON 46 - Topics in Money and Finance

Instructor: Blanchflower, Sacerdote, Zitzewitz

A seminar course covering in depth such selected topics as the following: the theory of financial institutions; banking panics; the excess variability of asset prices; finance constraints and capital market imperfections; the theory of monetary policy; inflation and financial markets; debt and deficits. Will require writing a major paper.

Prerequisite: ECON 20, ECON 22, ECON 26 and ECON 36.

Distributive: Dist:SOC

Offered: 16W, 16S, 17W, 17S: 10, 11, 12, 10A, 2A

ECON 47 - Topics in Labor Economics

Instructor: Blanchflower

This seminar provides an in-depth examination of selected topics in labor economics, with an emphasis on recent empirical studies. Topics will vary from year to year. In past years topics have included aspects of human capital investments; differential effects on earnings of not only race and gender, but also such things as height and beauty; earnings determinants, including studies of CEO compensation, the use of tournaments as a pay scheme and compensating differentials; real effects of union conflict and workplace cooperation; and historical changes in skill-levels and earnings in the finance industry; and other topics related to labor market policies and wage determination. Will require writing a major paper.

Prerequisite: ECON 20 and ECON 27.

Distributive: Dist:SOC

Offered: 15F, 16F: 10A

ECON 48 - Topics in Public Economics

Instructor: Cascio

This seminar provides an in-depth examination of selected topics in public economics. Topics vary from year to year, but may include the analyses of the economic effects of social insurance programs, such as Social Security, Medicare, Medicaid, and other public assistance; the economics of health and aging; the effects of taxation on household and corporate financial behavior; the effects of taxation on labor supply, saving, and investment decisions; the economics of public goods and externalities; optimal taxation; and, theories of government structure and decision making at the federal, state, and local levels. Will require writing a major paper.

Prerequisite: ECON 20, ECON 21 and ECON 28.

Distributive: Dist:SOC

Offered: 16W, 17W: 10A, 2A

ECON 49 - Topics in International Economics

Instructor: Pavcnik

This seminar will cover selected topics in international trade and finance beyond those covered in ECON 29 and ECON 39. Offerings in the next few years are expected to include current research on (1) financial crises in emerging markets, (2) the role of trade, open capital markets, and financial development on growth in developing countries, (3) the determinants and consequences of foreign direct investment, (4) the impact of the multilateral trade agreements on world trade, and (5) issues related to globalization. Will require writing a major paper.

Prerequisite: ECON 20, ECON 21, ECON 22, ECON 29 and ECON 39.

Distributive: Dist:INT or SOC

Offered: 16W, 16S, 17W, 17S: 9, 10

ECON 70 - Immersion Experience in Applied Economics and Policy

In Economics 70, students study a specific topic in applied economics or policy on campus and then engage with that topic during a two-week immersion off campus after the end of the exam period. Specific topics and destinations for the off-campus component vary by section. Professor Curtis offers a section titled “The Transition of Poland to a Market Economy” and Professor Comin offers a section titled “Inclusive Growth in Peru.” For details on how to enroll see: <https://economics.dartmouth.edu/immersion-experience>.

ECON 71 - Health Economics and Policy

Instructor: Meara

The goals of the course are: 1) to understand the economic forces that have created the current challenges in US healthcare; 2) to develop skills that enable you to determine what types of information, data, and analyses are needed to analyze the economics of health policies

designed to expand coverage, improve quality, and contain costs; and 3) through in-class exercises and a project, to perform and present economic analysis of current topics relevant for state and federal health system reform.

Prerequisite: ECON 1 and ECON 10

Offered: 16W: 11

ECON 73 - The Political Economy of Development

Instructor: Kohn

Why are some nations rich and others poor? Answering this question requires an understanding of the process of economic development and growth and also of the obstacles—predominantly political—that are placed in its way. This course develops such an understanding using the evidence of preindustrial Europe and China and building on the insights of Adam Smith. It then applies this understanding to analyze the problems of developing and developed countries today.

Prerequisite: ECON 1

Offered: Not offered in 15-16

ECON 75 - Environmental and Energy Economics

This course examines environmental and energy issues from an economics perspective. The course begins by discussing fundamental concepts in environment economics including cost benefit analysis and economic valuation of the environment. We also explore issues of policy design from an efficiency perspective. The class is introduced to issues of energy economics, including oil, natural gas, and electricity markets, renewables policy, transportation policies, and climate change policies. Finally, the course examines environmental issues related to trade, development, public finance, and competitive strategy.

Prerequisite: ECON 1 and MATH 3.

Distributive: Dist:SOC

Offered: Not offered in 15-16

ECON 76 - The Financial Crisis of the Noughties

Instructor: Blanchflower

Topics covered will include (but are not limited to): recent developments in financial and equity markets, labor markets and housing markets during the financial crisis; bubbles, black swans, financial contagion and herds; bank failure, TARP, TALF, TSLF and equivalents. Monetary and fiscal policy responses including quantitative easing will be examined. Direct comparisons will be drawn with the Great Depression and other financial crises.

Prerequisite: ECON 20, ECON 22 and ECON 26.

Distributive: Dist:INT or SOC

Offered: 15F, 16F: 2A

ECON 77 - Social Entrepreneurship

Instructor: Samwick

This course provides an introduction to the theory and practice of social entrepreneurship, defined as the process of finding innovative, sustainable solutions to social problems, particularly those related to poverty. Students will learn about the nature and causes of poverty, both domestically and internationally, and about the role that social entrepreneurs play in addressing poverty. The course culminates with teams of students developing business models for their own social entrepreneurship ventures.

Prerequisite: ECON 1

Cross-Listed as: PBPL 43

ECON 78 - Fed Challenge

Instructor: Curtis

The College Fed Challenge is intended to help students become more knowledgeable about the Fed and the decision-making process of the Federal Open Market Committee (FOMC), the Federal Reserve's monetary policy-setting group. The cap for the class is 10 students by instructor permission (5 of the 10 will be chosen to go to the competition).

Prerequisite: ECON 1

Offered: 15F: 2A

ECON 79 - The Clash of Economic Ideas

Instructor: Irwin

Do the ideas of economists change the world? Or do major events change the ideas of economists? This course interweaves economic history with the history of economic thought to explore some of the major economic events that have changed our world over the past two centuries, such as the industrial revolution, the Great Depression, the collapse of socialism, and the globalization of the world economy. We will explore how the ideas of economists continue to influence how we think about how the economy works and the role of government in the economy. In particular, we will be studying the works of Adam Smith, Karl Marx, John Maynard Keynes, Friedrich Hayek, and Milton Friedman.

Prerequisite: ECON 1

Offered: Not offered in 15-16

ECON 80 - Advanced Topics in Econometrics

Instructor: Staiger

This course has two goals: (1) To further develop techniques that test for and remedy common problems associated with linear and non-linear regression analysis, and (2) to develop a practical understanding of how

regression analysis can be used to examine the empirical relevance of economic theory.

Prerequisite: ECON 20 and ECON 21 and ECON 22 with a grade of A- or better (with no recorded W from any of these classes) or permission of instructor.

Distributive: Dist:SOC

Offered: 15F, 16F: 10A

ECON 81 - Advanced Topics in Microeconomics

Instructor: Snyder

This is an advanced course on the economics of information. The focus of the course is a rigorous mathematical treatment of the value of information, moral hazard, learning, adverse selection, and signaling. Applications to labor markets, corporate governance, financial markets, and insurance will be discussed.

Prerequisite: ECON 20, ECON 21 and ECON 22 with a grade of A- or better (with no recorded W from any of these classes) and MATH 8 or permission of instructor.

Distributive: Dist:SOC

Offered: 16S, 17S: 2A

ECON 82 - Advanced Topics in Macroeconomics

Instructor: Feyrer

The purpose of this course is to study in depth selected topics in Macroeconomics. Topics will include consumption, savings and investment; dynamic inconsistency and the design of monetary and fiscal policies, multiple equilibria, bubbles and cycles, and economic growth.

Prerequisite: ECON 20, ECON 21 and ECON 22 with a grade of A- or better (with no recorded W from any of these classes) or permission of instructor.

Distributive: Dist:SOC

Offered: 16W, 17W: 10

ECON 85 - Independent Study in Economics

This course is required of all majors in the Honors Program who do not initiate their honors work in their 40-level course; they will be expected to do the preliminary work on their Honors theses in this course. This course offers an opportunity for a student to do independent work under the direction of a member of the Department. For students who take this course in order to engage in independent study of a topic of interest rather than as a part of honors work, the prerequisite background will consist of all the regularly offered courses in the chosen field of study. Such a student will normally be expected to prepare, prior to the taking of ECON 85, a prospectus and a list of reading pertaining to the study he or she wishes to pursue.

Prerequisite: permission of the vice chair and of the department faculty member who will be advising the student.

Offered: All terms: Arrange

ECON 87 - Senior Thesis

As explained above under 'Economics Honors Program', selected students will be invited to enroll in ECON 87 after they have completed their 40-level course. Alternatively, a student can initiate honors work in ECON 85 and then enroll in ECON 87 with the approval of the student's adviser and the vice chair. Honors students will normally take ECON 87 in the term following their enrollment in ECON 85, or alternatively, following their enrollment in a 40-level course in which a thesis has been started. Other majors who wish to write a non-Honors thesis for single course credit will be required to have as prerequisite background all regularly offered courses in the chosen field of study and may take the course in either the first or second terms of the senior year.

Prerequisite: permission of the vice chair, permission of the department faculty member who will be advising the student, and, in the case that the research was begun in a 40-level course, the permission of the faculty member who taught the 40-level course in which the thesis topic and the research were developed.

Offered: Spring term (but other terms are possible)
Arrange

Education

Chair: George L. Welford

Associate Professor D. J. Coch; Assistant Professors S. H. K. Kang, D. J. M. Kraemer, M. T. Tine; Lecturer A. K. Bean; Adjunct Associate Professor J. L. Scheiner.

To view Education courses, click here (p. 218).

The Education Department offers both a minor and a teacher certification program; undergraduates may choose either or both options. Students may take Education courses singly, to fill distributive requirements, or in a sequence that will satisfy the requirements for the minor and/or certification. The department does not approve modifications of other majors with Education.

The Education minor is designed to help students to build and use an integrated, multilevel understanding of learning and development based on critical analysis of theory, policy, and empirical data from education, neuroscience, and psychology. The courses explore how children grow, acquire language, think, reason, learn a variety of skills and knowledge, and how they conceptualize their social, emotional, and moral worlds. The minor is composed of six courses: the introductory course EDUC 1 and five courses excluding EDUC 41-44 (the student teaching pre-practicum and practicum courses). A list of courses, the

terms and times they will be offered and sample syllabi (if available), is on the department website. Students who are serious about a career in Education are advised to take EDUC 88 as one of the five courses.

Through the certification program (Teacher Education Program), undergraduates have the opportunity to become certified as a teacher at the elementary level in grades K-8. The secondary teacher education program is on hold and unavailable. Students interested in teaching certification should talk with the Director of Teacher Education as early as possible in order to design a course of study that meets certification requirements. The Teacher Education Program at Dartmouth meets the beginning certification requirements for most states.

Departmental Offerings

All courses in the Department are graded with the exception of EDUC 42 - EDUC 44, which are Credit/No Credit.

EDUC - Education Courses

To view Education requirements, click here. (p. 218)

EDUC 1 - The Learning Brain: Introduction to Child Development and Education

Instructor: Tine

Education, development, and learning are inextricably intertwined. We will explore how the science of learning and development connects with education from preschool to high school. Survey topics include school structure, teaching, assessment, motivation, memory, higher-level thinking, math, reading, writing, science, and social and emotional development. For each topic, we will consider research from multiple perspectives, including neuroscience, developmental psychology, and education, in order to build a complex, interdisciplinary understanding of the typically developing learning brain. Open to all classes.

Distributive: Dist:SOC

Offered: 15F, 16S: 10A

EDUC 9.06 - Children and Young Adult Literature: Reading Experiences in the K-8 Classroom

Instructor: Bean

This course explores literature in contexts of interdisciplinary elementary and middle school curricula and the interests and needs of children and young adolescents. Topics include reader response theory, critical literacy, censorship, school resources and methods. The course is informed by critical and feminist pedagogies. Furthermore, the course will introduce the pedagogy of reading, with particular attention given to the methods for working with an individual K-8 reader. There will be a

clinical experience from weeks 2-10, with students tutoring one-on-one with an emergent reader in a local school twice a week.

Distributive: Dist:SOC

Offered: 15F: 3A

EDUC 15 - History and Theory of Human Development and Learning

Instructor: Tine

In this course we will learn about the major theories that have influenced the study of human development throughout history. Readings and discussions will provide an in-depth historical lens onto the major conceptual approaches to the study of human development and learning including Freud, Piaget, Vygotsky, Behaviorism, Information Processing, Nativism, and Mind, Brain and Education. The course aims to explain the historical origins of current trends in the study of human development, learning and education. Open to all classes.

Distributive: Dist:SOC

Offered: 15F: 10

EDUC 16 - Educational Psychology

Instructor: Kraemer

How do we learn? How can modern educational settings harness recent innovations concerning the essence of human learning? Educational psychology provides a foundation for applying the psychological principles that underlie learning in both formal and informal educational settings. In this course, we will explore the multitude of ways that people learn, the effects of different types of teaching strategies on learning, and the impact of individual differences on learning. We will also explore assessment, creativity and problem solving, as well as cultural and motivational influences on learning across diverse educational situations. Underlying the course will be an account of the way the human mind works, changes, and adapts in different settings. This includes the home, the school, the university and any context in which explicit or implicit education takes place. Open to all classes.

Distributive: Dist:SOC

Offered: 15F: 2A

EDUC 20 - Educational Issues Contemporary Society

Instructor: Wheelan

This course gives students a critical introduction to the public institution they know best – the American school. You have already spent at least twelve years “studying” schools from the inside, though you have probably only considered a small piece of the broader education system. Public schools are one of the most important public policy levers for shaping society. We will examine the history and

structure of public education in America. We will also study myriad topics related to creating “better schools”: recruiting and training teachers; charter schools and related institutional innovations; testing and accountability; school funding; racial and economic segregation. Overall, the course will explore how public education can contribute to a more informed, prosperous, and fair society.

Distributive: Dist:SOC

Offered: 16W: 10A

EDUC 29 - Policy and Politics in American Education

Instructor: Scheiner

What is the purpose of education? Is it the same for all people? How do we educate children and to what end? Who decides? Can the private sector do this better than the public sector? In this course, we examine critical questions posed by contemporary conflicts about the goals and means of education, as well as what race, class and power have to do with how these conflicts are resolved. The course will use educational research and the language of politics and economics to analyze a series of case studies and/or policy challenges related to school funding, the origins of inequality in school outcomes, desegregation, charters/market models of reform, test-based accountability and teacher policy. Open to all classes.

Distributive: Dist:SOC

Offered: 16S: 2A

EDUC 41 - Principles of Teaching and Learning in the Elementary School: Theory and Practice

Instructor: Bean

What is good teaching? This course begins your preparation for the challenging, rewarding, and powerful undertaking of teaching children. It involves both an intensive seminar focused on theories, practices, and research, and hands-on fieldwork in schools with mentor teachers and students (4-6 hours/week minimum). Fieldwork includes observations, discussions, student interactions, teaching lessons, and videotaping your own teaching for analysis. This prepracticum is designed to meet professional elementary certification requirements in the field of general methods.

Prerequisite: EDUC 1 and permission of the instructor.

Distributive: Dist:SOC

Offered: 16S: 3B

EDUC 42 - Advanced Principles of Elementary Teaching

Instructor: Bean

This seminar continues the focus on the application of theories and research to teaching practice begun in EDUC 41 the previous spring. Topics include pedagogical content

knowledge, curriculum planning and implementation, classroom management, assessment, diverse learning needs, social and cultural influences on learning, and professionalism. As a unit, EDUC 42, EDUC 43, and EDUC 44 comprise the culminating experience for candidates for NH State Certification as public elementary school teachers.

Prerequisite: EDUC 41 and permission of the instructor.

Offered: 15F, 16F: MTh 4-6PM

EDUC 43 - Practice Teaching I - Elementary

Instructor: Bean

The centerpiece of the student teaching experience, EDUC 43 is a teaching practicum that places students full-time in a local school. Student teachers participate in all regular faculty duties, meetings and activities. Under the supervision of a mentor teacher at the school and Dartmouth instructors, student teachers increasingly assume planning and instructional responsibilities in the classroom, including a "solo week" during which the student teacher takes responsibility for all of the mentor teacher's classes and professional duties.

Prerequisite: EDUC 41 and permission of the instructor

Offered: 15F, 16F: Arrange

EDUC 44 - Practice Teaching II - Elementary

Instructor: Bean

This course involves the synthesis of knowledge from coursework and practical classroom experiences in a culminating project: the creation of a competency-based portfolio designed to reflect the breadth and depth of the student teacher's preparation for NH State Certification as a public elementary school teacher. Artifacts developed during student teaching will be used, as well as careful, critical analysis and reflection on that work, to demonstrate proficiency with respect to the NH Standards for Teacher Certification.

Prerequisite: EDUC 41 and permission of the instructor.

Offered: 15F, 16F: Arrange

EDUC 45 - Principles of Teaching and Learning in the Secondary School: Theory and Practice

What is good teaching? This course begins your preparation for the challenging, rewarding, and powerful undertaking of teaching adolescents. It involves both an intensive seminar focused on theories, practices, and research, and hands-on fieldwork in schools with mentor teachers and students (4-6 hours/week minimum). Fieldwork includes observations, discussions, student interactions, teaching lessons, and videotaping your own teaching for analysis. This prepracticum is designed to meet professional secondary certification requirements in the field of general methods.

Prerequisite: EDUC 1 and permission of the instructor.

Distributive: Dist:SOC

Offered: Not offered in the period from 15F through 16S

EDUC 46 - Advanced Principles of Secondary School Teaching

This seminar continues the focus on the application of theories and research to teaching practice begun in EDUC 45 the previous spring. Topics include pedagogical content knowledge, curriculum planning and implementation, classroom management, assessment, diverse learning needs, social and cultural influences on learning, and professionalism. As a unit, EDUC 46, EDUC 47, and EDUC 48 comprise the culminating experience for candidates for NH State Certification as public school teachers.

Prerequisite: EDUC 45 and permission of the instructor.

Offered: Not offered in the period from 15F through 16S

EDUC 47 - Practice Teaching I - Secondary

The centerpiece of the student teaching experience, EDUC 47 is a teaching practicum that places students full-time in a local school. Student teachers participate in all regular faculty duties, meetings and activities. Under the supervision of a mentor teacher at the school and Dartmouth instructors, student teachers increasingly assume planning and instructional responsibilities in the classroom, including a "solo week" during which the student teacher takes responsibility for all of the mentor teacher's classes and professional duties.

Prerequisite: EDUC 45 and permission of the instructor.

Offered: Not offered in the period from 15F through 16S

EDUC 48 - Practice Teaching II - Secondary

This course involves the synthesis of knowledge from coursework and practical classroom experiences in a culminating project: the creation of a competency-based portfolio designed to reflect the breadth and depth of the student teacher's preparation for NH State Certification as a public secondary school teacher. Artifacts developed during student teaching will be used, as well as careful, critical analysis and reflection on that work, to demonstrate proficiency with respect to the NH Standards for Teacher Certification.

Prerequisite: EDUC 45 and permission of the instructor.

Offered: Not offered in the period from 15F through 16S

EDUC 50 - The Reading Brain: Education and Development

Instructor: Coch

The majority of children entering first grade do not know how to read; the majority of children leaving first grade do

know how to read, at least at a basic level. What is involved in the amazing development of the ability to make meaning of marks on a page? What goes on in the brain during reading and learning to read? We explore answers to these questions and more in this introduction to reading as we investigate the roles of orthography, phonology, semantics, syntax, and comprehension in reading. We focus on the development of reading behaviors, the brain bases of reading skills, and how scientific discoveries can inform educational practices. Open to all classes.

Distributive: Dist:SOC

Offered: 16S: 9L

EDUC 51 - Educational Testing

Instructor: Kraemer

Increasingly, standardized tests define the landscape of American education. We use test scores to evaluate students, teachers, schools, states, and nations. But what do these test scores really mean? In this course, students examine the fundamentals of test development, and discuss what we can and cannot infer from test scores. Topics include using tests to assess learning, to promote learning, and to identify factors that predict different learning outcomes for different students. Open to all.

Distributive: Dist:SOC

Offered: 15F: 10A

EDUC 55 - Applying Cognitive Psychology to Education

Instructor: Kang

Explore the cognitive processes that underlie learning by examining: how the mind encodes, stores, and retrieves knowledge; how learners monitor and regulate their learning; and how expertise is acquired. Delve into the scientific literature to evaluate the effectiveness of study/instructional strategies, and compare the research findings against our own intuitions (how we learn best may not correspond to how we think we learn best). Consider the implications of cognitive science research for enhancing educational practice. Open to all classes.

Distributive: Dist:SOC

Offered: Not offered in the period from 15F through 16S

EDUC 56 - STEM and Education

Instructor: Scheiner

How do we learn, understand, and teach science, technology, engineering, and math (the STEM disciplines)? In this class, we will explore the nature and development of the scientific mind; how we formulate theories, design experiments, and understand scientific, technological, and mathematical concepts; and how we

learn and teach related skills in the classroom, addressing the debate about the effectiveness of direct instruction and hands-on approaches. Open to all classes.

Distributive: Dist:SOC

Offered: 16W: 2A

EDUC 57 - Social and Emotional Development

Instructor: Tine

This course investigates the social and emotional development of children as they move through middle school, and into adolescence. Throughout, students will read, analyze, and apply (in various assignments) classic and current empirical research on topics including the development of self-conscious emotions, gender roles, temperament, personality, motivation, aggression, self-esteem, identity, romantic relationships, delinquency, and the roles that parents and peers play in child development. Educational implications will be considered. Open to all classes.

Distributive: Dist:SOC

Offered: 16S: 10

EDUC 60 - Learning and Education Across Cultures

Instructor: Kang

What role does culture play in human learning and development? Do differences in learning and schooling across cultures lead to disparities in learning outcomes? We will (i) explore the influence culture has on cognitive, social, and moral development, (ii) consider the diversity of views and practices regarding learning and education across cultures, (iii) examine differences in academic systems and achievement across countries, and (iv) discuss the implications for educational policy and practice in the US. Open to all classes.

Distributive: Dist:SOC

Offered: 15X: 11

EDUC 62 - Adolescent Development and Education

Instructor: Scheiner

Adolescence is a period of dramatic physical, cognitive, and psychosocial growth that provides both opportunities and risks for healthy development and educational attainment. This course will explore how physical maturation and brain development during adolescence transform an individual's self-identity, relationships with others, thinking and moral judgments. Since school is a central experience in most adolescents' lives, we will examine its crucial role in adolescent development, and also the influence of parents, peers, and society. Open to all classes.

Distributive: Dist:SOC

Offered: 15F: 2

EDUC 64 - Development in the Exceptional Child

Instructor: Coch

What is an "exceptional" child? How might an exceptional child think about and experience the world? What is happening inside the brain of an exceptional child? We will learn about specific types of exceptionality likely to be encountered in the classroom, including attention deficit/hyperactivity disorder, autism spectrum disorders, depression, dyscalculia, specific language impairment, dyslexia, and dysgraphia. In exploring exceptionality, we will focus on behaviors that define the exceptional child; different approaches to learning, viewing the world, and interacting with others that characterize exceptional children; the brain bases of atypical or exceptional development; and how scientific knowledge affects educational practice. Open to all classes.

Distributive: Dist:SOC

Offered: 16W: 9L

EDUC 85 - Independent Reading and Research

This course offers an opportunity for a student to do independent reading and research under the guidance of a full-time faculty member of the Education Department. Independent Study proposals that have been approved by a faculty member are due for final approval by the Department Chair no later than the third day of classes for the term. A form outlining the requirements for proposals is available from the Department and is posted on the Education Department webpage under "Courses."

Prerequisite: Permission of the Chair.

Distributive: Dist:SOC

Offered: All terms: Arrange

EDUC 86 - Independent Reading and Research: Research in the Schools

This course offers an opportunity for a student to conduct a specific research project of particular interest to the local schools with which the Department works closely. Topics are determined each year by the current interests of the schools and are posted in the "Courses" section of the Department website. To enroll, students must choose a topic from the list, speak with a potential advisor (any full-time faculty member in the department), and submit a proposal (proposal form also available on the website) by the end of the term preceding the term in which the project will be undertaken. The Department will review proposals after provisional approval by the advising faculty member.

Prerequisite: EDUC 1 and permission of the Chair.

Distributive: Dist:SOC

Offered: All terms: Arrange

EDUC 88 - Human Development and Education

Instructor: Coch

In education and psychology, it is generally agreed that human development and learning involve change over time and occur throughout a lifetime. In the neurosciences, it is generally agreed that the brain is plastic and can change throughout a lifetime. What can these various perspectives contribute to an evidence-based understanding of learning and development across domains? How might integrating these multiple perspectives affect traditional educational process and practice – including both learning and teaching – and educational policy? What research remains to be done to make meaningful connections within our knowledge of human development, education, and the changeable brain?

Prerequisite: Permission of the Instructor

Distributive: Dist:SOC

Offered: 16W: 3A

Engineering Sciences - Undergraduate

Chair: Erland M. Schulson

Professors I. Baker, B. Cushman-Roisin, G. Cybenko, E. Fossum, E. Garmire, T. U. Gerngross, J. J. Helble, W. Lotko, D. R. Lynch, L. R. Lynd, K. D. Paulsen, B. W. Pogue, L. R. Ray, E. Santos Jr., E. M. Schulson, C. R. Sullivan, S. Taylor, J. Zhang; Professors Emeriti A. O. Converse, R. J. Graves, C. E. Hutchinson, F. E. Kennedy, H. J. Richter, B. U. O. Sonnerup, G. B. Wallis; Associate Professors M. E. Borsuk, S. G. Diamond, H. J. Frost, K. E. Griswold, E. W. Hansen, J.E. Hill, K. Odame, M. Q. Phan, B. S. Trembly, U.G.K. Wegst; Assistant Professors M. E. Ackerman, Z. Chen, B. P. Epps, R. Halter, W. Li, J. Liu, G.P. Luke, J. T. Stauth, D.W. Van Citters, V. Vaze; Senior Lecturers M. R. Albert, P. Bonfert-Taylor, J. P. Collier, A. Hartov, P. J. Hoopes, M. S. Laser, R. C. Lasky, C. G. Levey, V. V. May, R.W. Obbard, S. O. Peterson, V.F. Petrenko, P. J. Robbie, J. M. Rosen, S. G. Shepherd; Lecturers D. C. Cullen, J. Elliott, K. Hoyt, A.M. Plagge, A. Scherer, M.E. Testorf, J.D. Wilson.

To view Engineering Sciences Undergraduate courses, [click here](#) (p. 230).

To view Engineering Sciences Graduate requirements, [click here](#) (p. 565).

To view Engineering Sciences Graduate courses, [click here](#) (p. 569).

The undergraduate Engineering Sciences major leads to an A.B. degree. It provides engineering students with a common core of Science and Engineering Sciences courses. Interest in the various branches of engineering is accommodated through electives and usually through additional study leading to a Bachelor of Engineering or

higher degree. For those students considering careers in such diverse fields as medicine, management, or law, the Engineering Sciences major enables them to better understand our increasingly technological society.

Students interested in a career in Engineering should plan on completing the Bachelor of Engineering or Master's program. The Bachelor of Engineering degree program is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone (410) 347-7700; it is equivalent in technical content to the Bachelor of Science degree in Engineering offered at many other universities but is broader in scope. It requires 10 courses in Natural Science, Mathematics, and Engineering beyond the requirements of the major in Engineering Sciences, and typically requires up to three terms in residence beyond the 12 terms required for the A.B. degree. Students who enter Dartmouth with advanced standing may be able to complete the B.E. at the same time as the A.B. (i.e., in four years).

The graduate degrees are differentiated according to function. For those interested in design, professional practice, and engineering management, the M.E.M. degree is offered; for those interested primarily in research, the M.S. and Ph.D. degrees. Additionally a joint M.D./Ph.D. program is offered in conjunction with the Dartmouth Medical School and a joint M.E.M./M.B.A. program with the Tuck School of Business. *The Thayer School Guide to Programs and Courses should be consulted for detailed information on all graduate programs (B.E. and above).*

Courses Available To Non-Majors and First-Year Students

Several engineering sciences courses have few or no prerequisites and may be taken by first-year students exploring a potential interest in the major, or by non-majors seeking to broaden their education with the study of technology. These courses include ENGS 1, ENGS 2, ENGS 3, ENGS 4, ENGS 5, ENGS 6, ENGS 7, ENGS 8, ENGS 9, ENGS 10, ENGS 12, ENGS 13, ENGS 14, ENGS 16, ENGS 18, ENGS 19, ENGS 21, ENGS 31, and ENGS 37.

Technology

Undergraduate courses up to ENGS 86 satisfy the Technology and Applied Sciences distributive requirements (TAS). Some also satisfy the distributive laboratory requirement (TLA). For those students interested in an introduction to technology and applied sciences one of the courses ENGS 1 through 19 is recommended.

Requirements for the Major

The sequential nature of the Engineering Sciences curriculum, and the possibilities for developing modified majors with other departments require that students plan

their study programs well in advance. Assistance in planning programs may be obtained from an engineering faculty advisor.

All first-year students interested in the sciences should take the placement test in mathematics. The prerequisite courses for the Engineering Sciences major are MATH 3, MATH 8, MATH 13, PHYS 13, PHYS 14, plus ENGS 20 and CHEM 5. COSC 1 and COSC 10 can be substituted for ENGS 20. For students prepared for advanced placement in Calculus it is advisable to take the sequence, MATH 8 and MATH 13, or MATH 11.

Unless otherwise prohibited, prerequisites for the major may be taken under the Non-Recording Option. No more than two transfer courses may be used for credit in the major.

The Engineering Sciences Major requires seven courses from the core program:

1. ENGS 21, ENGS 22, and ENGS 23 are required.
2. Two from ENGS 24, ENGS 25, ENGS 26, and ENGS 27.
3. Two from ENGS 31 or ENGS 32; ENGS 33 or ENGS 34; ENGS 35 or ENGS 36; or ENGS 37.

Two additional courses are required:

4. One elective in Engineering Science.
5. One elective in Engineering Science, mathematics or a science course.

A Culminating Experience in Engineering Sciences is required. This can be taken as one of the two electives or as an additional course. The culminating experience may be: a project or a thesis, ENGS 86, ENGS 88 or ENGS 89 (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

Only Engineering Sciences courses numbered above 20 (excluding ENGS 80 and ENGS 87) may be counted as electives in the major.

Students seeking to complete the A.B. and B.E. degrees concurrently should note that ENGS 89 may also be counted toward requirements for the B.E. program.

Satisfactory completion of the major requires a grade point average of 2.0 in the courses suitable for satisfying the major (other than those prerequisite to the major). The same criterion holds for both courses in a modified major and those in a minor.

The courses in the third tier of the core Engineering Sciences (31-37) serve as introductions to different areas of engineering. These courses and other electives are offered

to allow students to shape their programs to reflect interests in one of the usual branches of engineering or in accordance with their own special interests. In Mechanical Engineering, the normal third tier core courses and electives are ENGS 33, ENGS 34 and ENGS 76; in Electrical Engineering, ENGS 31, ENGS 32, ENGS 61 and ENGS 62; in Computer Engineering, ENGS 31, ENGS 62, ENGS 63 (see also modified major below); in Environmental Engineering, ENGS 37, ENGS 41, ENGS 46 (formerly 42) and ENGS 43 (see also modified major below); in Materials Science, ENGS 33 and ENGS 73; in Chemical Engineering, ENGS 34, ENGS 35, ENGS 36 and ENGS 37 (see also modified major below); in Biomedical Engineering, ENGS 35 and ENGS 56. Students interested in Chemical Engineering are advised to elect CHEM 6, CHEM 57, and CHEM 61 in addition to their engineering courses, and to consult Professor Lynd in formulating their program.

Requirements for the Major in Biomedical Engineering Sciences

The biomedical engineering major is offered to students interested in medical school. Faculty from Thayer School and Dartmouth Medical School jointly advise the research projects.

Prerequisites are MATH 3, MATH 8, MATH 11 or MATH 13, PHYS 13, PHYS 14, CHEM 5-6 or CHEM 10, plus ENGS 20. COSC 1 and COSC 10 can be substituted for ENGS 20.

The biomedical engineering major consists of five engineering science courses, ENGS 21 and ENGS 22, one additional core course chosen from ENGS 23, ENGS 24, ENGS 25, ENGS 26 or ENGS 27, one gateway course chosen from ENGS 31, ENGS 32, ENGS 33, ENGS 34, ENGS 35 or ENGS 36 and ENGS 56 or one additional course chosen from ENGS 23, ENGS 24, ENGS 25 or ENGS 26; four biology and chemistry courses, two from BIOL 12, BIOL 13, BIOL 14 and CHEM 51-52 or CHEM 57-58 and one biochemistry or engineering science elective¹ chosen from BIOL 40 or CHEM 41, or an engineering science course numbered 23 or above.

¹*Students wishing to pursue the BE degree are advised to choose an Engineering Sciences course as their elective.*

A culminating experience is required². It may be an independent project or honors thesis, ENGS 86 or ENGS 88, or one of the following courses in biotechnology or biomedical engineering, ENGS 160, ENGS 161, ENGS 162, ENGS 163, ENGS 165 or ENGS 167.

²*Students wishing to pursue the BE degree are advised to choose an Engineering Sciences course as their elective, and to choose Engineering Sciences 165 for their culminating experience.*

Dartmouth Medical School offers an opportunity for accomplished biomedical engineering sciences majors to apply for early admission to the Dartmouth Medical

School through the Early Assurance Program. For more information, please consult the Thayer website at: <http://engineering.dartmouth.edu/undergraduate/ab/biomed-major.html>

Requirements for the Minor in Engineering Sciences

Prerequisites are MATH 3, MATH 8 and MATH 13, and PHYS 13 and PHYS 14. The required courses are ENGS 20, ENGS 21, ENGS 22 and two Engineering Sciences undergraduate courses numbered above 20 (excluding ENGS 80 and ENGS 87). Students should note that some Engineering Sciences courses require prerequisites in addition to those noted. No engineering sciences courses 20³ and above may be taken under the Non-Recording Option.

³*No Engineering Sciences courses 20 and above may be taken under the Non-Recording Option.*

Requirements for Another Major Modified with Engineering Sciences

Prerequisites are MATH 3 and MATH 8, and PHYS 13 or PHYS 3 and PHYS 4*. The required courses are four Engineering Sciences courses numbered above 20 (excluding ENGS 80 and ENGS 87), to include ENGS 21 or ENGS 22, or both. Students should note that many Engineering Sciences courses, including ENGS 22, require prerequisites in addition to MATH 8 and PHYS 13. No engineering sciences courses 20 and above may be taken under the Non-Recording Option. (See footnote above.)

*Must have been taken at Dartmouth, no AP credit is permitted.

Requirements for the Minor in Materials Science

The minor in Materials Science is sponsored by faculty in Chemistry, Physics and Engineering with an interest in interdisciplinary education and research in materials science.

Requirements for the Minor in Human-Centered Design

The minor in human-centered design in Engineering Sciences is an interdisciplinary program comprising six courses, two from each section below (1, 2, 3):

1. Design Foundation (Prerequisites): ENGS 12 and ENGS 21

2. Ethnographic Methods: ANTH 3 (p. 91), ANTH 18, ANTH 56, SOCY 11, GEOG 1

Human Factors: PSYC 21 (p. 430), PSYC 22, PSYC 23, PSYC 27, PSYC 28, PSYC 40, PSYC 43

3. Design Electives: ENGS 75*, COSC 28, FILM 51, PBPL 43, SART 65, SART 66, SART 68, Independent Study in a relevant discipline.

Students may petition the department to substitute relevant courses in section 2 (that cover ethnographic methodology

or human factors psychology) and 3 (that focus on problem-solving of human needs and result in the creation of artifacts). For advice contact the Faculty Advisor for the minor, Peter Robbie. Before taking courses in the section 3, students must complete both courses in section 1 plus at least one course from section 2.

* *For Engineering Majors:* If ENGS 75 is selected for the minor, it may not be counted towards the major.

Requirements for the Engineering Physics Major

The Department of Engineering Sciences and the Department of Physics and Astronomy offer a major in Engineering Physics. This major features a 5/5 split in courses, unlike a modified major which requires six courses from one field and four from the other.

The prerequisite courses for the Engineering Physics major are MATH 3, MATH 8, MATH 13, MATH 23; PHYS 13, PHYS 14; CHEM 5; and COSC 1 and COSC 10 or ENGS 20;

The Engineering Physics major is a ten-course program consisting of three Engineering Sciences core courses (ENGS 22, ENGS 23, ENGS 24); three Physics core courses (PHYS 19, PHYS 40 (formerly 24), PHYS 43 [Students taking PHYS 15 and PHYS 16 should substitute a third physics elective for PHYS 19]); and four electives, two from each department. Two electives must be selected from the following list: ENGS 25, ENGS 33, ENGS 34; PHYS 50 (formerly 42), PHYS 68, PHYS 90 (formerly 91); PHYS 73 or ENGS 131; PHYS 66 or ENGS 120; PHYS 44 or ENGS 72. The other two electives may be courses from the Engineering Sciences Department (numbered above 20, excluding ENGS 80 and ENGS 87) or courses from the Physics and Astronomy Department which fulfill the straight physics major.

⁴*Students wishing to pursue the BE degree are advised to choose an Engineering Sciences course as their elective.*

A culminating experience is required in the major which can be taken instead of one of the electives above. It must be one of the following: a project or a thesis, ENGS 86, ENGS 88 or ENGS 89⁵ (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90); or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list) or PHYS 68, PHYS 72, PHYS 73, PHYS 74, PHYS 76, PHYS 82, PHYS 87.

⁵*Prior to enrollment in ENGS 89, at least six engineering sciences courses must be completed; ENGS 21 plus five additional courses numbered 22 to 76.*

All major programs require an average GPA of 2.0 in all courses counted toward the major, including prerequisites.

For more information contact Professor Hudson (Physics and Astronomy) or Professors Lotko or Levey (Engineering Sciences).

Modified Majors

Diverse interests of students have, in the past, led to the construction of Engineering Sciences majors modified by courses in biology, chemistry, mathematics, computer sciences, physics, art, economics, neuroscience, or environmental studies.

The following specific modified majors have been established.

Modified major with Biology: Students interested in engineering and biology may elect a modified major with biology. This modified major must include:

1. as prerequisites: MATH 3, MATH 8, and MATH 13; PHYS 13 and PHYS 14; CHEM 5 or CHEM 10, ENGS 20, and BIOL 12;
2. for the Engineering Sciences portion: ENGS 22, ENGS 25 and ENGS 35 plus three courses elected from ENGS 21, ENGS 23, ENGS 24, ENGS 26, ENGS 33, ENGS 34, ENGS 36, ENGS 37, ENGS 52, ENGS 56, ENGS 91, ENGS 161, ENGS 165 (ENGS 91, ENGS 161 and 165 also satisfy the culminating experiment requirement, see below);
3. for the biology portion: BIOL 13, plus three courses elected from BIOL 34, BIOL 35, BIOL 37, BIOL 42, BIOL 43, BIOL 45, BIOL 46, BIOL 71 or CHEM 51 or CHEM 57.
4. the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, ENGS 88 or ENGS 89^(See footnote #5 above) (ENGS 90 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. (Consult the Engineering Sciences Department for the most recent list.)

Students interested in the modified major with Biology should contact Professor Lynd.

Modified major with Chemistry : Students interested in engineering and chemistry may elect a modified major with chemistry. The major enables students to design programs of study that reflect the diversity of their interests. It requires a core of three engineering courses, provides a broad yet relevant set of engineering electives, requires a two-course chemistry core, and is completed

with two chemistry electives. This modified major must include:

1. as prerequisites: MATH 3, MATH 8, and MATH 13; PHYS 13 and PHYS 14; CHEM 5/ CHEM 6 or CHEM 10; ENGS 20;
2. for the Engineering Sciences portion: ENGS 22, ENGS 25 and 36 plus three courses elected from the following: ENGS 21, ENGS 23, ENGS 24, ENGS 26, ENGS 33, ENGS 34, ENGS 35, ENGS 37, ENGS 52, ENGS 91, ENGS 156, ENGS 158 (ENGS 91, ENGS 156 and ENGS 158 also satisfy the culminating experience requirement, see below.) Not more than two from ENGS 21, ENGS 35 and ENGS 37 may be counted toward the major.
3. for the Chemistry portion: CHEM 51 or CHEM 57 and CHEM 75 plus two courses elected from CHEM 41, CHEM 52 or CHEM 58, CHEM 63, CHEM 64, CHEM 67, CHEM 76.
4. the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, ENGS 88 or ENGS 89⁶ (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

⁶*Prior to enrollment in ENGS 89, at least six engineering sciences courses must be completed; ENGS 21 plus five additional courses numbered 22 to 76.*

Students interested in the modified major with Chemistry should contact Professor Lynd.

Modified Major with Computer Science: For those students interested in computer engineering, a major in engineering sciences modified with computer science is recommended. Such a modified major must include:

1. as prerequisites: MATH 3, MATH 8, MATH 13; COSC 1 and COSC 10; PHYS 13 and PHYS 14; and CHEM 5.
2. for the modified major required courses include: ENGS 22, ENGS 27, ENGS 31, COSC 50, plus ENGS 23 or ENGS 24.
3. for the modified major, breadth options include: a total of five courses from Groups A, B, and C with at least one course from each of the groups and three of the courses must be Computer Science courses; Group A includes ENGS 32, ENGS 62, COSC 51; Group B includes ENGS 26, ENGS 68, ENGS 92 (ENGS 92 also satisfies the culminating experience requirement, see below), COSC 60; Group C includes ENGS 91, COSC 31, COSC 77, COSC 58.

4. the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, ENGS 88 or ENGS 89⁷ (See footnote #6 above.) (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

Students interested in the modified major with Computer Science should contact Professors Santos or Taylor.

Modified Major with Earth Sciences : For those students interested in earth sciences, a major in engineering sciences modified with earth sciences is recommended. Such a modified major must include:

1. as prerequisites: MATH 3, MATH 8, and MATH 13; PHYS 13 and PHYS 14; CHEM 5, ENGS 20, one introductory Earth Sciences course (EARS 1-9 exclusive of EARS 7) plus EARS 40;
2. for the Engineering Sciences portion: ENGS 22, ENGS 23, ENGS 24 and ENGS 25 plus two engineering sciences electives, numbered above 20 (except ENGS 80 and 87);
3. for the Earth Sciences portion: Four Earth Sciences courses, numbered above 10.
4. the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, ENGS 88 or ENGS 89⁷ (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

⁷*Prior to enrollment in ENGS 89, at least six engineering sciences courses must be completed; ENGS 21 plus five additional courses numbered 22 to 76.*

Students interested in the modified major with Earth Sciences should contact Professor Schulson.

Modified Major with Environmental Sciences: A modified major has been established to permit interdisciplinary study in environmental sciences. Effective preparation for graduate study or professional activity in the environmental sciences requires an assimilation of material traditionally encountered in biology, chemistry, ecology, and earth sciences, as well as in engineering sciences. This modified major must include:

1. as prerequisites: MATH 3, MATH 8, and MATH 13; PHYS 13 and PHYS 14; CHEM 5 or CHEM 10; BIOL 16*; and ENGS 20;
2. for the Engineering Sciences portion: ENGS 22, ENGS 25, ENGS 37 and three of the following: ENGS 27,

ENGS 34, ENGS 35, ENGS 36, ENGS 41, ENGS 43, ENGS 44, ENGS 52, ENGS 171, ENGS 172, with at least two courses from among ENGS 41, ENGS 43, ENGS 44.

3. for the Environmental Sciences portion: four courses from the following list, with at least two courses from one department. BIOL 21 or 51 (but not both), 22, 25, 53; CHEM 51, CHEM 63; EARS 16, EARS 35, EARS 65, EARS 66, EARS 71, EARS 76; ENVS 12, ENVS 20, ENVS 25, ENVS 53, ENVS 55. Additional requirements: CHEM 51 is permitted only as a prerequisite to CHEM 63.
4. the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, ENGS 88 or ENGS 89^(See footnote #7 above.) (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

Students interested in the modified major with Environmental Sciences should contact Professor Cushman-Roisin.

**BIOL 11 not needed as a prerequisite to BIOL 16 if ENVS 2, ENGS 37 or ENGS 41 have been taken.*

Modified major with Economics: Students interested in business and industrial management may elect a modified major with economics, consisting of:

1. as prerequisites: MATH 3, MATH 8, and 13; PHYS 13 and 14; CHEM 5; ENGS 20 or COSC 1 and COSC 10; ECON 1 and ECON 10;
2. for the Engineering Sciences portion: ENGS 21, ENGS 22, ENGS 52 and one course selected from ENGS 23, ENGS 24, ENGS 25, or ENGS 33; and two Engineering Science electives;
3. for the Economics portion: two courses among ECON 20, ECON 21, ECON 22, and a two-course sequence in Money and Finance (ECON 26 and ECON 36), Industrial Organization (ECON 25 and ECON 45), or (ECON 25 and ECON 35), or International Trade (ECON 29 and ECON 39).
4. the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, ENGS 88 or ENGS 89⁸ (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

⁸*Prior to enrollment in ENGS 89, at least six engineering sciences courses must be completed; ENGS 21 plus five additional courses numbered 22 to 76.*

Students interested in the modified major with Economics should contact Professor Borsuk

Modified major with Neuroscience: Students interested in engineering and neuroscience may elect a modified major with neuroscience, consisting of: as prerequisites: MATH 3, MATH 8, MATH 13; PHYS 13, PHYS 14; CHEM 5, ENGS 20 or COSC 1 and COSC 10; PSYC 6 for the Engineering Sciences portion: ENGS 21 and ENGS 22, ENGS 26 or ENGS 27, ENGS 31 or ENGS 32 and two from ENGS 26, ENGS 27 (if not taken above), ENGS 31, ENGS 32 (if not taken above), ENGS 30, ENGS 33, ENGS 56, ENGS 57, ENGS 61, ENGS 62, ENGS 63, ENGS 65, ENGS 67 or ENGS 93 for the Neuroscience portion: two of the following three, PSYC 45, PSYC 46 or PSYC 65 and two from PSYC 21, PSYC 27, PSYC 40, PSYC 60, PSYC 80-87 (only one seminar as one of the two electives) and BIOL 27.

The modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, 88 or ENGS 89^(See footnote #8 above.) (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

Students interested in the modified major with Neuroscience should contact Professor Ray

Modified major with Public Policy: Students interested in technology and public policy may want to consider an engineering major modified with public policy. This modified major must include:

1. as prerequisites: MATH 3, MATH 8 and MATH 13; PHYS 13 and PHYS 14; ENGS 20 or COSC 1 and COSC 10; CHEM 5; a course in statistical data analysis, such as ECON 10, SOCY 10, or MATH 10.
2. for the Engineering Sciences portion: ENGS 21 and ENGS 22, plus one course selected from ENGS 23-27, one course selected from ENGS 31-37, one course selected from ENGS 41, ENGS 43, ENGS 44, ENGS 51, ENGS 52, ENGS 56 and one Engineering Sciences course numbered above 20.
3. for the Public Policy portion: PBPL 5, plus at least one Public Policy methods course, such as: PBPL 40-48 or ECON 20, and at least one course from a policy track. These are typically mid-level courses in Public Policy or related departments, and cannot include Engineering Sciences courses. Possible tracks include: Environment and Public Policy; Health and Public Policy; Natural resources and Public Policy; and Science/technology

and Public Policy. The Rockefeller Center maintains a list of suggested offerings in these areas.

- the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, 88 or ENGS 89⁹ (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

⁹*Prior to enrollment in ENGS 89, at least six engineering sciences courses must be completed; ENGS 21 plus five additional courses numbered 22 to 76.*

Students interested in the modified major with Public Policy should contact Professor Helble.

Modified major with Studio Art: Students interested in architecture or product design may want to consider an engineering major modified with studio art. This modified major must include:

- as prerequisites: MATH 3, MATH 8, and MATH 13; PHYS 13 and PHYS 14; plus ENGS 20 and CHEM 5;
- for the engineering science portion: ENGS 21, ENGS 22, ENGS 24 and ENGS 33, plus two courses elected from any Engineering Sciences course available for AB credit in the major (ENGS 76 or a graduate level elective also satisfy the culminating experience requirement, see below);
- for the studio art portion: SART 15 and SART 16, plus two upper level studio art courses.
- the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, ENGS 88 or ENGS 89¹⁰ (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list.

¹⁰*Prior to enrollment in ENGS 89, at least six engineering sciences courses must be completed; ENGS 21 plus five additional courses numbered 22 to 76.*

Students interested in the modified major with Studio Art should contact Professor Robbie.

Normally, other modified major programs will contain at least three of the following Engineering Sciences core courses: ENGS 21, ENGS 22, ENGS 23, ENGS 24, ENGS 25, ENGS 26, ENGS 27, ENGS 31, ENGS 32, ENGS 33, ENGS 34, ENGS 35, ENGS 36 or ENGS 37 (plus two Engineering Sciences electives.) The modified major must also include a culminating experience. The culminating experience may be: a project or a thesis, ENGS 86, ENGS

88 or ENGS 89 (See footnote #10 above.) (ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90; or an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list. Consult the Engineering Sciences Department for the most recent list. A coherent program of study with a substantial engineering content but not including all or any of the above courses may be approved (by the department chair) as a modified major based in another department, or as a special major.

All modified Engineering Sciences majors must be approved by the Chair of the Engineering Sciences Department.

Honors Program

During their junior or senior year, students may apply for admission to the Honors Program in Engineering Sciences. The application must be filed no earlier than the second week of the fall term in the junior year and no later than the second week of the winter term in the senior year. Contact the Chair of the Engineering Sciences Department for details. Admission to the Honors Program may be granted to those students who have attained an overall grade point average of 3.0, and a grade point average of 3.33 in the major.

The main requirement of the Honors Program is the completion of an honors project. The project, a creative activity suitable to the major subject, is not restricted to experimental work but can equally take the form of a theoretical investigation. Much of the development of the honors project will normally take place within the framework of ENGS 88, the Honors Thesis. (ENGS 88 also fulfills the requirement for a culminating experience in the major.) Upon completion of the project, the student will submit a written thesis and give an oral presentation. Those students who satisfactorily complete the Honors Program with a 'B+' average or better and have a grade point average of 3.3 or higher in the major at the time of graduation, will earn Honors recognition in the major. High Honors will be granted to those students who, in addition, have taken two engineering science courses beyond those required for the major (excluding courses under ENGS 20 and ENGS 87), have attained a grade point average of 3.50 in all engineering courses, and have completed outstanding independent work. A vote of the Department is also required prior to awarding High Honors. Students may begin their project the previous term by enrolling in ENGS 87, Undergraduate Investigations. An interim evaluation of honors students will be made after one term and continuation will be recommended for those students whose work demonstrates the capacity for satisfactory (B+) work. Students who satisfactorily complete the Honors Program will have entered on their permanent record Honors in Engineering Sciences, or High Honors in Engineering Sciences.

Advanced Standing in Thayer School Graduate Programs

Many students majoring in engineering sciences enter Dartmouth College with course credits, proficiencies, or both, in a number of subjects resulting from exceptional preparation in high school. As a result, these students have increased elective freedom in choosing courses to satisfy their A.B. requirements.

The 100- and 200-level Engineering and Engineering Sciences courses described in this catalog can be used to satisfy the A.B. degree requirements.

Election of 100- and 200-level Engineering and Engineering Sciences courses *in excess* of the undergraduate requirements for the major and for admission to any of Thayer's post-A.B. programs will permit a student to be admitted to the Thayer School with advanced standing. Depending upon the number of elective opportunities, significant reduction in the time required to complete Thayer School's graduate degree programs is possible.

To take full advantage of this opportunity students are urged, as early as possible after declaring their major, to consult with their Thayer School faculty adviser. Additional details are contained in the Thayer School Catalog.

Requirements for the Bachelor of Engineering Degree (B.E.)

The Bachelor of Engineering (B.E.) program is a professional engineering program accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202, Telephone: (410) 347-7700.

B.E. students take required courses and electives in mathematics, basic science, engineering sciences, and engineering design. Completion of the B.E. program after the A.B. degree generally requires between one and 3 terms at Thayer School depending on courses taken during the first 4 years. Advanced standing on entry to Dartmouth may shorten the overall time required. The B.E. degree requires a minimum of 9 courses beyond the requirements for the A.B. degree of which at least 6 courses must have significant engineering design credit. A total of 24.5 courses is required. Consult the 2015-2016 Thayer School Guide to Programs and Courses for details. The requirements for the B.E. are as follows:

1. Mathematics and Natural Sciences (9 courses required): MATH 3, MATH 8, MATH 13; or 11, PHYS 13, PHYS 14, plus ENGS 20 and CHEM 5. COSC 1 and COSC 10 can be substituted for ENGS 20. ENGS 91, ENGS 92 or ENGS 93. Two non-introductory courses chosen from ASTR 15 and above; BIOL 12 and above (except BIOL 52); CHEM 6, CHEM 10 and above (except CHEM 63); EARS 31, EARS 33, EARS 35, EARS 37, EARS 40-52, EARS 59, EARS 62, EARS

64, EARS 66-75, EARS 79 and above; ENGS 30 and ENGS 66; ENVS 30 and ENVS 79; MATH 17 – 29, MATH 31, MATH 32, MATH 35, MATH 38, MATH 39, MATH 40, MATH 42, MATH 43, MATH 50 and above; PHYS 19 or PHYS 40 (formerly 24), PHYS 30, PHYS 41 and above (except PHYS 48); COSC 30/ENGS 66, COSC 31, COSC 35, COSC 39, COSC 40, COSC 49, COSC 71, COSC 73, COSC 74; PSYC 21, PSYC 40, PSYC 45, PSYC 46, PSYC 65.

2. Engineering Common Core (3.5 courses required): ENGS 20 (counts as 0.5 course for B.E. credit) or COSC 1 and COSC 10 and ENGS 21, ENGS 22, and ENGS 23.
3. Engineering Distributive Core (2 courses required): ENGS 24, ENGS 25, ENGS 26 or ENGS 27.
4. Engineering Gateway (choose 2 from 2 different disciplines): ENGS 31 or ENGS 32, ENGS 33 or ENGS 34, ENGS 35 or ENGS 36, ENGS 37.
5. Engineering Electives (6 courses required): Three courses must form a coherent disciplinary concentration** with 1 of these having significant design content; the remaining 3 electives may be chosen from ENGS or ENGG courses numbered 24-88 (except 30, 66, 75, 80 and 87), 110-174, 192 and 199; COSC 50-84 (except COSC 30, COSC 31, COSC 35, COSC 39, COSC 40, COSC 49, COSC 53, COSC 71, COSC 73 and COSC 74) and COSC 170-276 (except COSC 174, COSC 179, COSC 189, COSC 210). 2 of the 3 electives may be mathematics or natural science courses as listed above.
6. Capstone Engineering Design (2 courses required): ENGS 89/ ENGS 90 (Prior to enrollment in ENGS 89, at least 6 engineering courses must be completed. These include ENGS 21 plus 5 additional courses numbered 22 to 76.)

*** With the exception of one of either ENGS 34 (prerequisites ENGS 20, ENGS 22, ENGS 23, ENGS 25) or ENGS 36 (prerequisites ENGS 20, ENGS 22, ENGS 25), courses to be included in the area of "three-course concentration" will be numbered above ENGS/ENGG 40 and will require at least one prerequisite either from the series ENGS 20-37 or from advanced courses within the sciences. With permission, suitable advanced science courses may count within this three-course concentration. To include ENGS 86 or 88 in the three course concentration, a proposal, which includes prerequisite courses, a syllabus, learning objectives and what principles of engineering will be mastered, needs to be submitted in advance (before the fourth week of the term in which ENGS 86 or 88 will be taken) and approved by the B.E. Committee. Computer Science courses permitted in the three-course concentration are COSC 50, COSC 55-83 (except COSC 56, COSC 71, COSC 73 and COSC 74).*

ENGs - Engineering Sciences - Undergraduate Courses

To view Engineering Sciences Undergraduate requirements, [click here](#). (p. 222)

To view Engineering Sciences Graduate requirements, [click here](#). (p. 565)

To view Engineering Sciences Graduate courses, [click here](#). (p. 569)

ENGs 1 - Everyday Technology

Instructor: Lasky

This course is intended to take the mystery out of the technology that we have grown to depend on in our everyday lives. Both the principles behind and examples of devices utilizing electricity, solid and fluid properties, chemical effects, mechanical attributes and other topics will be discussed. In the associated lab project, students will dissect, analyze, (and possibly revive!) a broken gadget or appliance of their choosing. This course has no prerequisite, but enrollment is limited to 50 students.

Distributive: Dist:TLA

Offered: 16W, 17W: 11; Laboratory

ENGs 2 - Integrated Design: Engineering, Architecture, and Building Technology

Instructor: May (fall), Wilson (winter)

An introduction to the integrated design of structures and the evolving role of architects and engineers. The course will investigate the idea that design excellence is very often the result of deep collaboration between engineers, architects, and builders and that it is only in relatively recent history that a distinction between these areas of expertise has existed. The historical, social, and architectural impact of structures will be explored and several structures and their designers will be studied in depth. Enrollment limited to 50 students. No Prerequisite.

Distributive: Dist:TAS

Offered: 15F: 2A, 16W: 12

ENGs 3 - Materials: The Substance of Civilization

Instructor: Lasky

With the exception of ideas and emotions, materials are the substance of civilization. From the "Iceman's" copper ax to indium phosphide gallium arsenide semiconductor lasers, materials have always defined our world. We even name our epochs of time based on the dominant material of the age: Stone Age, Bronze Age, Iron Age and now Silicon Age. In addition to discussing the nature and processing of metals, polymers, ceramics, glass and electronic materials, this course will analyze the dramatic developments in civilization directly resulting from advances in such materials. The text Stephen Sass's *The Substance of*

Civilization will be used in the course. Enrollment limited to 50 students per section. No Prerequisite.

Distributive: Dist:TAS

Offered: 16X: 10A, 2A

ENGs 4 - Technology of Cyberspace

Instructor: Taylor

This course will cover some basic concepts underlying the 'information superhighway.' The technologies of high speed networking have stimulated much activity within the federal government, the telecommunications and computer industries, and even social science and popular fiction writing. The technical focus will be on communications technologies, information theory, and the communications requirements of video (standard and ATV), speech (and other audio), text data. Social economic and policy issues will be an integral part of the course. Enrollment limited to 30 students.

Distributive: Dist:TAS

Offered: 16F: 10A

ENGs 5 - Healthcare and Biotechnology in the 21st Century

Instructor: Rosen, Robbie

Technologies that will impact healthcare in the 21st century are explored, including biology, robotics, and information. Biotechnologies are explored that will be used for the treatment of diseases and the regeneration of missing organs and limbs. Robotics will be explored that will replace parts. This will include artificial organs, robots as replacement for human parts, the human genome project, gene therapy, biomaterials, genetic engineering, cloning, transplantation (auto, allo and xeno), limb regeneration, man-machine interfaces, robotics, prosthetic limbs, artificial organs and joints. This section will also cover ethical issues related to the above topics and issues regarding the FDA and the approval of new medical treatments. We will discuss going beyond normal with respect to the senses, muscles and creating wings. Enrollment is limited to 75 students. No Prerequisite.

Distributive: Dist:TAS

Offered: 16S, 17S: 2A

ENGs 6 - Technology and Biosecurity

Instructor: Hoyt

This course will introduce students to the technologies used to combat biological threats to security ranging from pandemic influenza to bioterrorism. In particular, this course will explore the dual role that technology plays in both enhancing and destabilizing security. Specific technologies covered include the use of nanotechnology, synthetic biology, and mass spectrometry. The course

considers questions such as: Where can technological solutions have the greatest impact? When can defensive technologies have offensive applications? And, how can we balance the need to regulate potentially dangerous technologies against the need for academic freedom and high tech innovation? This course has no prerequisite, but enrollment is limited to 30 students.

Distributive: Dist:TAS

Offered: 17S: 2A

ENGS 7 - First-Year Seminars in Engineering Sciences

Offered: Consult special listings

ENGS 8 - Materials in Sports Equipment

Instructor: Obbard

Sports equipment uses almost every type of material imaginable, as athletes and designers leverage state-of-the-art materials to maximize human efficiency, performance, comfort and safety. As something most people have some familiarity with, active Dartmouth students in particular, it is an excellent subject for an exploration of material characteristics, selection, design, and failure. This course will introduce materials science concepts in a way that is accessible and useful for the non-major. It will exercise student's critical thinking, quantitative and communication skills. In-class demonstrations will allow students to explore material behavior and differences between materials 'hands-on' and possible field trips or lab visits will introduce them to some engineering test methods. Finally, this course will demystify terms used by manufacturers and salespeople, and help students, as athletes and consumers, make informed equipment choices. Enrollment is limited to 40 students. No prerequisite.

Distributive: Dist:TAS

Offered: 16S, 17S: 9

ENGS 9 - Lasers in Life

Instructor: Garmire

From its first appearance in 1962 as "an answer looking for a question," lasers have grown in importance to be in every CD/DVD player, supermarket, laser printer, Boeing 767 airplane. Lasers form the basis of the signals sent around the internet. They are used in applications from surveying to acupuncture, from automotive manufacturing to removing tattoos, from creating fusion to eye surgery. Students will learn first-hand about the development of lasers, the applications they fulfill, and the basic concepts by which they can be understood. The course relates the laser story to the basic concepts of technology, such as design, systems analysis, trade-offs, feedback and control. Enrollment is limited to 40 students. No Prerequisite.

Distributive: Dist:TLA

Offered: Not offered in the period from 15F through 16S

ENGS 10 - The Science and Engineering of Digital Imaging

Instructor: Cybenko

Recent advances in electrical and computer engineering, computer science and applied mathematics have made remarkable digital imaging systems possible. Such systems are affecting everyone today – from eyewitness documentation of social and political events to health care to entertainment to scientific discovery. This course will introduce students to the fundamental concepts underlying a diverse and representative collection of modern digital imaging systems including cell phone cameras, medical imaging systems, space telescopes, computer games and animated movies. Specific attention will be paid to the scientific principles and engineering challenges underlying optics, computer processing chips, image processing software and algorithms, data compression and communication, and digital sensors as well as the basic principles of human vision and cognition. Students will explore and learn the basic science and technology through a combination of in-class lectures and active hands-on experimentation with digital cameras, image processing software and digital video systems. Students will participate in a course-long group project that demonstrates their understanding of and ability to harness these new technologies. Students will be expected to have access to an entry-level digital camera, either standalone or attached to a cell phone or tablet computer. Enrollment limited to 75 students.

Distributive: Dist:TAS

Offered: 16X: 10

ENGS 12 - Design Thinking

Instructor: Robbie

A foundation course on the cognitive strategies and methodologies that form the basis of creative design practice. Design thinking applies to innovation across the built-environment, including the design of products, services, interactive technology, environments, and experiences. Topics include design principles, human need-finding, formal methodologies, brainstorming, heuristics, thinking by analogy, scenario building, visual thinking, and study of experienced thinkers. Weekly projects and exercises in a variety of media provide practice and development of students' personal creative abilities. Enrollment limited to 20 students. No prerequisite.

Distributive: Dist:TAS

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 10A

ENGS 13 - Virtual Medicine and Cybercare

Instructor: Rosen

There is a revolution in technology that is occurring in health care. This new technology will dramatically change how health care is delivered in the future. This course will cover topics related to the virtual human created from bits. This will include virtual reality, augmented reality and datafusion, computer simulation, advanced 3D and 4D imaging techniques, the operating room of the future, minimally invasive surgery, space medicine, teleoperations, telemedicine and telesurgery, internet 2 and cyber-space, artificial intelligence and intelligent agents applied to medicine, and the national library of medicine virtual human project. We will also discuss the FDA approval of computer simulators, robotic surgeons, and the ethics of robots doing surgery. In addition we will discuss the medical library of the future, teleconferencing and the use of interactive media in healthcare education. We will also discuss computerized patient records (CPR) and clinical information systems. Enrollment limited to 48. No prerequisite.

Distributive: Dist:TAS

Offered: 15F: 2A

ENGS 14 - The Science and Engineering of Music

Instructor: Hartov

Almost everyone enjoys some forms of music, but few are familiar with the science and engineering that make music possible. In this course students are invited to explore the making of music from technical and scientific perspectives. In particular this covers aspects of acoustics, the workings of musical instruments, and selected aspects of musical theory and audio engineering. Students in the course explore music with many in-class demonstrations and hands-on experimentation. Course topics include how sound is recorded and stored digitally, the composition of sound from a musician's point of view (pitch, chords, harmony and melody) and from an engineer's point of view (frequency, harmonics). The relationships between these two perspectives are then explored. This course does not require proficiency in either music or any particular instrument. Enrollment is limited to 75 students.

Distributive: Dist:TAS

Offered: 16W, 17W: 12

ENGS 15 - Undergraduate Investigations in Engineering

An original investigation in a phase of science or engineering under the supervision of a member of the staff. Students electing the course will be expected to have a proposal approved by the department chair and to meet weekly with the staff member supervising the investigation. The course is open to undergraduates who are not majoring in engineering. It may be elected only once, or taken as a one-third course credit for each of three consecutive terms. A report describing the details of the

investigation must be filed with the department chair and approved at the completion of the course.

Prerequisite: Permission of department chair (a one-page proposal submission is required and must be submitted for approval prior to the end of the term preceding the term in which the course will be taken).

Distributive: Dist:TAS

Offered: All terms: Arrange

ENGS 16 - Biomedical Engineering for Global Health

Instructor: Pogue, Elliott

The past 20 years have seen an incredible amount of high-tech medical advances, but to what degree have these impacted the health of those living in the developing world? The potential for years of life gained through biomedical technology is tremendous in some of the world's poorest regions, but appropriate design requires an understanding of the clinical, political, and cultural landscape, and a clean-slate approach to developing low-cost, effective tech. This course offers an exciting opportunity to understand how to design solutions for the most important health challenges of the developing world. Learning goals will be achieved through hands-on experience, including: a laboratory component where we deconstruct, design and build a low-cost medical device, case study discussions on successful global health innovations, and several "teardowns" of common medical devices. Lecturers from Thayer, Tuck, TDC and Geisel will cover complimentary topics in clinical medicine, healthcare delivery, innovation and medical imaging. A final project will bring everything together by addressing a real health problem with a prototype of a low-cost tech solution. Enrollment is limited to 40 students.

Distributive: Dist:TAS

Offered: 16W, 17W: 2A

ENGS 18 - System Dynamics in Policy Design and Analysis

Instructor: Peterson

This course introduces systems dynamics, an approach to policy design and analysis based upon feedback principles and computer simulation. The approach is useful for gaining an understanding of the underlying structural causes of problem behavior in social, economic, political, environmental, technological, and biological systems. Goals of this approach are to gain better understanding of such problem behaviors and to design policies aimed at improving them. Lectures and exercises illustrate applications of the approach to real, current problems such as urban decay, resource depletion, environmental pollution, product marketing and distribution, and agricultural planning in an expanding population. The similarity and transferability of underlying feedback

characteristics among various applications is emphasized. No prior engineering or computer science experience is necessary.

Prerequisite: MATH 3

Distributive: Dist:TAS

Offered: 16W, 17W: 2A

ENGS 19 - Microchips in Everyday Life

Instructor: Scherer

This course will be an introductory laboratory/lecture course in which students make microelectronic devices, such as transistors, diodes, resistors and capacitors in the laboratory and understand how they work in lectures. The goal of this course is for each student to obtain hands-on experience in device microfabrication and electronic measurement, as well as to provide an overview over the general trend of lithographic miniaturization and nanotechnology.

Distributive: Dist:TLA

Offered: 16X: 10A

ENGS 20 - Introduction to Scientific Computing

Instructor: Shepherd (fall and winter), P. Taylor (spring)

This course introduces concepts and techniques for creating computational solutions to problems in engineering and science. The essentials of computer programming are developed using the C and Matlab languages, with the goal of enabling the student to use the computer effectively in subsequent courses. Programming topics include problem decomposition, control structures, recursion, arrays and other data structures, file I/O, graphics, and code libraries. Applications will be drawn from numerical solution of ordinary differential equations, root finding, matrix operations, searching and sorting, simulation, and data analysis. Good programming style and computational efficiency are emphasized. Although no previous programming experience is assumed, a significant time commitment is required. Students planning to pursue the engineering sciences major are advised to take ENGS 20. Students considering the computer science major or majors modified with computer science should take COSC 1 and COSC 10. Enrollment is limited to 50 students. May not be taken under the non-recording option.

Prerequisite: MATH 3 and prior or concurrent enrollment in MATH 8

Distributive: Dist:TAS

Offered: 15F, 16F:10 16W, 17W:10 16S, 17S:11, 12

ENGS 21 - Introduction to Engineering

Instructor: Wegst (fall), Collier (winter), Baker (spring)

The student is introduced to engineering through participation, as a member of a team, in a complete design project. The synthesis of many fields involving the laws of nature, mathematics, economics, management, and communication is required in the project. Engineering principles of analysis, experimentation, and design are applied to a real problem, from initial concept to final recommendations. The project results are evaluated in terms of technical and economic feasibility plus social significance. Lectures are directed toward the problem, and experiments are designed by students as the need develops. Enrollment limited to 50 students in 15 Fall and 16 Winter; and 64 students for 16 Spring.

Prerequisite: MATH 3 or equivalent

Distributive: Dist:TAS

Offered: 15F, 16F: 10A, 16W, 17W: 10A 16S, 17S: 10A

ENGS 22 - Systems

Instructor: Stauth (fall), Zhang (winter), Trembly (summer)

The student is introduced to the techniques of modeling and analyzing lumped systems of a variety of types, including electrical, mechanical, reacting, fluid, and thermal systems. System input will be related to output through ordinary differential equations, which will be solved by analytical and numerical techniques. Systems concepts such as time constant, natural frequency, and damping factor are introduced. The course includes computer and laboratory exercises to enhance the students' understanding of the principles of lumped systems. Students will develop the ability to write MATLAB code. Enrollment is limited to 35 in fall and 50 students for winter and summer.

Prerequisite: MATH 13, PHYS 14, and ENGS 20

Distributive: Dist:TLA

Offered: 15F, 16F: 2 16W, 17W: 9 16X: 10; Laboratory

ENGS 23 - Distributed Systems and Fields

Instructor: Phan (fall), Hansen (winter), Trembly (spring)

A study of the fundamental properties of distributed systems and their description in terms of scalar and vector fields. After a summary of vector-field theory, the formulation of conservation laws, source laws, and constitutive equations is discussed. Energy and force relations are developed and the nature of potential fields, wave fields, and diffusion fields examined. A survey of elementary transport processes is given. Particular attention is given to the relation between the description of systems in terms of discrete and distributed parameters. Applications are chosen primarily from fluid mechanics, electromagnetic theory, and heat transfer. Includes a set of laboratories.

Prerequisite: ENGS 22, or equivalent

Distributive: Dist:TAS

Offered: 15F, 16F: 2 16W, 17W: 9 16S, 17S: 9;
Laboratory

ENGS 24 - Science of Materials

Instructor: Frost, Levey (winter), Liu, Levey (spring)

An introduction to the structure/property relationships that govern the mechanical, the thermal, and the electrical behavior of solids (ceramics, metals, and polymers).

Topics include atomic, crystalline, and amorphous structures; x-ray diffraction; imperfections in crystals; phase diagrams; phase transformations; elastic and plastic deformation; free electron theory and band theory of solids; and electrical conduction in metals and semiconductors. The laboratory consists of an experimental project selected by the student and approved by the instructor. Enrollment limited to 60 students.

Prerequisite: PHYS 14 and CHEM 5

Distributive: Dist:TLA

Offered: 16W, 16S, 17W, 17S: 10; Laboratory

ENGS 25 - Introduction to Thermodynamics

Instructor: Griswold (Spring), Chen (Summer)

The fundamental concepts and methods of thermodynamics are developed around the first and second laws. The distinctions among heat, work, and energy are emphasized. Common processes for generating work, heat, refrigeration, or changing the physical or chemical state of materials are analyzed. The use of thermodynamic data and auxiliary functions, such as entropy, enthalpy, and free energy, is integrated into the analysis. The numerous problems show how theoretical energy requirements and the limitations on feasible processes can be estimated. Enrollment is limited to 60 students.

Prerequisite: MATH 13, PHYS 13, ENGS 20 or COSC 1 and COSC 10

Distributive: Dist:TAS

Offered: 16S, 17S: 2 16X, 17X: 11

ENGS 26 - Control Theory

Instructor: Ray

The course treats the design of analog, lumped parameter systems for the regulation or control of a plant or process to meet specified criteria of stability, transient response, and frequency response. The basic theory of control system analysis and design is considered from a general point of view. Mathematical models for electrical, mechanical, chemical, and thermal systems are developed. Feedback control system design procedures are established using root-locus and frequency-response methods.

Prerequisite: ENGS 22

Distributive: Dist:TAS

Offered: 15F, 16F: 9; Laboratory

ENGS 27 - Discrete and Probabilistic Systems

Instructor: Cybenko

This course is an introduction to probabilistic methods for modeling, analyzing, and designing systems. Mathematical topics include the fundamentals of probability, random variables and common probability distributions, basic queueing theory, and stochastic simulation. Applications, drawn from a variety of engineering settings, may include measurement and noise, information theory and coding, computer networks, diffusion, fatigue and failure, reliability, statistical mechanics, ecology, decision making, and robust design.

Prerequisite: MATH 8 and either ENGS 20 or COSC 1 and COSC 10. PHYS 13 or CHEM 5 recommended.

Distributive: Dist:TAS

Offered: 15F, 16F: 10A

ENGS 30 - Biological Physics

Instructor: Hill

Introduction to the principles of physics and engineering applied to biological problems. Topics include the architecture of biological cells, molecular motion, entropic forces, enzymes and molecular machines, and nerve impulses.

Prerequisite: CHEM 5, PHYS 13 and PHYS 14 (or equivalent). PHYS 14 (or equivalent) may be taken concurrently. Students with strong quantitative skills who have taken PHYS 3 and PHYS 4 can enroll with permission of the instructor.

Cross-Listed as: PHYS 30

Distributive: Dist:SCI

Offered: 16S, 17S: 11

ENGS 31 - Digital Electronics

Instructor: Luke (spring), Hansen (summer)

This course teaches classical switching theory including Boolean algebra, logic minimization, algorithmic state machine abstractions, and synchronous system design. This theory is then applied to digital electronic design. Techniques of logic implementation, from Small Scale Integration (SSI) through Application-Specific Integrated Circuits (ASICs), are encountered. There are weekly laboratory exercises for the first part of the course followed by a digital design project in which the student designs and builds a large system of his or her choice. In the process, Computer-Aided Design (CAD) and construction

techniques for digital systems are learned. Enrollment is limited to 60 students.

Prerequisite: ENGS 20 or COSC 1 and COSC 10.

Cross-Listed as: COSC 56 (formerly 47)

Distributive: Dist:TLA

Offered: 16S, 17S: 12 16X: 9; Laboratory

ENGS 32 - Electronics: Introduction to Linear and Digital Circuits

Instructor: Odamé

Principles of operation of semiconductor diodes, bipolar and field-effect transistors, and their application in rectifier, amplifier, waveshaping, and logic circuits. Basic active-circuit theory. Introduction to integrated circuits: the operational amplifier and comparator, to include practical considerations for designing circuits with off-the shelf components. Emphasis on breadth of coverage of low-frequency linear and digital networks, as well as on high order passive and active filter design. Laboratory exercises permit "hands-on" experience in the analysis and design of simple electronic circuits. The course is designed for two populations: a) those desiring a single course in basic electronics, and b) those that need the fundamentals necessary for further study of active circuits and systems.

Prerequisite: ENGS 22, or equivalent background in basic circuit theory.

Cross-Listed as: PHYS 48

Distributive: Dist:TLA

Offered: 16W, 17W: 11; Laboratory

ENGS 33 - Solid Mechanics

Instructor: May (fall), Van Citters (Winter), Frost (summer)

After a brief review of the concepts of rigid body statics, the field equations describing the static behavior of deformable elastic solids are developed. The concepts of stress and strain are introduced and utilized in the development. Exact and approximate solutions of the field equations are used in the study of common loading cases, including tension/compression, bending, torsion, pressure, and combinations of these. In the laboratory phase of the course, various methods of experimental solid mechanics are introduced. Some of these methods are used in a project in which the deformation and stress in an actual load system are determined and compared with theoretical predictions. The course includes several computer exercises designed to enhance the student's understanding of the principles of solid mechanics.

Prerequisite: MATH 13 and PHYS 13

Distributive: Dist:TLA

Offered: 14F, 15F: 11 15W, 16W: 12 15X, 16X: 12; Laboratory

ENGS 34 - Fluid Mechanics

Instructor: Epps

We interact with fluids every day. From complex systems such as cars, airplanes, and chemical plants, to simple devices like a bike pump, our world is filled with engineering applications that make use of the principles of fluid mechanics. This course surveys the fundamental concepts, phenomena, and methods in fluid mechanics, as well as their application in engineered systems and in nature. Emphasis is placed on the development and use of conservation laws for mass, momentum, and energy, as well as on the empirical knowledge essential to the understanding of many fluid dynamic phenomena. Examples are drawn from mechanical, chemical, civil, environmental, biomedical, and aerospace engineering.

Prerequisite: ENGS 23 or equivalent

Distributive: Dist:TLA

Offered: 16W, 17W: 9; Laboratory

ENGS 35 - Biotechnology and Biochemical Engineering

Instructor: Gerngross

A consideration of the engineering and scientific basis for using cells or their components in engineered systems. Central topics addressed include kinetics and reactor design for enzyme and cellular systems; fundamentals, techniques, and applications of recombinant DNA technology; and bioseparations. Additional lectures will provide an introduction to metabolic modeling as well as special topics. The course is designed to be accessible to students with both engineering and life-science backgrounds. This course has a graduate section, see ENGS 160. Enrollment is limited to 25 students.

Prerequisite: MATH 3, CHEM 5, BIOL 12 or BIOL 13 or permission

Distributive: Dist:TLA

Offered: 15F, 16F: 9; Laboratory

ENGS 36 - Chemical Engineering

Instructor: Laser

This course will expose students to the fundamental principles of chemical engineering and the application of these principles to a broad range of systems. In the first part of the course, aspects of chemical thermodynamics, reaction kinetics, and transport phenomena will be addressed. These principles will then be applied to a variety of systems including industrial, environmental, and biological examples.

Prerequisite: ENGS 22, ENGS 25; CHEM 5

Distributive: Dist:TAS

Offered: 15F, 16F: 10A

ENGS 37 - Introduction to Environmental Engineering

Instructor: Cushman-Roisin

A survey of the sources, measurement techniques, and treatment technologies relating to environmental pollution resulting from the activities of humans. The course will be technology-focused, but will also touch on topics related to the implementation of technology in the real world such as public perception, policy and legislation, and choosing between technological alternatives. Technological and other issues will be addressed relating to water pollution, air pollution, solid wastes, and the fate and transport of pollutants in the environment. Consideration of each area will include general background and key concepts, detailed design examples of importance in the area, and case studies/current topics. The course will include guest lectures.

Prerequisite: MATH 3 and CHEM 5, or equivalent, or permission

Distributive: Dist:TAS

Offered: 15F: 12, 16F: 10

ENGS 41 - Sustainability and Natural Resource Management

Instructor: Borsuk

Natural resources sustain human productivity. Principles of scientific resource management are developed, and prospects for sustainability are explored. Three generic categories of resource are analyzed: exhaustible, living, and renewable. In the first category we emphasize the lifecycle of exploitation including exhaustion, exploration and substitution. In the living category we explore population dynamics under natural and harvested regimes, for fisheries and forests. Finally, the renewable case of water is treated in terms of quantity and quality. Throughout, the intersection of natural, economic, and political behavior is explored in theory via computer simulations; case studies illustrate contemporary management problems and practices.

Prerequisite: MATH 13

Distributive: Dist:TAS

Offered: 16S, 17S: 2A

ENGS 43 - Environmental Transport and Fate

Instructor: Plagge

Introduction to movement and transformation of substances released into the natural environment. Fundamentals of advection, dispersion, and reaction. Aggregation and parameterization of various mixing processes leading to dispersion at larger spatial and

temporal scales. Importance of inhomogeneity, anisotropy, and stratification in natural media. Basic principles are illustrated by application to atmospheric, ground water, river, estuarine, coastal, and oceanic pollution problems. Case studies include urban smog, acid rain, Chernobyl fall-out, and stratospheric ozone depletion.

Prerequisite: MATH 13; ENGS 37 or permission

Distributive: Dist:TAS

Offered: 16W: 11 Offered Alternate Years

ENGS 44 - Sustainable Design

Instructor: Cushman-Roisin

An interdisciplinary introduction to the principles of design for sustainability, with emphasis on the built environment. Through lectures, readings, discussions, and a major design project, students will learn to design buildings and other infrastructure with low to no impact on the environment. Emphasis is on creative thinking, strategies for managing the complexity of the product life-cycle of the infrastructure, and the thorough integration of human and economic aspects in the design. Homework and project activities provide practice in relevant engineering analyses. Enrollment is limited to 20 students

Prerequisite: ENGS 21 and ENGS 22 or SART 65

Distributive: Dist:TAS

Offered: 16S, 17S: 3A

ENGS 46 - Advanced Hydrology

Instructor: Renshaw

A survey of advanced methods used to analyze the occurrence and movement of water in the natural environment. The watershed processes controlling the generation of runoff and streamflow are highlighted, and used to explore the transport and fate sediment and contaminants in watersheds. Throughout the course the ideas and concepts are explored through the primary literature, with emphasis given to methods of observation, measurement, data analysis, and prediction.

Prerequisite: MATH 3 and EARS 16 or EARS 33 or BIOL 53 or ENGS 43 or permission of instructor

Cross-Listed as: EARS 76

Distributive: Dist:TAS

Offered: 16S: 2A

ENGS 52 - Introduction to Operations Research

Instructor: Santos

Basic concepts of optimization are introduced as aids in systematic decision-making in engineering contexts. Deterministic optimization is developed in the form of linear and integer programming and their extensions.

Probabilistic models are introduced in terms of Markov chains, queuing and inventory theory, and stochastic simulation. The course emphasizes the application of these methods to the design, planning, and operation of complex industrial and public systems.

Prerequisite: MATH 8 and MATH 22 or equivalent

Distributive: Dist:TAS

Offered: 16W, 17W: 10A

ENGS 56 - Introduction to Biomedical Engineering

Instructor: Hoopes

This course will survey applications of engineering principles to medical diagnosis/treatment of disease, monitoring/measurement of physiological function, and rehabilitation/replacement of body dysfunction. Case studies will be used to highlight how engineering has advanced medical practice and understanding. Examples will be drawn from bioinstrumentation, bioelectricity, biotransport, biomaterials, and biomechanics. While investigations will focus primarily on the engineering aspects of related topics, issues surrounding patient safety, public policy and regulation, animal experimentation, etc. will be discussed as appropriate.

Prerequisite: PHYS 13 and PHYS 14 (PHYS 14 may be taken concurrently)

Distributive: Dist:TLA

Offered: 16S: 2; Laboratory

ENGS 57 - Intermediate Biomedical Engineering

Instructor: Halter

The basic biomedical engineering concepts introduced in ENGS 56 will serve as the foundation for exploring technology in a clinical environment. The specific clinical setting to be explored will be the operating room (OR). This course will introduce a variety of surgical procedures and technologies from an engineering perspective. Areas of focus will include patient monitoring, biophysical tissue properties, general surgical instrumentation, tissue cutting and binding technologies, and optical visualization technologies. In addition, state-of-the-art procedures employing image-guided, minimally invasive, laparoscopic, and robot-assisted surgical technologies will be discussed. The first half of the term will include weekly seminars presented by surgeons describing a particular surgical procedure, the technologies currently used and a surgeon's "wish-list". During the second half of the term, students will undertake a design project aimed at developing a technology that addresses a specific need within the OR. Enrollment is limited to 18 students.

Prerequisite: ENGS 23 and ENGS 56 or equivalent

Distributive: Dist:TAS

Offered: 17S: 10 Offered Alternate Years

ENGS 58 - Introduction to Protein Engineering

Instructor: Griswold

Engineered biomolecules are powering an array of innovations in biotechnology, and this course will familiarize students with key developments in the field. An overview of foundational principles will cover concepts such as the central dogma of biology, atomic scale forces in protein structures, and protein structure-function relationships. Strategies for modifying protein structures will be surveyed, with a particular emphasis on genetic techniques. The development of proteins with practical utility will be highlighted using case studies.

Prerequisite: ENGS 35 or CHEM 41

Distributive: DIST: TAS

Offered: 16W, 17W: 3B

ENGS 60 - Introduction to Solid-State Electronic Devices

Instructor: Fossum

In this course the physical and operational principles behind important electronic devices such as the solar cell and transistor are introduced. Semiconductor electron and hole concentrations and carrier transport are discussed. Carrier generation and recombination including optical absorption and light emission are covered. P-N junction operation and its application to diodes, solar cells, LEDs, and photodiodes is developed. The field-effect transistor (FET) and bipolar junction transistor (BJT) are then discussed and their terminal operation developed. Application of transistors to bipolar and CMOS analog and digital circuits is introduced. The course is primarily intended for students interested in electronics, including digital, analog, power and energy, both at component and integrated circuit levels. The course may also be useful to students interested in electronic materials, device microfabrication and communications.

Prerequisite: ENGS 23

Distributive: Dist:TLA

Offered: 16W, 17W: 10A; Laboratory

ENGS 61 - Intermediate Electrical Circuits

Instructor: Stauth

This course will build on ENGS 32, providing a foundation for transistor-level analog and digital circuit design. The course will start with an introduction to the semiconductor industry and how it has dramatically altered the modern way of life, resulting in diverse technologies such as telecommunications, lighting and transportation. This will

lead into basic semiconductor theory and CMOS device models, two-port linearized models, and finally single- and multi-stage amplifiers with applications motivated by wireless communications and biomedical instrumentation. The second half of the class will focus on digital circuits. Topics will include designing and optimizing complex static CMOS devices in terms of energy, delay, and area of computational blocks and memory arrays. The class will have weekly labs and a final project that will utilize modern computer-aided tools. The course will prepare the student for advanced study of highly-integrated electrical circuits.

Prerequisite: ENGS 32

Distributive: Dist:TLA

Offered: 16S, 17S: 10; Laboratory

ENGS 62 - Microprocessors in Engineered Systems

Instructor: Staff

Microprocessors and microcomputers are central components in an ever-increasing number of consumer, industrial, and scientific products. This course extends the design frame-work developed in ENGS 31 to include these high integration parts. Students are introduced to simple and advanced microcomputers, their supporting peripheral hardware, and the hardware and software tools that aid designers in creating embedded system controllers. Laboratory projects will cover basic microprocessor behavior, bus interfaces, peripheral devices, and digital signal processing. Enrollment limited to 30 students.

Prerequisite: ENGS 20 and ENGS 31

Distributive: Dist:TLA

Offered: 16W, 17W: 2A; Laboratory

ENGS 65 - Engineering Software Design

Instructor: Santos

As a successor to ENGS 20, this course covers intermediate topics in programming and software design with an emphasis on engineering applications. Students will learn software design principles and basic data structures. Topics covered will include object-oriented design, user interface design, lists, stacks, queues, binary trees, hash tables, and simulation. Students will learn techniques for developing maintainable, extensible, and understandable software.

Prerequisite: ENGS 20 or COSC 1 and COSC 10

Distributive: Dist:TAS

Offered: 16W, 17W: 3B

ENGS 66 - Discrete Mathematics in Computer Science

Instructor: Chakrabanti (Fall), Jayanti (Winter)

This course integrates discrete mathematics with algorithms and data structures, using computer science applications to motivate the mathematics. It covers logic and proof techniques, induction, set theory, counting, asymptotics, discrete probability, graphs, and trees.

Prerequisite: COSC 1, ENGS 20, or placement through the Advanced Placement exam

Cross-Listed as: COSC 30

Distributive: Dist:QDS

Offered: 15F: 10A, 16W: 11

ENGS 67 - Programming Parallel Systems

Instructor: Taylor

Multi-core processors are now ubiquitous in most personal computers. These are the fundamental computer-engineering building blocks for high-performance servers, blade farms, and cloud computing. In order to utilize these devices in large systems they must be interconnected through networking and collectively programmed. This hands-on system-engineering course offers students the opportunity to explore problem-solving techniques on a high-performance multi-computer containing quad-core processors. The course involves weekly programming laboratories that teach POSIX thread, UDP and TCP network, and MPI style programming techniques. These techniques are explored in the context of scalable problem solving methods applied to typical problems in science and engineering ranging from client-server sensing and data repositories, to numerical methods, gaming and decision support. All laboratories will be conducted in the C programming language and proficiency in C is required. Enrollment is limited to 30 students.

Prerequisite: ENGS 20 or COSC 50 (formerly COSC 23)

Cross-Listed as: COSC 63

Distributive: Dist:TLA

Offered: 16F: 2A; Laboratory

ENGS 68 - Introduction to Communication Systems

Instructor: Testorf

This course provides an introduction to communication systems. The focus is on the deterministic aspects of analog and digital systems. The student is introduced to modeling and analyzing signals in the time and frequency domains. Modulation techniques are addressed as well as, sampling, multiplexing, line coding, pulse shaping. Recent developments in communication systems are briefly discussed.

Prerequisite: Prior or concurrent enrollment in ENGS 22, ENGS 27 and ENGS 92 strongly recommended.

Offered: 16W, 17W: 2

ENGS 69 - Smartphone Programming

Instructor: Yang

This course teaches students how to design, implement, test, debug and publish smartphone applications. Topics include development environment, phone emulator, key programming paradigms, UI design including views and activities, data persistence, messaging and networking, embedded sensors, location based services (e.g., Google Maps), cloud programming, and publishing applications. Concepts are reinforced through a set of weekly programming assignments and group projects. Enrollment is limited to 50 students.

Prerequisite: COSC 10

Cross-Listed as: COSC 65, COSC 165

Distributive: Dist:TAS

Offered: 16S: 9L

ENGS 71 - Structural Analysis

Instructor: May

An introduction to the behavior of structural systems (including examples of buildings, space structures, and mechanical systems), with an emphasis on modeling and approximating behavior. Classical and computational analysis methods for structural load flow through basic three-dimensional structures; methods of approximating the response of planar structures; methods of determining deformations in planar, statically determinate structure; actions and deformations in statically indeterminate structures, using both flexibility/compatibility methods and stiffness/equilibrium methods (including an introduction to matrix methods). A structural system of choice will be redesigned to improve performance.

Prerequisite: ENGS 20 or COSC 1 and COSC 10 and ENGS 33

Distributive: Dist:TAS

Offered: 16S, 17S: 10

ENGS 72 - Applied Mechanics: Dynamics

Instructor: Van Citters

The fundamentals of dynamics with emphasis on their application to engineering problems. Newtonian mechanics including kinematics and kinetics of particles and rigid bodies, work, energy, impulse, and momentum. Intermediate topics will include Lagrange's equations, energy methods, Euler's equations, rigid body dynamics, and the theory of small oscillations.

Prerequisite: ENGS 22

Distributive: Dist:TAS

Offered: 15F, 16F: 9

ENGS 73 - Materials Processing and Selection

Instructor: Staff

In this course the basic concepts of materials science introduced in ENGS 24 are applied to a variety of materials problems and processes. The course will treat processes and principles relevant to both mechanical and electrical engineering applications. Topics include solidification and crystal growth, joining and bonding techniques, deformation processing, surface coatings and thin film deposition, polymer processing, composite materials, magnetic and dielectric materials, powder metallurgy and ceramics processing, materials selection, failure processes, and quality control. The course will involve laboratory exercises and field trips to local industry. Materials applications will be considered on a case study basis, including aerospace and automotive structures, consumer goods, and high performance sports equipment, electric components, VLSI circuit fabrication and packaging.

Prerequisite: ENGS 24 and ENGS 33 or equivalent

Distributive: Dist:TLA

Offered: 16S: 10A; Laboratory Offered in Alternate Years

ENGS 75 - Product Design

Instructor: Robbie, Collier

A laboratory course on human-centered product design. A series of design projects form the vehicle for exploring creative strategies for optimizing product design for human use. The course focus includes need-finding, concept development, iterative modeling, prototyping and testing. The goal is synthesis of technical requirements with aesthetic and human concerns. Includes presentations by visiting professional designers. Enrollment is limited to 20 students. Can be used for A.B. course count and Engineering Sciences major elective, but may not be used to satisfy B.E. requirements other than design credit

Prerequisite: ENGS 21 or ENGS 89

Distributive: Dist:TAS

Offered: 16W, 17W: 2A

ENGS 76 - Machine Engineering

Instructor: Diamond

An introduction to the analysis and synthesis of mechanical components and systems. Lecture topics focus on design and analysis of mechanical components subject to static and fatigue loading conditions, deformation, and buckling. Power transmission shafting, bearings, and gears will be studied in detail. A survey of design requirements for other components - springs, screws, belts, clutches, brakes, roller chains, and welded and riveted connections - will be provided. The class includes laboratory sessions for developing practical skills in design fabrication. A term

project emphasizes the synthesis of a working machine to complete a specified task. The project involves the design or selection of components studied, and includes fabrication and demonstration of the machine. Solid modeling software is used as a design tool. Enrollment is limited to 25 students.

Prerequisite: ENGS 21, ENGS 33, and proficiency with solid modeling software

Distributive: Dist:TAS

Offered: 15F, 16F: 10A

ENGS 84 - Reading Course

Advanced undergraduates occasionally arrange with a faculty member a reading course in a subject not occurring in the regularly scheduled curriculum. This course can only be elected once and either ENGS 84 or 85 may be used toward the Engineering Sciences major, but not both.

Prerequisite: Permission of the department chair. (Proposed courses should include a full syllabus, resources and student evaluation methods and must be submitted for approval prior to the end of the term preceding the term in which the course will be taken.)

Offered: All Terms: Arrange

ENGS 85 - Special Topics

From time to time a section of ENGS 85 may be offered in order to provide an advanced course in a topic which would not otherwise appear in the curriculum. This course can only be elected once and either ENGS 84 or 85 may be used toward the Engineering Sciences major, but not both.

Prerequisite: Permission of the department chair

Offered: All Terms: Arrange

ENGS 86 - Independent Project

An individual research or design project carried out under the supervision of a member of the staff. Students electing this course will be expected to carry out preliminary reading during the preceding term. This course may be taken in one term, or as a one-third course credit for each of three consecutive terms. A major written report and oral presentation will be submitted at the completion of the course. ENGS 86 may be counted as an elective in the major if ENGS 89 is taken as the culminating experience. Only one of either ENGS 86 or 88 may be used in satisfaction of the combined A.B. major and B.E. degree requirements.

Prerequisite: Senior standing in the engineering sciences major or Bachelor of Engineering standing and permission of the department chair is required. (One-page proposal submission required and must be submitted for approval prior to the end of the term preceding the term in which the course will be taken.)

Offered: All terms: Arrange

ENGS 87 - Undergraduate Investigations

An original investigation in a phase of science or engineering under the supervision of a member of the staff. Students electing the course will be expected to carry out preliminary reading during the preceding term and to meet weekly with the staff member supervising the investigation. The course is open to qualified undergraduates with the consent of the department chair, and it may be elected more than once, or taken as a one-third course credit for each of three consecutive terms. A report describing the details of the investigation must be filed with the department chair and approved at the completion of the course. May not be used to satisfy any A.B. major or B.E. degree requirements.

Prerequisite: Permission of the department chair. (One-page proposal submission required and must be submitted for approval prior to the end of the term preceding the term in which the course will be taken.)

Offered: All terms: Arrange

ENGS 88 - Honors Thesis

Honors version of ENGS 86. A course normally elected by honors students in one term of the senior year. The student will conduct a creative investigation suitable to the major subject under the supervision and guidance of a member of the staff. Students electing this course will be expected to begin the project work at least one term prior to electing ENGS 88 and may choose to conduct the preliminary investigation under ENGS 87. A major written report and oral presentation will be submitted at the completion of the course. ENGS 88 may be counted as an elective in the major if ENGS 89 is taken as the culminating experience. Only one of either ENGS 86 or 88 may be used in satisfaction of the combined A.B. major and B.E. degree requirements.

Prerequisite: permission of the chair of the Honors program

Offered: All terms: Arrange

ENGS 89 - Engineering Design Methodology and Project Initiation

Instructor: Lotko, Halter

This course explores elements of the engineering design process as a means of enhancing student ability in problem definition; development and evaluation of creative alternatives, application and methods of technical and economic analysis, identification and application of ethical and legal constraints, and effective presentation of technical information. Design projects are developed from specifications submitted by industry and other organizations and are pursued over the course of two quarters as a team project, 89/90. Written and oral proposal

and progress report are required for the design project during the term. A project advisor is required for each design team to serve as consultant to the team's efforts. ENGS 89, is the first unit of a two-term course sequence 89/90 that must be taken consecutively.

Prerequisite: Prior to enrollment in ENGS 89, at least six engineering courses must be completed. These include ENGS 21 plus five additional courses numbered 22 to 76

Offered: 15F, 16F: 2A

ENGS 90 - Engineering Design Methodology and Project Completion

Instructor: Lotko, Halter

This course is the second unit in the two-course, team engineering design sequence 89/90. The objective of the course is to develop the student's professional abilities by providing a realistic project experience in engineering analysis, design, and development. Students continue with the design teams formed in ENGS 89 to complete their projects. Design teams are responsible for all aspects of their respective projects, which involve science, innovation, analysis, experimentation, economic decisions and business operations, planning of projects, patents, and relationships with clients. Mid-term and final oral presentations and written reports are required. A faculty member is assigned to each design team to serve as consultant to the team's efforts.

Prerequisite: ENGS 89

Offered: 16W, 17W: Arrange

ENGS 91 - Numerical Methods in Computation

Instructor: Shepherd

A study and analysis of important numerical and computational methods for solving engineering and scientific problems. The course will include methods for solving linear and nonlinear equations, doing polynomial interpolation, evaluating integrals, solving ordinary differential equations, and determining eigenvalues and eigenvectors of matrices. The student will be required to write and run computer programs.

Prerequisite: ENGS 20 or COSC 1 and COSC 10; ENGS 22 or MATH 23, or equivalent.

Cross-Listed as: COSC 71

Distributive: Dist:QDS

Offered: 15F, 16F: 12

ENGS 92 - Fourier Transforms and Complex Variables

Instructor: Testorf

Survey of a number of mathematical methods of importance in Engineering and Physics with particular emphasis on the Fourier transform as a tool for modeling

and analysis. Orthogonal function expansions, Fourier series, discrete and continuous Fourier transforms, generalized functions and sampling theory, complex functions and complex integration, Laplace, Z, and Hilbert transforms. Computational Fourier analysis. Applications to linear systems, waves, and signal processing.

Prerequisite: MATH 46 or ENGS 22 and ENGS 23 or the equivalent

Cross-Listed as: PHYS 70

Distributive: Dist:QDS

Offered: 15F, 16F: 2

ENGS 93 - Statistical Methods in Engineering

Instructor: Vaze (winter, spring), Lasky (fall)

The application of statistical techniques and concepts to maximize the amount and quality of information resulting from experiments. After a brief introductory summary of fundamental concepts in probability and statistics, topics considered will include probability distributions, sampling distributions, estimation and confidence intervals for parameters of statistical distributions, hypothesis testing, design and analysis of variance for single and multiple-factor experiments, regression analysis, estimation and confidence intervals for parameters of non-statistical models, and statistical quality control.

Prerequisite: MATH 13 or equivalent

Distributive: Dist:QDS

Offered: 16W, 17W: 11 16S, 17S: 12 16F: Arrange

English

Chair: Patricia McKee

Vice-Chair: Michael Chaney

Professors C. G. Boggs, L. E. Boose, C. Dever, G. H. Gerzina, C. Huntington, T. H. Luxon, A. L. McCann, P. McKee, C. Mathis, D. E. Pease, I. T. Schweitzer, P. W. Travis, B. E. Will; Associate Professors M. A. Chaney, G. Edmondson, A. L. Evens, J. M. Favor, A. W. Halasz, T. O'Malley, M. C. Otter, J. Sharlet, S. A. M. Vásquez, M. F. Zeiger; Assistant Professors A. S. Bahng, B. Gamboa, A. Garrison, C. Haines, P. Stuelke; Senior Lecturers G. Lenhart, C. L. Tudish; Lecturers C. Harner, A. Jetter; Visiting Professors W. Craig, V. Francis, C. Gerhard

To view English courses, click here (p. 244).

The English Major

Requirements: The Major in English requires the successful completion of eleven major courses.

1. The courses must satisfy the following distribution requirements according to the Course Groups, listed below: at least 2 courses from Group I; at least 2 courses from Group II; at least 1 course from Group III; at least 1 course from Group IV.
2. Two courses must be selected from the Literary Histories (ENGL 1, ENGL 2, ENGL 3). These courses may be used to satisfy the Course Group requirements.
3. One course must be a Junior Colloquium (ENGL 61 - ENGL 65). This course may also satisfy one of the Course Group requirements.
4. One course must be a Senior Seminar (ENGL 71 - ENGL 75). This course may also be used to satisfy any of the Course Group requirements.
5. One course must be designated as satisfying the Culminating Experience Requirement. This may be a Senior Seminar or, in the case of students seeking a degree with Honors, the first term of ENGL 98. The Culminating Experience course must be taken and completed after the sophomore-junior summer term.

Students electing the major in English should bear in mind the following:

1. Transfer credits normally cannot be used in the major. Students wishing to be granted an exception must petition the CDC (Committee on Departmental Curriculum). If approval is granted, transfer courses are subject to the rules that apply to substitute courses.
2. Two substitute courses (appropriate major courses from other departments at Dartmouth) are permitted within the major. Normally, substitute courses cannot satisfy the Course Group requirements.
3. No substitute courses may satisfy the Culminating Experience requirement.
4. To become an English major, students must consult with a professor to plan their courses. Students formally elect the major in English by submitting a proposed plan of courses through DegreeWorks and meeting with one of the English faculty to get approval. At the time of faculty approval the student must also submit a completed and signed major worksheet to the department administrator. Students must meet with their major advisor a second time in the last term of the junior year or the first term of the senior year in order to review their major plan.

Concentration in Creative Writing

Students electing a concentration in Creative Writing must pass a prerequisite course, ENGL 80, ENGL 81, or ENGL 82 prior to enrolling in any other Creative Writing course. The concentration consists of four courses. Courses satisfying this concentration must include:

One course selected from ENGL 83, ENGL 84, ENGL 85.

A second course selected from ENGL 80, ENGL 81, ENGL 82, ENGL 83, ENGL 84, ENGL 85, ENGL 87; or an approved colloquium or topics course in English with a significant writing component; or, an approved course in another department with a workshop orientation (e.g., FILM 33, Writing for the Screen I; THEA 50, Playwriting I; ENVS 72, Nature Writers); or, a senior project (ENGL 89 or ENGL 98).

A course in contemporary poetry, prose, prose nonfiction, or drama in the English Department, or any other course within the English Department carrying the CW tag, or a creative writing course offered by another department.

Note: Students must be admitted to one of the Creative Writing intermediate courses (ENGL 83, ENGL 84, ENGL 85) before they can elect the Creative Writing concentration. Students may not elect the minor in the Creative Writing concentration until they have been admitted to ENGL 83, ENGL 84, or ENGL 85. A writing sample is required with the application to ENGL 83, ENGL 84, and ENGL 85.

Modified Majors

Students may propose a modified major in English by designing a special program of study in consultation with a faculty advisor in the Department. One may modify the major in English with a selection of courses from other departments and programs, or one may modify a major in another department or program with a selection of English courses. In both cases the modifying courses nominated must be courses that qualify for major credit in their home department or program. The Culminating Experience should be satisfied according to the primary department's or program's rules. Proposals for modifying the major in English should also explain the rationale for modifying the standard major.

Proposals for both kinds of modified majors must be submitted to the Vice Chair of the English Department as a formal petition and proposal. Proposals to modify another major with English courses must be approved by the Vice Chair of English before going forward to the primary department or program for final approval as a major program. Proposals to modify the major in English with other courses must be submitted, along with an authorizing signature from the secondary department or program, to the Vice Chair of English and the CDC for their deliberation and approval. The Vice Chair's signature signifies final approval of a modified major in English.

Modified major in which English is the primary subject:

Requirements: This major requires the successful completion of eleven major courses.

1. All students proposing a modified major with English as the primary department must complete at least 2 courses

from Group I; at least 2 courses from Group II; at least 1 course from Group III; at least 1 course from Group IV.

2. Two courses must be selected from the Literary Histories (ENGL 1, ENGL 2, ENGL 3). These courses may be used to satisfy the Course Group requirements.

3. Four courses from another department or program must be selected, approved by the CDC, and completed successfully.

4. One English course must be a Junior Colloquium (ENGL 61 - ENGL 65) or ENGL 90. This course may also satisfy one of the Group requirements outlined above.

5. One English course must be designated as satisfying the Culminating Experience Requirement. This may be a Senior Seminar or, in the case of students seeking a degree with Honors, the first term of ENGL 98. The Culminating Experience course must be taken and completed after the sophomore-junior summer term.

Modified major in other departments or programs modified with English courses:

Requirements: Four English courses selected from those numbered ENGL 1, ENGL 2, ENGL 3 and ENGL 10 - ENGL 75 and ENGL 80 - ENGL 91. No substitutions or transfer credits are permitted.

The Minor in English

The minor in English requires the successful completion of six major courses. No substitutions and no more than one transfer credit will be permitted.

The Major in English with Honors

Students enrolled in the major in English who have completed at least six major courses by the end of their junior year and have a grade point average (GPA) in the major of 3.5 or higher and an overall college GPA of 3.0 or higher may apply for the Honors Program. Eligible students apply by submitting their college record to the Honors Directors along with a formal proposal of an honors thesis. The thesis is to be completed during two terms of ENGL 98, the first of which counts as the Culminating Experience in the major. The second ENGL 98 constitutes a twelfth course in the major program, separate from all other requirements outlined above.

There are two prerequisites for the Honors Program: 1) Students must complete a 70s-level seminar in English prior to the first term of ENGL 98; and 2) the theory requirement (Course Group 4) should be satisfied before the term in which the candidate completes the honors thesis and submits it for evaluation. That is, no one may satisfy the theory requirement and the thesis requirement in the same term. In addition, participation in a bi-weekly

seminar, which will meet usually at the 3A hour, is required. Students who do not meet this requirement will not be allowed to advance to the second term of ENGL 98.

For complete information about applying to and successfully completing the Honors Program, including further regulations, deadlines, and advice, please consult the Directors of Honors.

English Study Abroad

The English Department offers two Foreign Study Programs (FSPs), one offered annually at King's College, London and one held in alternating years at Trinity College, Dublin (2015, 2017). Both English FSPs are held during the fall academic term. Participation in both English FSPs is open to all sophomores, juniors, and seniors. To participate in the program for a given year, students must have completed all first-year requirements and one English course (other than ENGL 7) with a grade of B or better. (The English course requirement may, in certain circumstances, be waived by the director.)

Students enrolled in English FSPs register for ENGL 90, ENGL 91, and ENGL 92. Students who successfully complete either of the English FSPs will be awarded credit for ENGL 90, ENGL 91, and ENGL 92. ENGL 90 and ENGL 91 will carry major or minor credit; ENGL 92 will carry one non-major college credit. In no case will students receive more than two major or minor credits in English for work completed on an ENGL FSP. The major requirements satisfied by ENGL 90 and ENGL 91 vary with each program. For specific information on FSPs and major requirements please consult with the FSP directors and the English Department's website at URL <http://www.dartmouth.edu/~english/>

Please check the English Department website for up-to-date information on course offerings
<http://www.dartmouth.edu/~english/>

COURSE GROUPS

Course Groups

I. Literature before the mid-seventeenth century (2 courses required):

1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 51, 61, 71.

II. Literature from the mid-seventeenth century to the end of the nineteenth century (2 courses required):

2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 52, 62, 72.

III. Literature from the start of the twentieth century to the present (1 course required):

3, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 53, 63, 73.

IV. Criticism and Theory (1 course required):

45, 46, 47, 48, 54, 64, 74, COLT 72.

Courses whose Course Group Assignment Varies:

90, 91.

Courses with no Course Group Assignment:

5, 6, 7, 55, 65, 75, 80, 81, 82, 83, 85, 87, 96, 97.

Courses that cannot count for major credit:

Writing 2, 3, 5, English 6, 7, 96 (except by successful petition to the Committee on Department Curriculum).

ENGL - English Courses

To view English requirements, [click here](#) (p. 241).

Section I - Non-Major Courses

ENGL 6 - Narrative Journalism: Literature and Practice

Instructor: Jetter

This course will explore the role of print journalism in shaping the modern American literary, cultural and political landscape--from Nellie Bly's late 19th century undercover exposure to Seymour Hersh's coverage of the Iraq War. Students will also participate in an intensive weekly workshop on reporting and writing, with a short unit on radio commentary.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 11; 17S:11

ENGL 7 - First-Year Seminars in English

Consult special listings

Section II - Major Courses

ENGL 1 - Literary History I: Literature up to the mid-Seventeenth Century

Instructor: Boose

This course will provide an overview of English literature from the Anglo-Saxon period through the Middle Ages and into the seventeenth century.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 11; 16F 10A

ENGL 2 - Literary History II: Literature from the mid-Seventeenth Century through the Nineteenth Century

Instructor: Garrison, Schweitzer

This course will provide an overview of British and American Literature during the seventeenth, eighteenth and nineteenth centuries.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 2A; 17S 2A

ENGL 3 - Literary History III: Literature in the Twentieth and Twenty-First Centuries

Instructor: Zeiger

This course will provide an overview of literature in the Anglophone world from the beginning of the twentieth century to the present.

Distributive: Dist:LIT; WCult:W

Offered: 16S:12; 17W: 11

ENGL 10 - Anglo-Saxon and Scandinavian Epic and Saga

Instructor: Travis

An introduction both to Old English literature and to Old Norse sagas. In the first half of the course we concentrate on reading, translating and setting into cultural context selected Anglo-Saxon poems, most notably 'The Wanderer,' 'The Dream of the Rood,' and 'Beowulf.' In the second half of the course we read a variety of Old Norse sagas, including 'Egil's Saga,' 'The Saga of the People of Laxardal,' and two shorter sagas recounting contacts with North America. In addition to papers and reports, we'll discuss the new film 'Beowulf,' and each student will write a mini-version of a Norse saga.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 11;17W: 11

ENGL 11 - Chaucer: "The Canterbury Tales"

Instructor: Travis, Otter

An introduction to Chaucer, concentrating on ten of the *Canterbury Tales*, and studying him as a social critic and literary artist. Special attention will be paid to Chaucer's language, the sounds of Middle English, and the implications of verse written for the ear.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 11; 16F: 11

ENGL 12 - Chaucer's "Troilus and Criseyde" and Other Poems

A study of Chaucer's major works other than the *Canterbury Tales*, focusing on some of the early dream visions (*Book of the Duchess*, *House of Fame*) and *Troilus and Criseyde*, which many consider to be the greatest love epic in the English language. Some attention will be given to the French and Italian context of these works (in

translation). No familiarity with Middle English is required.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 15-16, May be offered 16-17

ENGL 13 - Medieval English Literature

Instructor: Edmondson

An introduction to the literature of the "Middle English" period (ca. 1100 - ca. 1500), concentrating on the emergence of English as a literary language in the twelfth and early thirteenth centuries and on some of the great masterworks of the late fourteenth century. Readings will include early texts on King Arthur, the *Lais of Marie de France*, the satirical poem *The Owl and the Nightingale*, the romance *Sir Orfeo*, *Pearl*, and *Sir Gawain and the Green Knight*, the *Book of Margery Kempe*, and *The York Cycle*. Most readings in modern English translation, with some explorations into the original language.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10; Not offered 16-17

ENGL 14 - Renaissance Poetry

English lyric and narrative poetry from the early sixteenth century to the mid-seventeenth century. Poets will include Thomas Wyatt, Edmund Spenser, Philip Sidney, Christopher Marlowe, William Shakespeare, Ben Jonson, John Donne, George Herbert, and Andrew Marvell, among others. The course will attend to prosody, the evolution of verse forms, European and classical influence, and modes of circulation.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 15-16, May be offered 16-17

ENGL 15 - Shakespeare

Instructor: Halasz, Gamboa

A study of about ten plays spanning Shakespeare's career, including comedies, histories, tragedies, and romances. Attention will be paid to Shakespeare's language; to his dramatic practices and theatrical milieu; and to the social, political, and philosophical issues raised by the action of the plays. Videotapes will supplement the reading. Exercises in close reading and interpretative papers.

Distributive: Dist:LIT; WCult:W

Offered: 15X:10; 16S: 2A; 16F: 2A

ENGL 16 - Renaissance Drama

A study of commercial theater in London from about 1570 until the closing of the theaters in 1642. Anonymous and collaborative plays will be read as well as those by such playwrights as Kyd, Marlowe, Dekker, Jonson, Webster, and Ford. The course will focus on the economic, social, political, intellectual, and theatrical conditions in which the

plays were originally produced, on their continuing performance, and on their status as literary texts. Research into the performance history of a play or participation in a scene production is required.

Distributive: Dist:LIT

Offered: Not offered 15-16, May be offered 16-17

ENGL 17 - Milton

A study of most of Milton's poetry and of important selections from his prose against the background of political and religious crises in seventeenth-century England.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 15-16, May be offered 16-17

ENGL 18 - English Literature 1660-1714, Including Drama

Instructor: Luxon

A survey of English literary culture in the reigns of the later Stuart monarchs. Poetry by Dryden, Marvell, Rochester, Butler, Oldham and Pope; biographical writing by Aubrey, Halifax, Lucy Hutchinson, and Margaret Cavendish; the diaries of Pepys and Evelyn; spiritual autobiography and religious fiction by Bunyan; prose satires and analytical prose of Swift and Halifax. Within the survey there will be two areas of special attention: the theatre and the literary response to public events. We will read three plays by such authors as Dryden, Wycherley, Congreve, Lee, Behn, Shadwell, Otway and Farquhar and study the writing in response to such events as the Great Plague and Fire of 1666, the Popish Plot, and the Exclusion Crisis.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 9L

ENGL 19 - Early American Literatures: Conquest, Captivity, Cannibalism

Instructor: Schweitzer

Conquest, captivity, cannibalism—inescapable themes in the emerging literature of British North America. This course surveys the multicultural beginnings of that literature through a variety of genres (orature, letters, diaries, poetry, plays, narratives, the "first" novel, and contemporary films) and cultures: Native American, Spanish and Latin American, French, and English. We will use primary sources in Rauner Library, culminating in an assignment that helps us recover the "real" 18th century Dartmouth.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10A; Not offered 16-17

ENGL 20 - Age of Satire

Visit the great age of British Satire. In a time when literacy was rapidly expanding, party politics was emerging and women's rights were being advocated in print for the first time, satire ruled the literary scene. This course will explore the plays, poems, and novels of satirists from the libertine Earl of Rochester to the great satirist, Alexander Pope, not omitting the works of Aphra Behn, the first woman dramatist, and Mary Astell's sardonic comments on the role of women in marriage. May include: the comedies of Wycherey and Congreve, *Gulliver's Travels* by Jonathan Swift, and the novels of Daniel Defoe. There will be an opportunity to study the techniques of satire and its role in social and personal criticism.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 15-16, May be offered 16-17

ENGL 21 - Reason and Revolution

Instructor: Garrison

Was there a British Enlightenment? In the age of the American and French Revolutions Britain seemed to hold steady. But in the literature of the period there are many social and literary struggles which took their tolls in the madness and suicide of writers such as Smart and Chatterton, the difficulties of attaining creative freedom, and the emergence of new literary forms such as the Gothic. This course will trace the fortunes of writers such as Samuel Johnson, James Boswell, Oliver Goldsmith, and Edmund Burke as they grapple with the anxieties of their time. We will also consider how women thinkers and novelists such as Charlotte Lennox and Mary Wollstonecraft forged new roles for themselves, and we may include studies of the novel of political paranoia such as *Caleb Williams*, written by Wollstonecraft's husband, William Godwin.

Distributive: Dist:LIT; WCult:W

Offered: 16W:10A; Not offered 16-17

ENGL 22 - The Rise of the Novel

Instructor: Garrison

A study of the eighteenth- and early nineteenth-century English novel, from Daniel Defoe to Jane Austen. The course will look at the major sub-genres of the period, including criminal biography, scandalous memoirs, epistolary fiction and the Gothic novel. It will also explore the relationship between narrative fiction and the changing cultural landscape of a period defined by commercial uncertainty, imperial expansion, and the threat of revolution. Finally, and most importantly, the course will ask why the novel became so central to modern conceptions of subjectivity, sexuality, social cohesion and transgression. Readings may include work by Daniel Defoe, John Cleland, Jonathan Swift, Henry Fielding,

Samuel Richardson, Laurence Sterne, Fanny Burney, Ann Radcliffe, Matthew Lewis, Charlotte Dacre, Maria Edgeworth, and Jane Austen.

Distributive: Dist:LIT; WCult:W

Offered: 16S:10A; 17S 10A

ENGL 23 - Romantic Literature: Writing and English Society, 1780-1832

Instructor: McCann

This course offers a critical introduction to the literature produced in Britain at the time of the Industrial Revolution, the French Revolution, and the Napoleonic wars. There will be a strong emphasis throughout the course on the specific ways in which historical forces and social changes shape and are at times shaped by the formal features of literary texts. The question of whether romantic writing represents an active engagement with or an escapist idealization of the important historical developments in this period will be a continuous focus. Readings include works by Blake, Wordsworth, Helen Maria Williams, Edmund Burke, Thomas Paine, Mary Wollstonecraft, Robert Southey, Coleridge, Percy Shelley, Mary Shelley, Keats, and Clare.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10

ENGL 24 - Victorian Literature and Culture, 1837-1859

This course examines early Victorian poetry, prose and fiction in the context of cultural practices and social institutions of the time. We will locate cultural concerns among, for example, those of capitalism, political reform, scientific knowledge, nation and empire. And we will consider revisions of space, time, gender, sexuality, class, and public and private life that characterized formations of British identity during this period. Texts may include work by Charles Dickens, Thomas Carlyle, Elizabeth Barrett Browning, Charlotte Bronte, John Ruskin, and Charles Darwin. We will also read selections from recent criticism of Victorian culture.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 25 - Victorian Literature and Culture, 1860-1901

This course examines later nineteenth-century British poetry, prose and fiction in the context of cultural practices and social institutions of the time. We will locate cultural concerns among, for example, those of capitalism, political reform, scientific knowledge, nation and empire. And we will consider revisions of space, time, gender, sexuality, class, and public and private life that characterized

formations of British identity during this period. Texts may include work by George Eliot, Matthew Arnold, Christina Rossetti, Algernon Swinburne, Thomas Hardy, Rudyard Kipling. We will also read selections from recent criticism of Victorian culture.

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 26 - The Nineteenth-Century British Novel

Instructor: McKee

A study of the nineteenth-century novel focusing on fiction's representation of public and private categories of experience. Readings may include Jane Austen's *Mansfield Park*, Mary Shelley's *Frankenstein*, Emily Brontë's *Wuthering Heights*, Charlotte Brontë's *Jane Eyre*, William Thackeray's *Vanity Fair*, Charles Dickens's *Bleak House*, George Eliot's *Middlemarch*, Mrs. Henry Wood's *East Lynne* and Thomas Hardy's *The Return of the Native*.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 11

ENGL 27 - American Poetry

Instructor: Schweitzer

A survey of American poetry from the colonial period to the early decades of the twentieth century. Readings will include works by Bradstreet, Taylor, Wheatley, Emerson, Poe, Whitman, Dickinson, Melville, Dunbar. We will also study Native American poetry and schools such as the Fireside Poets, nineteenth-century women poets, and precursors of early Modernism and the Harlem Renaissance. We will look at lyric, meditative, religious, comic, and political poetry, the long poem, and the epic. Themes we will trace include the transatlantic character of American poetry, its "newness," its engagement with religion and self-definition, with nature, and with gender and race. Emphasizing close readings as well as historical and cultural contexts, this course examines the complexities of an American poetic vision and serves as an introduction to reading poetry and to American Literature. This course will contain a Community-Based Learning (CBL) component in collaboration with Ledyard Charter School in Lebanon, NH.

Distributive: Dist:LIT; WCult:W

Offered: 16S:10A; 17S 10A

ENGL 28 - American Prose

Instructor: Chaney

A survey of American non-fiction narrative and other prose from the early republic to the rise of modernism. The course examines how autobiographies (Franklin, Douglass, Locom, Thoreau, Stein) and other prose genres construct individual selves and national belonging while negotiating the pressures of transcendentalism, abolitionism, feminism,

and class consciousness by means of aesthetic experimentation. Additional authors vary but often include Jefferson, Apess, Fuller, Hemingway, Adams, Hurston, Kerouac, and Agee.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10

ENGL 29 - American Fiction to 1900

Instructor: Haines

A survey of the first century of U.S. fiction, this course focuses on historical contexts as well as social and material conditions of the production of narrative as cultural myth. The course is designed to provide an overview of the literary history of the United States novel from the National Period to the threshold of the Modern (1845-1900). To do justice to the range of works under discussion, the lectures will call attention to the heterogeneous cultural contexts out of which these works have emerged as well as the formal and structural components of the different works under discussion. In keeping with this intention, the lectures include the so-called classic texts in American literature, *The Last of the Mohicans*, *Moby Dick*, *The Scarlet Letter*, and *The Narrative of the Life of Frederick Douglass*, but also the newly canonized *Uncle Tom's Cabin*, *Incidents in the Life of a Slave Girl*, *Life in the Iron Mills*, and *Hope Leslie*. The configuration of these works will result in an understanding of the remarkable complexity of United States literary culture.

Distributive: Dist:LIT; WCult:W

Offered: 15F:2A

ENGL 30 - Early Black American Literature

A study of the foundations of Black American literature and thought, from the colonial period through the era of Booker T. Washington. The course will concentrate on the way in which developing Afro-American literature met the challenges posed successively by slavery, abolition, emancipation, and the struggle to determine directions for the twentieth century. Selections will include: Wheatley, *Life and Works*; Brown, *Clotel*; Douglass, *Narrative*; Washington, *Up from Slavery*; DuBois, *Souls of Black Folk*; Dunbar, *Sport of the Gods*; Chestnut, *House Behind the Cedars*; Harriet Wilson, *Our Nig*; Johnson, *The Autobiography of an Ex-Coloured Man*; and poems by F. W. Harper, Paul L. Dunbar and Ann Spencer.

Cross-Listed as: AAAS 34

Distributive: Dist:LIT; WCult:W

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 31 - Asian American Literature and Culture

Instructor: Bahng

This course examines narratives of migration to, from, and between the Americas by groups from East, South, and Southeast Asia. We will analyze novels, short fiction, poetry, and films by twentieth-century artists (Joy Kogawa, Theresa Cha, Shani Mootoo, Jhumpa Lahiri, Bienvenido Santos, Wayne Wang) against the historical backdrop of imperialism in Asia and the Americas; periods of exclusion and internment; and social movements that coalesce around intersections of race, class, gender, sexuality, and citizenship.

Distributive: Dist:LIT; WCult:CI

Offered: 16W: 12; 17W: 12

ENGL 32 - Native American Literature

Instructor: Palmer

Published Native American writing has always incorporated a cross-cultural perspective that mediates among traditions. The novels, short stories, and essays that constitute the Native American contribution to the American literary tradition reveal the literary potential of diverse aesthetic traditions. This course will study representative authors with particular emphasis on contemporary writers.

Cross-Listed as: NAS 35

Distributive: Dist:LIT; WCult:NW

Offered: 16S: 2A

ENGL 33 - Modern Black American Literature

Instructor: Favor

A study of African American literature from the Harlem Renaissance to the present, this course will focus on emerging and diverging traditions of writing by African Americans. We shall also investigate the changing forms and contexts of 'racial representation' in the United States. Works may include those by Hurston, Hughes, Wright, Ellison, Morrison, Schuyler, West, Murray, Gates, Parks.

Cross-Listed as: AAAS 35

Distributive: Dist:LIT; WCult:W

Offered: 15F: 10

ENGL 34 - American Drama

Instructor: Pease

A study of major American playwrights of the nineteenth and twentieth centuries including Glaspell, O'Neill, Hellman, Wilder, Hansberry, Guare, Williams, Wilson, Mamet, Miller, Albee, Shepard, and Wasserstein.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 12; 17S: 12

ENGL 35 - American Fiction: 1900 to World War II

A study of major American fiction in the first half of the twentieth century. Works by Dreiser, Stein, Fitzgerald, Cather, Larsen and Faulkner, and a changing list of others.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 15-16, may be offered 16-17

ENGL 36 - Contemporary American Fiction

Instructor: Bahng, Favor

Contemporary American fiction introduces the reader to the unexpected. Instead of conventionally structured stories, stereotypical heroes, traditional value systems, and familiar uses of language, the reader finds new and diverse narrative forms. Such writers as Toni Morrison, Thomas Pynchon, Maxine Hong Kingston, Leslie Silko, Norman Mailer, Don DeLillo, and Ralph Ellison, among others, have produced a body of important, innovative fiction expressive of a modern American literary sensibility. The course requires intensive class reading of this fiction and varied critical writing on postmodernism.

Distributive: Dist:LIT; WCult:W

Offered: 15X:10A

ENGL 37 - Contemporary American Poetry

Instructor: Lenhart

This course explores the most exciting developments in American poetry from 1960 until the present. We will consider a wide array of poetic movements—the Beats, the New York School, the Confessionals, the San Francisco Renaissance, the Black Mountain group, the New Formalists, and the Language poets—in order to understand the aesthetic tendencies that inform American poetries being written today. In particular, we will examine key individual poets through close readings of their most exemplary work.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10; 17S: 10

ENGL 38 - American and British Poetry: 1900-1960

A survey of modern American and British poetry since the First World War, with particular emphasis on the aesthetics, philosophy and politics of modernism. The course covers such canonical and non-canonical poets as Yeats, Pound, HD, Lawrence, Eliot, Stevens, Frost, Williams, Crane, Moore, Millay, Auden, and the Harlem Renaissance.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 39 - Modern British Drama

Major British plays since the 1890s. The course begins with the comedy of manners as represented by Oscar Wilde and Noel Coward. It then considers innovations in and rebellions against standard theatrical fare: the socialist crusading of Bernard Shaw; the angry young men (John Osborne) and workingclass women (Shelagh Delaney) of the 1950s; the minimalists (Samuel Beckett, Harold Pinter) and the university wits (Tom Stoppard); the dark comedians of the modern family (Alan Ayckbourn) and the politically inflected playwrights of the age of Prime Minister Thatcher (Caryl Churchill, Timberlake Wertenbaker, David Hare). The course deals both with the evolution of dramatic forms and the unusually close way in which modern British theatre has served as a mirror for British life from the heyday of the Empire to the present.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 40 - British Fiction: 1900 to World War II

A study of major authors, texts, and literary movements, with an emphasis on literary modernism and its cultural contexts. The course includes works by Conrad, Forster, Joyce, Woolf, West, Lawrence, Rhys, and Beckett, as well as critical essays. We will explore this literature in the context of the art, dance, and film of the period.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 41 - British Fiction: World War II to the Present

A study of the multiple currents within British fiction in a period characterized by major literary, cultural, and social transitions in Britain, including the emergence of a "post" (-war, -empire, -modern) sensibility. Writers may include Amis, Sillitoe, Greene, Golding, Burgess, Lessing, Wilson, Carter, Swift, Atkinson, MacLaverly, Ishiguro, Barker, Barnes, McKewan, Smith.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 42 - Introduction to Postcolonial Literature

An introduction to the themes and foundational texts of postcolonial literature in English. We will read and discuss novels by writers from former British colonies in Africa, South Asia, the Caribbean, and the postcolonial diaspora, with attention to the particularities of their diverse cultures and colonial histories. Our study of the literary texts will incorporate critical and theoretical essays, oral presentations, and brief background lectures. Authors may

include Chinua Achebe, Ngugi wa Thiong'o, V.S. Naipaul, Merle Hodge, Anita Desai, Bessie Head, Nadine Gordimer, Paule Marshall, Tsitsi Dangarembga, Salman Rushdie, Earl Lovelace, Arundhati Roy.

Distributive: Dist:INT or LIT; WCult:NW

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 43 - Introduction to New Media

Instructor: Evens

This course introduces the basic ideas, questions, and objects of new media studies, offering accounts of the history, philosophy, and aesthetics of new media, the operation of digital technologies, and the cultural repercussions of new media. A primary emphasis on academic texts will be supplemented by fiction, films, music, journalism, computer games, and digital artworks. Class proceeds by group discussion, debate, student presentations, and peer critique. Typical readings include Alan Turing, Friedrich Kittler, Ray Kurzweil, and Henry Jenkins, plus films such as Blade Runner and eXistenZ.

Distributive: Dist:ART

Offered: 16S: 10A

ENGL 45 - Introduction to Literary Theory

Instructor: Haines

The course will introduce students to some of the leading texts, concepts, and practices of what has come to be known as theoretical criticism. Topics to be considered may include some of the following: structuralism, deconstruction, psychoanalysis, feminism, new historicism, post-colonialism, post-modernism, queer theory, and cultural studies. Attention will also be given to historical and institutional contexts of this criticism. Intended to provide a basic, historically informed, knowledge of theoretical terms and practices, this course should enable students to read contemporary criticism with understanding and attempt theoretically informed criticism themselves.

Distributive: Dist:LIT

Offered: 16W:10A

ENGL 46 - Old and New Media

Instructor: Halasz

A survey of the historical, formal, and theoretical issues that arise from the materiality and technology of communication, representation, and textuality. The course will address topics in and between different media, which may include oral, scribal, print, and digital media. Readings and materials will be drawn from appropriate theorists, historians, and practitioners, and students may be

asked not only to analyze old and new media, but also create with them.

Distributive: Dist:LIT; WCult:W

Offered: 15X: 12

ENGL 47 - A History of the English Language

Instructor: Pulju

The development of English as a spoken and written language as a member of the Indo-European language family, from Old English (Beowulf), Middle English (Chaucer), and Early Modern English (Shakespeare), to contemporary American English. Topics may include some or all of the following: the linguistic and cultural reasons for 'language change,' the literary possibilities of the language, and the political significance of class and race.

Cross-Listed as: LING 18

Distributive: Dist:QDS; WCult:W

Offered: 15F: 10

ENGL 48 - Critical Issues in Postcolonial Studies

Intended for students who have some familiarity with postcolonial literary texts, this course will combine the reading of postcolonial literature with the study and discussion of the major questions confronting the developing field of postcolonial studies. Issues may include: questions of language and definition; the culture and politics of nationalism and transnationalism, race and representation, ethnicity and identity; the local and the global; tradition and modernity; hybridity and authenticity; colonial history, decolonization and neocolonialism; the role and status of postcolonial studies in the academy. Authors may include: Achebe, Appiah, Bhabha, Chatterjee, Coetzee, Fanon, Gilroy, Gordimer, James, JanMohamed, Minh-ha, Mohanty, Ngugi, Radhakrishnan, Rushdie, Said, Spivak, Sunder Rajan.

Distributive: Dist:LIT; WCult:W

Offered: Not offered 2015-2016, may be offered 2016-2017

Section III - Special Topics Courses

These courses are offered periodically with varying content; one or more individual writers, a genre, or an approach to the literature of this historical period not otherwise provided in the English curriculum. Requirements will include papers and, at the discretion of the instructor, examinations. Enrollment is limited to 30.

ENGL 51.01 - Plays, Playing, and Publicity

We will read plays by Shakespeare and his contemporaries including Marlowe, Dekker, Heywood, Jonson and others. Rather than considering them primarily as authored, literary texts, however, we will investigate them as products of a professional and commercial system--not unlike Hollywood--and as popular media in an age without journalism. Plays will be grouped in clusters that foreground roughly contemporary texts and/or performances in dialogue and competition with each other. Readings will also address the physical and social spaces of performance and the controversies about theater. Students interested in twentieth-century productions of early modern plays or more general twentieth-century issues of media and performance are welcome.

Distributive: Dist:LIT

Offered: Not offered 2015-2016, may be offered 2016-2017

ENGL 51.13 - Gender and Power in Shakespeare: From Page to Stage

The course will begin by defining the varieties of power inscribed in Shakespeare's plays, and proceed to explore the following questions. Is language gender-inflected? Do men and women speak "different" languages? How do power and gender affect each other? How do women negotiate power among themselves? How do men? How is power exerted and controlled in sexual relationships? How do unspoken social definitions exert their power over the politics of gender? Possible works studied will be drawn from *The Rape of Lucrece*, *A Midsummer Night's Dream*, *The Taming of the Shrew*, *The Merchant of Venice*, *Much Ado About Nothing*, *As You Like It*, *All's Well That Ends Well*, *Othello*, *Macbeth*, *Troilus and Cressida*, *Coriolanus*, *Antony and Cleopatra*, and *The Winter's Tale*. Prerequisite: English 24 or permission of the instructor.

Distributive: Dist:LIT; WCult:W

ENGL 52.01 - Whitman, Dickinson, and Ecocriticism

Instructor: Gerhardt

The poems of Walt Whitman and Emily Dickinson, for all their thematic and stylistic differences, intersect on a number of important levels. In particular, their respective constructions of a new poetic voice revolve around related notions of the nonhuman world and human-nature relations. In this course, we will approach Whitman's and Dickinson's poetry by way of theories and concepts developed in environmentally oriented criticism, or ecocriticism. Beginning with a discussion of ecocriticism's major theoretical interventions, we will explore its genealogy and recent controversies about ethics and aesthetics, place and displacement, transnationalism and globalization. A reading informed by these debates reveals

complex and often ambivalent environmental implications in Whitman's and Dickinson's work. We will look at a wide variety of their poems against major nineteenth-century transformations, including shifts in the natural sciences and their relationship to religion, the emerging conservation movement, the political conflicts that led to the civil war, and changing notions of the body, gender, and sexuality. Enrollment is limited to 30. *Dist: LIT; WCult: W*

Distributive: Dist:LIT; WCult:W

Offered: 15F: 2A

ENGL 52.03 - Dave the Potter: Slavery Between Pots and Poems

Instructor: Chaney

This course examines the work of David Drake, a South Carolinian slave who made some of the largest ceramic storage vessels in America during the 1850s, signing them and etching sayings and poems onto them as well. This seminar engages with Drake's poetry-pottery through critical and historical research, interpretive writing, and our own creative adventures in ceramic handicrafts. In addition to writing your own updated imitations of Dave Drake's poetry and attempting ceramic facsimiles of his earthenware, students will also spend time in the letterpress studio as a means of acquiring a deeper historical and aesthetic appreciation of Dave's life and work; it was while working as a typesetter for a regional newspaper that Dave acquired literacy. As a culminating assignment, students will contribute chapters to a scholarly book on Drake, which the instructor will edit.

Cross-Listed as: AAAS 82.05 and COCO 3.01

Distributive: Dist:ART

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 52.04 - The American Renaissance at Dartmouth

Instructor: Pease, Dobson

F. O. Matthiessen coined the term "American Renaissance" in his groundbreaking book, *The American Renaissance: Art and Expression in the Age of Emerson and Whitman* (1941). At the outset of the nineteenth century American writers struggled with a sense of cultural inferiority and artistic belatedness. The "American Renaissance" demarcates a period as well as a cultural movement marked by intense literary activity between the 1830s and 1860s that aimed at the formation of a distinctively *American* literature. Matthiessen restricted the American Renaissance to the years between 1850 and 1855, an "extraordinarily concentrated moment of literary expression" (vii) that saw the publication of Nathaniel Hawthorne's *The Scarlet Letter*, *House of the Seven*

Gables, and *The Blithedale Romance*; Ralph Waldo Emerson's *Representative Men*; Herman Melville's *Moby-Dick*; Henry David Thoreau's *Walden*; and Walt Whitman's *Leaves of Grass*. In the years since the publication of Matthiessen's important work, teachers and scholars in American literature have extended the American Renaissance's chronological provenance at least as far back as the anti-slavery debates in the 1830s and as far forward as the termination of the Civil War. In the past several decades, Matthiessen's argument has been challenged for its exaggeration of the originality of his coterie of male authors, for the exclusion of women and African-American and popular authors from his account of the United States during a period of remarkable social and cultural transformation, and for its seemingly uncritical acceptance of the doctrine of American exceptionalism. In light of these criticisms, scholars have added Emily Dickinson, Frederick Douglass, Margaret Fuller, Harriet Beecher Stowe, and Mark Twain (among others) to Matthiessen's American Renaissance pantheon.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 12

ENGL 52.10 - Vox Clamantis: Wilderness in 19thC American Literature

Instructor: Chaney

Inspired by the motto of Dartmouth College, this course examines tropes of wilderness in nineteenth-century American literature and the types of voices that cry out within them. While helping to establish a national literary tradition, the American 'deserto' or wilderness has also functioned as a kind of rhetorical staging area, in which various (often competing) notions of individualism, community, and political philosophy emerge. As a result, the novels, poems, slave narratives, and short stories of nineteenth-century American literature abound with landscapes as social and psychological as they are physical. Authors will include Nathaniel Hawthorne, Edgar Allan Poe, Frederick Douglass, Emily Dickinson, Herman Melville, Henry David Thoreau, Charles Chesnutt, Mark Twain, and Willa Cather. *Dist: LIT; WCult: W.* Course Group II.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 10

ENGL 52.13 - The Victorians Through Six Children's Novels

Instructor: Gerzina

British children's novels offer several ways of understanding the Victorians and Edwardians: through ideas about childhood and orphan-hood, literature, scientific discovery and invention, social history, the imagination, and material culture. We will read *The Water Babies* (1863); *Alice's Adventures in Wonderland* and

Through the Looking-Glass (1865); Treasure Island (1883); The Wind in the Willows (1908); Peter Pan (1911); and The Secret Garden (1911). In addition we will read critical materials on Victorian childhood and literature, and examine manuscript materials and early versions of the texts in Special Collections.

Distributive: Dist:LIT

Offered: not offered 2015-2016

ENGL 52.15 - Transatlantic Gothic

Instructor: Garrison

From crumbling monasteries and crafty priests, to bleeding nuns and fake hauntings, gothic novels exploded in popularity in late eighteenth century British print culture. But what happens when the strange tropes, figures, and rhetorical techniques of the gothic travel across the Atlantic to adapt to the dark pathologies and monstrous histories of the Americas? This course will expand notions of the gothic to frameworks that understand late eighteenth to early nineteenth century gothic literature as a transatlantic phenomenon.

Distributive: Dist:LIT

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 52.21 - Popular Fiction and the Culture of Empire

Instructor: MCCann

The nineteenth century saw an explosion in the diversity and commercial potential of popular fiction. Detective fiction, science fiction, and the Gothic novel are a few of the genres that came into their own during this period, partly as a result of their ability to evoke the fantasies and anxieties of Victorian Britain and its empire. In this course we will think about the relationship of popular texts to imperial visions of race, sexuality, exploration, evolution, extinction, and invasion. We will also look at the relationship between fiction, the commercialization of publishing and the emergence of new media technologies like photography and film. Writers may include Mary Braddon, H. Rider Haggard, Bram Stoker, H.G. Wells, Robert Louis Stevenson, Arthur Machen, Arthur Conan Doyle, and Marie Corelli.

Distributive: Dist:LIT

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 53.04 - Telling Stories for Social Change

Instructor: Schweitzer, Hernandez

This community-based learning course offers students the unique opportunity to work directly with a local population in crisis, as well as study the effects of poverty, class structures, drug addiction, incarceration, and the issues facing people after treatment and/or imprisonment. For one

class each week, students will study and discuss relevant readings in the traditional classroom. For the second class, students will travel to Valley Vista, a substance abuse rehabilitation center in Bradford, Vermont, to participate in a program for women clients. Its goal is the creation and performance of an original production that will facilitate the clients' voices.

Cross-Listed as: WGSS 66.05, MALS 364

Distributive: Dist:ART; WCult:CI

Offered: 16S: 2A

ENGL 53.06 - Women's Literature and Technologies of Transmission from the Long Nineteenth Century to the Present

Instructor: Leuner

In this course, we will explore women's writing and different technologies that transmit those texts from the long nineteenth-century to the present. Our goal is to think about how these works - their genres, forms, circulation, and content - shape impressions of and access to women's writing. Our analyses will traverse a range of works and media from nineteenth-century poetry and serial novels to contemporary electronic editions.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 2

ENGL 53.15 - The Bloomsbury Group

Instructor: Gerzina

Novelists Virginia Woolf and E.M. Forster, the artists Vanessa Bell, Roger Fry, and Duncan Grant, the economist Maynard Keynes, and biographer Lytton Strachey and their circle were among the most innovative and creative people of their time, producing art, literature and a way of life that both shocked and impressed the cultural establishment of early twentieth-century Britain. Readings include Woolf, *To the Lighthouse*; E.M. Forster's *Howards End*; short pieces by Vanessa Bell, Clive Bell, Roger Fry, Maynard Keynes and Lytton Strachey; a selection of letters by Carrington; and Aldous Huxley's satirical novel about Bloomsbury, *Crome Yellow*.

Distributive: Dist:LIT; WCult:W

Offered: not offered 2015-2016

ENGL 53.16 - African Literatures: Masterpieces of Literature from Africa

Instructor: Coly

This course is designed to provide students with a specific and global view of the diversity of literature from the African continent. Through novels, short stories, poetry, and drama, we will explore such topics as the colonial encounter, the conflict between tradition and modernity, the negotiation of African identities, post-independence

disillusion, gender issues, apartheid and post-apartheid. Readings include Chinua Achebe's *Things Fall Apart*, Naguib Mahfouz's *Midaq Alley*, Calixthe Beyala's *The Sun Hath Looked Upon Me*, Camara Laye's *The African Child*, and Luandino Vieira's *Luanda*. Formerly 67.16.

Cross-Listed as: AAAS 51, COLT 51.01

Distributive: Dist:INT or LIT; WCult:NW

Offered: 16S: 2A

ENGL 53.17 - The Graphic Novel

Instructor: Chaney

What happens when normally separate symbol systems like pictures and words converge? This course investigates that question by examining graphic novels and the theoretical insights they have elicited. Discussions will explore issues of autobiography, counterculture, parody, and fantasy. Typical authors include Art Spiegelman, Alan Moore, Chris Ware, Marjane Satrapi, Daniel Clowes, Alison Bechdel and several others. In addition to a presentation, students will write two formal essays and several short responses. (formerly 67.17)

Distributive: Dist:LIT; WCult:W

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 53.18 - The Harlem Renaissance

Instructor: Favor

This class will examine the literature and social contexts of a period widely known as the "Harlem Renaissance." Part of our mission in the class will be to deconstruct some of the widely held presuppositions about that era, especially by interrogating questions of class, race, gender and sexuality as social constructs. Although this class will focus mainly on fiction writing, we will also consider some poetry and non-fiction prose as well.

Cross-Listed as: AAAS 91

Distributive: Dist:LIT; WCult:CI

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 53.19 - Faulkner

Instructor: McKee

In this course we will read five of Faulkner's novels, *The Sound and the Fury*, *As I Lay Dying*, *Absalom, Absalom*, *Light in August*, and *The Hamlet*. Our focus will be on Faulkner's continuing attention to constructions of identity: especially Southern identities, racialized identities, and individual psyches. We will spend considerable time reading criticism, by such writers as Edouard Glissant and Vera Kutzinski.

Distributive: Dist:LIT; WCult:W

Offered: not offered 15-16, may be offered 16-17

ENGL 53.20 - Indian Killers: Murder and Mystery in Native Literature and Film

Instructor: Benson-Taylor

This course explores the abundant crime fiction and murder mysteries by contemporary Native American artists. These works imagine a democratized space where colonial violence is avenged, American law is malleable, and intellect triumphs over racism. While most critics applaud such decolonizing efforts, we will ask more difficult questions: do these sensational narratives do real cultural work? Do they suggest that colonial violence begets only more violence? And in the end, who are its true victims?

Cross-Listed as: NAS 32

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10A

ENGL 53.23 - Caribbean Lyric and Literature

Instructor: Vasquez

This course will examine the work of a variety of Caribbean writers from former British colonies. We will look at several issues that reappear throughout the work of these authors. The class will move from early twentieth century writers like Claude McKay to the important contributions of later writers such as Kamau Brathwaite, Jamaica Kincaid, George Lamming, V.S. Naipaul, Sam Selvon, Olive Senior and Derek Walcott. We will examine the more recent innovations in form, as musical elements are introduced by writers such as Mikey Smith and Kwame Dawes. Each week's readings will be supplemented with seminal critical writings including excerpts from the text *The Empire Writes Back*. Formerly 67.1

Cross-Listed as: AAAS 83.06 and LACS 66

Distributive: Dist:LIT; WCult:CI

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 53.26 - From More Fun to Fun Home: A History of the U.S. Comic Book

Instructor: Young

This course examines the development of the American comic book in its historical, cultural, and political contexts. Key topics include: pre-comics visual storytelling and the conceptual problems with seeking such precedents; the explosion of the American comic strip during the Yellow Journalism period; the formats, forms, and genres of the early comic book industry; the rise of DC Comics, home to Superman; artist-run "shops" and the development of romance and horror comics; the 1950s Kefauver hearings and the introduction of the Comics Code; the "Silver Age," the decline of DC and the rise of Marvel Comics; Underground Comix and Sixties counterculture; censorship and creative rights skirmishes of the 1980s and 90s; and

the legitimization of comics as “graphic novels.” Along the way, we will read historical comics (in reprint anthologies) to explore the comics form: visual narration, the development and assignment of distinct styles to different genres, and the historical import of individual creators from Jerry Siegel and Will Eisner to Alison Bechdel and the Hernandez Brothers.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 10A

ENGL 53.27 - The African American 1960s

Instructor: Favor

The decade of the 1960’s brought the Voting Rights and Civil Rights Acts to American politics. What did it bring to African American literature and culture? This course will take a year-by-year approach to understanding the artistic and cultural transformations of Black culture during this turbulent decade. Beginning with Lorraine Hansberry’s play *A Raisin in the Sun*, we will examine major social and artistic issues of the decade by reading a variety of fiction, poetry and memoir. Writers we will study may include Amiri Baraka, Robert Hayden, James Baldwin, Dick Gregory, John Williams, Lucille Clifton, Sonia Sanchez and Eldridge Cleaver. Topics may include the rise of African American popular culture (such as Motown and Stax Records), Vietnam, the Civil Rights Movement, feminism and Black nationalism.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10

ENGL 53.30 - Women Writing Memoir

Instructor: Vasquez

This course examines the autobiographical writing of a variety of women from across the globe. Paying attention to the socio-political contexts within which these women write, we will discuss the ways in which these authors negotiate different worlds while being marginalized along vectors such as race, class, and gender. For this reason, the class is inherently interdisciplinary. Most of the works we will examine have achieved significant critical acclaim, and we will also examine the artistic innovations in these narratives. Texts will include works such as Staceyann Chinn’s *The Other Side of Paradise*, Jackie Kay’s *Red Dust Road*, Julie Marie Wade’s *Wishbone*, Jesmyn Ward’s *Men We Reaped*, Jeanette Winters’ *Why Be Happy When You Could Be Normal?*, Malala Yousafzai’s *I am Malala*, Janet Mock’s *Redefining Realness* and Dorothy Allison’s *Bastard out of Carolina*. Dist: LIT. Course Group III

Distributive: Dist:LIT; WCult:W

Offered: 16S 2A

ENGL 53.32 - Literature and Culture of the Americas

Instructor: Stuelke

This course surveys a series of critical paradigms for studying American literature and culture in a hemispheric context. We’ll explore a variety of approaches to hemispheric literary and cultural studies, considering reanimations of the conquest, comparative and shared romantic and revolutionary discourses, the literature of the hemispheric South, borderlands studies, the study of state-sponsored literary institutions that cross national borders, and inter-American attempts to imagine solidarity across the hemisphere. At the end of the course, students will have the opportunity to produce a creative project rendering their own hemispheric imaginary. Authors may include Leonora Sansay, Martin Delany, María Ruiz de Burton, Jose Martí, Américo Paredes, Carmen Lyra, Gabriel García Márquez, Jamaica Kincaid, and Giannina Braschi. All texts are available in translation.

Distributive: Dist:LIT; WCult:W

Offered: 16W 11

ENGL 53.33 - Gender and Sexuality in Asian American Literature

Instructor: Bahng

Focusing on contemporary Asian American literature, film, and popular culture, this course emphasizes a diverse range of engagements with gender and sexuality that disrupts binary thinking on the topic. Through close analysis of cultural texts, students will examine the formation of Asian American genders and sexualities alongside histories of racialization, migration, and labor. Texts may include: Monique Truong’s *The Book of Salt*, David Henry Hwang’s *M. Butterfly*, R. Zamora Linmark’s *Rolling the R’s*, Justin Lin’s *Better Luck Tomorrow*, as well as episodes of *Battlestar Galactica* and *24*. We will also read critical essays by Gayatri Gopinath, David Eng, Yen Le Espiritu, Karen Tongson, Lisa Nakamura, and Martin Manalansan.

Distributive: Dist:LIT

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 54.11 - Poetry and Poetic Theory

In this course, we will primarily examine theories of poetry, relying mainly on *The Norton Anthology of Criticism and Theory and Poetry in Theory, 1900-2000* (Blackwell). These volumes provide a rich, comprehensive overview of poetic theory from its beginnings in Greek antiquity virtually to the present, covering Anglo-American, Continental, and other theorists. No single poetry anthology will be used, but poetic examples will be studied at every stage, generally posted on Blackboard. We will consider the “philosophy” of poetic composition in different historical periods and contexts, and will examine the continuing interplay between poetic theory and practice. The point of the course will be to get a grip on ways in which people have thought about poetry from the earliest times to the present, and to consider the sometimes

antagonistic interplay between theorizing about poetry and writing it.

Distributive: Dist:LIT

Offered: not offered 2015-2016

ENGL 54.13 - Digital Game Studies

Instructor: Evens

This course explores digital gaming. Reading academic and popular texts, we will situate digital gaming in relation to new media, visual, and literary studies. Class discussion will focus on outstanding problems in digital game studies: Where do the histories of technology and gaming meet? How do games change players and how do games shape culture? What about designers and programmers? In what ways are digital games playful and what aspects of them are expressive? What is the future of gaming? Of course this class will also study particular games, and, in addition to writing academic essays, students will invent individual and group projects in the game domain.

Distributive: Dist:TAS

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 54.15 - History of the Book

Instructor: Halasz

This course examines the book as a material and cultural object. We'll consider various practical and theoretical models for understanding the book form and investigating the materials, technologies, institutions, and practices of its production, dissemination, and reception. We'll focus primarily on the printed book in Western Europe and North America, but we'll also spend time talking about the emergence of the codex (book), medieval manuscript books, twentieth and twenty-first century artists' books and the challenges posed by digitality to the book form. The readings for the course will be balanced by frequent use of exemplars drawn from Rauner Library and practical experience in the Book Arts workshop setting type.

Distributive: Dist:LIT; WCult:W

Offered: 15F:2

ENGL 55.01 - Modern American Women Poets

Instructor: Zeiger

This course focuses on the emerging counter-tradition, within American modernism and within the larger tradition of poetry in English, of American women poets in the twentieth century. Taking our cue from Adrienne Rich, who ambiguously titles one book of essays *On Lies, Secrets and Silences* (is she for or against?), we will follow debates about what makes it possible to break previous silences--and to what degree and in what ways it is useful or satisfying to do so. Topics within this discussion will include sexuality, race, illness, literary

modes, female literary succession, and relations with the literary tradition. We will read in the work of eight or nine poets and recent critical and theoretical writings, with some attention in the first weeks to important female and male precursors. The syllabus will include such writers as Edna St. Vincent Millay, HD, Gertrude Stein, Elizabeth Bishop, Gwendolyn Brooks, Sylvia Plath, Anne Sexton, Audre Lorde, Adrienne Rich, Marilyn Hacker, Louise Gluck, Rita Dove.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10

ENGL 55.02 - Machine Readings: Text Analysis in the Information Age

Library digitization has made millions of books, newspapers, and other printed materials accessible to the public. In this course we will learn how to draw on computational resources to analyze a range of materials, including poetry, novels, science fiction short stories, and personal diaries. We will explore debates about the representation of literary texts as "data" and consider the challenges "machine reading" poses for research in the humanities and how we think about what it means to "read" a text. Through case studies we will reflect critically on the history of the digital humanities (formerly known as humanities computing) and will gain practical experience in text analysis.

Distributive: Dist:LIT

ENGL 55.13 - South African Literature in English

This course will examine works by South African men and women of various ethnicities who have chosen to write in English since the publication of Olive Schreiner's *Story of an African Farm* in 1883. This richly diverse literature will be tracked through the cultural and political history of South Africa with primary emphasis on the twentieth and twenty-first centuries before and after the fall of Apartheid. Confrontation between black militancy and white oppression characterizes much writing and social interaction in South Africa before the fall of Apartheid, but complex forms of multi-ethnic coexistence and interchange have also been evident since the first white settlement of the country in 1652. Recent work by J.M. Coetzee and Zakes Mda among others explores the difficult, unmapped terrain of post-Apartheid South Africa. Works by the following writers may be included in the course: Olive Schreiner, Solomon Plaatje, Bessie Head, Nadine Gordimer, Zoe Wicomb, Alan Paton, J.M. Coetzee, Njabulo Ndebele, Athol Fugard, Nelson Mandela.

Distributive: Dist:LIT; WCult:CI

ENGL 55.14 - Native American Oral Traditional Literatures

Instructor: Palmer

Native American oral tradition constitutes a rich and complex dimension of the American literary heritage. This course will examine a range of oral genres from several time periods and tribal sources. Oral traditions and the textual sources into which they are anthologized provide valuable insights into the nature of human creativity. They are also full of unique hermeneutical challenges. This course will include some contemporary theoretical approaches to orality and the metaphysics of the voice to unpack some of these questions.

Distributive: Dist:LIT

Offered: 16W:10

Section IV-Junior Colloquia

Limited to 20 students, these courses will vary in content. They are intended to introduce students to advanced research and prepare them for their senior seminars and honors theses. Coursework and instruction will build toward a substantial paper of 12-15 pages of sustained inquiry with a research component. Prerequisites: two completed major courses or permission of the instructor. *Dist: LIT.*

ENGL 62.12 - Jane Austen

Instructor: McKee

As novels, and translated into film and television, Jane Austen's fiction has recently achieved extraordinary popularity, much greater than she experienced in her lifetime. In this course, discussions will focus on the times and the culture in which she wrote and on her more recent popularity. Topics will include Austen's reactions against Romanticism; her continuing exploration of the moral and emotional dynamics of domestic life; her concern with the freedom of middle-class women; her use of history; her innovations in fictional narrative; and translations of her fiction into film. We will read *Northanger Abbey* (written 1797, published 1818), *Sense and Sensibility* (1811), *Pride and Prejudice* (1813), *Mansfield Park* (1814), *Emma* (1816), and *Persuasion*, (written 1816, published 1818), and view film versions of *Pride and Prejudice*, *Emma*, and *Persuasion*. *Dist: LIT; WCult: W* Course Group II

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10A

ENGL 62.16 - Victorian Faces/Facial Politics

Instructor: Harner

In Victorian England, a person's face was his or her calling card: a clue to social identity, a signifier of inner personality, or a mask, a socially-constructed and performed persona. The period witnessed the expansion of photography, the popularity of pseudo-sciences such as physiognomy and phrenology, the "scientific" study of race, and the birth of psychology. In studying these facial

mediations, this colloquium will read literary texts alongside artistic manifestos, scientific and pseudo-scientific prose, visual images, and contemporary literary criticism (poststructuralist, psychoanalytic, feminist, queer, performance theory, critical race). The literary texts will include: Mary Elizabeth Braddon, *Lady Audley's Secret*; Charlotte Bronte, *Villette*; George Eliot, *Daniel Deronda*; Amy Levy, *The Romance of a Shop*; and Oscar Wilde, *The Portrait of Dorian Gray*. Enrollment is limited to 20. *Dist: LIT; WCult: W*

Prerequisite: Two completed major courses or instructor permission

Distributive: Dist:LIT; WCult:W

Offered: 15F: 2

ENGL 62.22 - Atlantic Slavery/Atlantic Freedom

When does slavery find itself chiasmatically mirrored in freedom? From the recent Hollywood blockbuster *12 Years a Slave* (2013) to the streets of Ferguson and Baltimore, the legacies of slavery and racial violence continue to cast their shadow over horizons of emancipationist history even as America commemorates the sesquicentennial of the U.S. Civil War. In this course we will revisit the literatures of slavery and antislavery in the Atlantic world from the eighteenth century to the present. Our novels and stories imagine episodes of slavery, slave rebellion, and fugitive flights to freedom across two centuries: from early transatlantic crossings of slaves and servants to the New World; to Tacky's Revolt and its place in what Vincent Brown has recently called the "Coromantee Archipelago" in eighteenth century slave rebellion; to the spectacular soundings of the Haiti Revolution in the Age of Revolutions; to the messianic prophecies of Nat Turner in the early nineteenth century; to slave rebellions at sea; and finally to fugitive slave fictions in the abolitionist decade leading up to the Civil War.

Distributive: Dist:LIT; WCult:NW

ENGL 63.05 - Nobel Prize Writers Jr Colloquia

Instructor: Vasquez

A study of Nobel Prize writers from various Anglophone countries, this course examines authors' aesthetic innovations alongside their engagement in cultural, socio-political, and national discourses. Although the focus will be on poetry, the course will also explore the relationship between different genres (including essays, plays, and novels) and various socio-historical moments. Authors will include William Faulkner, Nadine Gordimer, Seamus Heaney, Wole Soyinka, Rabindranath Tagore, Derek Walcott, Patrick White, and W.B. Yeats. *Dist: LIT; Course Group III*

Limited to 20 students, these courses will vary in content. They are intended to introduce students to advanced research and prepare them for their senior

seminars and honors theses. Coursework and instruction will build toward a substantial paper of 12-15 pages, of sustained inquiry and with a research component.
Prerequisites: two completed major courses, or permission of the instructor.

Prerequisite: Two completed major courses or instructor permission

Distributive: Dist:LIT

Offered: 15F: 2A

ENGL 63.08 - Electronic Literature

Instructor: Evens

This course examines the burgeoning field of electronic literature, including electronic prose, poetry, and many non-traditional literary artifacts. We will look at the antecedents of electronic literature, culturally specific subgenres, technical and material underpinnings, and the relationship between electronic literature and other literary forms. Assignments will include close reading, critical examination of e-lit as a genre, and opportunities to author electronic literature.

Distributive: Dist:LIT

Offered: 16S: 2A

ENGL 63.28 - Rethinking Frost: Robert Frost in a Declining Landscape

Instructor: Huntington

In a famous exchange, long-time “frenemies” Wallace Stevens and Robert Frost traded barbs:

“The trouble with you, Robert, is that you write about – subjects.”

“The trouble with you, Wallace, is that you write about – bric-a-brac.”

Neither man was correct, but their characterizations hit a nerve, honing in on the kinds of superficial attributes that may render a first impression lasting. And while no one reads Stevens for his “bric-a-brac” many readers come to Frost for his subjects, which have been misunderstood and sentimentalized over time. It is important to remember, reading him now, that Frost’s New England was no Transcendental retreat, and no rural paradise; poor, depopulated by western expansion on the one hand, and the industrialization of mill towns on the other, it was a landscape of failed and abandoned farmsteads, old people and misfits left to fend on their own, worn-out fields, harsh climate, intellectually moribund and spiritually enervated. Frost came to this “subject” without illusions or bitterness and it is through this subject that we will begin to rethink his poetics and ideas. Using the extensive Frost archives in Rauner, students will be encouraged to undertake primary research alongside their reading of poems and criticism. The course will culminate in a substantial research paper or

project, individually designed in consultation with the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 3A

ENGL 65.06 - The Poetry and Rhetoric of Love, from Petrarch to Nerve.com

What we call “love poetry” has generally been a way of expressing much more than the emotional and erotic fascination of one person with another. Often it seems to bypass the love-object altogether, and more eagerly examines power relations or poetic achievement. Beginning with early examples, and moving on to contemporary and modern poems, our course will place love poems by men and women in the context of an ongoing poetic tradition, recent feminist criticism and

theory, and talk about love and sex in recent popular culture. This last will include: excerpts from recent books about dating and seduction, film, contemporary song lyrics, dating websites, and Blitzmail. Dist: LIT; WCult: W. No Course Group.

Distributive: Dist:LIT; WCult:W

Section V - Senior Seminars

Senior Seminars, limited to 12 seniors and juniors, will vary in content. They will focus students on concentrated discussions and on a final research project of 20-25 pages. Prerequisites: four completed major courses or permission of the instructor. *Dist: LIT.*

ENGL 71.02 - Ovid in England

Instructor: Halasz

Englishing Ovid was something every advanced schoolboy in the 16th century did: translating passages; composing speeches for characters from the poems; dramatizing and performing (in Latin, in England) Ovidian scenes. In this seminar we’ll read Ovid’s *Heroides* and *Metamorphoses* in the sixteenth and early seventeenth century print translations alongside a modern English edition. (Students competent in Latin may use the Loeb as well as or instead of the modern English.) We’ll consider the forms, themes, and predicaments Ovid’s great mythographic poems offered to the English literary imagination. Some attention will be paid to late 20th century performative and poetic “englishings” of Ovid.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT; WCult:W

Offered: not offered in 2015-2016, may be offered 2016-2017

ENGL 71.05 - Romance in Medieval England

Instructor: Edmondson

This course explores the diverse and elusive genre we now call “romance,” a capacious term that covers anything from chivalric adventures and love stories to quasi-hagiographic and pseudo-historical narratives, from a variety of historical and theoretical perspectives. Readings may include Middle English and Anglo-Norman romances such as *Tristan*, *Havelock* and *Sir Gawain and the Green Knight*, and selections from later Arthurian narratives.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 3B

ENGL 71.06 - Milton

This course is an advanced seminar in the study of John Milton's poetry and prose, undertaken with attention to the context of Milton's life and times and current critical discussion and debate about all of these matters.

Distributive: Dist:LIT; WCult:W

ENGL 71.13 - Gender and Power in Shakespeare

The course will begin by defining the varieties of power inscribed in Shakespeare's plays, and proceed to explore the following questions. Is language gender-inflected? Do men and women speak "different" languages? How do power and gender affect each other? How do women negotiate power among themselves? How do men? How is power exerted and controlled in sexual relationships? How do unspoken social definitions exert their power over the politics of gender? Possible works studied will be drawn from *The Rape of Lucrece*, *A Midsummer Night's Dream*, *The Taming of the Shrew*, *The Merchant of Venice*, *Much Ado About Nothing*, *As You Like It*, *All's Well That Ends Well*, *Othello*, *Macbeth*, *Troilus and Cressida*, *Coriolanus*, *Antony and Cleopatra*, and *The Winter's Tale*.

Distributive: Dist:LIT

ENGL 72.01 - The Civil War in Literature

Instructor: Boggs

Although Walt Whitman famously claimed that “the real war will never get into the books,” the American Civil War did in fact call forth a vast range of literary responses, in genres as diverse as poetry, popular song, novels and other prose genres. In this course, we will examine how literature depicts the war, and especially how it grapples with Whitman's claim that there is something unrepresentable about the war's carnage. Readings may include Walt Whitman's *Drum Taps* (1872), Herman Melville's *Battle Pieces and Aspects of the War* (1866), *Words for the Hour: A New Anthology of American Civil War Poetry*, Louisa May Alcott's “Hospital Sketches”

(1869) and excerpts from *Little Women* (1869), Stephen Crane's *Red Badge of Courage* (1895).

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 72.02 - Decadence, Degeneration and the Fin de Siecle

Instructor: McCann

The end of the nineteenth century saw the emergence of genuinely mass readerships, but it also saw the development of literary forms that pitted themselves against the commercialization and homogenization of literary culture. In this course we will look at so-called decadent writers and artists who imagined heightened forms of aesthetic experience in order to displace the political and sexual norms of their societies. We will also examine the controversies their work evoked and the theories of degeneration, deviance and abnormality that were frequently deployed to explain their excesses. Texts will include Oscar Wilde's *The Picture of Dorian Gray*, J.K. Huysmans's *Against Nature*, Marie Corelli's *Wormwood*, and Bram Stoker's *Dracula*.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 72.05 - 1850s America

Instructor: Chaney

What can the literature of a single decade tell us? From *The Scarlet Letter* (1850) and *Uncle Tom's Cabin* (1851-52) to *Leaves of Grass* (1855) and Lincoln's “House Divided” Speech of 1858, the literary output of America in the 1850s provides us with a snapshot of a turbulent culture amidst unprecedented growth and crisis. Slavery and xenophobia, minstrelsy and mass entertainments, crowds, consumerism, and cities, the “woman question,” labor rights, economic panics, and the secularization of Christian sentiment—these are just some of the issues that clamor in the literature of the decade. Our texts shall represent the gorgeous miscellany that is the 1850s, drawing from both high and low culture, canonical and forgotten authors, and from both established genres and media like novels and slave narratives to more ephemeral ones like newspapers, almanacs, caricatures, and inscribed material objects. Classes will meet in Rauner so that we may use these and other period rarities to spawn discussion and topics for original, independent research. In addition to the rich content of the texts themselves (their historical contexts and theoretical possibilities), another object of inquiry shall be the nature of literary history itself.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 11

ENGL 72.09 - Ecocriticism

Instructor: Garrison

Recent critics have argued that our image of “nature” as static and separate from humans is our chief stumbling block in cultivating ecological thought. In this course, we will read literature from the eighteenth century to track the emergence and environmental legacy of developments such as the Industrial Revolution and the Anthropocene, the geological epoch in which humans became the primary driver of climate change. Topics will include the vogue for georgic poetry, the aesthetics of the sublime, colonial expansion, the rise of natural history, it-narratives and thing theory, and questions of the animal. We will read contemporary theory about ecology and object-oriented ontology in the context of the eighteenth century and twenty-first century environmental concerns.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 73.05 - Global Anglophone Nobel Prize Writers

Instructor: Vasquez

A study of Nobel Prize writers from various Anglophone countries, this course examines authors' aesthetic innovations alongside their engagement in cultural, socio-political, and national discourses. Although the focus will be on poetry, the course will also explore the relationship between different genres (including essays, plays, and novels) and various socio-historical moments. Authors will include William Faulkner, Nadine Gordimer, Seamus Heaney, Wole Soyinka, Rabindranath Tagore, Derek Walcott, Patrick White, and W.B. Yeats.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT

Offered: 16W: 10A

ENGL 73.07 - Poetry of Elizabeth Bishop

Instructor: Zeiger

An orphan, a female poet, a lesbian, a long-term expatriate in Brazil, Elizabeth Bishop is nowhere definitively at home; for a long time, literary criticism had trouble accommodating her as well. Recently, queer, feminist, and postcolonial analyses have provided a new critical context for this elusive poet; we will read widely in this work, while focusing on Bishop's poems, drafts, and letters. We will also consider her relationships with contemporaries like Moore and Lowell.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT; WCult:W

Offered: 15F:12

ENGL 73.09 - United States of Queer

Instructor: Haines

This course explores the queer side of American literature and culture. We will discuss the ways in which American nationalism structures gender and sexuality. The course will serve as an introduction to queer theory. Readings may include work by Whitman, Melville, Crane, Cather, Baldwin, Burroughs, Ginsberg, Rich, Delany, Kushner, Foucault, Sedgwick, Butler, Berlant, Edelman, Hocquenghem, Warner, Muñoz, and Puar.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT; WCult:W

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 73.13 - James Joyce

Instructor: Huntington

This seminar will be devoted to the study of Joyce's *Ulysses*. After some discussion of Joyce's *Portrait* and *Dubliners* -- both of which students are urged to read before the course begins--we will focus on the text of Joyce's *Ulysses*, with an emphasis on close reading and an examination of Joyce's experiments in prose and his place in modern literature.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT; WCult:W

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 73.20 - Trench Modernism

Instructor: Will

A study of the literature, art, and music that emerged in response to the First World War. The work of soldiers, nurses, journalists, civilians, and bystanders will be considered.

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:LIT; WCult:W

ENGL 73.28 - How We Live Now: Contemporary Hemispheric Fictions

Instructor: Stuelke

This course explores contemporary hemispheric fiction and film's attempts to represent how we live now: to map the economic and cultural changes of the last forty years, including the death of 1960s social movements and the shift to a new form of global capitalism. Throughout the course, we will consider the inter-Americanism of these works, exploring how these authors grapple with parallel and overlapping historical conditions, and attend particularly to questions of form and genre. We will consider how genres like chick lit and detective fiction might solicit readers to think and feel in ways that are in line with national and multinational economic imperatives, but also how authors have attempted to create new forms to describe and challenge contemporary conditions of work, war, debt, and depression. Authors may include Roberto Bolaño, Terry McMillan, Junot Diaz, Claudia Rankine, Alicia Gaspar de Alba, Karen Russell, Eden Robinson, and César Aira.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 2

ENGL 74.11 - High Theory

Instructor: Evens

This seminar for advanced students undertakes a close reading of difficult texts in philosophy and in literary and cultural theory. We will include secondary literature to help contextualize the primary texts under study, but the emphasis is on close reading to develop original and critical approaches to these challenging works. Class will be based largely around group discussion, with lectures and prepared student presentations to help stimulate conversation. Students can help to shape the syllabus by proposing texts they wish to work on together. Representative authors we might read in this class include Deleuze, Derrida, Badiou, Agamben, Heidegger, Virilio, Zizek, Lyotard, and others

Prerequisite: Four completed major courses or instructor permission

Distributive: Dist:TMV

Offered: not offered 2015-2016, may be offered 2016-2017

ENGL 73.28 - How We Live Now: Contemporary Hemispheric Fictions

This course explores contemporary hemispheric fiction and film's attempts to represent how we live now: to map the economic and cultural changes of the last forty years, including the death of 1960s social movements and the shift to a new form of global capitalism. Throughout the course, we will consider the inter-Americanism of these works, exploring how these authors grapple with parallel and overlapping historical conditions, and attend particularly to questions of form and genre. We will consider how genres like chick lit and detective fiction might solicit readers to think and feel in ways that are in

line with national and multinational economic imperatives, but also how authors have attempted to create new forms to describe and challenge contemporary conditions of work, war, debt, and depression. Authors may include Roberto Bolaño, Terry McMillan, Junot Diaz, Claudia Rankine, Alicia Gaspar de Alba, Karen Russell, Eden Robinson, and César Aira. All texts are available in translation.

oetry and Rhetoric of Love

Distributive: from Petrarch to Nerve.com,English,ENGL,65.06,

Section VI - Creative Writing

Intro Creative Writing Courses

ENGL 80 - Writing and Reading Fiction

Instructor: Craig, O'Malley, Tudish

A beginning workshop and reading course in fiction. Open to sophomores, juniors, seniors, and first-year students who have completed Writing 5. Seminar-sized classes meet for discussion and include individual conferences. Topics and emphases may vary from term to term. English 80 is the prerequisite to English 83, Intermediate Workshop in Fiction.

Distributive: Dist:ART

Offered: 15X:10A; 15F:2A; 16W:10A; 16S:10A

ENGL 81 - Writing and Reading Creative Nonfiction

Instructor: Craig

A beginning workshop and reading course in creative nonfiction—a hybrid genre of journalism, memoir, and fictional and poetic techniques, also known as the art of fact. Open to sophomores, juniors, seniors, and first-year students who have completed Writing 5. Seminar-sized classes meet for discussion and include individual conferences. Topics and emphases may vary from term to term. English 81 is the prerequisite to English 84, Intermediate Workshop in Creative Nonfiction.

Distributive: Dist:ART

Offered: 16W:10A

ENGL 82 - Writing and Reading poetry

Instructor: Francis, Huntington

A beginning workshop and reading course in poetry. Open to sophomores, juniors, seniors, and first-year students who have completed Writing 5. Seminar-sized classes meet for discussion, and include individual conferences. Topics and emphases may vary from term to term. English 82 is the prerequisite to English 85, Intermediate Workshop in Poetry.

Distributive: Dist:ART

Offered: 15F:10A :16W: Arr.

Intermediate Creative Writing Courses

ENGL 83 - Intermediate Workshop in Fiction

Instructor: O'Malley

Continued work in the writing of fiction. The class proceeds by means of group workshops, individual conferences with the instructor, and reading across the genre. The process of revision is emphasized. Topics and emphases may vary from term to term. Prerequisite: English 80 and permission of the instructor. Please use "How To Apply to English 83, 84 or 85" and answer all of the questions asked in a cover letter. Students must submit a 5-8 page sample of their writing along with the cover letter by the last day of classes of the term preceding the term in which they wish to enroll. These materials should be submitted electronically to the instructor.

Prerequisite: ENGL 80 and permission of the instructor. Please read the "How To Apply To ENGL 83, ENGL 84 or ENGL 85" document, available on-line and from the English Department, and answer all of the questions asked in a cover letter. Students should submit, to the instructor electronically, a five-eight page writing sample of their fiction. Deadline for equal consideration for admittance is the last day of classes in the term preceding the course. Late applications will be accepted, but held until the add/drop period and reviewed if vacancies occur.

Distributive: Dist:ART

Offered: 16S: 2A

ENGL 84 - Intermediate Creative Nonfiction

Instructor: Sharlet

Continued work in the writing of creative nonfiction, including literary journalism, investigative memoir, the lyric essay, and documentary. The class proceeds by means of group workshops, individual conferences with the instructor, and reading across the genre. The processes of research and revision are emphasized. Topics and emphases may vary from term to term. Prerequisite: English 81 and permission of the instructor. Please use "How To Apply to English 83, 84 or 85" and answer all of the questions asked in a cover letter. Students must submit a 5-8 page sample of their writing along with the cover letter by the last day of classes of the term preceding the term in which they wish to enroll. These materials should be submitted electronically to the instructor. (Formerly ENGL 83)

This workshop is currently taught as 40 Towns.

Prerequisite: ENGL 81 and permission of the instructor. Please read the "How To Apply To ENGL 83, ENGL 84 or ENGL 85" document, available on-line and from the English Department, and answer all of the questions asked

in a cover letter. Students should submit, electronically to their instructor, a five-to-eight-page writing sample by the last day of the term preceding the term in which they wish to enroll.

Distributive: Dist:ART

Offered: 16S: 10A; 17S: Arrange

ENGL 85 - Intermediate Workshop in Poetry

Instructor: Mathis

Continued work in the writing of poetry, focusing on the development of craft, image and voice. The class proceeds by means of group workshops on student writing, individual conferences with the instructor and reading across the genre. The process of revision is emphasized. Topics and emphases may vary from term to term. Prerequisite: English 82 and permission of the instructor. Please use "How To Apply to English 83, 84 or 85" and answer all of the questions asked in a cover letter. Students must submit a 5-8 page sample of their writing along with the cover letter by the last day of classes of the term preceding the term in which they wish to enroll. These materials should be submitted electronically to the instructor.

Prerequisite: ENGL 82 and permission of the instructor. Please read the "How To Apply To ENGL 83, ENGL 84, or ENGL 85" document, available on-line and from the English Department, and answer all of the questions asked in a cover letter. Students should submit a five-eight page writing sample of their poetry electronically to the instructor. Deadline for equal consideration for admittance is the last day of classes in the term preceding the course. Late applications will be accepted, but held until the add/drop period and reviewed if vacancies occur.

Distributive: Dist:ART

Offered: 16S: 2A;17S: 2A

Advanced Creative Writing Courses

ENGL 86 - Senior Workshop in Creative Writing

Instructor: Huntington,O'Malley

An advanced workshop for seniors who wish to undertake a manuscript of fiction, creative nonfiction or poetry. Students must submit an 8-12 page writing sample to the instructor by the LAST DAY OF CLASSES of the term preceding the term in which they wish to enroll. Prerequisite: English 83, 84 or 85 depending on the genre of the workshop offered.

Prerequisite: ENGL 83 and ENGL 84, or ENGL 85

Distributive: Dist:ART

Offered: 15F 2A, 3A;16F Arrange

ENGL 87 - Special Topics in Creative Writing

Instructor: Francis, Sharlet, Tudish

These courses are offered periodically, concentrating on particular issues in one or more of the fields of poetry, fiction, and creative nonfiction. Courses may require creative and critical papers and include workshops. Enrollment is limited to 18.

Distributive: Dist:ART

Offered: 15F: 2A; 16W: 2A; 16S: 2A

ENGL 87.03 - Topics in Creative Writing: Remains, Ruin, Repair and Rapture

Instructor: Francis

Remains, Ruin, Repair and Rapture: Trends in Urban Contemporary Poetry from Detroit to Krakow

In the center of Detroit, Michigan sits the completely enclosed, far smaller city of Hamtramck, with its own mayor, police department, fire department and history of generations of Polish immigrants. Two urban centers connected by borders and across borders by rich poetries that place pressure upon stereotypes of the "urban."

In this course, we will consider essays, poetry and interviews that dare interrogate and upturn common assumptions around the demographics and expectations of urban centers and the arts and letters that rise from them. We will write critical as well as creative responses to the readings. We will resist "outside" definitions and privilege the self-defining texts of the authors we study who are writing from their experiences within these sites of growth and failings, allegiances and loss, flight and fury. Readings will include work by: Jacek Dehnel, Francine Harris, Jamaal May, Matthew Olzmann, and Adam Zagajewski among others. Dist:ART

Distributive: Dist:ART; WCult:W

Offered: 15F: 2A

ENGL 89 - Creative Writing Project

Instructor: Varies

A tutorial course to be designed by the student with the assistance of a faculty supervisor. This course is intended for the purpose of producing a manuscript of fiction, creative nonfiction or poetry. Prerequisite: normally reserved for seniors who have completed at least two workshops in the designated genre for this project.

Distributive: Dist:ART

Offered: All Terms: Arrange

*Section VII - Foreign Study Courses***ENGL 90 - English Study Abroad I**

Instructor: Gamboa, Sharlet

Major credit for this course is awarded to students who satisfactorily complete a course of study elected as part of one of the Department's two Foreign Study Programs (FSPs). On the London FSP, this will be a course of study in literature at King's College. On the Dublin FSP, this will be a course of study in the English Department at Trinity College Dublin (TCD). Of the three courses at TCD at least one must be in Irish literature. Students are also required to do an independent study project on some aspect of Irish literature or culture, culminating in a long essay; the grade for the independent study is factored into the grade for the Irish literature course. Dist: LIT.

Distributive: Dist:LIT; WCult:W

Offered: 15F: D.F.S.P. (London, Dublin); 16F: D.F.S.P. (Dublin)

ENGL 91 - English Study Abroad II

Instructor: Gamboa, Sharlet

Major credit for this course is awarded to students who satisfactorily complete a course of study elected as part of one of the Department's two Foreign Study Programs (FSPs). On the London FSP, this will be a course of study in literature at the King's College. On the Dublin FSP, this will be a course of study in the English Department at Trinity College Dublin (TCD). Of the three courses at TCD at least one must be in Irish literature. Students are also required to do an independent study project on some aspect of Irish literature or culture, culminating in a long essay; the grade for the independent study is factored into the grade for the Irish literature course. Dist: LIT.

Distributive: Dist:LIT

Offered: 15F: D.F.S.P. (London, Dublin); 16F: D.F.S.P. (Dublin)

ENGL 92 - English Study Abroad III

Instructor: Gamboa, Sharlet

One college credit (not major or minor credit) for this course is awarded to students who satisfactorily complete a course of study elected as part of one of the Department's two Foreign Study Programs (FSPs). The purpose of English 92, when taken in Glasgow, is to enhance the experience of studying English and Scottish literature in a European, and more specifically British, context. The requirement may be fulfilled by taking a course, approved by the program director, in Scottish literature or culture, British cultural history, Celtic civilization, comparative literature, or the English language. Other courses relevant to the study of English literature (in art history, philosophy or media studies, for instance) may be taken subject to the

approval of the English Department's Committee on Departmental Curriculum. ENGL 92 on the Glasgow FSP satisfies no distributive requirement. On the Dublin FSP, this will be a course of study in the English Department at Trinity College Dublin (TCD). Of the three courses at TCD at least one must be in Irish literature. Students are also required to do an independent study project on some aspect of Irish literature or culture, culminating in a long essay; the grade for the independent study is factored into the grade for the Irish literature course. Glasgow

Distributive: Dist:LIT

Offered: 15F: D.F.S.P. (London, Dublin); 16F: D.F.S.P. (Dublin)

Section VII - Independent Study and Honors

ENGL 96 - Reading Course

Instructor: Varies

A tutorial course to be designed by the student with the assistance of a member of the English Department willing to supervise it. This course is available, as an occasional privilege, to upperclassmen who have demonstrated their ability to do independent work. During the term prior to taking the course, applicants must consult the Department Vice Chair to make arrangements for approval of the project. (Note: ENGL 96 does not normally count towards the English major or minor, though in special circumstances the C.D.C. may approve occasional exceptions to that rule. Students seeking such an exception are asked to petition the C.D.C. before taking ENGL 96. ENGL 96 may not be used to satisfy course group requirements.)

Offered: All terms: Arrange

ENGL 98 - Honors Course

Instructor: Varies

Independent study under the direction of a faculty adviser. Honors majors will elect this course in each term in which they are pursuing Honors projects. For more information, see "English Honors Program," above, and consult the "Guide to Honors" booklet available in the English Department.

Offered: All terms Arrange

Environmental Studies Program

Chair: Richard B. Howarth

Professors D. T. Bolger, A. J. Friedland, R. B. Howarth, A. R. Kapuscinski, C. S. Sneddon, R. A. Virginia; Associate Professor D. G. Webster; Assistant Professors M. E. Cox, N. J. Reo; Adjunct Professors M. B. Burkins, B. D. Roebuck (Toxicology); Visiting Professor T. T. Williams; Senior Lecturers C. A. Fox, R. T. Jones, K. Kawiaka, T. S.

Osborne; Lecturers L. E. Culler, D. A. Lutz, J. B. Richardson, S. B. Smith.

To view Environmental Studies courses, click here (p. 265).

In the Environmental Studies Program (ENVS) we seek to motivate and prepare students to rise to the challenges and opportunities associated with human-environment interactions. Environmental degradation is an escalating problem from local to global scales. Training students to understand and address these environmental problems is our core mission and is why we believe that environmental studies is an essential component of a modern liberal arts education.

The field of Environmental Studies views the earth, and our place in it, as a set of complex, interacting socio-ecological systems. To understand this complexity, ENVS draws on concepts and methods from the natural sciences, social sciences and humanities, as complementary lenses through which to view these systems. But we also seek to overcome the limitations of any one of these perspectives by applying innovative approaches that integrate the traditional disciplines in new and productive ways. Research and teaching strengths in the program include environmental governance, ecosystem science, environmental and ecological economics, biodiversity conservation, climate change, and sustainable food systems.

A defining element of environmental studies is active engagement with real-world environmental problems. One contemporary concept we employ to frame this practical engagement is sustainability. The quest for sustainability asks the difficult question, how can humans live well on the planet without compromising the ability of current and future generations to do the same? A number of our courses have a specific focus on "hands-on" engagement with sustainability (ENVS 3: Environment and Society: Towards Sustainability, ENVS 50: Environmental Problem Analysis and the Africa Foreign Study Program).

To meet the needs of our students, we offer a major in Environmental Studies and three minors: Environmental Studies, Environmental Science, and Sustainability. We also offer the Africa Foreign Study Program that travels to South Africa, Lesotho and Namibia where we explore the themes of environmental studies within the particular environment, culture and history of the southern Africa region.

Requirements for the Major, Modified Major, and Minor

The Environmental Studies Major

Prerequisites (3 courses): (a) Math 3 or Math 10 or the equivalent statistics course; (b) Chemistry 3 or 5 or Physics 3 or Biology 16 or Earth Sciences 1; (c) Economics 1 or Economics 2

Requirements (2 courses): (a) ENVS 2 or the equivalent (It is possible to substitute other course combinations for ENVS 2 on a two-for-one basis. The following may be combined with Biology 16: EARS 1, 6, ENVS 12 or GEOG 3. If BIOL 16 is taken as a partial substitute for ENVS 2, it may not be used as a prerequisite.); (b) ENVS 3 (It is possible to substitute other course combinations for ENVS 3 on a two-for-one basis.)

Core Courses (3 courses): Please choose one from each group

(a) Environmental Science: ENVS 20, ENVS 25 or ENVS 30;

(b) Economy and Environment: ENVS 55 or ENVS 56

(c) Environmental Governance: ENVS 61, ENVS 65 or ENVS 67

Critical Issues in Environmental Studies: ENVS 11; ENVS 12; ENVS 15; ENVS 17; ENVS 18; ENVS 28.

Elective Focus Courses (3 courses): Three related and relevant non-introductory (i.e., 10 or above) courses, at least one from ENVS.

Culminating Experience: ENVS 50, ENVS 84 or ENVS 91

The Environmental Studies Honors Program

A candidate for the Honors Program in Environmental Studies must satisfy the minimum College grade requirements and complete Environmental Studies 91 (Thesis Research). Environmental Studies 91 may be taken two times, both for course credit, but can only count once toward the major. The minimum requirement for admission is a grade point average of 3.0 in the major and a 3.0 general College average at the beginning of the senior year or at any other time that an application for admission is made. Those students who satisfactorily complete the Honors Program with a 'B+' average or better will earn Honors recognition in their major or, in appropriate cases, High Honors. High Honors will be granted only by vote of the ENVS faculty on the basis of outstanding independent work. An interim evaluation of honors students will be made after one term and continuation recommended for those students whose work demonstrates the capacity for satisfactory (B+) work. Enrollment in Environmental Studies 91 does not imply admissions into the Honors Program nor does completion of a senior thesis require the awarding of Honors in the major.

The Culminating Experience

The culminating experience requirement for the major in Environmental Studies may be met by completing either

ENVS 50, ENVS 84, or conducting Honors Research (ENVS 91).

The Environmental Studies Minor

Prerequisites (1): ENVS 2 or equivalent

Requirements (1): ENVS 3 or ENVS 11

Four other related non-introductory Environmental Studies Courses, two of which are normally from ENVS. Courses from outside ENVS may be used with permission of the Chair.

Sustainability Track

This track is an option under the Environmental Studies Minor.

Prerequisites: ENVS 2 or the equivalent. Requirements: ENVS 3; one course on sustainability problem-solving, either ENVS 50, ENGS 44, or another appropriate course with permission; and three other courses (numbered 10 and above) as follows: one course examining specific society-environment interactions, chosen from a number of options; and two courses, each from a number of options within a different elective cluster, either (1) courses addressing how ecosystems and earth systems influence sustainability challenges, or (2) courses addressing governance, social justice, and decision-making in pursuit of sustainability goals, or (3) courses addressing how discourse, ethics and identity shape approaches to sustainability challenges, or (4) courses on creative expression, design, and engineering for communicating and solving sustainability problems.

The Environmental Science Minor

Prerequisites: (a) ENVS 2 or equivalent; (b) CHEM 3 or 5 or PHYS 3 or BIOL 16 or EARS 1

Requirements: (a) ENVS 3 or 11 or 42, (b) ENVS 20 or 25 or 28 or 30

Three other related non-introductory Environmental Studies science courses (numbered 10 and above). One class from outside ENVS may be used if from an approved list or with permission of the Chair.

Another Major Modified with Environmental Studies

Prerequisites: none

Requirements (2): ENVS 2 or 3; ENVS 50

Three additional Environmental Studies non-introductory courses, not including 2, 3,

or 7. One of these may be substituted by an appropriate course from another department,

with permission from the ENVS Chair.

Africa Foreign Study Program

Prerequisites: ENVS 2 or the equivalent; ENVS 39 or ENVS 65, with permission; and at least one of the following courses (availability subject to change; check the ENVS website and with the Environmental Studies Program office for updated list):

AAAS 14 / HIST 5.01: Pre-Colonial African History

AAAS 15/HIST 66: History of Africa since 1800

AAAS 19/HIST 5.08: Africa and the World

AAAS 40/WGSS 34.02: Gender Identities and Politics in Africa

AAAS 42/REL 66/WGSS 44.03: Women, Religion and Social Change in Africa

AAAS 46/HIST 67: History of Modern South Africa

AAAS 50/ENVS 45/HIST 75: Colonialism, Development, and the Environment in Africa and Asia

AAAS 51/COLT 51: African Literatures: Masterpieces of Literatures from Africa

AAAS 54/THEA 23: Topics in African Theater and Performance

AAAS 85.01: South African Literature in English

AAAS 87.05/GOVT 42: Politics of Africa

AAAS 88.02/WGSS 38.02/HIST 6.30: Women & Gender in the African Diaspora

GEOG 6/INTS 16: Introduction to International Development

ENVS - Environmental Studies Courses

To view Environmental Studies requirements, click here (p. 263).

ENVS 2 - Introduction to Environmental Science

Instructor: Friedland

To understand current environmental problems, we need to study the physical, biological, chemical and social processes that are often the basis of those problems. This course will give the skills necessary to ask intelligent questions about - and perhaps obtain answers to - some of the environmental problems our planet is facing today by examining scientific principles and the application of those principles to environmental issues. This course will survey

a variety of topics including pollution, biodiversity, energy use, recycling, land degradation, and human population dynamics. It is designed to introduce environmental science and environmental issues, topics which are explored in greater depth in other Environmental Studies courses.

Distributive: Dist:SCI

Offered: 16W, 17W: 11

ENVS 3 - Environment and Society: Towards Sustainability?

Instructor: Kapuscinski

What does a sustainable relationship between humans and the environment look like? The co-evolution of society and the environment involves complex and dynamic interactions whose consequences are hard (or impossible) to predict because causes and effects are often far apart in time and space. This course examines interactions between environmental and social processes from the perspective of sustainability. This course explores: the historical roots of unsustainability and the underlying mental models contributing to this state of affairs; the idea that resilience is the key to a sustainable relationship between society and environment; how institutions and power dynamics influence sustainability; and possible actions to facilitate transitions to sustainability founded on mindfulness of paradigms and ethics.

Distributive: Dist:SOC

Offered: 15F, 16F: 12

ENVS 7 - First-Year Seminars in Environmental Studies

Offered: Consult special listings

ENVS 10 - Introduction to Environmental Statistics

Instructor: Cox

This course is designed to introduce students to the basic statistical methods necessary to conduct and understand statistical analyses of environmental issues and problems. Methods and subjects include: measurement, descriptive statistics, graphs, basic probability, correlation and regression, and basic inferential statistics (hypothesis testing, confidence interval construction, effect size calculation). There is a strong emphasis on the application of these and other techniques to socio\u2010environmental datasets that describe current environmental problems and issues. No previous experience with mathematics or particular software is required. Students will be required to complete a final project in which they use statistical techniques to address an environmental research question.

Because of the large overlap in material covered, no student may receive credit for more than one of the courses

ECON 10, ENVS 10, GOVT 10, MATH 10, PSYC 10, Social Sciences 10, or SOCY 10 except by special petition.

Prerequisite: ENVS 2 or ENVS 3 or permission of the instructor

Distributive: Dist:QDS

Offered: 17W:10A

ENVS 11 - Humans and Nature in America

Instructor: Osborne

Using literary texts as the primary guides, this course will explore a variety of relationships between humans and the natural world in North America (primarily the USA) over the last 200 years. The texts—including the Journals of Lewis and Clark, nonfiction by John McPhee and Terry Tempest Williams, and fiction by Toni Morrison and Leslie Marmon Silko—will be supplemented by readings and guest lectures from other academic perspectives and integrated with the students' own contemplative fieldwork. The goal will be to investigate the complexities inherent in any human's relationship with the natural world - from individual perceptions to social and cultural constructions; analyze those that seem particularly "American"; then integrate the contemplative fieldwork and academic analyses to develop characteristics of a more sustainable human-nature relationship in America.

Distributive: Dist:LIT; WCult:W

Offered: 16W, 17W: 2

ENVS 12 - Energy and the Environment

Instructor: Friedland

Energy, in a variety of forms, is a fundamental need of all societies. This course explores the scientific concepts and applications to society of the issues regarding energy extraction, conversions and use. It will examine the scientific basis for environmental and social concerns about our present energy mix including global climate change, toxic emissions and wastes from energy combustion, and nuclear proliferation. We will also consider choices that are made in the development and utilization of energy resources and the role of public policy.

Prerequisite: ENVS 2 or permission of the instructor.

Distributive: Dist:TAS

Offered: 16S, 17S: 10A

ENVS 15 - Environmental Issues of the Earth's Cold Regions

Instructor: Virginia

This course examines the major physical, ecological and human systems of high latitudes, including the circumpolar northern Arctic regions and the continent of Antarctica.

Using an interdisciplinary perspective the course explores the science of polar environmental change and applies this information to understand the connections of the polar regions to global processes and international issues (climate change, biodiversity, indigenous rights).

Prerequisite: ENVS 2 or ENVS 3 or permission of the instructor.

Distributive: Dist:TAS

Offered: 16S, 17S: 10

ENVS 16 - Business, Growth, and the Environment

Instructor: Webster

We've all heard that green jobs will bring the U.S. out of this recession, but can Ben Jerry's really save the economy and the planet? This course will cover the principles of green business, critiques of green business, and the role of green business in the global economy. Students will compare theory and practice by evaluating the green credentials of companies ranging from Patagonia to British Petroleum.

Prerequisite: ENVS 2 or equivalent

Distributive: Dist:INT or SOC

Offered: 16F: 11

ENVS 17 - Marine Policy

Instructor: Webster

People use the oceans for transportation, recreation, food, mineral wealth, waste disposal, military defense, and many other important things. This course explores the most significant human-ocean interactions known today from two perspectives: science and policy. From the scientific literature, students will learn about issues ranging from the physical effects of sea level rise to the biological impacts of pollution events like the recent BP oil spill to the economic repercussions of overfishing. For each of the problems that are revealed by science, we will also critically evaluate relevant policy solutions to understand how institutional design can (or can't) enhance human interactions with the oceans.

Distributive: Dist:SOC

Offered: 15F: 11

ENVS 18 - Native Peoples in a Changing Global Environment

Instructor: Reo

This course is about indigenous peoples' relationships to land and natural resources and the threats that rapid environmental changes, such as climate change and invasive species, pose to indigenous societies. What is at stake when significant changes, like the loss of a cultural keystone species, occur on indigenous homelands? In NAS

18/ENVS 18, we attempt to understand the societal impacts of rapid environmental change from multiple perspectives including those of indigenous and non-indigenous actors.

Prerequisite: NAS 8 or NAS 10 or NAS 25 or ENVS 11 or ENVS 2 or ENVS 3; or permission of instructor

Cross-Listed as: Identical to NAS 18

Distributive: Dist:TMV; WCult:NW

Offered: 16F: 2

ENVS 19 - Encountering Forests

Instructor: Reo

What do people care about forests? How do people become knowledgeable about a landscape and how do they use theoretical and place-based, practical knowledge about forests? In this course, we attempt to see forests from different cultural and professional lenses including those of Abenaki resource practitioners and natural resource managers. We look at the ways different types of information and different cultural perspectives influence ecological restoration, conservation and land use decisions. Open to all classes.

Cross-Listed as: Identical to NAS 19

Offered: 17S:2A

ENVS 20 - Conservation of Biodiversity

Instructor: Bolger

On a global scale we are witnessing an unprecedented decline in what has come to be called Biodiversity. Human population growth and increasing rates of material consumption and technological development have increased the rate and scale at which we impact populations of native animals and plants. One goal of the course will be to address the biological aspects of this issue. What is Biodiversity? How is Biodiversity distributed geographically and taxonomically? What does humankind do to cause animal and plant extinctions? Is there a Biodiversity crisis? What is the current rate of extinction and what is the natural extinction rate? What properties of individual species make them vulnerable to extinction? What are the major threats to Biodiversity? The second objective is to examine the social dimensions of Biodiversity. How do our cultural and political perceptions and institutions contribute to the loss of Biodiversity? What value is Biodiversity to humankind? What is being done to preserve Biodiversity in the realms of science, technology, and policy? These questions will be addressed through lecture material, course readings, and writing assignments.

Prerequisite: ENVS 2 or BIOL 16, or permission of the instructor.

Distributive: Dist:TAS

Offered: 16S, 17S: 12

ENVS 25 - Ecological Agriculture

Instructor: Staff

This course will introduce the principles of ecological agriculture. Concepts from ecology and ecosystem science will be applied to the study of agriculture and the design of sustainable production systems. An introduction to soils and their management and controls on plant growth will be emphasized in the field and in the laboratory.

Environmental issues associated with conventional and low-input agriculture will be considered. Visits to local farms and field exercises at the Dartmouth student organic farm will supplement the classroom material.

Prerequisite: ENVS 2 or BIOL 16 or permission of the instructor.

Distributive: Dist:TLA

Offered: 16X: 11, Laboratory Monday or Tuesday 2:00-5:00 p.m

ENVS 28 - Global Environmental Health

Instructor: Roebuck

This course will focus upon the scientific and public health principles that govern environmental health outcomes at the individual to the global scale. Case studies will be used to illustrate the principles. Some of the issues that will be discussed include lead poisoning, mercury in the food web, the epidemic of tobacco use that is sweeping the world, the global movement of persistent organic pollutants, and natural contaminants in the human supply. These cases will increase in complexity with regards to causative agents and health outcomes. Lastly, trends of environmental diseases coupled with the prevention of these diseases will be emphasized.

Prerequisite: ENVS 2 or BIOL 16 or permission of the instructor.

Distributive: Dist:TAS

Offered: 16S, 17S: 12

ENVS 30 - Global Environmental Science

Instructor: Lutz

This course examines human influences on global environmental systems with an emphasis on understanding the major biogeochemical cycles. It investigates how human activities (e.g. deforestation, changes in biodiversity, air pollution, desertification) can disrupt environmental processes and the ability of our global environment to support and sustain life. Important feedbacks between biological and physical processes and the atmosphere are also considered in detail. The course explores how natural and managed ecosystems respond to

a changing climate and altered resource availabilities along with prospects for the future. Additionally, it examines international science programs and policies that aim to limit excessive human disruption of the global environment.

Prerequisite: ENVS 2 and a lab science course (EARS 1, BIOL 16, CHEM 5, or PHYS 3) or permission of the instructor

Distributive: Dist:SCI

Offered: 16W: 12

ENVS 39 - Natural Resources, Development, and the Environment

Instructor: Fox

How do countries develop their natural resources and also maintain environmental quality? How are water resources and food security maintained in the face of pressures for economic development? Using a multidisciplinary and comparative approach, this course explores the social, political, and scientific issues behind economic development and environmental preservation. Agricultural practices, resource conservation strategies, and tensions between development and conservation are interrogated. The course examines these issues in the historical, social, and political contexts of developed and developing countries, with an emphasis on the emerging nations of sub-Saharan Africa.

Prerequisite: ENVS 2 or the equivalent, or permission of the instructor.

Distributive: Dist:SOC

Offered: 16X: 10A

ENVS 40 - Foreign Study in Environmental Problems I

Instructor: Fox (15F), Cox (16F)

Natural Resources and Environmental Issues in Southern Africa. This course will examine the natural resource constraints and policy dilemmas faced by developing countries and the impacts of people on the environment. Topics will include land and water use, biodiversity and wildlife management, population and environmental health, agricultural practices and community dynamics, and development economics. These topics will be illustrated through field work at National Parks and safari areas, farming areas, and at community-based development projects.

Distributive: Dist:SOC

Offered: 15F, 16F: D.F.S.P.

ENVS 42 - Foreign Study in Environmental Problems II

Instructor: Bolger

Social and Political Aspects of Development and Conservation in Southern Africa. This course will examine the historical, social, and political context of the interplay between resource use, economic development and environmental conservation in southern Africa. The impact of colonial and ethnic traditions and international institutions, on strategies for economic development, urban growth, wildlife management, ecotourism, resource conservation (especially water and soil) and land use will be discussed. Issues of gender in agricultural development and environmental protection will be considered.

Distributive: Dist:INT

Offered: 15F, 16F: D.F.S.P.

ENVS 44 - Environment and Politics in Southeast Asia

Instructor: Sneddon

Over the past several decades, the people and ecosystems of Southeast Asia have confronted a host of political, economic and cultural processes commonly grouped together under the heading "development". Using an approach grounded in political ecology, this course will explore a diversity of human-environment relationships in Southeast Asia. We will use case studies representing a variety of geographical scales (e.g., local, urban, national, transnational), ecological settings (e.g., mountain, coastal, agro-ecosystem) and societal contexts (Philippines, Thailand, Vietnam, Laos, Cambodia, Burma, Malaysia and Indonesia) to address several cross-cutting themes (e.g., urbanization; hydropolitics and the politics of large dams; ecotourism; and questions of identity and resource conflicts).

Cross-Listed as: Identical to GEOG 44

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not taught 15F through 17S

ENVS 45 - Colonialism, Development and the Environment in Africa and Asia

Instructor: Haynes

This course examines the environmental history of Africa and Asia, focusing on the period of European colonialism and its aftermath. Topics include deforestation and desertification under colonial rule; imperialism and conservation; the consequences of environmental change for rural Africans and Asians; irrigation, big dams and transformations in water landscapes; the development of national parks and their impact on wildlife and humans; the environmentalism of the poor; urbanization and pollution; and global climate change in Africa and Asia. Open to all classes.

Cross-Listed as: HIST 75, AAAS 50

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F, 16F: 10

ENVS 50 - Environmental Problem Analysis and Policy Formulation

Instructor: Reo

Students working together in groups will formulate and justify policy measures that they think would be appropriate to deal with a local environmental problem. The purposes of this coordinating course are to (1) give students an opportunity to see how the disciplinary knowledge acquired in their various courses and departmental major programs can be integrated in a synthetic manner; (2) provide a forum for an in-depth evaluation of a significant environmental policy problem; and (3) give students the experience of working as a project team toward the solution of a real-world problem. Considerable field work may be involved, and the final examination will consist of a public presentation and defense of student-generated policy recommendations.

Prerequisite: ENVS 11, ENVS 2 or ENVS 3, and at least one upper-level Environmental Studies course, or permission of the instructor. Open only to seniors or to other classes with permission of the instructor. Satisfies the Culminating Experience requirement.

Distributive: Dist:SOC

Offered: 16S, 17S: 10A

ENVS 53 - Science for Sustainable Systems

Instructor: Staff

A great challenge of our age is to understand the dynamics of complex biological/environmental/human systems and move them toward sustainability. Lecture, discussion and project topics include methods and traditions in systems thinking; ecological resilience; adaptive management; systems dynamics modeling; theory and practice of sustainability in terrestrial, aquatic and marine ecosystems; real-world case studies of current projects, leadership for convening diverse stakeholders; and relevant principles of social and organizational learning.

Prerequisite: One of ENVS 20, ENVS 25, ENVS 28, ENVS 30, ENVS 55 or ENVS 79; or one of BIOL 21, BIOL 22, BIOL 25, BIOL 31 or BIOL 53; or one of ENGS 37, ENGS 41, ENGS 42, ENGS 43, ENGS 44 or ENGS 51; or CHEM 63; or one of EARS 16, ENGS 18, EARS 71 or EARS 76; or one of ECON 22, ECON 24, ECON 28, ECON 38 or ECON 44; or one of ANTH 49 or ANTH 75. Other students with relevant preparation in the sciences or social sciences can seek the permission of the instructor.

Distributive: Dist:TAS

Offered: Not offered 15F-17S

ENVS 55 - Ecological Economics

Instructor: Howarth

This course examines the links between economic and ecological systems with an emphasis on the interplay between values and institutions in environmental problem-solving. Concepts pertaining to welfare economics, common pool resources, ecosystem valuation, and environmental ethics are developed and applied to problems such as fisheries and forest management, biodiversity conservation, and global environmental change. The course emphasizes the relationship between economic growth, ecosystem services, and human flourishing in the definition and pursuit of sustainable development.

Prerequisite: ECON 1 or ECON 2; MATH 3 or the equivalent; ENVS 2 or ENVS 3; or permission of the instructor.

Distributive: Dist:SOC

Offered: 16W, 17W: 10

ENVS 56 - Environmental Economics and Governance

Instructor: Webster

This course explores how concepts from economics and political science can be integrated and applied to issues of environmental governance. Classroom activities and assignments are designed to foster critical thinking about 1) the tools used in environmental economics and 2) the interplay between economic and political forces in human-environment systems. Students will learn how concepts such as cost-benefit analysis, incentive-based regulation, and interest-based politics are applied to problems ranging from pollution reduction to international environmental negotiations.

Prerequisite: ECON 1 or ECON 2 and MATH 3, or the equivalent, or permission of the instructor.

Distributive: Dist:SOC

Offered: 16S, 17S: 11

ENVS 60 - Environmental Law

Instructor: Jones

Environmental law aims to protect and enhance the environment, reduce the risk to human health from pollution, and achieve sustainable development of natural resources. The success of environmental law depends upon balancing the three components of sustainability: ecological, economic, and social/cultural. Today, the primary sources of this balancing act are federal, state, and local ordinances and their myriad regulations. However, these statutes and regulations overlay a common, judge-made, law of property that establishes a system of private and public property, a law of contracts that governs transactions, and a tort law that provides remedies for intentional and unintentional harms. In addition, there is a growing body of international environmental law with both similarities and differences to U.S. environmental law. The

major objectives of this course are to survey today's major environmental laws, explore their history, determine how well they balance ecological, economic, and social sustainability and, finally, to discuss how to improve environmental law to better deal with biodiversity loss, human population growth, energy needs, and climate change in the future. Enrollment is limited.

Distributive: Dist:SOC

Offered: 15F, 16F: 10

ENVS 61 - Governing the Environment

Instructor: Cox

This course contrasts the dominant approach to environmental governance, which emphasizes high levels of control and simplification, with an alternative nuanced, evolutionary approach. Each approach is explored with a set of case studies (e.g. climate change, deforestation, water use). The goal of the course is for each student to be able to diagnose the challenges involved in any particular environmental problem, and from this derive policy prescriptions for addressing that problem.

Prerequisite: ENVS 2 or ENVS 3 or permission of instructor

Distributive: Dist:SOC

Offered: 16S, 17S: 2A

ENVS 65 - Global Environmental Politics

Instructor: Webster

This course will examine the global politics associated with environmental issues such as desertification, wildlife management, biodiversity conservation, oceans and fisheries, shared water resources, and climate change. Specifically, we will engage these topics using theories from international relations and comparative politics. A major goal of the course is to give students a firm understanding of the linkages between the policy preferences of governments and the outcomes of international negotiations regarding the global environment.

Prerequisite: ENVS 2 or ENVS 3 or permission of instructor

Distributive: Dist:INT

Offered: 16W, 17W: 11

ENVS 67 - Political Ecology

Instructor: Sneddon

Political ecology is an approach to human-environment relations that links a broad understanding of biophysical systems (e.g., tropical forests, coastal ecosystems, river basins) to knowledge regarding the political and economic forces that drive ecological change. Drawing on examples

from North America, Southeast Asia, Africa and other regions, this course employs a political ecology framework to examine contemporary debates over urbanization, water resources, the role of science in environmental conflicts and the cultural landscape.

Prerequisite: ENVS 3 or GEOG 1 or permission of instructor

Cross-Listed as: Identical to GEOG 67

Distributive: Dist:INT or SOC

Offered: 16W: 10A, 16F: 2A

ENVS 70 - Environmental Policy Research Workshop

Instructor: Cox

This course is designed to guide students in conducting research on environmental policy-based projects. These projects are based on requests from the Vermont and New Hampshire state legislatures. Students will be taught the basic theory and research methods in environmental social science, and spend the second half of the course applying these skills in team-based settings to prepare a proposal for research that could address the questions posed in the projects. The course will also prepare prospective applicants wishing to serve in the Rockefeller Public Policy Research Shop during the winter and spring terms.

Prerequisite: ENVS 2 or ENVS 3 or permission of instructor and a 10-level class (e.g., ECON 10, GOVT 10, MATH 10, PSYC 10, PBPL 10, SOCY 10)

Cross-Listed as: PBPL 49

Distributive: DIST: SOC

Offered: Not offered 15F through 17S

ENVS 72 - Nature Writers

Instructor: Osborne

This course combines reading, writing and fieldwork to explore the breadth and richness of the Nature Writing genre. It is a literature class that will expose you to a variety of nature writing forms; a field course that will put you in the practical position of a nature writer; and a writing workshop in which you will write literary, nature-related essays and critique classmates' work. You will read works by Henry David Thoreau, Barry Lopez, Annie Dillard, Terry Tempest Williams, and selections from *Orion* magazine, among others. You will also interact with local naturalists and an editor from *Orion* magazine. Enrollment is limited, and students interested in the course must apply. Applications will include a writing sample - a 3-page personal narrative based on a nature-related experience; the forms should be requested from the instructor. Applications are due by the last day of spring term; extensions are possible for students off-campus during the spring. Students will be notified about application decisions on or before the first day of class.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 2A

ENVS 79 - The Soil Resource

Instructor: Renock

Soils are a critical natural resource; feeding our growing population depends fundamentally on soils; in fact, soils provide nutrients to all ecosystems. Agriculture and land management has increased soil erosion around the world, potentially influencing the history and fate of civilizations. In the modern era, this use is not sustainable; the physical and chemical degradation of soils far outpaces soil production. This course will explore the nature and properties of soils and examine how these processes occur in natural and human-influenced soils, and identify reasonable limits on what can influence the sustainable utilization of soils as a resource. We will begin by developing an understanding of the geologic, biologic, and chemical processes that lead to soil formation and the development of specific soil properties. The second portion of the course will examine the relationship between soils and underlying bedrock and overlying vegetation and the role of soils in ecosystems. The final section of the course will examine the situations in which soils are used to reduce the impact of human activities and the way in which humans can reduce their impact on soils: the importance of soils in septic tanks and leach fields; the use of soils as solid waste landfill caps and liners; the use of soils in the storage of hazardous wastes; and the conservation and management of soils.

Prerequisite: ENVS 2 or one course from EARS 1, EARS 2, EARS 3, EARS 4, EARS 5, EARS 6, EARS 8, EARS 9, or CHEM 5 and an advanced course from the environmental sciences or Earth Sciences; or permission of the instructor.

Cross-Listed as: Identical to EARS 35

Distributive: Dist:SLA

Offered: 16F: 12; Laboratory: Arrange

ENVS 80.01 - Arctic Environmental Change

Instructor: Culler

This course examines the connections between science and the human dimensions of rapid environmental change. Environmental responses to climate change and resource development will be introduced from a scientific perspective. In addition, we will explore how this science is framed in policy documents such as reports from the Intergovernmental Panel on Climate Change. The course will emphasize the importance of science communication and will culminate with a collaborative project that integrates climate change, resource development, and social issues.

Cross-Listed as: BIOL 148

Offered: 16W: 2A

ENVS 80.02 - Writing Our Way Home: The Writing that Sustains Us

Instructor: Williams

This will be an intensive creative writing seminar and workshop in creative nonfiction, focusing on memory as source and landscape as setting. Students will explore the notion of place, not only as a physical construct but as an idea. The work of Helene Cixous, George Orwell, Brenda Ueland, and John Berger will serve as texts. The form of the essay will be discussed through the writings of Joan Didion, David Foster Wallace, Anne Carson, Sherman Alexie, and others. Throughout the quarter, students will immerse themselves in both the art of storytelling and the practice of writing, culminating in "a natural autobiography," a long essay that illuminates their own sense of place.

Distributive: Dist:LIT; WCult:CI

Offered: 16S, 17S: 3A

ENVS 80.03 - Regenerative Design of the Built Environment

Instructor: Kawiaka

This class will examine current trends in ‘regenerative design’ of the built environment that includes buildings, infrastructure, and manmade landscapes that interact with the natural environment and its potential to improve our lives and the planet. Regenerative design is a systems-theory based approach to design. “Regenerative” processes restore energy used and materials consumed through a closed loop model where the outputs are equal to the inputs where waste=resources. Through this process, social needs are addressed while diminishing ecological impact, and usable energy, food and additional materials are created instead of waste and the designed system can actually improve the natural environment over time.

Offered: 15F: 10A

ENVS 80.08 - The Practice of Science Policy & Diplomacy

Instructor: Melody Brown Burkins

This course is designed to introduce students to the global landscape, emerging ideas, and the art and practice of science policy and diplomacy in the U.S. and internationally. Coursework will be highly interactive, emphasizing how both scientists and non-scientists can most effectively engage in science policy and diplomacy activities in the U.S., with international organizations, and in their careers. Class time will emphasize current issues in science policy and diplomacy, the development of policy briefings and other strategic communications, and comprehensive policy analysis including social, economic, and political concerns as well as a science and technology

perspective. Guest lectures by faculty and distinguished practitioners at the intersection of science, policy, and diplomacy will bring unique perspectives about the advancement of complex policy and diplomacy issues at regional, national, and international scales. Students will complete a final project in which they develop and present a policy briefing with recommendations for next steps relevant to U.S. legislative and/or diplomatic activity.

Prerequisite: ENVS 2 or ENVS 3 or permission of instructor

Distributive: Dist:SOC

Offered: F15: 2; W17: 12

ENVS 83 - Environmental Social Science Research Methods

Instructor: Cox

This course is designed to train students to conduct research in the area of human-environment interactions. Such interactions include humans extracting important renewable and non-renewable natural resources such as fish and forests, as well as producing wastes, such as greenhouse gases, as the result of modern economic activities. Students will learn data collection and analysis techniques and explore primary literature that uses these techniques in order to understand how they are implemented. Building on this process, a primary goal of the course is to have each student fully develop their own research proposal. This course is recommended for students planning to conduct graduate-level research or senior theses related to human-environment interactions.

Prerequisite: ENVS 2 or ENVS 3 and MATH 10 or equivalent, or permission of instructor

Distributive: Dist:SOC

Offered: Not offered 15F through 17S

ENVS 84 - Seminar on Environmental Issues of Southern Africa

Instructor: Bolger

This seminar will coordinate and supplement the material in courses and field work of the program, using guest speakers and student presentations. Students, working in small sub-groups, will undertake multidisciplinary studies of specific regional environmental issues in southern Africa. These projects will lead to a single major paper produced by the group on an environmental topic selected in consultation with the instructor. The paper will be printed in a volume for use by future students and by interested individuals in the U.S. and in southern Africa. Satisfies the Culminating Experience requirement.

Distributive: WCult: NW

Offered: 15F, 16F: D.F.S.P.

ENVS 89 - Forest Biogeochemistry

Instructor: Friedland

This seminar will examine elemental cycling and related biogeochemical processes in terrestrial ecosystems, with a strong focus on forests of the temperate zone. Emphasis will be placed on understanding the cycling of the major elements carbon and nitrogen, and the trace elements mercury and lead. The interaction of disturbed and undisturbed forests with the changing global environment will be a major topic of study throughout the course.

Prerequisite: ENVS 2 plus one additional science class in ENVS plus one related course in Ecology or EARS; or permission of the instructor.

Distributive: SCI

Offered: 15F, 16F: 10A

ENVS 90 - Independent Study and Research

Permission is required from the faculty advisor and the program chair.

Offered: All terms: Arrange

ENVS 91 - Thesis Research in Environmental Studies

Independent study of an environmental problem or issue under the supervision of a member of our staff. Open only to Environmental Studies majors. May be taken two terms, both for course credit, but can only count once toward the major. Credit requires completion of a suitable report. See description of the Honors Program in Environmental Studies.

Prerequisite: Permission is required from the faculty advisor and the program chair.

Ethics Institute

Director: Aine Donovan

Faculty Fellow: Randall Balmer

2015-2016 Advisory Board Members: T. Rosenkoetter, T. Osborne, M. Guernot, A. Kapuscinski, L. Swaine, J. Horrell, K. Kirkland, B. Tomlin, P. Argenti, U. Wegst, I. Baker.

The Ethics Institute exists to foster the study of applied and professional ethics throughout the Dartmouth community, both at the undergraduate level and in the professional schools. Since its beginning in 1982, the Ethics Institute has been distinguished by a grassroots faculty interest. The Ethics Institute provides support for research in applied and professional ethics ranging from medical, business, legal, and engineering ethics to the ethics of teaching and research. We gather in seminar groups and task forces to discuss and research cutting edge ethical issues, to prepare publications, symposia, and lectureships, and to develop courses.

On-campus services include: 1) forums in Applied and Professional Ethics; 2) a faculty University Seminar in Applied and Professional Ethics; 3) monthly interest group meetings on ethical issues that foster faculty discussions, joint research, publications, teaching, and course development in applied and professional ethics; 4) development of externally-funded projects and fellowships; 5) website; 6) annual undergraduate essay contest; 7) research grant opportunities for faculty and undergraduate students; 8) consultations with professors, students, and departments of the college; 9) student mediation and conflict resolution group; 10) annual bioethics and ethics bowl debate competitions.

The Ethics Institute's administrative offices, library, and conference room are located in Haldeman Center, second floor.

Ethics Minor

Professor Aine Donovan

The Ethics Institute at Dartmouth coordinates the Ethics Minor, which is open to students from all majors who seek a coherent program of study in the field of applied and professional ethics. The minor is designed to enhance the formal ethics education of students interested in medicine, law, journalism, government or other professional areas. It also provides an opportunity for sustained study of specific ethical issues, such as ethics and the environment, or research ethics. An up-to-date list of Ethics Minor courses is available at:

http://www.dartmouth.edu/~ethics/programs/ethics_minor/index.html.

ETHICS MINOR REQUIREMENTS

Six courses are required for the Ethics Minor. These courses may not count toward a student's major or another minor. Students must sign up for the minor no later than the third term prior to graduation. The Ethics Minor has three components:

French and Italian Languages and Literatures

Chair: Andrea Tarnowski

Professors F. Beasley, L. A. Higgins, L. D. Kritzman, D. P. LaGuardia, G. Parati, J. A. Rassias, R. M. Verona, K. L. Walker; Associate Professors N. L. Canepa, A. W. Tarnowski, J. K. Wine; Assistant Professors Y. Elhariry, L. C. Hollister, L. E. Hooper, C. K. Quaintance, S. M. Sanders, R. St. Clair; Research Assistant Professor T. Convertini; Senior Lecturers A. C. Cone, D.-M. Decharme, K. F. McConnell, A. Minardi, B. D. Mosenthal; Lecturers D. Benvegnù, K. A. LaPorta, E. Kazakova, J. Mullins.

To view French courses, click here (p. 276).

To view French and Italian in Translation courses, click here. (p. 284)

To view Italian courses, click here (p. 285).

Majors

Five types of major are available to the student. All programs are designed individually by the student with the help of a faculty advisor of his or her choosing within the Department. Major programs may be organized historically, around a genre (like poetry, drama, or prose fiction), or around a period concept or movement (such as the Enlightenment, baroque, classicism and romanticism, or existentialism). Major programs normally include at least one term of study in France or Italy (two of the L.S.A.+ and/or F.S.P. courses count towards the major; for more information, see section titled 'Foreign Study.')

Whether students have an individual advisor or not, *all major plans and subsequent changes must be approved by the French or Italian Major Advisor.*

1. *Major in French.* Prerequisite for the major: FREN 8. Major programs consist of ten (minimum) or more courses above the level of FREN 8. Each major must include FREN 10's (prerequisite for all upper-level courses), (1) either FREN 20 or FREN 21; (2) either FREN 22 or FREN 23; and (3) either FREN 24 or FREN 25 (to be completed by the end of the junior year). During their senior year, as their culminating experience, majors must take either FREN 78: Senior Major Workshop or, with special permission, an upper-level French course (numbered FREN 40 or above). Students taking an upper-level French course as their culminating experience are required to supplement the regular reading with extra materials chosen in consultation with the instructor, and to write a research or critical paper of at least twenty pages. French courses numbered 40 and above may be taken for major credit more than once, in cases where the topic is different. The major card must be approved by the French Major Advisor.

2. *Major in Italian.* Prerequisite for the major: ITAL 8 or ITAL 9.

All students wishing to major in Italian must have completed ITAL 8 through the L.S.A.+ program in Rome or ITAL 9 on campus. An Italian major consists of eight courses numbered ITAL 10 or above, at least five of which must be numbered above ITAL 15. The Honors major consists of nine courses, of which one must be ITAL 89 (the thesis). Two of the three courses offered on the Italian L.S.A.+ (ITAL 10 and ITAL 12) may be counted toward the major and the Honors major. The major must include ITAL 10; at least two courses from the pre-1800 period (ITAL 21, ITAL 22, ITAL 23, ITAL 33, ITAL 34); and at least two courses from the post-1800 period (ITAL 15, ITAL 24, ITAL

25, ITAL 35). With the approval of the Italian Major Advisor, ITAL 10 may be counted for credit toward the major twice, provided the course topics are different. During their senior year, as their culminating activity, Italian majors must take either ITAL 88: Senior Independent Reading and Research or an upper-level Italian course (numbered ITAL 21 or above). Students taking an upper-level Italian course as their culminating activity are required to supplement the regular reading with extra materials chosen in consultation with the instructor, and to write a research or critical paper of at least twenty pages. All culminating experiences must include a public presentation. The major card must be approved by the Italian Major Advisor.

3. *Major in Romance Languages.* Prerequisite for the major: The appropriate prerequisite course in each of the two languages studied.

Includes two of the principal Romance languages (French, Italian, Spanish, Portuguese). Majors will be required to take ten major-level courses, six of which shall be selected from the primary language, and four from the secondary language. If the primary language is French, the six courses must include FREN 10 and one course from FREN 22, FREN 23, FREN 24, FREN 25 (to be completed by the end of junior year). During their senior year, as their culminating activity, Romance Language majors (whose primary language is French) must take either FREN 78: Senior Major Workshop or, with special permission, an upper-level French course (numbered FREN 40 or above). Students taking an upper-level French course as their culminating experience are required to supplement the regular reading with extra materials chosen in consultation with the instructor, and to write a research or critical paper of at least twenty pages. If the primary language is Italian, the six courses must include ITAL 10, at least one course from the pre-1800 period, and at least one course from the post-1800 period. Two of the Italian L.S.A.+ courses (ITAL 10 and ITAL 12) may count toward the major. During their senior year, as their culminating activity, Romance Language majors (whose primary language is Italian) must take either ITAL 88: Senior Independent Reading and Research or an upper-level Italian course (numbered ITAL 21 or above). Students taking an upper-level Italian course as their culminating activity are required to supplement the regular reading with extra materials chosen in consultation with the instructor, and to write a research or critical paper of at least twenty pages. Italian culminating experiences must include a public presentation. The major card must be approved by the Major Advisor for the department of the primary language, and will be filed with that department.

4. *Major in French Studies.* Prerequisite for the major: FREN 8.

The French Studies Major consists of ten courses, with a minimum of six selected from FREN 10's and above, and from one to four from appropriate major-level courses offered by other departments or programs. French Studies Majors must include one course from FREN 20 through FREN 25 (to be completed by the end of the junior year). Two of the French L.S.A.+ and/or F.S.P. courses may count toward the major. During their senior year, as their culminating experience, French Studies Majors must take either FREN 78: Senior Major Workshop or, with special permission, an upper-level French course (numbered FREN 40 or above). Students taking an upper-level French course as their culminating experience are required to supplement the regular reading with extra materials chosen in consultation with the instructor, and to write a research or critical paper of at least twenty pages. The major card must be approved by the French Major Advisor.

5. *Major in Italian Studies.* Prerequisite for the major: ITAL 8 or ITAL 9.

The Italian Studies Major consists of ten courses, with a minimum of six selected from ITAL 10 and above, and from one to four from appropriate major-level courses offered by other departments or programs. Two of the Italian L.S.A.+ courses (ITAL 10 and ITAL 12) may count toward the major. The Italian courses must include ITAL 10, at least one course from the pre-1800 period, and at least one course from the post-1800 period. During their senior year, as their culminating experience, Italian Studies Majors must take either ITAL 88: Senior Independent Reading and Research or an upper-level Italian course (numbered ITAL 21 or above). Students taking an upper-level Italian course as their culminating experience are required to supplement the regular reading with extra materials chosen in consultation with the instructor, and to write a research or critical paper of at least twenty pages. All culminating experiences must include a public presentation. The major card must be approved by the Italian Major Advisor.

French or Italian as a Modifier. If a student wishes to modify a major in another department with French or Italian and wishes the modifying language to be entered on his or her permanent record, the major program must be approved by the Department of French and Italian, as well as by the primary department. The modifying component, which must have some coherence with the primary major, may be organized historically, around a genre (like poetry, drama, or prose fiction), or around a period concept or movement (such as the Enlightenment, baroque, classicism

and romanticism, or existentialism), and must consist of major-level courses.

Minors

1. *Minor in French.*

The minor in French consists of six courses. The minor must include: either FREN 6 or FREN 8; FREN 10's; one of the following: FREN 21, FREN 22, FREN 23, FREN 24, FREN 25; and three other advanced courses above the level of FREN 10's. Among the courses taken on campus, at least one course must treat literature from before the nineteenth century, and at least one course must treat literature from the nineteenth century to the present. Two of the courses offered on the Dartmouth L.S.A.+ and/or F.S.P. in France may count toward the minor. FREN 10's may be counted toward the minor only once. Students who are exempted from FREN 8 may replace it with another advanced course. A maximum of one transfer course may count toward the minor.

2. *Minor in Italian. Prerequisite for the minor: ITAL 8 or ITAL 9.*

All students wishing to minor in Italian must have completed ITAL 8 through the L.S.A.+ program in Rome or ITAL 9 on campus. An Italian minor consists of six courses numbered ITAL 10 or above, at least three of which must be numbered above ITAL 15. With the approval of the Italian Minor Advisor, ITAL 10 may be counted for credit toward the minor twice, provided the course topics are different. Two of the Italian L.S.A.+ courses (ITAL 10 and ITAL 12) may count toward the minor. The minor must include ITAL 10, at least one course from the pre-1800 period, and at least one course from the post-1800 period.

Transfer Credit

Transfer credit is not available for FREN 1, FREN 2, and FREN 3 or ITAL 1, ITAL 2, and ITAL 3. Prior approval for each course to be taken at another institution must be gained from the Chair of the Department of French and Italian. The maximum number of transfer credits is two.

Honors Program

To be admitted to the Honors Program, a student must satisfy the minimum College requirement and give clear evidence of exceptional ability and interest in the major field. The Honors Seminar (FREN 89 or ITAL 89) is counted as one of the minimum required courses in the French, Romance Languages, French Studies or Italian Studies major programs. In the Italian major program, the Honors Seminar (ITAL 89) constitutes one course above the minimum course requirement. Honors students will arrange a program of study and research during any term of the senior year on a tutorial basis with a faculty advisor. The honors thesis must be written in French or Italian. A proposal, signed by the faculty advisor, must be submitted to the Departmental Committee on Independent Studies

and Honors Theses for approval by the fifth day of classes of the term.

Language Study Abroad

French L.S.A. - Winter, Spring—Lyon, France

French L.S.A.+ - Winter, Spring—Toulouse, France

Italian L.S.A. - Fall —Rome, Italy

Italian L.S.A.+ - Winter, Spring—Rome, Italy

Prerequisite: For *French L.S.A.*, FREN 2 with the grade of B– or better, or equivalent preparation, and acceptance into the program; for *French L.S.A.+*, FREN 3 with the grade of B– or better, or equivalent preparation, and acceptance into the program; for *Italian L.S.A.*, ITAL 2 or ARTH 12 with the grade of B or better, or equivalent preparation, and acceptance into the program; for *Italian L.S.A.+*, ITAL 3 with the grade of B or better, or equivalent preparation, and acceptance into the program. The preparatory course, when applicable, must be taken within six months of departure.

Students live with families and take courses in language, civilization, and literature taught by local instructors and the Dartmouth faculty member in residence.

Upon successful completion of the L.S.A. program, credit will be awarded for FREN 3, FREN 5, and FREN 6, or ITAL 3, ITAL 5, and ITAL 6. FREN or ITAL 3 completes the language requirement.

Upon successful completion of the L.S.A.+ program, credit will be awarded for FREN 8, FREN 10's, and FREN 12, or ITAL 8, ITAL 10 and ITAL 12.

Students will be accepted on the basis of their application forms and letters of reference; actual participation in the program is contingent upon the maintenance of satisfactory academic standing and conduct, and compliance with orientation procedures. L.S.A. may not be taken during the student's senior year.

For application and deadline information, consult the Off-Campus Programs Office.

Foreign Study

French F.S.P. - Fall, Winter, Spring—Paris, France

French: Prerequisite: Acceptance into the program and in any order:

1. Students must complete FREN 8 (or have been exempted from FREN 8 during Orientation week) with a grade of B or better.
2. Students must complete FREN 10's (or have received credit for FREN 10's during Orientation week) with a grade of B or better. FREN 10's should be taken as immediately prior to the term in Paris as scheduling allows.

FREN 8 and FREN 10's may be completed on the L.S.A.+.

Students who have received exemption from FREN 8 AND credit for FREN 10's during Orientation Week must take at least one French course at Dartmouth from among courses FREN 10's through FREN 25, with a grade of B or better, prior to participation in the Foreign Study Program.

Prerequisite courses for the Foreign Study Program must not be taken NRO.

OR: Satisfactory completion of the L.S.A. program in France *during the term immediately preceding the Foreign Study term.*

For application and deadline information, consult the Off-Campus Programs Office.

FRENCH CLUB

Students interested in French are invited to join the French Club, *Le Cercle français*. It is a cultural as well as social organization which meets weekly. Membership is open to all students whether or not enrolled in French courses. The program includes talks in French, informal conversation groups, films, and dramatic productions.

ITALIAN CLUB

Il Circolo Italiano is open to all students interested in Italian language and culture. Weekly gatherings with conversation, music, and refreshments. Special events include films, suppers, and out-of-town excursions.

FREN - French Courses

To view French requirements, click here (p. 273).

FREN 1 - Introductory French I

Instructor: 15F: Kazakova 16W: Kazakova 16S: Kazakova

An introduction to French as a spoken and written language. The work includes regular practice in class and scheduled drill-sessions in understanding and using the spoken language. Written exercises and elementary reading materials serve for vocabulary building and discussion. Never serves in partial satisfaction of the Distributive or World Culture Requirements.

Offered: 15F: 9L, 10 16W: 9L 16S: 9L 16F: 9L, 10 17W: 9L 17S: 9L

FREN 2 - Introductory French II

Instructor: 15F: LaPorta, McConnell 16W: LaPorta, Sanders 16S: LaPorta

Rapid review and continued study of the fundamentals of French, with intensive work in vocabulary building. More advanced practice, in classroom and drill-sessions in the use of the spoken language. Open to students by qualifying

test or to students who have passed French 1. Never serves in partial satisfaction of the Distributive or World Culture Requirements.

Prerequisite: FREN 1 or qualifying placement

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 9L, 10

FREN 3 - Introductory French III

Instructor: 15F: Mosenthal 16W: Mosenthal, McConnell 16S: LaPorta, McConnell

Given on-campus as the final course in the required sequence and off-campus as part of the L.S.A. curriculum, this course is designed to develop reading, writing, and speaking skills, with emphasis on expansion of vocabulary and reinforcement of grammatical structures. Some discussion of texts and films of literary or cultural interest. Frequent oral and written assignments and tests, both on-campus and off, plus daily drills off-campus. Open to students by qualifying test or to students who have passed French 2. Never serves in partial satisfaction of the Distributive or World Culture Requirements.

Prerequisite: FREN 2 or qualifying placement

Offered: 15F: 9L, 10 16W: 9L, 10, 11 16S: 9L, 10 16X: 10 16F: 9L, 10 17W: 9L, 10 17S: 9L, 10 16W, 16S, 17W, 17S: D.L.S.A.

FREN 5 - Language Study Abroad: Aspects of French Civilization

Instructor: 16W: St. Clair 16S: Cone

A course in French civilization taught in the context of the Language Study Abroad program. Lectures by local faculty concentrate on French political, social, economic, and religious institutions, and their historical development. Independent or accompanied visits to sites are an integral part of the course. Assigned work may include short readings, oral presentations and papers, and a final examination.

Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program.

Distributive: WCult:W

Offered: 16W, 16S, 17W, 17S: D.L.S.A.

FREN 6 - Language Study Abroad: Readings in French Literature

Instructor: 16W: St. Clair 16S: Cone

An introductory course, offered in the context of the Language Study Abroad program, dealing with major figures, themes, or genres of French literature. Some areas of concern are critical reading and analysis, style, and historical and social perspectives. Assigned work may include independent reading and analysis, frequent short papers, and examinations. Taught by Dartmouth faculty.

Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program.

Distributive: Dist:LIT; WCult:W

Offered: 16W, 16S, 17W, 17S: D.L.S.A.

FREN 7 - First-Year Seminars in French Literature

Offered: Consult special listings

FREN 8 - Exploring French Culture and Language

Instructor: 15F: Cone, McConnell 16W: Cone 16S: McConnell D.L.S.A+ 16W: Decharme 16S: Decharme

Practice in the active use of the language combined with an introduction to major aspects of French society. Each week students will write papers and participate in discussions based on books, articles, and films emphasizing social and historical concepts.

Prerequisite: FREN 3, or equivalent preparation.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10, 12 16W: 12 16S: 12 16F: 10, 12 17W: 12 17S: 12 16W, 16S, 17W, 17S: D.L.S.A.+

FREN 10 - Introduction to French Literature: Masterworks and Great Issues

These courses, offered each term by various members of the Department, deal in major figures, themes, or issues of modern French literature, and of those earlier periods which have particular relevance to today's world. Techniques of critical reading and interpretation are studied as an approach to these topics, which reflect the interests of the teaching staff.

Distributive: Dist:LIT; WCult:W

FREN 10.02 - The Heroic Heart

Instructor: Tarnowski

If exceptions prove the rule, what do heroes tell us about their societies? Whether motivated by political conviction, social ambition, religious faith, or esthetic vision, heroes across the ages often reflect, and sometimes confound, society's aspirations. A cast of characters - friends, helpmeets, enemies, paramours - is always necessary to enhancing the hero's singularity. Authors read in this course may include Chrétien de Troyes, Corneille, Diderot, Musset, Stendhal, Céline and Sartre.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period from 15F through 17S

FREN 10.03 - Travel and Literature

Instructor: Verona

This course examines the ways in which the Mediterranean Orient inflects 19th and 20th-century French literature and art. Drawing on poems, stories, travel journals, memoirs,

and visual art, the course will show how staging the "Orient" helps shape French colonial and post-colonial identity. Readings may include authors such as Mérimée, Flaubert, Verne, Loti, Camus, Tournier, and artists such as Delacroix, Moreau, Matisse, and Picasso.

Distributive: Dist:LIT; WCult:W

Offered: 14F: 10

FREN 10.06 - The Anatomy of Passion

Instructor: Walker

A study of passion in French and francophone literature through the ages, as seen through texts and films. Readings may include works by Sceve, Corneille, Laclos, Flaubert, Condé.

Prerequisite: French 87 or the equivalent preparation

Distributive: Dist:LIT; WCult:W

Offered: 16F: 2 17W: 2

FREN 10.08 - Living in Paris/Habiter Paris

Instructor: LaGuardia

Living in Paris has generated an enormous amount of writing since the middle ages. This course will examine diverse narrative, poetic, propagandistic, memorial, historical, and anthropological texts that describe the difficulties and the joys of living in the French capital. Works by Perec, L'Estoile, Prévost, Baudelaire, Mercier, Sue, Balzac, Augé, Modiano, Colette, Barthes, Gary, Duras, and others.

Prerequisite: French 8 or equivalent preparation

Distributive: Dist:LIT; WCult:W

Offered: 15F: 12 16F: 12

FREN 10.10 - Du mal/On Evil

Instructor: St. Clair

This course proposes a look at "evil" in French literature, art, and film (1665-1966). What does "evil" designate? A concept, or an ethical category? A limit of the thinkable and sayable? The proof of human freedom? Is there a semiotics of evil? Can it be represented, or does its excess necessarily elude our attempts to pin it down (as when something "hurts," or "fait mal")? What is its relationship to the violence of history (from the death of God to the ravages of time passing by)? How does literature challenge us to think about what it means to be a witness to evil? Plays by Molière; novels, short-stories or essays by Voltaire, Balzac, Maupassant, Sartre; poems by Baudelaire, Musset, Verlaine, Hugo, Louise Michel; paintings and caricature by Daumier, Caillebotte, Manet, Meissonnier. Film by Gillo Pontecorvo (La Bataille d'Alger). Excerpts of readings from Hannah Arendt, Terry

Eagleton, Georges Bataille, Raymond Williams, Sigmund Freud, Cathy Caruth.

Prerequisite: French 8 or the equivalent preparation

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10

FREN 10.11 - Automats and Monsters

Instructor: Sanders

Androids, werewolves and golems are not simply the stuff of modern fantasy. Human-like creatures populate novels, poems and philosophical texts from ages past. Our course will trace the evolution of artificial and monstrous life, from medieval werewolves, through 17th and 18th-century automats, to contemporary androids and clones. Throughout the trimester, we will search for reasons to imagine human otherness, and reflect on how these creatures offer insights into our understanding of

Prerequisite: French 8 or the equivalent

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10

FREN 10.12 - The Other's Gaze

Instructor: Sitbon

Everyone is somebody's Other. How do French and Francophone authors write about the Other? How does that view evolve? This course will explore the theme of Otherness from the 16th to the 21st century, and help you develop a critical perspective through the analysis of texts drawn from diverse genres: poetry, fiction, plays, essays, films, and lyrics. Readings may include works by Montaigne, Molière, Montesquieu, Gouges, Maupassant, Lévi-Strauss, Camus, Césaire, Duras, Chedid, Guène, and others.

Prerequisite: French 3, or equivalent preparation

Distributive: Dist:LIT; WCult:W

Offered: 15X: 10A

FREN 10.13 - Games People Play

Instructor: Wine

For both adults and children, fun and games can be serious business. This course explores the cultural and social functions of games and play as depicted in literature and film. We will be especially interested in differences in the way the French and Americans play, focusing on notions like fun, playfulness, and humor. Readings may include works by Scudéry, Molière, Marivaux, Maupassant, and Pagnol.

Prerequisite: French 8 or equivalent preparation

Offered: 15F at 10

FREN 10.14 - Le sentiment amoureux

Instructor: Elhariry

An 'ingenu' lover's introduction to the origins of the 'sentiment amoureux': French literature explained through love, from the Middle Ages to the modern moment, in Tristan et Iseult, and in poems, plays, short stories and novels by Louise Labé, Racine, Voltaire, Flaubert, and Houellebecq.

Prerequisite: French 8 or equivalent preparation

Distributive: Dist:LIT; WCult:W

Offered: 17S: 2

FREN 12 - Advanced Writing and Speaking in French

Instructor: 16W: Decharme 16S: Sanders

In this course, students will learn to recognize and reproduce a broad range of linguistic registers and structures in order to achieve competence in French grammar, phonetics, vocabulary, and oral and written expression. Aided by the analysis of newspaper articles, letters, political orations, screenplays, interviews, and short stories, students will analyze, imitate, and produce diverse types and levels of discourse. Course work will entail intensive writing, stylistic analysis, small group discussions, dramatic presentations, and experiential exercises such as conducting interviews, writing business letters, or composing political speeches. Texts by Montesquieu, Danton, Maupassant, Zola, Ionesco, De Gaulle, Yourcenar, Kassovitz, and others.

Prerequisite: Acceptance into the Dartmouth Advanced Language Study Abroad Program.

Distributive: WCult:W

Offered: 16W, 16S, 17W, 17S: D.L.S.A.+

FREN 15 - Business French and the French Economy

Instructor: Mosenthal

This course will enable students to function in a French business environment. We will use departments of a company (human resources, production, sales, finance and administration) to acquire a knowledge of business terminology and practices. Using company web sites and the business press, students will become familiar with important companies and the environment in which they operate.

Prerequisite: FREN 8, or permission of the instructor.

Offered: 16S: 9L

FREN 20 - Interpreting French Cultures

Instructor: 16W: Beasley 16F:Beasley

This course is designed to enable students to acquire the analytical skills necessary to interpret the various

representational modes that constitute French and Francophone cultures. In order to prepare students to become more culturally "competent" the course will draw on various critical concepts that focus on how and why we read the signs of culture from a variety of perspectives such as: history and politics; issues of class and power; the study of symbols and documents. We will explore a variety of cultural objects and examine the theoretical writings of some of the following authors: Balibar, Barthes, Baudrillard, Ben Jelloun, Bourdieu, Butler, de Certeau, Condé, Fanon, Finkielkraut, Foucault, Fumaroli, Glissant, Kristeva, Le Goff, Malraux, Nora, Ozouf, and Wievorka.

Prerequisite: A course in the FREN 10 series, or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 12 16F: 12

FREN 21 - Introduction to Francophone Literature and Culture

Instructor: 15F: Walker, 16F: Walker

This course surveys the evolution of French language (Francophone) literature of the former French colonies and examines the social, political, and cultural issues it raises: race, colonialism, decolonization, revolution, independence, neo-colonialism, Négritude, Antillanité, Créolité, écriture féminine, mimetic desire, cultural hybridity, post-independence government and society. The survey will include novels, plays, poetry, film and essays by representative writers from the principal divisions of the Francophone world: the French West Indies, the Indian Ocean, Southeast Asia, Sub-Saharan Africa, North Africa; Quebec, and Francophone Canada.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 15F: 11, 16F: 11

FREN 22 - Introduction to French Literature I: the Middle Ages and the Renaissance

Instructor: 16S: Tarnowski 17S: Tarnowski

Medieval France - its art, architecture, technology, philosophy and literature - exerted an unparalleled influence throughout Europe. Studying the first texts written in French, as well as the manuscripts in which they circulated, will shed light on the nature of French culture. We will examine defining issues of the period: the transition from oral to written expression, the invention of printing, debates concerning the status of women, Renaissance humanism, scientific inquiry, religious reform and conflict. Texts may include *La Chanson de Roland*, selected poetry, and works by Chrétien de Troyes, Christine de Pizan, Marguerite de Navarre, François Rabelais, and Michel de Montaigne.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10, 17S: 10

FREN 23 - Introduction to French Literature II: Neoclassicism and the Eighteenth Century

Instructor: 15F:Wine, 17W: Sanders

The seventeenth and eighteenth centuries were a dynamic and volatile period characterized on the one hand by the rise to power of the most absolute of all monarchs, the Sun King Louis XIV, symbolized by Versailles, and on the other hand by the French Revolution. Fostered by royal patronage, literature and the arts flourished, yet many writers also used artistic expression to counter this royal power. The period saw the birth of the modern French novel and the development of a rich body of theatrical and philosophical literature. These centuries are recognized as major components of France's collective identity and their influence is still felt in France today. Authors may include Descartes, Corneille, Racine, Molière, Lafayette, Diderot, Rousseau, Voltaire, Graffigny, Beaumarchais and Laclos.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 12, 17W: 10

FREN 24 - Introduction to French Literature and Culture III: Nineteenth Century

Instructor: 16S: St. Clair, 17W: Walker

This course examines the nineteenth-century renewal of literary form and vision from the French Revolution to the First World War. We will study the social and historical developments of French culture as they are reflected in various literary genres (narrative, poetry, dramatic theory and practice), literary criticism, philosophy, historiography, and the other arts. Emphasis will be placed on France's growing self-awareness as a nation and on the analysis of aesthetic and intellectual issues represented in the major literary movements of this period including romanticism, realism, symbolism, art for art's sake, naturalism, fin de siècle decadence, and modernism. Readings may include works by such authors as Chateaubriand, de Staël, Stendhal, Hugo, Musset, Sand, Balzac, Baudelaire, Flaubert, Michelet, Zola, and Huysmans.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 11, 17W: 11

FREN 25 - Introduction to French Literature and Culture IV: Twentieth and Twenty-First Centuries

Instructor: 16W: Hollister, 17S: Elhariry

This course examines the radical transformations of literary form and vision that characterize twentieth-century France with its two World Wars, its colonial conflicts, and the challenges to French identity posed by immigration and globalization. We will use lyric poetry, fiction, drama, autobiography, and film to explore literary movements such as surrealism, existentialism, the new novel, the theater of the absurd and *écriture féminine*, as well as the recent impact of immigrant and minority writers. Readings and films may include works by Proust, Breton, Colette, Beauvoir, Sartre, Camus, Robbe-Grillet, Duras, Delbo, Cixous, Sebbar, Resnais, Malle, and Kassovitz.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10, 17S: 2

FREN 29 - French Civilization: Study Abroad

Instructor: 15F: Verona 16W: Verona 16S: Hollister

Studies in such aspects of the cultural heritage as French art, music, and history. Credit for this course is awarded students who have successfully completed the program of the Dartmouth Foreign Study Program at one of its university centers in France.

Prerequisite: acceptance into the Foreign Study Program.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16W, 16S, 16F, 17W, 17S: D.F.S.P.

FREN 30 - French Literature: Study Abroad

Instructor: 15F: Verona 16W: Verona 16S: Hollister

Credit for this course is awarded students who have successfully completed the program of the Dartmouth Foreign Study Program at one of its university centers in France.

Prerequisite: acceptance into the Foreign Study Program.

Distributive: Dist:LIT; WCult:W

Offered: 15F, 16W, 16S, 16F, 17W, 17S: D.F.S.P.

FREN 31 - The French Language: Study Abroad

Instructor: 15F: Verona 16W: Verona 16S: Hollister

Credit for this course is awarded students who have successfully completed the program of the Dartmouth Foreign Study Program at one of its university centers in France.

Prerequisite: acceptance into the Foreign Study Program.

Distributive: WCult:W

Offered: 15F, 16W, 16S, 16F, 17W, 17S: D.F.S.P.

FREN 35 - The French Language: Introduction to Linguistics and Rhetoric

This course will explore the French language by means of the linguistic analysis of texts. Its purpose is a) to familiarize the student with the constraints and freedoms of the French language as these are revealed by linguistic analysis, and b) to develop the student's spontaneity of expression. The course will include the study of structural linguistics and recent rhetorical systems such as those of Genette or Riffaterre.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:SOC; WCult:W

FREN 35.03 - Fifty Shades of Language: Finding pleasure in literary constraints

Instructor: Sitbon

Inspired by disciplined yet playful research on language (authors such as Queneau and Perec), this course will consist of translation and creative writing workshops. Advanced students will improve their linguistic skills and understanding of language registers, fine points of grammar, and stylistic devices, and gain a better appreciation of the subtleties of French and Francophone literature.

Our sources will include fiction, poetry, humor, biographies and newspaper articles.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: X15: 2A

FREN 40 - French Literature: The Approach through Genre

This course will be devoted to significant examples of a particular literary genre. Genres may be defined historically: thus epic is recognized in its medieval form; tragedy receives its normative definition during classicism. Genres may also be defined formally so that narrative may be studied as it evolves across several centuries. Issues to be considered may include the way genre shapes the production and reception of literary texts and the relationship between historical and generic determinants of a given work.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

FREN 40.02 - French and Francophone Poetry from Baudelaire through Césaire

Instructor: 15F: Walker

Charles Baudelaire, Arthur Rimbaud, Guillaume Apollinaire, Paul Eluard, André Breton, Paul Valéry, Aimé Césaire, Léon Damas, D.T. Niane and Andrée Chédid are poets of radically different backgrounds connected by abiding preoccupations of a modernist vision. These poets will be studied in order to explore the traditions and counter-traditions of French and Francophone poetry.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 2

FREN 40.03 - Récits méditerranéens

Instructor: Elhariry

In 'Récits méditerranéens, pourtours mystiques I,' we will focus on first-person narratives (fictional and non-fictional, fictive and fictionalized) from across the modern Mediterranean Francophone world: Lebanon, Egypt, Algeria, Tunisia and Morocco. We will exhaust the politics of autobiography, autofiction and autoportraiture as we unravel the mystical underpinnings of texts by Tahar Ben Jelloun, Hélène Cixous, Jacques Derrida, Assia Djebar, Edmond Jabès, Abdelkébir Khatibi, Amin Maalouf, Abdelwahab Meddeb, and Salah Stétié.

Prerequisite: A course in the FREN 10 series or permission of the instructor

Distributive: Dist:LIT; WCult:W

Offered: 16S: 2

FREN 40.04 - Classical Comedy: Molière

Instructor: Beasley

In this course we will focus on the celebrated French playwright Molière. We will read his works in their seventeenth-century context, analyze how these plays were produced, and study Molière's impact on French culture today. The final project may consist of a staging of one of Molière's comedies, depending on student interest.

Prerequisite: A course in the FREN 10 series or permission of instructor

Distributive: Dist:LIT; WCult:W

Offered: 16F: 2

FREN 45 - French Literature: The Approach through Periodization

French literature has traditionally been divided into chronological blocks that receive descriptive names:

classicism for the seventeenth century; Enlightenment for the eighteenth century; etc. In this course, one or more periods will be selected for intensive study in the light of fundamental questions about the historical process.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

FREN 45.03 - De la motérialité : the Body in 19th-century French Literature

Instructor: St. Clair

At first glance a simple thing, seen "à la loupe" the body reveals itself a complex location where our links to our selves, the world, and our unavoidable otherness are situated and complicated. This course proposes a critical study of an omnipresent object/subject in the poetry, prose, and visual texts of nineteenth-century France to think about the sorts of claims we can make about the body, and the sorts of claims they make upon us. Readings from poetry, visual texts, prose, from Romanticism to Decadence; Manet, Courbet, Caillebotte, revolutionary caricature. Excerpts of Foucault, Marx, Freud, Merleau-Ponty, Elisabeth Grosz, Jacques Rancière, Jean-Luc Nancy, Didi-Huberman

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 17S

FREN 50 - French Literature: Major Figures

This course will be devoted to the study of a single author or to a group of authors who have exercised a decisive influence on French, European or world literature or who are deserving of concentrated attention because of the quality or originality of their literary production.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

FREN 50.05 - Montaigne, Proust, Barthes

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist: LIT; WCult: W

Offered: Not offered in the period from 15F through 17S

FREN 50.06 - Michel Foucault et l'Histoire de la sexualité

Michel Foucault was one of the most important philosophers of the 20th century. His work on sexuality has influenced cultural studies, gender studies, and queer

theory. Foucault's thesis is that "sexuality" is produced by discourses of power operating in the family, schools, hospitals, clinics, and prisons. This course examines the genealogy of this proposition within a tradition of thought about the body, identity, individuality, and subjectivity.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period from 15F through 17S

FREN 53 - French Thought: Philosophical Issues

This course will study texts which have shaped influential views of human nature, scientific knowledge, social and moral values. Its focus may be on the philosophers and moralists of the classical period (such as Pascal and La Rochefoucauld), the social and political thinkers of the Enlightenment (Diderot and Rousseau) or contemporary thinkers (Beauvoir, Foucault, Lévi-Strauss).

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:TMV; WCult:W

FREN 53.05 - French Theory

Instructor: La Guardia

French writers played a crucial role in the development of contemporary literary and critical theory. French theorists have analyzed subjects ranging from perception, to sexuality, gender, the unconscious, popular culture, fashion, cinema, photography, mythology, kinship, and the body. This course will examine some of the major trends and master works in this explosion of theoretical activity in France. Works by Lévi-Strauss, Lacan, Foucault, Kristeva, Irigaray, Cixous, Derrida, Deleuze, Baudrillard, and others.

Prerequisite: A course in the FREN 10 series or permission of the instructor

Distributive: Dist:TMV; WCult:W

Offered: 16S: 2A

FREN 53.06 - Human Rights in France

Instructor: Kritzman

A wide-ranging survey of the historical and conceptual issues in human rights from the Enlightenment to the present. An examination of philosophical origins and contemporary theoretical debate on citizenship and hospitality, republicanism and universalism; death penalty, women's and gay rights, Charlie Hebdo and freedom of the press. Essays, historical documents and literature. Authors drawn from: Voltaire, Rousseau, Gouges, Renan, Drumont, Hugo, Camus, Sartre Beauvoir, Ben Jelloun, Badinter, Derrida, Kristeva, Agacinski, Lefort, Balibar, Debray.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: 15F: 10A

FREN 53.07 - Confrontations with Death in the French Tradition

Instructor: Kritzman

Through readings of essays, plays, poetry and fiction, we will examine the relationship of death to the history of French culture and the philosophical traditions it embodies, from the medieval *danse macabre* to the present. Issues to be discussed include separation and loss, mourning and melancholia, violence, eroticism and sexual difference. Texts will include Villon, Montaigne, Bossuet, Pascal, Flaubert, Baudelaire, Sartre, Beckett, Beauvoir, Derrida, Blanchot and Barthes.

Prerequisite: A course in the FREN 10 series or permission of the instructor

Distributive: Dist:TMV; WCult:W

Offered: 16F: 10A

FREN 55 - French Culture and Politics

This course will study the broad field of French civilization with a variety of approaches. Literary texts may be studied for their political influence; literature may be seen as a way of changing history or a reflection of history. Writings on cultural or political issues, by such figures as Montaigne, Diderot or de Staël, may also be included as may more current works from the field of cultural criticism.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S

FREN 55.04 - India in the French Imagination

What effect have France's contacts with India had on French culture? We will examine intersections between India and France as seen in architecture such as Versailles and the Taj Mahal, and in literary and philosophical discussions. We will contrast France's relationship to India with those established with other "orients" such as the Ottoman Empire using travel narratives, correspondence, novels, theatre, newspapers, fables, and the work of cultural historians. Beasley.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period 15F through 17S

FREN 60 - Gender and French Literature

Instructor: Not offered in the period from 14F through 16S

Intersections of gender and literary expression will be studied from a variety of perspectives: gender and authorship (women writers, *écriture féminine*, comparative analysis of masculine/feminine treatments of genres or themes); gender and reading (do men and women read differently? do certain texts address a specifically gendered readership?); gender and literary form (the lyric, the romance plot); representations of men and women in certain movements or periods (the female body, women/men as subjects or objects of representation).

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period 15F through 17S

FREN 70 - Francophone Literature

This course will involve the study of Francophone literature outside Europe. This may include the literature of Africa, the Caribbean, Québec and Southeast Asia.

Distributive: Dist:LIT

FREN 70.02 - Francophone Literature

Instructor: 15W: Walker

This course will involve the study of Francophone literature outside Europe. This may include the literature of Africa, the Caribbean, Québec and Southeast Asia. A comparative study of urban and globalized Francophone cultures (Port-au-Prince, Dakar, Algiers, Tangiers, Saigon, Brussels, Paris), the attendant challenges and effects of globalization, including immigration, national politics, gender, sexuality, as well as ecology and economics, and how the literary or filmic imagination captures these issues. Readings by Kane, Sembène, Beyala; Lê, Lefèvre; ben Jelloun, Allouache, Chraïbi; Chauvet, Ollivier, Étienne, Césaire, Glissant. Walker.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT

Offered: 15W: 11

FREN 70.03 - Passages and Ambiguous Adventures: Colonial and Postcolonial Questions of Migration and Immigration

Instructor: Walker

A comparative study of urban and globalized Francophone cultures (Port-au-Prince, Dakar, Algiers, Tangiers, Saigon, Brussels, Paris), the attendant challenges and effects of globalization, including immigration, national politics, gender, sexuality, as well as ecology and economics, and

how the literary or filmic imagination captures these issues. Readings by Kane, Sembène, Beyala; Lê, Lefèvre; ben Jelloun, Allouache, Chraïbi; Chauvet, Ollivier, Étienne, Césaire, Glissant.

Prerequisite: A course in the FREN 10 series or permission of the instructor

Distributive: Dist:LIT; WCult:NW

Offered: 16W: 11

FREN 70.04 - Pourtours mystiques

Instructor: Elhariry

In 'Récits méditerranéens, pourtours mystiques II,' we will focus on first-person narratives (fictional and non-fictional, fictive and fictionalized) from across the modern Mediterranean Francophone world: Lebanon, Egypt, Algeria, Tunisia and Morocco. We will unravel the mystical underpinnings that subtend the politics of autobiography, autofiction and autoportraiture in texts by Tahar Ben Jelloun, Hélène Cixous, Jacques Derrida, Assia Djebar, Edmond Jabès, Abdelkébir Khatibi, Amin Maalouf, Abdelwahab Meddeb, and Salah Stétié.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:LIT

Offered: 17W: 12

FREN 75 - French Film

This course will focus on one of the following: an individual filmmaker, a significant movement or period, or a major theme in French cinema. Students will become familiar with aspects of French cinematic history as well as with important concepts in film analysis.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:ART; WCult:W

FREN 75.01 - Faces of the Criminal

Instructor: Hollister

This course will examine the history of French film through the prism of its representations of criminality. Assigned films may include works by Marcel Carné, Henri-Georges Clouzot, René Clair, Joseph Losey, Jean Renoir, Louis Malle, Jacques Becker, Jean-Pierre Melville, Alain Resnais, Bertrand Tavernier, Michael Haneke, François Ozon, Bertrand Blier, Agnès Varda, Jean-Luc Godard, Maurice Pialat, Claude Chabrol, Robert Bresson, Luis Buñuel, Gaspard Noé, Alain Guiraudie, and Jacques Audiard.\u200B

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:ART; WCult:W

Offered: 16W: 2

FREN 78 - Senior Major Workshop: Methods in Reading, Writing and Cultural Analysis

Instructor: 16W: Wine, 17W: Beasley

As part of this culminating experience, each major will work on an independent project, either a senior thesis or expanding upon work begun in a previous course. The independent project will be developed within the framework of this course using a selection of critical texts that can be viewed as models of literary, cultural, and historical analysis. Lectures by a variety of faculty members will supplement the readings. Students will gain mastery in literary and cultural analysis, close analytical reading skills and composition in French. The course is open only to French and Italian Department senior majors or by petition, which is due by the fifth day of classes of Fall term.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10A, 17W: 10A

FREN 80 - French Literature and the Other Arts

Literary works (poetry, theater, the novel, the essay) will be examined in their relationship to the other arts. This will include music, painting, the plastic arts, architecture, etc. Sample topics: opera and melodrama; symbolism and Impressionist painting; surrealism in poetry and collage; art criticism by such writers as Baudelaire, Apollinaire, Ponge.

Prerequisite: A course in the FREN 10 series or permission of the instructor.

Distributive: Dist:ART; WCult:W

Offered: Not offered in the period 15F through 17S

FREN 87 - Independent Reading and Research

A program of individual study directed by a member of the staff. Open only to French, French Studies and Romance Language Majors. By special permission this course may be taken more than once. A proposal, signed by the faculty advisor, must be submitted to the Departmental Committee on Independent Studies and Honors Theses for approval by the fifth day of classes of the term.

Offered: All terms: Arrange

FREN 89 - Honors Seminar

Honors students will arrange a program of study and research during any term of the senior year on a tutorial basis with individual faculty members. A thesis, written in French, and a public presentation are the normal culmination of this course. A proposal, signed by the faculty advisor, must be submitted to the Departmental Committee on Independent Studies and Honors Theses for approval by the fifth day of classes of the term. For

information about application procedures, please review the Honors Program section.

Offered: All terms: Arrange

FREN 81 - Seminar

Prerequisite: Permission of the instructor.

Distributive: Dist: LIT; WCult: W

Offered: Not offered in the period from 15F through 17S

FRIT - French and Italian in Translation Courses

To view French and Italian in Translation requirements, click here (p. 273).

The following courses are taught in English.

FRIT 33.01 - Dante's "Divine" Comedy

Instructor: Hooper

Is there an afterlife? What is it like? Who may describe the hereafter in this world and shape my behavior? These are the ever-present questions that Dante's *Comedy* poses. The course's central themes will be exile and paradise: Exile means both Dante's own banishment and the universal pilgrimage of life; paradise is the unattainable homecoming of true happiness. Students will explore the poem, its sources, and reception, developing a rigorous yet personal response to Dante's *Comedy*. Open to all students. Text, lectures and discussion in English. Students taking the course for major or minor credit in Italian will attend a weekly x-hour and do all written work in Italian.

Cross-Listed as: REL 32.02

Distributive: Dist:LIT; WCult:W

Offered: 16S: 2A, 17W: 2A

FRIT 34 - Renaissance Studies in Translation

An examination of Italian Renaissance masterpieces in translation, which will explore the centrality of Italian ideas and ideals to the development of literary and cultural norms in Italy and Europe. Topics will vary according to the focus established by each instructor. Open to all students. Text, lectures and discussion in English. Students taking the course for major or minor credit in Italian will attend a weekly x-hour and do all written work in Italian.

Distributive: Dist:LIT; WCult:W

FRIT 34.01 - Sex and Gender in the Italian Renaissance

Instructor: Quaintance

This interdisciplinary course explores conceptions of sex and gender in Italian Renaissance literature and visual art. We'll trace a social history of love and sex in Renaissance Italy, examine how sex and sexual bodies were represented in literature and in images, and look at how governments and the Church attempted to manage and

punish sexual transgression. Themes we will investigate include representations of male and female bodies, gender roles for both men and women, sexual violence, same-sex desire, and cross-dressing.

Open to all students. Text, lectures and discussion in English. Students taking the course for major or minor credit in Italian will attend a weekly x-hour and do all written work in Italian.

Prerequisite: Open to all students. Text, lectures and discussion in English. Students taking the course for major or minor credit in Italian will attend a weekly x-hour and do all written work in Italian

Cross-Listed as: WGSS 48.07

Distributive: Dist:LIT; WCult:W

Offered: 16X: 12

FRIT 35 - Modern Italian Culture and Society

According to the interests of the instructor, a major topic, art form, literary genre, or historical theme that concerns modern Italy will be approached in relation to Italian culture and society as a whole. The focus of the course will thus be interdisciplinary, emphasizing the interplay of the fine arts, literature, film, music, history, and philosophy. Possible themes include Literature and Politics in Nineteenth and Twentieth Century, The History of Italian Opera, The Culture of Italian Fascism, Italian Film (specific directors such as Fellini, De Sica, Bertolucci and Antonioni). Open to all students. Text, lectures and discussion in English. Students taking the course for major or minor credit in Italian will attend a weekly x-hour and do all written work in Italian.

Distributive: WCult:W

FRIT 35.01 - From Dagos to Sopranos

Instructor: Parati

Are Italians white? Where does the word “dago” come from? What is “dago red”? Can Italians be “Afrocentrists”? Are Italians racist? What do you know about the mafia? These and other questions will be at the center of this course. We will also work on the portrayal of ItalianAmericanness in “The Sopranos,” “The Godfather,” and Jim Jarmush’s “Ghost Dog.” The last week of the course will be devoted to the music by Italian Americans such as Sinatra and Madonna.

Open to all students. Text, lectures and discussion in English. Students taking the course for major or minor credit in Italian will attend a weekly x-hour and do all written work in Italian.

Cross-Listed as: COLT 57.02

Distributive: Dist:LIT; WCult:CI

Offered: 16W: 2

FRIT 37 - Topics in Literature and Culture

Offerings of this course will consist of various topics in Literature and Culture.

Open to all students. Text, lectures and discussion in English: Students taking the course for major or minor credit in French or Italian will attend a weekly x-hour and do all written work in the target language.

Distributive: Dist:LIT; WCult:W

FRIT 37.01 - Nature: A Literary History

Instructor: Mackin

Civilization's essence lies in its distinction from Nature. Both physically and symbolically, city walls separate the world of citizens, societies, and cultures from the uncultivated land, the wild beasts, and the illiterate savages that lie without. But how solid are these walls? And how real or even desirable are the distinctions they seek to make? We may prefer the civilized to the wild, but do we not also, paradoxically, prefer the natural to the artificial? Is nature to be dominated, or revered? Is it our nemesis or our mother? Exploring texts in the Italian tradition, this course will trace the history of nature from the beginning of civilization to the present time, and uncover our ever changing, ever contradictory opinions about it.

Offered: 15X: 11

FRIT 93 - Second Language Teaching and Learning: Theory and Practice

Instructor: Convertini

Open to all students

Distributive: Dist:SOC

Offered: 16F: 10

ITAL - Italian Courses

To view Italian requirements, [click here](#) (p. 273).

ITAL 1 - Introductory Italian I

Instructor: 15F: Minardi 16W: Mullins, Minardi 16S: Minardi

An introduction to Italian as a spoken and written language, with emphasis on practical conversation. The course includes regular practice in class and scheduled drill-sessions in understanding and using the spoken language. Never serves in partial satisfaction of the Distributive or World Culture Requirements.

Offered: 15F: 9L, 10 16W, 17W: 9L, 10 16S, 17S: 9L

ITAL 2 - Introductory Italian II

Instructor: 15F: Benvegna 16W: Hooper 16S: Minardi, Benvegna

Rapid review and continued study of the fundamentals of Italian, with intensive work in vocabulary building. The course will also include an introduction to the culture and civilization of Italy. Open to students by qualifying placement or to students who have passed ITAL 1. Never serves in partial satisfaction of the Distributive or World Culture Requirements.

Prerequisite: ITAL 1 or qualifying placement

Offered: 15F: 9L 16W: 10, 11 16S: 9L, 10 16F: 9L 17W: 9L, 10 17S: 9L, 10

ITAL 3 - Introductory Italian III

Instructor: 15F: Convertini 16W: Mullins 16S: Mullins

This course is designed to reinforce and refine spoken and written language skills through a review of grammar, exposure to a broad spectrum of language ranging from colloquial to literary styles, and the use of samples of Italian language from multiple sources such as advertising, comics, television and literature. Frequent compositions, quizzes, plus linguistic and thematic analysis of texts. Open to students by qualifying placement or to students who have passed ITAL 2 or ARTH 12. Never serves in partial satisfaction of the Distributive or World Culture Requirements.

Prerequisite: ITAL 2 or ARTH 12 or qualifying placement

Offered: 15F: 10 16W: 10 16S: 9L 16X: 10 16F: 9L 17W, 17S: 10 15F: D.L.S.A

ITAL 5 - Language Study Abroad: The Art and Culture of Rome

Instructor: 15F: Mullins

A course, taught in the context of the Language Study Abroad Program, which concentrates on the artistic life and culture of Rome. Masterpieces of painting, sculpture and architecture are studied in their social and historical contexts. Visits to sites in the city proper and its environs as well as nearby cities are an integral part of the program of study.

Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16F: D.L.S.A.

ITAL 6 - Language Study Abroad: Literature

Instructor: 15F: Mullins

An introductory course offered in the context of the Language Study Abroad program, dealing with major figures, themes, or genres of Italian literature. Some areas

of concern are critical reading and analysis, style, historical and social perspective.

Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program.

Distributive: Dist:LIT; WCult:W

Offered: 15F, 16F: D.L.S.A.

ITAL 7 - First-Year Seminars in Italian Literature

Offered: Consult special listings

ITAL 8 - Exploring Italian Culture and Language

Instructor: 16W: Convertini

This course will serve as an introduction to modern and contemporary Italian literature, culture and society. It will focus on topics such as evolving political and regional identities, gender relations, the role of the media, and the culture of daily life, as they appear in forms as diverse as narrative and poetry, cinema, music, and journalism. Students will also focus on specific grammatical and stylistic issues in order to improve their fluency in Italian. Course work will consist of frequent essays and student-led discussions.

Prerequisite: ITAL 3, or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: 16W, 17W: D.L.S.A.+

ITAL 9 - Italian Culture

Instructor: Canepa

Italian 9 expands on the skills acquired in the Italian language sequence (Italian 1, 2, 3, and/or the LSA) as well as offering a transition to Italian 10 and our upper-division literature and culture courses. This course introduces students to modern and contemporary Italian literature, culture and society through a focus on topics such as evolving political and regional identities, gender relations, the role of the media, and the culture of daily life. Students expand their active use of Italian, refine communicative, reading, and writing strategies, and comprehensively review grammar. Course work includes active participation in class discussions, oral presentations, and regular reading and writing assignments in the areas of narrative and poetry, cinema, music, and journalism. Instructors usually choose one or several "anchor" texts around which coursework revolves.

Prerequisite: ITAL 3, or permission of the instructor.

Distributive: WCult:W

Offered: 16W, 17W: 12

ITAL 10 - Introduction to Italian Literature: Masterworks and Great Issues

This course will offer a general introduction to Italian literature from the thirteenth century to the present. Topics will vary according to the interests of the instructor, but readings will center on such authors as Dante, Petrarch, Boccaccio, Machiavelli, Ariosto, Leopardi, Manzoni, Pirandello, and Svevo.

Prerequisite: ITAL 8 or ITAL 9, or permission of the instructor.

Distributive: Dist:LIT; WCult:W

ITAL 10.03 - Italian Disaster Narratives

Instructor: Hooper

This course gives students a foundational understanding of Italian culture by pursuing a theme from medieval Italy to the present day. The course's primary aims are to: 1) develop cultural awareness of Italy by studying texts from different media, genres, and periods, 2) increase student mastery of Italian through intensive practice in writing, reading, speaking, and listening, and 3) foster the intellectual skills of textual analysis, critical thinking and self-expression.

This term the theme is disasters, broadly understood and divided into three thematic groups: plague and sickness; invasion and occupation; human and social failure. Authors and artists include Dante, Petrarch, Boccaccio, Machiavelli, Galileo, Leopardi, Verga, Puccini, Anna Banti, Rossellini, Clara Sereni, and Marco Paolini.

Prerequisite: Italian 8 or 9 or permission of instructor

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10A

ITAL 10.04 - Divas in Italian Culture

Instructor: Quaintance

This course will explore how divas – supremely skilled female singers - have been represented, imagined, and feared in Italian culture from the middle ages to the present day. Our texts will include writings by and about divas, songs and opera librettos, videos of live musical performances, photographs, and paintings. Through this blend of scholarly and popular media, we will explore the cultural and social functions of the diva, as well as how divas themselves negotiate their careers in the public eye. Authors and composers will include Petrarch, Boccaccio, Isabella Andreini, Margherita Costa, Giambattista Marino, Claudio Monteverdi, Giuseppe Verdi.

Prerequisite: Italian 8 or 9 or permission of instructor

Distributive: Dist:LIT; WCult:W

Offered: 17S: 10

ITAL 12 - Advanced Writing and Speaking in Italian

Instructor: 16W: Convertini 16S: Parati

An advanced language and composition course in which students will work with a wide range of linguistic and cultural materials in order to achieve competence in Italian grammar, and oral and written expression.

Prerequisite: Acceptance into the Dartmouth Advanced Language Study Abroad Program

Distributive: WCult:W

Offered: 16W, 16S, 17W, 17S: D.L.S.A.+

ITAL 15 - Italian Cinema

Instructor: Parati

Conducted in Italian, this course introduces students to classic Italian cinema, including its history and its predominant genres—from the silent film to comedy and melodrama and thriller. Students will become familiar with Italian cinematic movements such as Neorealism, directors such as Federico Fellini and Roberto Benigni, as well as with important concepts in film analysis.

Prerequisite: ITAL 8 or ITAL 9, or permission of the instructor.

Distributive: Dist:ART; WCult:W

Offered: 15F: 12

ITAL 21 - Early Italian Literature and Culture

Instructor: Hooper

This course will offer an introduction to medieval Italian literature and culture through readings of literary masterworks of the period. The approach will be interdisciplinary: we will consider connections between literary texts and medieval art, music, philosophical currents, and historical events. Themes may include the importance of writing in the vernacular, discourses of love, conceptions of sex roles and gender, personal and political aspirations of the self in society, and the constitution of ideal forms of social organization. Readings will be selected from Dante, Boccaccio, Petrarch, Caterina da Siena, and others.

Prerequisite: Italian 10 or permission of the instructor

Distributive: Dist:LIT; WCult:W

Offered: 17S: 11

ITAL 22 - Humanism and Renaissance

This course explores the extraordinary cultural production of Italy from the late fourteenth to the end of the sixteenth century—the Renaissance. Students will examine broader social and historical contexts through topics such as humanism; attitudes toward the ancient world and the “discovery” of new worlds; developments in the visual arts

and in science; court society; sexuality and courtesan culture; gender and family life; religious reform. Genres considered may include essay, dialogue, political treatise, theatre, lyric and epic poetry, letters, and the novella. Authors may include Petrarch, Alberti, Machiavelli, Michelangelo, Isabella di Morra, Veronica Franco, Ruzante, Castiglione, Ariosto, Bandello, and Tasso.

Prerequisite: ITAL 10, or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period from 15F through 17S

ITAL 23 - Seventeenth and Eighteenth-Century Italian Literature and Culture

This course explores the rich innovations that marked Italian literature and the arts over the course of the seventeenth and eighteenth centuries, from the Baroque culture of crisis and change to the Enlightenment's own reassessment of earlier forms of knowledge and representation. Topics include the poetics of the marvelous, the fascination with popular culture, the *nuova scienza*, social class and identity, the "cult of reason," and the relevance of both Baroque and Enlightenment categories to post-modernity. We will explore traditional genres such as lyric poetry, the essay, and the novella, but also new forms: the fairy tale, women's writing, travel literature, the *commedia dell'arte*, the novel, and the opera. Authors and artists may include Giambattista Basile, Giambattista Marino, Galileo, Arcangela Tarabotti, Isabella Andreini, Monteverdi, Pergolesi, Bernini, Caravaggio, and Carlo Goldoni. There will also be units on books, visual arts and music, with guest lectures and visits to Rauner Special Collections and the Hood Museum.

Prerequisite: ITAL 10, or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period from 15F through 17S

ITAL 24 - Nineteenth-Century Italian Literature and Culture

Instructor: Canepa

This course examines the changes in literary vision and artistic forms from the beginning of the nineteenth century, through the country's unification, to the First World War. Emphasis will be placed on Italy's growing self-awareness as a nation and on analysis of aesthetic and intellectual issues. Particular attention will be given to popular art such as satire, cookbooks, and Verdi's operas, and to women's literature as an innovative cultural force. Readings may include Ugo Foscolo, Giacomo Leopardi, Alessandro Manzoni, Giovanni Verga, Marchesa Colombi, Carlo Collodi, Grazia Deledda, and F. T. Marinetti.

Prerequisite: ITAL 10, or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 15F: 11

ITAL 25 - Twentieth and Twenty-first Century Italian Literature and Culture

Instructor: Benvegna

This course examines the radical transformation of literary form and vision that characterizes twentieth and twenty-first century Italy with its two World Wars, its colonial conflicts, and the challenges to Italian identity posed by modernization, immigration, and globalization. We will use poetry, fiction, autobiography, political writings, television, documentaries, and film to explore cultural movements such as the avant-garde and neo-realism. Particular contexts may include fascism, the resistance movements, and terrorism. Students will read canonical and non-canonical texts including, for example, recent immigrant and minority writers. Readings and films may include works by Bontempelli, Moravia, Morante, Calvino, Maraini, Fellini, Tornatore, Wertmueller, and Jadelin Mabiala Gambo.

Prerequisite: ITAL 10, or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 12

ITAL 27 - Topics in Italian Literature

Offerings of this course will consist of various topics in Italian literature.

Distributive: Dist:LIT; WCult:W

ITAL 27.01 - Animals and Animality in Modern Italian Literature and Thought

Instructor: Benvegna

With the modernization of their country, Italian authors have been increasingly interested in animals, using representations of non-human creatures to reflect upon themselves and their changing relationships with the environment. This course focuses on modern Italian literary and philosophical texts (from Leopardi's *Operette Morali* to Agamben's *L'aperto*) which strongly feature non-human animals and animality, in order to explore how modern Italian culture offers an original contribution to the re-thinking of the limits of anthropocentric humanism.

Prerequisite: Italian 10 or permission of the instructor

Distributive: Dist:LIT; WCult:W

Offered: 16W: 11

ITAL 27.02 - Culture and/in Translation: Theory and Practice

Instructor: Canepa

Human communication depends on translation. Much of what we know about worlds different from our own comes

through translations and the dialogues between languages and cultures that they create. In this course we will focus on translation between Italian and American cultures, and consider the larger question of the representation of “foreignness.” We will explore the theory and practice of translation in various contexts—literature, film, popular media—and gain direct experience in the art of translation through workshops and a final project.

Prerequisite: ITAL 10 or permission of instructor

Distributive: Dist:LIT; WCult:W

Offered: 17S: 2

ITAL 85 - Independent Reading and Research

Students may arrange a program of study and research with individual faculty members. Open only to Italian, Italian Studies, and Romance Language Majors. A proposal, signed by the faculty advisor, must be submitted to the Departmental Committee on Independent Studies and Honors Theses for approval by the fifth day of classes of the term.

Offered: All terms: Arrange

ITAL 88 - Senior Independent Reading and Research

A program of individual study directed by a member of the staff. Open only to senior Italian, Italian Studies, and Romance Language (whose primary language is Italian) Majors. A proposal, signed by the faculty advisor, must be submitted to the Departmental Committee on Independent Studies and Honors Theses for approval by the fifth day of classes of the term.

Offered: All terms: Arrange

ITAL 89 - Honors Seminar

Honors students will arrange a program of study and research during any term of the senior year on a tutorial basis with individual faculty members. A thesis, written in Italian, and a public presentation are the normal culmination of this course. A proposal, signed by the faculty advisor, must be submitted to the Departmental Committee on Independent Studies and Honors Theses for approval by the fifth day of classes of the term.

Offered: All terms: Arrange

Geography

Chair: Susanne Freidberg

Professors M. Domosh, S. E. Freidberg, F. J. Magilligan, C.S. Sneddon, R. A. Wright; Associate Professor X. Shi; Assistant Professors J.H. Matthes, A.H. Neely, J.M. Winter; Senior Lecturer C. A. Fox; Instructor T. Elllison; Visiting Instructor P.J. Lopez; Adjunct Professor J. R. Butterly, Adjunct Assistant Professors L. V. Adams, J. W.

Chipman; Professor Emeritus: L. E. Conkey; Resident Scholar D. E. Lawson.

To view Geography courses, [click here](#) (p. 291).

Requirements for the Major

The major in Geography consists of seven courses in addition to the prerequisite courses.

Prerequisite: GEOG 1 or GEOG 3; and any two techniques courses from the following: GEOG 11, GEOG 50, GEOG 51, GEOG 54, GEOG 56, GEOG 57, or GEOG 59.

Required courses:

1. GEOG 90; this serves as the culminating activity in the geography major.
2. One course from each of the following three themes: Nature-Society, Human-Social Geography, and Physical Geography.

Courses in Nature-Society Geography Include:

6, 12, 13, 14, 15, 16, 18, 40, 42, 44, 48, 64, 67

Courses in Human-Social Geography include:

2, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 41, 43, 45, 47, 81, 82

Courses in Physical Geography include:

4, 5, 8, 9, 31, 32, 33, 35

3. Three additional courses.

Note: Student advising and major card signatures may be obtained from Susanne Freidberg, Richard Wright or Xun Shi. Any cross-listed courses used for the geography major/minor requires sign-up in the geography enrollment.

EXAMPLES OF MAJORS

There are three major streams within the Geography curriculum: (1) Physical and Human Dimensions of Global Change, (2) Critical Urban and Identity Studies, and (3) International Development. The following courses within the curriculum correspond to the streams:

Physical and Human Dimensions of Global Change:

GEOG 3: The Natural Environment

GEOG 4: Landscape and Environments of New England

GEOG 5: Global Climate Change
 GEOG 8: Life in the Anthropocene
 GEOG 9: Climate Change and the Future of Agriculture
 GEOG 12: Wilderness, Culture, and Environmental Conservation
 GEOG 13: Population, Culture and the Environment
 GEOG 14: Global Water Resources
 GEOG 18: Urbanization and the Environment
 GEOG 31: Forest Geography
 GEOG 33: Earth Surface Processes and Landforms
 GEOG 35: River Processes and Watershed Science
 GEOG 50: Geographic Information Systems (GIS)
 GEOG 51: Remote Sensing
 GEOG 54: Geovisualization
 GEOG 59: Environmental Applications of GIS
 GEOG 67: Political Ecology

Critical Urban and Identity Studies:

GEOG 11: Qualitative Methods and the Research Process in Geography
 GEOG 18: Urbanization and the Environment
 GEOG 20: Economic Geography and Globalization
 GEOG 21: The North American City
 GEOG 22: Urban Geography
 GEOG 23: Power, Territoriality, and Political Geography
 GEOG 24: American Landscapes and Culture
 GEOG 25: Social Justice and the City
 GEOG 28: Immigration, Race, and Identity
 GEOG 45: Exploring Nature and Culture in New England
 GEOG 50: Geographic Information Systems (GIS)
 GEOG 54: Geovisualization
 GEOG 56: Mapping Health and Disease
 GEOG 57: Urban Applications of GIS
 GEOG 81: Field Research in the Czech Republic

International Development:

GEOG 2/INTS 18: Global Health and Society
 GEOG 6/INTS 16: Introduction to International Development
 GEOG 11: Qualitative Methods and the Research Process in Geography
 GEOG 15: Food and Power
 GEOG 16: Moral Economies of Development
 GEOG 17: Geopolitics of Third World Development
 GEOG 20: Economic Geography and Globalization
 GEOG 26: Women, Gender and Development
 GEOG 40: Africa: Ecology and Development
 GEOG 41: Gender, Space and Islam
 GEOG 42: Environment, Development, and Inequality in South Asia
 GEOG 43: Latin America
 GEOG 44: Environment and Politics in Southeast Asia
 GEOG 47: The Czech Republic in the New Europe
 GEOG 67: Political Ecology
 GEOG 82: Independent Study in the Czech Republic

The Modified Major

Because of its interdisciplinary nature, Geography lends itself to a wide combination of modified majors, such as Geography/Environmental Studies or Geography/Economics. Students contemplating careers in urban and regional planning, government service, medicine, law, business, or teaching should consult with the Chair in arranging modified major programs designed to best meet their professional objectives. Normally, the modified major program in Geography will include the following:

Prerequisite: GEOG 1 or GEOG 3; and any two technique courses from the following: GEOG 11, GEOG 50, GEOG 51, GEOG 56, GEOG 57, or GEOG 59.

GEOG 90

One course each consisting of nature-society, human-social and physical (see above).

One other geography course.

Four courses beyond the other department's prerequisites, chosen in consultation with the Geography Chair.

The Geography Minor

Prerequisite: GEOG 1 or GEOG 3; and any one techniques courses from GEOG 11, GEOG 50, GEOG 51, GEOG 56, GEOG 57 or GEOG 59; plus five additional courses. (Note: for those using the Geography FSP towards the minor, only two courses, GEOG 47 and GEOG 81, can be used.)

Another Department Modified with Geography

Prerequisite: GEOG 1 or GEOG 3; and a coherent set of courses devised in consultation with chair.

Geography Honors Program

Upon application to and approval by the Department, qualified majors will be accepted as members of a special honors group. Requests for admission to the honors group will normally be considered at the close of the spring term of the junior year. No application for participation in the Honors Program will be accepted from students with less than two full terms remaining before their expected graduation. The Honors Program in Geography will consist of the regular major program with the following modifications:

1. An Honors thesis (GEOG 87) will be submitted.
2. There will be an oral examination on the research.
3. A special reading program related to the field of investigation covered by the research will be required.
4. Honors students will be required to present their research ideas in at least one formal meeting to be determined by the Chair.

Preparation for Graduate Study

The Department encourages able students to continue work in the field of geography. To this end the Department will give special assistance in planning a program and in helping with the arrangements for graduate study to those students wishing to go on to graduate work. Interested students should consult with a member of the faculty.

GEOG - Geography Courses

To view Geography requirements, [click here](#) (p. 289).

GEOG 1 - Introduction to Human Geography

Instructor: Fox (16S, 16F, 17S) Lopez (15F)

The purpose of this course is to provide an understanding of how human societies organize their geographic space and why certain patterns emerge in the resulting human landscape. Principles of location, place, territoriality and geopolitics, migration, gender, economic change, and power are used to examine the geographic distribution of human activity. Geographic comparisons are drawn between North and South, and on global, regional, and local issues.

Distributive: Dist:INT or SOC; WCult:CI

Offered: 15F, 16S, 16F, 17S: 10

GEOG 2 - Global Health and Society

Instructor: Adams, Butterly (16W, 17W) Fox (16S, 16F) Neely (17S)

Only a few decades ago, we were ready to declare a victory over infectious diseases. Today, infectious diseases are responsible for the majority of morbidity and mortality experienced throughout the world. Even developed countries are plagued by resistant "super-bugs" and antibiotic misuse. This course will examine the epidemiology and social impact of past and present infectious disease epidemics in the developing and developed world. The introduction of drugs to treat HIV/AIDS in sub-Saharan Africa will be considered from political, ethical, medical, legal and economic perspectives. Lessons from past and current efforts to control global infectious diseases will guide our examination of the high-profile infectious disease pathogens poised to threaten our health in the future. Open to all students. Limited to 35 students.

Cross-Listed as: INTS 18

Distributive: Dist:INT or SOC

Offered: 16W, 17W: 2A; 16S: 2; 16F:12; 17S: 9L

GEOG 3 - The Natural Environment

Instructor: Matthes

Our natural environment results from an array of climatic, biogeographic, and other physical processes that have

changed dramatically over time in response to natural and human-induced disturbance. This course begins by presenting the fundamentals of atmospheric processes; then examines the physical controls on the resulting global pattern of landforms, soils, and vegetation biomes across spatial and temporal scales; and ultimately explains the form and pattern of the earth's physical geography. Emphasis is also placed on demonstrating the role of human disturbance on these natural processes through shifts in global climate, land use, deforestation and other anthropogenic mechanisms. The media of presentation will be lecture and both field and laboratory exercises.

Distributive: Dist:SLA

Offered: 16S, 16F: 10A (Lab Th 2:00-4:00 or 4:00-6:00)

GEOG 4 - New England Landscapes and Environments

Instructor: Conkey

Small enough to know well, New England boasts an enormous variety of human and physical features in a dynamic setting of change. In this class we focus on the physical aspects of the landscape, learning about its geology, flora, fauna, and climate as they set the stage for and are affected by human activities. The class includes two field trips, visitors, films, and readings from a variety of sources.

Distributive: Dist:SCI

Offered: 16W: 10A

GEOG 5 - Global Climate Change

Instructor: Winter

Climate is a fundamental driver of populations, economies, and cultures. Over the past century, humans have been modifying the atmosphere through the emission of greenhouse gases. This course will provide an overview of the Earth's climate system and the physical basis, impacts, and societal dimensions of climate change.

Distributive: Dist:SCI

Offered: 16S, 17S: 11

GEOG 6 - Introduction to International Development

Instructor: Freidberg (15F, 16F) Fox (16W, 17W)

Why are some countries rich and others so persistently poor? What can and should be done about this global inequity and by whom? We address these development questions from the perspective of critical human geography. Focusing on the regions of Latin America, Africa and Asia, we examine how development meanings and practices have varied over time and place, and how they have been influenced by the colonial history, contemporary globalization and international aid organizations.

Cross-Listed as: INTS 16

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F, 16F: 10A 16W, 17W: 10

GEOG 8 - Life in the Anthropocene

Instructor: Matthes

Most scientists believe we now live in The Anthropocene, a period defined by the unprecedented influence of human activity on the Earth and its ecosystems. This course will investigate the physical and ecological consequences of the Anthropocene. We will examine the global impacts of climate change and land-use change to better understand the future feedbacks between climate, ecosystems, and human societies.

Distributive: Dist:SCI

Offered: 17W: 2

GEOG 9 - Climate Change and the Future of Agriculture

Instructor: Winter

The global agricultural sector faces the significant challenge of feeding a population projected to rise to 9 billion by mid-century under an evolving climate. This course will explore the physical geography of agricultural production systems throughout the world with an emphasis on the interactions between crops, climate, water, soils, and technology.

Distributive: Dist:SCI

Offered: 16W: 11

GEOG 11 - Qualitative Methods and the Research Process in Geography

Instructor: Neely

Questions about how knowledge is produced, who produces it, and what "counts" as knowledge are fundamental to the research process. This course focuses on building understandings of qualitative research methods and methodologies employed by geographers to produce knowledge about social relations, human perceptions, and human-environment interactions. The course introduces several of the main qualitative methods available for geographic analysis and interpretation, and places these methods within broader questions of how research is conceived and carried out.

Distributive: Dist:SOC

Offered: 15F, 16F: 3B

GEOG 12 - Wilderness, Culture and Environmental Conservation

Instructor: Magilligan

The purpose of this course is to describe and examine the manifold ways that environmental alterations have

occurred - over both geologic and historical timescales. Considerable research over the past several decades has shown that anthropogenic disturbance has significantly modified natural processes frequently leading to degraded conditions. The goal of the course is first to establish that shifts in climate, vegetation, and landscapes are "natural" and have occurred over geologic time and that the timing and magnitude of these shifts provides the necessary background to evaluate the type, magnitude, and frequency of anthropogenic disturbance. The second, and major theme is to present and examine the types of human-induced changes in biotic, atmospheric, and terrestrial conditions (e.g. logging, grazing, urbanization), and to evaluate the social and management issues resulting from these anthropogenic disturbances. Lastly, the third part of the course will focus on the human dimensions of global change by exploring the social aspects of environmental change. In the last part of the class, we will focus on how global environmental changes generate impacts at the local scale, and how small-scale transformations propagate into large-scale global environmental issues.

Distributive: Dist:SOC

Offered: 15F, 17S: 10

GEOG 13 - Population, Culture, and Environment

The growth and spatial distribution of human population is becoming one of the most important global security issues. This course argues that a geographic perspective on overpopulation, immigration, environment degradation, abortion, human rights, and cultural genocide is both illuminating and important. After covering fundamentals of fertility, morality, migration, and composition, the course details a series of national and international case studies. Where appropriate, attention is given to the public policy aspects of these population issues.

Distributive: Dist:INT or SOC

Offered: Not taught 15F through 17S

GEOG 14 - Global Water Resources

Instructor: Magilligan

This course is designed to provide students with a general background to the issues confronting water resource management. The course covers the political, social and legal aspects confronting effective water policy decision making. One of the goals is to demonstrate that the technical aspects of hydrology occur within a socio-political arena. The material also covers the environmental aspects of water issues and the manner in which these issues are handled by regulatory agencies and the legal sector.

Distributive: Dist:INT or SOC

Offered: 16F: 10A

GEOG 15 - Food and Power

Instructor: Freidberg

In a world glutted with food, why do millions still suffer chronic hunger? In an international community committed to free trade, why is food the most common source of trade wars and controversies? In a country where less than five percent of the population farms, why does the "farm lobby" remain so politically powerful? In societies where food has never been faster or more processed, why are organic and "slow" foods in such demand? These are among the questions this course will consider, drawing on the insights of both political economy and cultural analysis.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16S, 17S: 2A

GEOG 16 - Moral Economies of Development

Instructor: Freidberg

During the past quarter century, the gap between the world's richest and poorest regions has steadily widened, even as technological advance has shrunk the distances between them. This class begins by examining how globalization has shaped awareness and expressions of care for distant strangers. It then focuses on the moral economies underlying practices such as Fair Trade, corporate social responsibility, and transnational labor justice campaigns. Some background in international development is recommended. Freidberg.

Distributive: Dist:INT or SOC

Offered: 16S, 17S: 10A

GEOG 17 - Geopolitics and Third World Development

Political geographers have recently recovered a critical understanding of "geopolitics" in order to highlight how geographical representations - and the construction of spaces and places - are a constitutive part of politics from the global to the local scale. In keeping with this, this course will examine the mutual constructions of places, identities, and politics from a Third World perspective. The course will begin with an overview of geopolitical discourses that underpinned the processes of Western imperialism and colonialism such as "civilization" and "social darwinism." It will then examine contemporary geopolitical (dis)orders through the lens of topics such as globalization, gender, environmental security, humanitarian aid, and terrorism. Finally, the course will examine alternative geopolitical imaginations as constructed through social movements and grassroots politics.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not taught 15F through 17S

GEOG 18 - Urbanization and the Environment

Over half the world's population live in urban areas. The 1992 Rio Summit raised awareness of the potentially serious environmental, health, and social implications of continuing urbanization. This course explores the environmental effects of urbanization from an international comparative perspective. How do the environmental consequences of urbanization in the developing world (Global South) differ from those associated with the developed world (Global North)? How are notions of environment socially constructed as "nature" and how does this translate into political action in different places? The course critically assesses the ability of planners to make lasting improvements in the urban environment.

Distributive: Dist:INT or SOC

Offered: Not taught 15F through 17S

GEOG 19 - Gender, Space, and the Environment

This course is meant to help students understand the relationships between the gendered construction of our society, and the ways we have organized our spaces and places, including our homes, places of work, cities, nations and environments. Accordingly, the course will be organized around these different spatial scales, examining everything from the ways we organize our living rooms, to the ways we have shaped empires, to the way Western society has dealt with environmental issues.

Distributive: Dist:SOC

Offered: Not taught 15F through 17S

GEOG 20 - Economic Geography and Globalization

Instructor: Wright

The new global economy has become integrated across national boundaries, profoundly altering the fortunes of countries, regions, and cities. This course addresses questions that stem from these changes: for example, why do industries locate where they do? What is the impact of foreign investment on local and regional economies? Why are rates of international migration increasing? What can workers and communities do after disinvestment and deindustrialization has occurred? Particular attention is devoted to the United States and the effects on minorities and labor of differential regional economic expansion, renewal, and decline.

Distributive: Dist:SOC

Offered: 15F: 10A 16F: 2A

GEOG 21 - The North American City

Why do cities exist? How do they grow? What is the relationship between cities and suburbs? How are our lives impacted, for better and for worse, by private choice and public policy playing out in the metropolitan landscape? We will investigate these and other questions as we study

growth and change in the cities of the United States, Canada, and Mexico using a mix of qualitative and quantitative approaches.

Distributive: Dist:SOC; WCult:W

Offered: Not taught 15F through 17S

GEOG 22 - Urban Geography

Instructor: Domosh

This course examines the historical, cultural, and socio-economic geographies of cities. We begin by tracing the process of urban development from its inception over 5,000 years ago, to industrial modern cities, to postmodern urban forms, using case studies to illuminate certain key features and processes. We then focus on understanding the particular dynamics that shape cities today. Examples are widely drawn but particular attention will be given to American urban patterns and processes.

Distributive: Dist:SOC

Offered: 16W, 17W: 11

GEOG 23 - Power, Territoriality, and Political Geography

Territoriality, the geographic expression of power, is one of the most common strategies for exercising political control. This course explores the interaction of geography and politics, including the origin and function of nations and states, policing and social control, federalism, the role and status of racial and ethnic minorities, political representation and electoral redistricting. Through such topics, the class addresses questions regarding the nature of power, identity, democratic theory and the relationship between the individual and the state. We will focus particular attention on issues of scale, or how the application of territorial strategies at different spatial levels affects political relationships.

Distributive: Dist:SOC

Offered: Not taught 15F through 17S

GEOG 24 - American Landscapes and Cultures

Instructor: Domosh

Someone once said that Americans are a people in space rather than a people in time. A political configuration of relatively recent vintage, the United States, nevertheless, occupies a vast amount of space. The occupation and ordering of that space has produced distinctive landscapes with many regional variations. This course will examine the formation of these cultural landscapes beginning with those produced by Native Americans, and following the settlement process up to contemporary, post-modern America. Along the way, we will explore, among other things, the development of such American landscape elements as grid-pattern towns, cowboy ranches, skyscrapers, shopping malls, and corporate office parks.

Distributive: Dist:SOC; WCult:CI

Offered: 16W, 17W: 2

GEOG 25 - Social Justice and the City

Instructor: Ellison

This course explores issues of social justice and cities in terms of the spatial unevenness of money and power within and among cities, between cities and their hinterlands, and between cities of the world. We will examine how multiple dynamic geographic processes produce spatial and social inequalities that make cities the locus of numerous social justice issues. We will also look at how urban communities and social groups are engaged in working for social change.

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 2

GEOG 26 - Women, Gender and Development

This course examines gender as it relates to both women and men and as constituted by multiple factors such as place, space, class, sexuality, age, race, ethnicity, nationality, and culture-what some call categories of "difference." We will explore how these categories of difference shape women's and men's daily lives, our institutions, the spaces and places we live in, and the relationships between social groups in different places and between different places in the world.

Cross-Listed as: WGSS 30.01

Distributive: Dist:SOC; WCult:CI

Offered: Not taught 15F through 17S

GEOG 28 - Immigration, Race, and Ethnicity

Instructor: Wright

This course examines 20th century immigration to the United States and pays special attention to issues of race and ethnicity. The course begins with a brief history of US immigration and then thematically covers specific topics such as economic impacts and costs, social mobility, citizenship, transnationalism, assimilation, and religious issues and their relationship to the immigrant experience. We feature nativist reactions to immigration and highlight differences within and between Latino, Asian, and European groups throughout the course.

Cross-Listed as: LATS 40 and SOCY 48

Distributive: Dist:SOC; WCult:CI

Offered: 16S, 17W: 10A

GEOG 29 - Global Cities

This course examines contemporary urbanization in a global setting - paying attention to the intersection of numerous global and local forces (political, economic,

historic and cultural) shaping the planning and design (or lack thereof) of city spaces in the global south and its implications for city residents. Utilizing examples from the Middle East, India, China, Latin America and Africa, we will explore how various demographics within these places experience and navigate the dynamically changing city spaces.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not taught 15F through 17S

GEOG 31 - Forest Geography

Forests undergo great changes, both locally and globally. They are home to plants and animals in relation to both climatic and cultural/economic constraints. We examine such global issues by focusing on local forest ecology, native and imported plants and animals, agroforestry, and other topics of mutual concern. At least half of class meetings will be outside following study plots, mapping plant and soil patterns, "reading" forest histories, and observing animal signs and behaviors.

Distributive: Dist:SLA

Offered: Not taught 15F through 17S

GEOG 33 - Earth Surface Processes and Landforms

This class is concerned with surficial landforms on the earth's surface, the processes responsible for their formation, and their spatial and temporal distribution. This course is designed to present a wide overview of geomorphic principles and processes.

Offered: Not taught 15F through 17S

GEOG 35 - River Processes and Watershed Science

Instructor: Magilligan

Role of surface water and fluvial processes on landscape formation; magnitude and frequency relationships of flood flows; soil erosion, sediment transport, and fluvial landforms. This course examines the links between watershed scale processes such as weathering, denudation, and mass wasting on the supply of water and sediment to stream channels on both contemporary and geologic timescales and further evaluates the role of climate change on the magnitude and direction of shifts in watershed and fluvial processes.

Prerequisite: EARS 16 or EARS 33 or BIOL 23 or permission of the instructor.

Cross-Listed as: EARS 71

Distributive: Dist:SLA

Offered: 15F: 12 (Lab Wed 3-5), 16F: 10 (Lab Tu 3:00-5:00)

GEOG 40 - Africa: Ecology and Development

This course is intended as an introduction to contemporary political, economic, social, and environmental issues in Sub-Saharan Africa. It will begin with a brief historical overview, focusing on the legacies of the colonial era. It will then look critically at a number of modern-day concerns, including agriculture and food security, environmental degradation, health and disease, urbanization, economic aid and restructuring, and the politics of ethnicity and democratization. While we will examine each subject by way of select case studies, emphasis throughout will be on the diversity and changing nature of the African continent. This course will also consider how Africa's problems are portrayed and understood (and often misunderstood) by the rest of the world.

Cross-Listed as: AAAS 45

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not taught 15F through 17S

GEOG 41 - Gender, Space and Islam

We will address various aspects of Feminism, Islam and Space. This course will seek to answer various questions about space, gender and Islam such as: What constitutes a Muslim Space and the "Muslim World"? Who decides and defines these spaces? How are these spaces generated and influenced by Islam or Islamic practices? How do such gendering of spaces differ by place? Additionally we will explore the readings of several Islamic feminist scholars that address several gender related topics such as women's right, gender roles, honor and Sharia (Islamic law).

Cross-Listed as: WGSS 37.02

Distributive: Dist:SOC; WCult:CI

Offered: Not taught 15F through 17S

GEOG 42 - Environment and Development in South Asia

Is South Asia a paradox? Emerging as new global center of gravity of economic activity and geopolitical power, South Asia is experiencing massive economic growth in the recent years. This growth, however, is deeply uneven, marked by the sharply rising inequality, political unrest, increased environmental degradation and its own early forms of imperialism. Drawing insights from the regional political economy and ecology literature, this course builds critical understandings on the connections, contradictions and consequences of particular processes of development and environmental changes in South Asia.

Distributive: Dist:SOC; WCult:NW

Offered: Not taught 15F through 17S

GEOG 43 - Geographies of Latin America

This course provides a survey of Latin America geography from pre-colonial times through to the present, encompassing the region's physical features, diverse cultural histories, the economic and political powers that have shaped and re-shaped its national boundaries, and the current influence of global processes on society and the environment. Special attention will be paid to the 20th century development issues-industrialization, urbanization, resource exploitation and regional integration-and their implications for the region's future.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not taught 15F through 17S

GEOG 44 - Environment and Politics in Southeast Asia

Over the past several decades, the people and environments of Southeast Asia have confronted a host of political, economic and cultural processes commonly grouped together under the heading "development". As witnessed by recent media reports detailing massive forest fires in Indonesia and dam controversies in Malaysia and Thailand, these development processes have resulted in drastic transformations in the landscapes, forests, and river systems of the region. These processes have likewise produced dramatic alterations in the livelihoods of the people who depend on and interact with the region's ecological systems.

Cross-Listed as: ENVS 44

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not taught 15F through 17S

GEOG 45 - Exploring Nature and Culture in New England

Instructor: Neely

Have you ever wondered why the forests of New Hampshire are filled with stone walls? Why Boston is a confusing mess for drivers? Why Vermont is famous for its artisanal cheeses? Or why Connecticut has the second highest wealth disparity in the country? Answering these questions requires new ways of thinking and writing about people and places.

Distributive: Dist:SOC; WCult:W

Offered: 16F: 10A

GEOG 47 - The Czech Republic in the New Europe

Instructor: (Magilligan/Sneddon 16S), (Domosh 17S)

This course seeks to develop an understanding of the physical morphology and cultural landscape of the contemporary Czech Republic. Special attention will be given to the dialectic of transnational integration and decentralist reaction common in Europe today.

Prerequisite: GEOG 1 or GEOG 3 and one course numbered between GEOG 12 and GEOG 41, or permission of the instructor. A minimum of one methods course (GEOG 11, GEOG 50, GEOG 51) is strongly recommended.

Distributive: Dist:SOC; WCult:W

Offered: 156S, 17S: D.F.S.P. (Prague, Czech Republic)

GEOG 48 - Geographies of the Middle East

This course will exam several geographic themes: Location, Natural Resources, Economics, Politics, Mobility, Gender, Identity, and Tourism within the Middle East Region. Our inquiry will begin by discussing the social and political borders, boundaries, and ideological constructions of what constitutes the changing borders, boundaries and ideological constructions of what constitutes the changing borders/boundaries of the "Middle East" as vernacular spatial descriptor.

Distributive: DIST: INT; WCULT: CI

Offered: Not taught 15F through 17S

GEOG 50 - Geographical Information Systems (GIS)

Instructor: Shi

Geographical information systems (GIS) are computer-based systems that process and answer questions about spatial data relative to concerns of a geographic nature. This course focuses on the basic principles of GIS, including data capture and manipulation, methods of spatial interpolation, and GIS trends and applications. The course is not intended to train students to be GIS operators; rather, to explain the fundamentals of this rapidly growing technology. A series of laboratory exercises will expose the students to GIS systems.

Distributive: Dist:TLA

Offered: 15F, 16S, 16F, 17S: 12 (Lab: Mon 2:00- 4:00 or Tue 1:00-3:00)

GEOG 51 - Remote Sensing

Instructor: Chipman (16W) Hawley (17W)

Remote Sensing involves the acquisition of information about the earth from airborne and satellite sensors. Both vector (GIS and GPS) and raster (image) data will be treated with an emphasis on their interpretation for various geographic and earth science applications. A significant part of the course will be devoted to practical exercises; there will be a final project involving the computer processing and interpretation of these data.

Prerequisite: One course from EARS 1, EARS 2, EARS 3, EARS 4, EARS 5, EARS 6, EARS 8, EARS 9, or GEOG 3.

Cross-Listed as: EARS 65

Distributive: Dist:TLA

Offered: 16W, 17W: 10A (Lab: W or Th 1:00-2:55)

GEOG 54 - Geovisualization

Instructor: Chipman

Using GIS and other computer tools for visual communication and visual thinking. Learn traditional principles of cartography, including using color, shape, size, and pseudo-3D to visually express spatial relationship. Learn to use GIS and statistical software for exploratory spatial data analysis, including linked plots and conditioned choropleths. Other topics will include animation, automated cartography (coding for push-button map creation) and web mapping. Heavy use of free and open source software. Labs, final project.

Prerequisite: GEOG 50 or any statistics course

Distributive: Dist:SLA

Offered: 17W:12 (Lab: Mon or Tue 2-4)

GEOG 56 - The Geographies of Health and Disease

Instructor: Shi

This interdisciplinary course introduces the principles and methods used to understand health and disease in the geographical context. Topics include monitoring epidemics, tracking disease outbreaks, identifying environmental factors that may promote or hinder health, and studying geographic impediments in accessing health care services. Learning takes place through lecture and discussion, readings of selected manuscripts, hands-on experience in the GIS lab, assignments, and completion of a term project. Previous courses in geography or health are recommended.

Prerequisite: GEOG 50

Distributive: Dist:TAS

Offered: 16S, 17S: 11 Lab: ARR

GEOG 57 - Urban Applications of GIS

Instructor: Shi

This course is about how to use GIS technology to solve urban problems. The application problems that will be discussed in the class are from areas including urban planning and design, public administration, business decision-making, environment assessment, land use change, and social and political issues. The data, spatial analytical techniques, and GIS software that have been used in these applications will be examined through studying real-world examples. The class contains three components: the lectures, the lab exercises and the term project. The software packages used for the lab exercises include ArcGIS and MapInfo.

Prerequisite: GEOG 50

Distributive: Dist:TLA

Offered: 16F, 17F: 11 (Lab TBA)

GEOG 59 - Environmental Applications of GIS

Instructor: Dietrich

This course focuses on the uses of GIS techniques in solving practical environmental problems. The ideas of how GIS can be applied to various fields of environmental studies and applications will be presented, and this is achieved through examining real application examples concerning soils, watershed hydrology, vegetation, land use/land cover, climate, pollutions, landscape ecology, and natural hazards. The students will also learn fundamental knowledge and techniques required in application projects for solving environmental problems, including the methodology of starting and running such projects, and spatial analytical techniques that are frequently used in such projects. The course is made of three components: the lectures, the lab exercises, and the term project. The software packages used for the lab exercises include ArcGIS and IDRISI.

Prerequisite: GEOG 50 or GEOG 51/EARS 65, or permission of the instructor.

Cross-Listed as: EARS 77

Distributive: Dist:TLA

Offered: 16W: 11 (Lab: M or Tu 2:00-4:00)

GEOG 67 - Political Ecology

Instructor: Sneddon

Political ecology is an approach to human-environment relations that links a broad understanding of biophysical systems (e.g., tropical forests, coastal ecosystems, river basins) to knowledge regarding the political and economic forces that drive ecological change. Drawing on examples from North America, Southeast Asia, Africa and other regions, this course employs a political ecology framework to examine contemporary debates over urbanization, water resources, the role of science in environmental conflicts and the cultural landscape.

Prerequisite: ENVS 3 or GEOG 1 or permission of the instructor

Cross-Listed as: ENVS 67

Distributive: Dist:INT or SOC

Offered: 16W: 10A, 16F: 2A

GEOG 80 - Seminar in Geography

This course focuses on topics in advanced human geography that are not regularly taught as part of the curriculum. Course content will vary and reflect the interests and expertise of the instructor.

Prerequisite: GEOG 1 or permission of the instructor.

Distributive: Dist:SOC

Offered: Not taught 15F through 17S

**GEOG 80.03 - 10 Weeks, 10 Professors
#BlackLivesMatter**

Distributive: Dist:SOC

GEOG 81 - Field Research in the Czech Republic

Instructor: (Magilligan/Sneddon 16S), (Domosh 17S)

This course involves a dozen or so lectures by members of the Charles Geography faculty. These case studies will vary depending (to a degree) on expertise, but might include topics such as: forest decline in the Czech Republic and its relation to industrial pollution, the effect of land-use on sedimentation regimes of the Elbe River and its tributaries, the impact of international migration on sending and receiving nations, comparative research on the spatial organization of industrial production in market and formally-centrally planned economies, the effects of the political division of the Czech and the Slovak Republic on service areas (medical, administrative, etc.) in the border region, the geography of Foreign Direct Investment in the Czech Republic before and after the Velvet Revolution. The goal of the course is to expose students to the research interests of European geographers and to potential topics for their own independent research topics. Fieldwork comprises a significant portion of this course with both human and physical geographical site visits.

Prerequisite: GEOG 1 or GEOG 3 and one course numbered between 12 and 41, or permission of the instructor. A minimum of one methods course (GEOG 11, GEOG 50, GEOG 51) is strongly recommended.

Offered: 16S, 17S: D.F.S.P. (Prague, Czech Republic)

GEOG 82 - Independent Study in the Czech Republic

Instructor: (Magilligan/Sneddon 16S), (Domosh 17S)

This course offers the qualified student an opportunity to research a topic of special interest in the Czech Republic under the joint direction of a Dartmouth staff member and Charles University staff. This course is taken as part of a three course sequence by FSP participants (Geography 47, 81, 82).

Prerequisite: GEOG 1 or GEOG 3 and one course from 12-41 or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: 16S, 17S: D.F.S.P. (Prague, Czech Republic)

GEOG 85 - Advanced Reading in Geography

This course offers the qualified student an opportunity to pursue a subject of special interest under the direction of a

member of the staff. An outline for the reading program must be approved by the instructor prior to the first day of classes of the term in which it is to be taken.

Prerequisite: Permission of the instructor and the Chair.

Offered: All terms: Arrange

GEOG 87 - Senior Thesis

Instructor: The faculty

A thesis on a geographic topic selected by the student with the instructor's approval.

Prerequisite: permission of the instructor and the Chair. Open to seniors, and required of honors majors

Offered: All terms: Arrange

GEOG 90 - Research in Geography

Instructor: Wright, Sneddon

This culminating experience exposes students to the elements of conducting geographic research. Students synthesize their knowledge of geography by exploring the epistemological and methodological foundations of geographic research. The course involves the preparation of a research proposal on a topic each student chooses in consultation with the geography faculty. Introduction to written and spoken German. Intensive study of basic grammar and vocabulary through readings, oral and written drills, composition exercises, conversation, and practice in the virtual laboratory. Never serves in partial satisfaction of the Distributive or World Culture Requirement.

Prerequisite: GEOG 1 or GEOG 3, two courses from GEOG 11, GEOG 50 to GEOG 59, or permission of the instructor.

Distributive: Dist:SOC

Offered: 15F: 2A; 16F: 10A

GEOG 7 - First-Year Seminars in Geography

Offered: Consult special listings

German Studies

Chair: Ellis Shookman

Professors B. Duncan, G. Gemünden, I. Kacandes, E. R. Shookman; Associate Professors V. Fuechtner, K. Mladek, Y. Komska; Assistant Professor P. McGillen; Senior Lecturer/Research Assistant Professor N. Ostrau; Lecturer M. McGillen; Adjunct Lecturer E. Miller.

To view German Studies courses, click here (p. 300).

Requirements for the Major

Prerequisite : Two of the following: GERM 6 or GERM 10.00; GERM 10.01, GERM 10.02, and GERM 10.03; or permission of the Chair. Students majoring in German Studies design an individual program in consultation with a departmental adviser.

The Department of German Studies offers three routes to the major:

1. *Major A* focuses on literary and non-literary texts in their historical and intellectual contexts, comprising courses offered by the Department of German Studies. With permission of the Chair, one appropriate course in another department or program may be substituted.

Requirements : eight courses numbered above 13 (GERM 42-47, which are in English translation, require additional work in German), three of which normally come from participation in the Foreign Study Program in Berlin (GERM 29, GERM 30, and GERM 31). All majors must take the upper-division seminar offered in the winter term of their senior year (normally a GERM 60s course). At the end of their senior winter term, all majors will give a presentation based on their work done for this seminar.

2. *Major B* combines resources of the Department of German Studies with a coherent selection of those of other departments and programs, such as Art History, Comparative Literature, Film Studies, Geography, Government, History, Music, Philosophy, and Religion. In principle, any relevant course in the Dartmouth curriculum that is approved by the Department of German Studies may qualify for this major.

Requirements : six courses in the German Studies Department numbered above 13 (GERM 42-47, which are in English translation, require additional work in German), three of which normally come from participation in the Foreign Study Program in Berlin (GERM 29, GERM 30, and GERM 31); four advanced courses from among those offerings in other departments or programs that deal substantially with the culture of German-speaking countries. All majors must take the upper-division seminar offered in the winter term of their senior year (normally a GERM 60s course). At the end of their senior winter term, all majors will give a presentation based on their work done for this seminar.

3. *Modified Major* combines German Studies with another discipline in a coherent program of study. This major is designed individually by the student with a departmental adviser. It may include participation in the Foreign Study Program in Berlin.

Requirements : six courses numbered above 13 (GERM 42-47, which are in English translation, require additional

work in German); four courses beyond the introductory level in another department or program of the College and approved by the Chair of the Department of German Studies. All majors must take the upper-division seminar offered in the winter term of their senior year (normally a GERM 60s course). At the end of their senior winter term, all majors will give a presentation based on their work done for this seminar.

Senior Culminating Experience : All German majors must take the upper-division seminar offered in the winter term of their senior year. This course will count as one of the eight courses required for Major A and one of the ten courses required for Major B or the Modified Major. In addition to regular participation in the seminar, senior majors will meet with its professor during designated x-hours to discuss methodology and to develop a research topic. Additional work will culminate in a significant essay, the argument of which will be presented orally in German to classmates and to the faculty of the Department of German Studies at the end of winter term.

Requirements for the Minor

Minor : The Department of German Studies offers a minor with the following prerequisites: GERM 1, GERM 2, GERM 3, or permission of the Chair. In addition, the minor requires two intermediate courses (GERM 6, 10.00, 10.01, 10.02, 10.03) and four advanced courses above GERM 13 (GERM 42-47, which are in English translation, require additional work in German.) One of these advanced courses may be replaced with an appropriate advanced course in another department or program. Students who wish to declare a minor must do so no later than the fall term of their senior year.

Dartmouth Language Study Abroad Program in Germany (LSA)

Prerequisite : GERM 2 with a grade of B- or better, or equivalent preparation, and admission to the program. LSA programs are conducted in Berlin during the spring and summer terms. Students live with local families and take courses taught by local instructors and the Dartmouth faculty member in residence. Upon successful completion of the program, students normally receive credit for GERM 3, GERM 5, and GERM 6. GERM 3 can serve to complete Dartmouth's foreign language requirement. Students who have already taken and passed GERM 3 on campus may go on the program and take GERM 10.00 instead.

Dartmouth Foreign Study Program in Germany (FSP)

Prerequisite : Acceptance into the program and a grade of B or better in any two courses above GERM 5, excluding GERM 7 and GERM 13 (GERM 42-47, which are taught in English translation, require additional work in German). Students who have satisfactorily completed the German LSA may fulfill this prerequisite by taking one course in addition to the three taught on that program. Students who have satisfactorily completed the German LSA in the summer term need not take this additional course if they go on the FSP in the immediately following fall term. Students who receive credit for German 10.00 as the result of a placement test must complete one further course (GERM 10.01, GERM 10.02, or GERM 10.03, for example.) The Dartmouth Foreign Study Program in Berlin is conducted each fall term. Students live with local families and take GERM 29, GERM 30, and GERM 31. For more information, inquire at the Off-Campus Programs Office, 44 North College Street, or at the Department of German Studies, 333 Dartmouth Hall.

German Honors Program

Students of exceptional attainment who satisfy the minimum College requirements are encouraged to participate in the Honors Program. By November 1 of their senior year, prospective honors students must submit a thesis proposal demonstrating adequate knowledge of the topic on which they wish to write. Such knowledge would normally be acquired through participation in an advanced course (above GERM 13) on a related topic. Alternatively, the topic of interest might have been explored in an independent study (GERM 85). Honors projects must be approved by the departmental faculty. By the end of the winter term, prospective honors students are expected to provide written work sufficient to warrant continuation of their project in GERM 87 in the spring term. Students not attaining the required minimum standards for honors work may not enroll in GERM 87 and therefore may have to take another German Studies course to fulfill the major requirements. (See also Senior Culminating Experience.)

GERM - German Studies Courses

To view German Studies requirements, [click here](#) (p. 298).

GERM 1 - Introductory German

Instructor: McGillen,P Ostrau Komska
Gemunden McGillen,M Shookman

Introduction to written and spoken German. Intensive study of basic grammar and vocabulary through readings, oral and written drills, composition exercises, and conversation. *Never serves in partial satisfaction of the Distributive or World Culture Requirement.*

Offered: 15F: 9S, 10 16W: 9S 16S: 9S 16F: 9S, 10 17W: 9S 17S: 9S

GERM 2 - Introductory German

Instructor: Ostrau McGillen,M Komska
McGillen,P

Continuation of German 1. Continued intensive work on the fundamentals of oral and written German. *Never serves in partial satisfaction of the Distributive or World Culture Requirement.*

Offered: 15F: 9S 16W: 9S, 10 16S: 10 16F: 9S 17W: 9S, 10 17S: 10

GERM 3 - Intermediate German

Instructor: Miller Mladek Shookman Fuechtner

Continuation of German 2. A continued intensive study of basic grammar and vocabulary through readings, oral and written drills, composition exercises, and conversation. Completion of this course constitutes fulfillment of the language requirement. *Never serves in partial satisfaction of the Distributive or World Culture Requirement.*

Offered: 15F:10 16S:10 D.L.S.A. 16F:10 17S:10 D.L.S.A.

GERM 5 - Aspects of German Culture

Instructor: Mladek Fuechtner

Using the city of Berlin itself as a site and object of study, students will explore German culture in its widest sense. Visits to architectural, historical, religious, scientific, and industrial sites will acquaint them with multiple aspects of German society.

Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program.

Distributive: WCult:W

Offered: 16S 16X 17S D.L.S.A.

GERM 6 - Readings in German Literature

Instructor: Mladek Fuechtner

This course introduces students to the interpretation of stories, poems, and articles from various periods. Depending on availability, we will also read plays and view their performances in some of the many theaters in Berlin.

Prerequisite: acceptance into the Dartmouth Language Study Abroad Program.

Distributive: Dist:LIT; WCult:W

Offered: 16S 16X 17S D.L.S.A.

GERM 7 - First-Year Seminars in German Literature

Instructor: McGillen,P Mladek

Consult special listings

Offered: 16W: 12 17W: 10A

GERM 10.00 - Intermediate German Language and Culture: Contemporary Germany

Instructor: Mladek Fuechtner

This course develops facility in oral expression and writing, with emphasis on the expansion of vocabulary and the reinforcement of grammatical structures. It draws much of its audio, visual, and print material from the website of the Deutsche Welle, and it treats current events and other topics of interest in contemporary German society.

Distributive: WCult:W

Offered: 16S D.L.S.A.; 16X 12, D.L.S.A.; 17S D.L.S.A.

GERM 10.01 - To Be Young and German

Instructor: McGillen,P Ostrau

This class investigates youth cultures in the German-speaking world, analyzing different ideas of youth and their political and cultural impact in four distinct units: fairy tales and nation building in the early 19th century, sexual awakenings in the early 20th century, authoritarian regimes of the mid- and late 20th century, and youth rebellion in post-war and post-unification Germany. This course will review more complex grammar, expand vocabulary, and strengthen listening, speaking and writing skills. Conducted in German.

Prerequisite: GERM 3, or equivalent

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 12 16F: 12

GERM 10.02 - From God's Subjects to Global Citizens

Instructor: Ostrau McGillen,M

This course surveys the history and culture of the German-speaking lands to investigate the individual's role in a changing society. Discussions will stress the uneven path of subjects, dependent on God, the ruler, or social hierarchy, towards becoming autonomous citizens. What role has philosophy, poetry, art, architecture, or music played in this emancipation process? Thinking and writing about this question will help intermediate language learners practice grammar, acquire vocabulary, and strengthen listening, speaking, and writing skills. Conducted in German

Prerequisite: GERM 3, or equivalent.

Distributive: Dist:TMV; WCult:W

Offered: 16W: 12 17W:12

GERM 10.03 - Understanding German Media

Instructor: Gemünden McGillen, P

This intermediate course explores the media scene of contemporary Germany, with a focus on newspapers, TV, radio, and blogs. We will compare these media, study the

kinds of language they produce, and analyze their place in contemporary German culture. Students will develop writing skills by practicing the stylistic conventions of each medium, learning to communicate effectively with different audiences. The course reviews grammar topics in detail, expands vocabulary, and strengthens listening, speaking, and writing skills. Conducted in German.

Prerequisite: GERM 3, or equivalent.

Distributive: Dist:ART; WCult:W

Offered: 16S: 12 17S:12

GERM 13 - Beyond Good and Evil

Instructor: Shookman Gemünden

Borrowing its title from Nietzsche, this course examines some of the most famous and infamous figures-- mythological, fictional and historical--that have profoundly shaped German identity. As we explore the actual lives, works, and influence of the likes of Luther, Faust, and Leni Riefenstahl, students will develop a greater understanding of Wagner's question "What is German?" and learn how the answer to that question has come to epitomize notions of good and evil in general. Conducted in English. Open to all classes.

Distributive: Dist:LIT; WCult:CI

Offered: 16S:12 17S:12

GERM 29 - A Cultural Studies Approach to Contemporary Germany and Berlin

Instructor: Kacandes Komska

Introduction to contemporary German culture, identity and everyday life through close analysis of literary, visual (including filmic), architectural, political and other texts. Assignments develop skills in the analysis of visual material, of the construction of identity, and of the expression of sophisticated ideas in written and spoken German. Carries major or minor credit.

Prerequisite: acceptance into the Dartmouth Foreign Study Program.

Distributive: Dist:ART; WCult:CI

Offered: 15F: D.F.S.P. 16F: D.F.S.P.

GERM 30 - Studies in German History

Instructor: Kacandes Komska

More than any other German city, Berlin encapsulates Germany's complex recent past. From the Brandenburg Gate to the Olympic Stadium and from the Wannsee to Alexanderplatz, every corner of the capital evokes memories of industrialization, Nazi rule, World War II, Cold War divisions, or Unification. This course addresses significant aspects of German history and cultural memory.

In-depth studies of important developments will be complemented by visits to museums and historical sites.

Prerequisite: acceptance into the Dartmouth Foreign Study Program.

Distributive: Dist:SOC; WCult:W

Offered: 15F: D.F.S.P. 16F: D.F.S.P.

GERM 31 - Studies in German Theater

Instructor: Kacandes Komska

Berlin is one of the culturally most vibrant cities in Europe. There are over a hundred theaters and several opera houses with performances that range from classical drama to vaudeville and from musicals to serious opera. Students will read plays and libretti, view stage productions and read, discuss, and write weekly essays about the plays. The repertory varies from year to year.

Prerequisite: acceptance into the Dartmouth Foreign Study Program.

Distributive: Dist:LIT; WCult:W

Offered: 15F: D.F.S.P. 16F: D.F.S.P.

GERM 42 - Topics in German Civilization (in English translation)

Offered: not offered in 2015-2016 or 2016-2017

GERM 43 - History and Theory of German Film (in English translation)

In 14X, *Continental Strangers: European Exiles and Emigres in Hollywood, 1933-1950*. During the 1930s and 1940s, hundreds of German-speaking film professionals lived and worked in Hollywood, among them Billy Wilder, Fritz Lang, Peter Lorre, and Marlene Dietrich. In this course, we study how the exiles' sense of identity in the United States was shaped by the experience of displacement and the fight against fascism. We will also investigate how exile cinema intervenes in public debates, and how it reframes political issues in terms of narratives and images. [By special arrangement, this course can count toward a German Studies major or minor. Open to all classes.]

Distributive: Dist:ART

Offered: not offered in 2015-16 or 2016-17

GERM 43.01 - Contemporary German Cinema

Recent German films such as *The Lives of Others*, *Downfall*, *Head On* or *Run Lola Run* have enjoyed much international success at festivals and box offices and drawn attention to a new generation of German-language filmmakers. This class will explore contemporary German culture of the last twenty years through their lens. We will discuss some of the main challenges that German society is facing

today: overcoming the divide between East and West integrating immigrant cultures, and coming to terms with the history of the Third Reich. In our analysis of popular mainstream movies as well as low-budget independent productions, we will also address how filmmakers today refer to their rich tradition of German cinema before reunification, e.g. the Expressionist cinema of the 1920s or the New German Cinema of the 1970s. No German knowledge is required for this class – all films are available and subtitled in English. By special arrangement, this course can also count toward a German Studies major or minor. Open to all Classes.

Distributive: Dist:ART

Offered: not offered in 2015-16 or 2016-17

GERM 44 - The Faust Tradition (in English translation)

Instructor: Mladek

An investigation of the many tellings of Faust's famous story of selling his soul, from its first literary treatment (*The Damnable Life and Deserved Death of Dr. John Faustus*) to classic drama (Marlowe's *The Tragical History of the Life and Death of Doctor Faustus* and Goethe's *Faust*) to the twentieth-century novel (Bulgakov's *The Master and Margarita* and Mann's *Doctor Faustus*) to visual art, music, and film.

German majors can take this course for major credit if they do additional work in German and participate in a German discussion section. Open to all classes.

Distributive: Dist:LIT; WCult:W

GERM 44.03 - The Faust Tradition

Instructor: Shookman

An investigation of the many tellings of Faust's famous story of selling his soul, from its first literary treatment (*The Damnable Life and Deserved Death of Dr. John Faustus*) to classic drama (Marlowe's *The Tragical History of the Life and Death of Doctor Faustus* and Goethe's *Faust*) to the twentieth-century novel (Bulgakov's *The Master and Margarita* and Mann's *Doctor Faustus*) to visual art, music, and film.

German majors can take this course for major credit if they do additional work in German and participate in a German discussion section.

Open to all classes.

Distributive: Dist:LIT; WCult:W

Offered: 15X 10A

GERM 44.04 - Gems of German Prose Fiction from Goethe to the Present

Instructor: Mladek

This course explores highlights of the German narrative tradition within their historical, comparative, psychological, philosophical, and cultural contexts. Beginning with novels of the eighteenth and nineteenth centuries, and continuing up to the present day, it will focus on topics such as love, intimacy, body language, community, solitude and the importance of death. It will also treat the influence of political and cultural changes on the German novel's style and audience. It includes film adaptations.

Distributive: Dist:LIT; WCult:W

Offered: 16X 10A

GERM 45 - The Burden of the Nazi Past: World War, Genocide, Population Transfer, and Firebombing (in English translation)

Offered: not offered in 2015-2016 or 2016-2017

GERM 46 - The German Novel (in English translation)

Offered: not offered in 2015-2016 or 2016-2017

GERM 47 - German Drama (in English translation)

Offered: not offered in 2015-2016 or 2016-2017

GERM 61 - The Age of Goethe (1749-1832)

Johann Wolfgang von Goethe was the most notable creative force of the period that bears his name, but his contemporaries included an astonishing number of other great geniuses in literature, music, philosophy, etc. Together they developed many of the concepts that define modern consciousness. Exploring "The Rise and fall of the *Humanitätsideal*," the course will examine representative works by Goethe, Hoffmann, Kant, Kleist, Lessing, Mendelssohn, Schiller, and Tieck. Conducted in German. Open to all classes.

Distributive: Dist:LIT; WCult:W

Offered: not offered in 2015-16 or 2016-17

GERM 62 - Literature of the Romantic Period

Offered: not offered in 2015-2016 or 2016-2017

GERM 64.01 - Franz Kafka and the Modern Self

Instructor: McGillen,M

Kafka's stories are the epitome of modern tragicomedy. In few other writers do we find despair and hope, guilt and redemption, dream and reality, in such close proximity. Kafka expresses the struggles of the modern self through the labyrinth-like character of his prose, through which we as readers must find a path. The course will read Kafka closely - with attention to questions of authority, law, and self-fulfillment - and develop strategies of literary criticism and interpretation.

Offered: 15F: 2A

GERM 64.02 - Pulp Fiction Meets Highbrow Literature: German Writers in the 19th-Century Media Market

Instructor: McGillen, P

To be a writer in 19th-century Germany meant to interact with a thriving media market. For the first time, such authors wrote for a mass readership and published in illustrated magazines, where their highbrow literary texts appeared together with pulp fiction and visual images. Reading works by Heine, Fontane, Stifter, and others, this seminar will explore the complex aesthetic strategies devised to respond to this medial challenge, a challenge related to current issues raised by the publication of serious fiction in digital venues today. Conducted in German. Open to all classes. Dist: LIT, WCult: W.

Distributive: Dist:LIT; WCult:W

Offered: 16F 2A

GERM 65.05 - Deutsche Kurzprosa: Kunstmaerchen gegen Novelle

Instructor: Miller

Kunstmärchen are literary fairy-tales more refined than popular *Volksmärchen*. *Novellen* are narratives more akin to drama than to the novel or short story. This seminar treats outstanding examples of both genres, showing how they work as well as how they compete and conflict with each other.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 2A

GERM 65.06 - Modes of Belonging: What is Heimat

Instructor: Komska

In the 21st century, Germany is de facto an "immigration country." That means that non-Germans have a chance of becoming German. But it hasn't always been this way. The German understanding of belonging has a long and complicated history that spans several centuries. In our readings and viewings, which will range from Nazi films to memoirs of GDR-born writers, we will trace this history's twentieth-century course. Our discussions will tackle the themes that cross boundaries: home, nostalgia, assimilation, cosmopolitanism, and patriotism. Senior majors will participate in a weekly culminating experience workshop focused on more intensive interpretation and analysis of works. Taught in German.

Distributive: Dist:LIT; WCult:W

Offered: 17W 2A

GERM 67 - German Drama

Instructor:

Offered: not offered in 2015-2016 or 2016-2017

GERM 81 - Seminar

Offered: Not offered in 2015-2016 or 2016-2017

GERM 82 - Seminar- Religious Moments in German Literature

German literature is characterized by its strong religious references. While many other European traditions have emphasized social or psychological realism, Germans greatest poets always had a strong tendency to look upwards – be it to the heavens or into the void. This course will focus on key religious moments in German literature, understanding religious sometimes in a confessional sense, mainly Christian or Jewish, but also comprehensively in its transcendental alignment. We will discuss authors like Lessing, Goethe, Hölderlin, Kleist, Heine, Kafka, Celan, and Thomas Mann, as well as contemporary literature. Taught in German.

Distributive: Dist:LIT; WCult:W

Offered: 15S: 16S:

GERM 82.03 - Breaking Bad: The Aesthetics of Evil

Instructor: Trojanow, I

German literature has to deal with the grim past of two totalitarian regimes. This seminar examines how it— together with religious texts, cinema, and television— represents and/or reflects on systematic evil such as that found in those regimes with reference to historical literary movements and characters as well as to more recent products of contemporary popular media. Readings include one of the instructor's own recent works. Conducted in German.

Distributive: WCult:W

Offered: 16S

GERM 84 - Seminar

Offered: Not offered in 2015-2016 or 2016-2017

GERM 85 - Independent Study

All terms: Arrange

GERM 87 - Honors Thesis

See German Honors Program

Offered: 16S: Arrange 17S: Arrange

*Related Courses***Government**

Chair: Dean Lacy

Professors L. Baldez, J. M. Carey, M. C. Herron, D. P. Lacy, J. R. Muirhead, M. F. Mastanduno, J. B. Murphy,

M. A. Sa'adah, W. C. Wohlforth; Associate Professors J. Bafumi, S. S. Bedi, D. J. Brooks, S. G. Brooks, M. T. Clarke, Y. Horiuchi, J. M. Lind, D. G. Press, L. A. Swaine, D. A. Turner, B. A. Valentino, D. J. Vandewalle; Assistant Professors S. Chauchard, K. Dropp, J. Ferwerda, J. A. Friedman, B. D. Greenhill, J. Horowitz,, B. Nyhan; J. L. Rose, S. Westwood; Visiting Professors Emeritus N. M. Kasfir, L. L. Fowler; Visiting Professors B. Avishai, H. C. Clark, P. DeShazo, B. Miller; Visiting Lecturer J. Sorens, ; Visiting Instructors M. Babik, E. Camp, S. Simon, E. P. Svenson; Research Associate Professor R. G. Shaiko.

To view Government courses, [click here](#) (p. 306).

Department Median Grade Standards

Except under extraordinary circumstances, median grades in GOV courses will not exceed A- in seminars, and B+ in all other courses.

Requirements for the Major

Political Science is a highly diverse field united around a core interest. Political scientists study power, and especially power used for public purposes: how it is created, organized, distributed, justified, used, resisted, and sometimes destroyed. American political science is traditionally divided into four subfields: American Politics, Comparative Politics, International Relations, and Political Theory and Public Law. Students may choose to study within one of these subfields or may choose courses according to some other intellectual plan.

Prerequisite: One course in statistics and the methods of social science: GOVT 10, ECON 10, or MATH 10. Another course in statistics and the methods of social science may be substituted for GOVT 10, with permission of the department chair, in consultation with the full-time department faculty members who teach GOVT 10.

Requirements: The Government Major comprises at least ten courses chosen to constitute an intellectually coherent program. (The prerequisite is not considered one of the ten courses). These courses should include:

1. Two introductory courses.
 2. Six additional courses at any level.
 3. An advanced seminar or the Honors Program as the Senior Culminating Experience (see below).
 4. An additional advanced seminar.
- The Culminating Experience. To meet the requirement of an integrative academic experience in the Major, all Majors will be required to complete one of the following:

- a. *Advanced Seminar (GOVT 80–89)*. To complete the Major in Government, a student must take an advanced seminar consistent with the goals of the student's program. Seminar requirements will include a research paper in which each student has the opportunity to integrate material from the study of political science in the analysis of a specific issue or phenomenon. It is expected that under normal circumstances seminar size will not exceed 16. Students are encouraged to take additional advanced seminars.
OR
- b. *Honors Program*. The Department offers an Honors Program. Seniors participating in the program and completing the thesis (whether or not they receive honors) will thereby fulfill the culminating experience requirement. Those who enter the program and do not finish the thesis, but complete at least one term of the program, may, with the approval of the Director(s) of the Honors Program, be given credit for GOVT 80.
OR
- c. *Third Upper-Level Course*. This option is available only to students who can show that neither the Honors Program nor an advanced seminar will be available or appropriate for meeting the requirement. A student may petition to satisfy the requirement by writing an extensive paper (approximately 25 pages) in an additional upper-level course consistent with the student's program. This option requires both Departmental permission and the written approval of the instructor and must be recorded before the term in which the course is taken. Instructors will not approve these requests unless they will be able to devote time outside class meetings to directing the student's work.

Requirements for the Minor

The Minor in Government shall consist of:

1. Two introductory courses;
2. Four upper-level courses, chosen to constitute an intellectually coherent pro-gram (GOVT 10 may count as one of the upper-level courses);
3. One advanced seminar consistent with the goals of the student's program.

Special Provisions

1. Under College policy, GOVT 7 (First-Year Seminar) may not be counted toward the Minor.
2. Transfer students will normally be expected to complete at least four of the seven courses required for the Minor on campus, or in courses taught by members of the Department.

Modified Majors

As a consequence of the introduction of the Minor, the Department of Government has discontinued the Modified Major, effective with the class of 2003. This includes both Modified Majors in which Government was the primary component (e.g., Government Modified with History) and those in which it was the secondary component (e.g., History Modified with Government). Students who seek to modify a Major in another department with courses in Government may do so by using the option of a Modified Major without indication of the secondary department (e.g., History Modified).

Non-Recorded Option

Government courses may not be taken under the Non-Recorded Option (NRO).

Career Counseling and Special Programs

Department faculty members serve as advisors to all students Majoring in Government. In addition, designated members of the staff advise students who are considering graduate work and those who may wish to pursue careers in law, diplomacy, politics, or other aspects of public affairs.

Off-Campus Study

Off-Campus Program in London

The Department of Government sponsors a foreign study program at the London School of Economics and Political Science during the fall term. Sixteen students will be selected for the program during the preceding winter term; GOVT 4 and GOVT 5 or equivalents serve as prerequisites. Equivalents for GOVT 4 and GOVT 5 must be approved by the program director. Students take two courses with members of the LSE Department of International Relations (GOVT 90 and GOVT 91). The third course (GOVT 92) is a seminar with the Dartmouth faculty member accompanying the group. For further information, see one of the following staff members: Bafumi, Greenhill, Horowitz, Lind, Chauchard.

Off-Campus Program in Washington

Students in any Major may apply to participate in the Government Department's off-campus program, which is held in Washington, D.C., during the spring term. The program offers three course credits for the following: an internship journal that relates the work experience to the academic studies (GOVT 93), and two seminars dealing with the federal budget and separation of powers (GOVT 94 and GOVT 95), offered in Washington by the supervising faculty member. Applications are received during the fall, and interviews and selections occur during that term. In Washington, students spend their time on an internship or research during the day, two weekly seminars, and guest speakers drawn from the Washington community (officials, reporters, lobbyists). For further information, see one of the following staff members: Dropp, Bafumi.

Honors Program

The Government Department Honors Program provides qualified undergraduates with an opportunity to complete independent research under the supervision of the members of the Department. Participants define and analyze a specific issue or hypothesis in the field of political science and write a thesis (normally 75 to 125 pages in length). Students should consider the possibility of participating in the Honors Program when first planning their Major. Students must take courses providing necessary preparation in their sophomore and junior years and an advanced seminar in their junior year to allow them to develop a proposal. Students interested in participating in the Government Department Honors Program should obtain information on the Program from the Department Office.

Formally, the Honors Program consists of submission and acceptance of a proposal by the end of the spring term of the junior year and of completion of an Honors thesis within the framework of a two-course sequence during the senior year: GOVT 98 (fall) and GOVT 99 (winter). GOVT 98 will count at a seminar and GOVT 99 will count as a mid level course for the Major or Minor.

Each student writing an Honors thesis will be supervised by an advisor or advisors who, insofar as possible, have expertise in the area concerned. Students are responsible for securing an advisor from the Government Department by the end of the spring term of their junior year. Participation in Government 98 and 99 also entails regular interaction among Honors students under the direction of the Department's Honors Program Director(s). The Director(s) share with thesis advisors responsibility for determining grades for the two courses.

Admission to the Honors Program and enrollment in GOVT 98 are granted by the Directors if the following requirements are met:

1. Grade point average of 3.3 or higher overall and 3.5 or higher in the Major.
2. Completion of five Government courses, plus the methods and statistics prerequisite to the Major (Government 10 or its equivalents). These five courses must include the introductory course, two upper-level courses and one advanced seminar.
3. Submission of a proposal by the end of the junior year, and approval by the advisor and the Honors Program Director(s).
4. A written statement by a faculty advisor, submitted as part of the thesis proposal, supporting the proposed thesis and indicating a willingness to supervise the student. Advisors must confirm that they will be in residence during the terms when they have responsibility for supervising the Honors thesis.

Admission to the Honors Program will be granted by the Director(s) of the Honors Program and advisor(s) if they approve the thesis proposal and are satisfied that the

student has the ability to conduct the necessary research. Students enrolled in GOVT 98 who, for any reason, cannot continue in the Honors Program may have their course enrollment converted to GOVT 80 (Readings in Government) and complete the requirements for this course under the supervision of their original advisors. Conversion must be formally recorded with the Registrar.

Government Website

Please check the Department website at <http://www.govt.dartmouth.edu> for further information, including updated course offerings.

GOVT - Government Courses

To view Government requirements, click here (p. 304).

Introductory Courses

GOVT 3 - The American Political System

Instructor: Faridosi; Svenson

An examination of the American political process as manifested in voting behavior, parties and their nominating conventions, interest groups, the Presidency, Congress, and the Judiciary. Special emphasis is placed on providing the student with a theoretical framework for evaluating the system including discussions of decision-making, bargaining, and democratic control.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10 16W: 2 16S: 2 16F: 10 17W: 2 17S: 2

GOVT 4 - Politics of the World

Instructor: Carey, Camp

This course will introduce students to the field of comparative government and politics through an examination of selected political systems. Special attention will be given to analytic techniques involved in the study of the field and to certain basic concepts, such as power and political culture, decision-making, and communications.

Distributive: Dist:INT or SOC

Offered: 15F: 12 16W: 10 16S: 12 16F: 10 17W: 12 17S: 10

GOVT 5 - International Politics

Instructor: S. Brooks, Press, Babik, Wohlforth

This course introduces the systematic analysis of international society, the factors that motivate foreign policies, and instruments used in the conduct of international relations. Particular attention is given to power and economic relations; to cultural differences that may inhibit mutual understanding or lead to conflict; to nationalism and other ideologies; to the requisites and

limits of cooperation; and to the historical structuring and functioning of international institutions.

Distributive: Dist:INT or SOC

Offered: 15F: 11, 12 16W: 11, 10 16S: 11, 10, 12 16F: 11, 2 17W: 11, 2 17S: 11, 2

GOVT 6 - Political Ideas

Instructor: Murphy, Rose, Muirhead

This course introduces student to political theory by reading and discussing classic works. We will discuss the meaning and significance of law, justice, virtue, power, equality, freedom and property. Readings may include: Plato, Aristotle, Augustine, Aquinas, Machiavelli, Hobbes, Locke, Rousseau, Burke, Kant, Hegel, Tocqueville, Mill, Marx and Nietzsche.

Distributive: Dist:TMV

Offered: 15F: 11 16W: 12 16S: 10 16F: 11 17W: 12 17S: 10

GOVT 7 - First-Year Seminars in Government

Offered: Consult special listings

Political Analysis

GOVT 10 - Quantitative Political Analysis

Instructor: Bafumi, Dropp, Greenhill, Herron, Horiuchi, Nyhan, Westwood, Camp

This course will provide students with useful tools for undertaking empirical research in political science and will help them to become informed consumers of quantitative political analysis. The course will first consider the general theoretical concepts underlying empirical research, including the nature of causality, the structure and content of theories, and the formulation and testing of competing hypotheses. The course will then employ these concepts to develop several quantitative approaches to political analysis. Students will be introduced to two statistical methods frequently used by political scientists, contingency tables and linear regression. By learning to systematically analyze political data, students will gain the ability to better conduct and evaluate empirical research in both its quantitative and qualitative forms. Because of the large overlap in material covered, no student may receive credit for more than one of the courses GOVT 10, ECON 10, MATH 10, PSYC 10, MSS 15 or MSS 45, or SOCY 10 except by special petition.

Distributive: Dist:QDS

Offered: 15F: 11, 2A 16W: 11, 12 16S: 2, 12 16F: 10, 12 17W: 10, 11 17S: 10, 11

GOVT 16 - Data Visualization

Instructor: Horiuchi

Big data are everywhere - in government, academic research, media, business, and everyday life. To tell the stories hidden behind blizzards of data, effective visualization - using maps, text clouds, networks, and other tools - is critical. This course teaches the principles of data visualization using publicly available tools - most importantly, the R statistical computing environment. Students completing the course will know how to work with and visualize data critical to their scientific endeavors.

Distributive: Dist:QDS

Offered: 15F: 2A 16F: 2A

GOVT 18 - Introduction to Political Game Theory

Instructor: Herron

Game theory is used to study how individuals and organizations interact strategically, and this course introduces game theory with a focus on political science applications. Game theory is a standard tool in the social sciences, and insights from game theory are essential to understanding many facets of politics, such as political party competition, legislative politics, international relations, and the provision of public goods. Among other topics, the course will cover normal and extensive form games, Nash equilibria, imperfect information, mixed strategies, and, if time permits, the basics of games with incomplete information. A course in game theory will change that way that one views the world.

Prerequisite: MATH 3 or the equivalent.

Distributive: Dist:QDS

Offered: 16S: 11 17S: 11

GOVT 19.01 - Advanced Political Analysis

Instructor: Lacy

This course introduces mathematical and statistical models in the social sciences beyond the level of bivariate regression. Topics to be covered include multivariate regression, selection bias, discrete choice, maximum likelihood models, multi-level modeling, and experiments. We will use the Use models to study voter turnout, elections, bargaining in legislatures, public opinion, political tolerance, the causes and duration of wars, gender bias in employment, educational testing, poverty and income, and a host of other topics. Students will write a paper of original research using some of the methods covered in class. *(Note the prerequisite for this course is Government 10, Economics 10, Geography 10, Mathematics 10, Psychology 10, Social Sciences 10, or equivalent).*

Distributive: Dist:QDS

Offered: Not offered in AY 2015-2016 but may be offered in AY 2016 -2017.

*Upper-Level Courses that Cross-Subfields***GOVT 20.01 - Women and Politics**

Instructor: Brooks

This is a general course about gender and politics in which we will examine the roles of women and men as voters, activists, and politicians. We will begin by examining a wide range of relevant issues, including: how gender affects political participation and partisan preferences, how boys and girls are socialized differently into politics, how public opinion regarding domestic and foreign policy sometimes differs for women and men, and how a different gender balance among office holders might be expected to affect representation, policy, and governance. The course will then critically examine various barriers that women may face in the pursuit of elected office in the U.S., and we will also expand our view beyond politics, by analyzing women in non-political leadership positions in order to draw useful comparisons. Finally, the course will examine the role of gender in an international context, comparing gender dynamics in the U.S. with those of other countries in order to better understand the future of women in politics in the U.S. and in the world at large. This course is appropriate for all students, from all majors (there are no prerequisites).

Cross-Listed as: WGSS 31.04

Distributive: Dist:SOC; WCult:CI

Offered: 17W: 12

GOVT 20.03 - Morality and Political Economy

Instructor: Clark

How do people attach moral significance to their economic activity? How durable or malleable are religious and philosophical traditions in shaping moral ideals surrounding economic phenomena? And what is the role of government in promoting a “moral” economy? By surveying the thought of Greeks and Romans, Christians, Muslims and Jews, ancients and moderns, students will experience a wide-ranging introduction to the problem of how to define economic virtue in an age of globalization.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 12

GOVT 20.04 - Federalism and Decentralization

Instructor: Sorens

We consider arguments for and against federalism and the territorial decentralization of power, taking into account economic, security, and sociocultural aspects. Some scholars argue that federalism can provide a ‘credible commitment’ to market incentives, boosting economic growth. Others claim that decentralization can prevent or settle ethnic and secessionist conflicts. Still others provide a skeptical case against these alleged benefits. We will pay

careful attention to the different forms and dimensions of decentralization around the world.

Distributive: Dist:INT or SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017

GOVT 20.05 - Revolution, Reform and Reaction: The Cold War in Latin America

Instructor: DeShazo

This course examines and analyzes the key variables that determined the course of Latin America's political, economic, and social evolution during the period of the Cold War (1946-1990). It focuses on the relationship of Latin America to the global Cold War, the manifestation of U.S. and Soviet foreign policy in the region, and the responses of key actors in Latin America to the geo-strategic, ideological and political rivalry between the two superpowers.

Cross-Listed as: LACS 50.09

Distributive: Dist:INT; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 24 - Development in Emerging Economies

Instructor: Vandewalle

Countries in developing regions of the world face a number of unique challenges within a globalized economy as their financial and trade links become ever closely intertwined with those of powerful, developed countries that dominate international economic institutions. Drawing on a wide range of case studies, this course investigates some of these new developments in the world economy. What strategies can developing countries adapt in order to develop most efficiently in a global market-oriented economy? How can a country maximize its chances for economic success, and what precisely is the role of international financial and trade institutions in their development? Readings in this course range from theoretical academic writings on development strategies to policy pieces written by local practitioners and by those working for international financial and trade institutions.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 25 - Problems of Political Development: India, South Africa and China

Instructor: Sa'adah

Is democratic government always better than the alternatives? In the contemporary world, what is the relationship between economic development, democratic politics, and political order? What kinds of justice does

democracy promote? This course will address these questions by examining institutional arrangements, elite politics, and popular movements in India, South Africa, and China.

Prerequisite: GOVT 4.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 26 - Elections and Reform

Instructor: Carey

This course examines the problem of how politicians and policies are selected by citizens. Politicians fight tenaciously to shape the rules under which they compete because how elections are conducted has enormous impact on what sorts of choices voters are offered, what sorts of coalitions politicians form, and whose interests get represented. This course investigates what rules matter, and why. It draws from a broad array of cases to illustrate the most important issues at stake in current electoral reforms around the world, and here in the United States.

Distributive: Dist:SOC

Offered: 17W: 10

American Government

GOVT 30.01 - The Federal Budget

Instructor: Bafumi

This course will investigate the U.S. federal budget. Students will come to understand the history of, contemporary practices in and future trajectory of U.S. expenditure and revenue generating policies. The course will also cover the process by which policymakers pass an annual budget including what is supposed to happen and what actually happens in pursuit of a budget compromise. Substantial course time will be spent considering possible reforms that can be made to the federal budget.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 30.02 - Leadership and Political Institutions

Instructor: Fowler

This course explores how political leaders in the U.S. reconcile the constraints of public office with the opportunities to make major changes in society. Drawing from diverse materials on the executive, legislative and judicial branches of government, the course addresses the following questions: How does leadership differ in the public and private spheres? What personal skills and attributes affect the success or failure of leaders of political institutions? What criteria do/should citizens apply to

public leaders? How do political context and historical contingency shape institutional leadership?

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10A 16F: 10A

GOVT 30.03 - Political Economy in the Age of Google

Instructor: Avishai

This course explores the shifting relationship between private corporations and government policy in the networked world. As advanced technologies reshape business architectures and transform the terms of competition, the actions of government agencies must change correspondingly. We shall analyze the knowledge economy in microcosm—especially evolving network effects—and ask the urgent questions. What public infrastructure and standards are necessary to facilitate growth? What are the limits of established notions of intellectual property—patents, for example? What new metrics might be used to account for corporate performance and valuable assets? What are the implications of peer networks for the delivery of the services—from healthcare to education—that citizens have come to expect in a democracy?

Distributive: Dist:SOC

Offered: 15F: 10 16F: 10

GOVT 30.04 - Political Misinformation and Conspiracy Theories

Instructor: Nyhan

Why do people hold false or unsupported beliefs about politics and why are so those beliefs so hard to change? This course will explore the psychological factors that make people vulnerable to political misinformation and conspiracy theories and the reasons that corrections so often fail to change their minds. We will also analyze how those tendencies are exploited by political elites and consider possible approaches that journalists and civic reformers could employ to combat misperceptions.

Distributive: Dist:SOC

Offered: 16S: 10A 17S: 10A

GOVT 30.07 - American Political Economy

Instructor: Sorens

This course is an introduction to the political economy of the United States. You will learn about the politics behind economic policy-making and the role of economic processes in politics throughout U.S. history under three headings: ideas, interests, and institutions. We will investigate how economic policies and ideas have changed in the U.S., the relative importance of ideas, interest groups, and political institutions in setting the trajectory of American economic policies, and how American political

institutions have evolved to meet new economic challenges. The topics we study include foreign trade and investment, business regulation, slavery and the Civil War, monetary policies and the Great Depression, federalism, and the welfare state and social insurance.

Distributive: Dist:SOC; WCult:W

Offered: 16S: 12 17S: 12

GOVT 30.08 - Political Parties

Instructor: Svensen

This course focuses on the role of political parties in the American political system. Besides understanding the structure of political parties and why they form, we will also focus on how American political parties have changed over time. In particular, we will study political parties through three broad perspectives: Parties-in-the electorate (the actions of voters), parties-in-government (the actions of elected officials), and party organization (how parties build and use collective resources). Topics covered in this course include: political parties and the American Founding, American political party formation, party system change, third parties and why they fail, the role of interest groups in politics, the evolution of party ideology, and party polarization. We will also pay particular attention to the role of hyper-partisanship in our contemporary political era.

Offered: 15F: 2

GOVT 31 - Campaigns and Elections

Instructor: Bafumi, Lacy

Do campaigns change election outcomes? When do they matter and when do they not? How should campaigns be conducted for optimal results on Election Day? This course will seek to answer these questions from both academic and practical perspectives. Particularly, it will investigate campaign strategies; issues, money and communications in political races; the behavior of voters; and possible election reforms. Students should leave this class with a deep understanding of political campaigns for elective office.

Prerequisite: GOVT 3 or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 11 16F: 11

GOVT 34 - Congress and the American Political System

Instructor: Westwood

This course introduces students to the analysis of public policymaking in the U.S. Congress. Special attention is paid to the evolution of the House and Senate as institutions, to elections and to the interactions among elections, institutional arrangements, and policymaking.

Prerequisite: GOVT 3, or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 10

GOVT 35 - The Presidency

Instructor: Nyhan

This course highlights central themes in the development, organization, and functioning of the American Presidency. It combines the study of presidential behavior with an analysis of its complex and evolving institutional framework. Since the office requires the President to play multiple political roles simultaneously, the course will assess the institutional and behavioral components of these roles. It will present an integrated theoretical and empirical conception of presidential governance.

Prerequisite: GOVT 3 or by permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 2 17W: 2

GOVT 37 - Polling, Public Opinion, and Public Policy

Instructor: D.J. Brooks

The results of public opinion polls frequently dominate political news coverage and they often alter the behavior of politicians; moreover, political polls have started becoming news in their own right in recent years. In this course, we will explore the techniques that pollsters use to examine public attitudes and we will consider how that information can, and should, be used to formulate public policy. We will engage questions such as: To what degree can the public form meaningful preferences about complex political issues? What does a political opinion consist of, and how can it be measured? How can potential errors in polls be avoided? How does partisanship influence public opinion, and where do Americans stand on key policy issues? To what extent should politicians try to change public opinion rather than respond to it? How has the nature and role of public opinion shifted in an era of rapidly advancing polling technology and a changing media environment? In addition to examining the pertinent literature on topics such as these, we will conduct and analyze an actual public opinion survey as a class. Through a combination of theoretical and hands-on learning, students will leave the course with a firm understanding of these dynamics.

Cross-Listed as: PBPL 44

Distributive: Dist:SOC; WCult:W

Offered: 17S: 12

Comparative Politics

GOVT 40.01 - Democracy European Style

Instructor: Sa'adah

All democracies share important features (e.g., elections), but they also differ in significant ways (e.g., party systems, constitutional arrangements, power). Many of the patterns typical of European democracies are unfamiliar to Americans. In this course, we will explore how the major European countries "do" democracy. How did they get there? How does parliamentary government work? How do citizens participate in the political process? What issues do European elites and electorates view as central and what sorts of policy options have been proposed in response? How "European" are Europeans?

Distributive: Dist:INT or SOC; WCult:W

Offered: Not offered in AY 2015-2016. May be offered in AY 2016.

GOVT 40.02 - Politics of India

Instructor: Chauchard

India, soon to be the world's most populous nation, has surprised observers with its capacity to remain democratic - but India's ability to face staggering political, social and economic challenges remains an open question. The class will explore several questions: To what extent are state institutions responsive to citizens' needs? To what extent are they fair and independent? Has democracy challenged the power of old elites? How did politicians handle India's potential for conflict? Has democracy reduced poverty?

Distributive: Dist:INT or SOC; WCult:W

Offered: 16S: 2A 17S: 2A

GOVT 40.03 - Politics of Japan: A Unique Democracy?

Instructor: Horiuchi

This course offers a survey of Japanese politics with a focus on understanding the electoral and policy-making processes in Japan from theoretical and comparative perspectives. No prior knowledge of Japanese politics is required. The course will explore electoral systems and voting behavior, candidate selection and electoral campaign, dynamics of party competition, executive-legislative relationships, local politics and central-local relationships, the roles of the mass media and civil society in policy making, etc.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W and 17W: 2

GOVT 40.05 - Comparative Ethnic Politics

Instructor: Chauchard

This course examines the intersection of ethnicity and politics by drawing on a combination of theoretical works and case studies to answer questions such as: What are ethnic groups and why might they matter for political behavior? How do political institutions shape ethnic identities? When does ethnicity serve as the basis for

conflict and violence? Our focus will be comparative, and we will explore many parts of the world, particularly Africa, India, and Latin America.

Distributive: Dist:INT or SOC; WCult:W

Offered: W16: 10 W17: 10

GOVT 40.06 - Elections in Emerging Democracies

Instructor: Chauchard

Although modern democracy is a western invention, it is now the dominant form of government in the world, and most democracies do not resemble their western counterparts. What are the implications of these differences in the daily practice of democracy? How does democracy concretely work in countries with high levels of poverty, conflict, inequality, ethnic diversity and/or illiteracy? How does democracy in "developing countries" diverge from western ideals and western realities? Drawing on the experience of countries in Asia, Africa and Latin America, the class will compare and discuss the way democracy is practiced in developing countries. We will explore a number of themes, including how citizens understand democracy, political culture, clientelism/patronage, corruption, electoral violence, accountability, and ethnic voting.

Distributive: Dist:INT or SOC; WCult:W

Offered: W16: 2 W17: 2

GOVT 40.07 - Comparative Political Economy

Instructor: Sorens

This course is an introduction to comparative political economy, the comparative politics of domestic economic policies. Topics include: market reforms in developed, developing, and postsocialist countries, varieties of welfare capitalism, income inequality and political stability, (de)regulation and privatization, federalism, the effects of political institutions on economic development, interest groups, property rights, the rule of law, and corruption. We will look in depth at both developed and developing countries, with an emphasis on understanding why they choose (or end up with) the policies and institutions that they have, even when in some cases these policies and institutions might hamper development or increase poverty. The central goal of this course is to develop students' ability to reason through political explanations of economic policies.

Distributive: Dist:INT or SOC; WCult:W

Offered: Not taught in AY 2015 - 2016. May be taught in AY 2016 - 2017

GOVT 40.09 - Politics of Israel and Palestine

Instructor: Avishai

This course explores the century-old conflict as seen from the competing, and changing, narratives of Israelis and Palestinians. We shall begin by looking at the history of Zionism and the response of the Palestinian Arab community to the British mandate. We'll then consider the founding of the state of Israel and the formation of the post-1948 Palestinian national movement. We shall especially focus on the aftermath of the 1967 war, the start of the Israeli occupation, and look at its impact on Israeli institutions, the economy, and political parties; and look correspondingly at the formation and strategies of the Palestine Liberation Organization (then, to the founding of Hamas). We shall look, finally, at contemporary economic developments in light of the global forces operating on the region, and consider the plausibility of a two-state solution as compared with others.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F: 2 16F: 2

GOVT 40.11 - The Arab Uprising

Instructor: Vandewalle

The political transitions that were set in motion in the Middle East and North Africa in December 2010--collectively described as the Arab Spring or the Arab Uprising--are but the beginning of a long process of adjustments local regimes and societies will need to make to account for greater, and more viable, demands for accountability and transparency of local rulers. It is virtually impossible, however, to understand both the emergence of this latest wave of contestation in the Arab world and its likely future without comprehending first the emergence of the highly authoritarian regimes in the Middle East since the region's independence roughly half a century ago. The first part of this course covers this historical emergence of middle eastern regimes since the early 1950s.

In each country--Libya, Tunisia, Egypt, Syria, Bahrain, Morocco, Algeria--elites have responded differently to the uprising, depending in part on the institutional repertoire each country possessed. As yet, it is unclear what the different trajectories of each country's period of upheaval will be, but they all share important common political elements and developments: transitional arrangements as the first phase of contestation comes to an end, proposed elections leading to constitution-making processes and to referendums that are meant to introduce--or re-introduce--forms of constitutional government.

In order to understand this protracted process we will study the mechanics of transition through a comparative case-study approach in particularly Libya, Tunisia, Egypt, Syria, and Bahrain. Peripherally we also study the question of why the Arab Gulf states have been relatively immune from popular uprisings, and we incorporate in our discussion as well the role international actors (the United Nations, the Arab League, the African Union, the

European Union) have played in the unfolding of the uprisings and beyond.

Distributive: Dist:INT or SOC; WCult:W

Offered: Not taught in AY 2015 - 2016. May be taught in AY 2016 - 2017.

GOVT 40.13 - Modern Islamic Politics: from the Muslim Brotherhood to the Islamic State

Instructor: Samin

The most dynamic political forces today in countries across the Middle East are Islamic parties and movements. From the Muslim Brotherhood to the Salafists to ISIS, we will study the origins and development of modern Islamic political movements throughout the Middle East and broader Islamic world, paying close attention to the ideological and material factors that unite them, and those that set them apart from one another. We will devote time to considering how Middle Eastern governments have negotiated challenges from Islamic movements, and look closely at the varied influences of the Arab Spring uprisings on local and state-level politics in the region. The aim of this course is to provide students with a broad context for making sense of the rapid and revolutionary changes taking place across the Middle East and broader Islamic world today.

Distributive: Dist:INT or SOC; WCult:W

Offered: 15F: 12

GOVT 40.15 - Commodities, Globalization, and Development in Latin America

Instructor: DeShazo

The course traces the economics history of Latin America since 1870 by highlighting the different stages in macro-policy (export-led growth, import substitution industrialization, current models juxtaposed) and by focusing on the role of commodities in the national and regional developmental process. Specific commodities to be studied include silver, guano, nitrates, coffee, sugar, cereals, beef, henequen, rubber, cocaine, and oil. Topics will be covered more or less chronologically, with the last classes analyzing current developments. Particular attention will be paid to the larger economies of the region (Mexico, Brazil, Argentina, Colombia, Peru, Chile, Venezuela) and the development strategies they pursued. The course will take on the issues of why Latin America has failed to reach levels of development achieved by industrialized countries in Europe and Asia and what can be done to achieve sustained development.

Distributive: Dist:INT; WCult:NW

Offered: 15F: 12

GOVT 42 - Politics of Africa

Instructor: Horowitz

This course examines post-colonial politics in sub-Saharan Africa, with particular focus on the events of the last decade. The course will be structured around three main themes: (1) patterns of economic growth and decline; (2) the transition to democratic political systems; and (3) political violence and civil conflict. While the course covers broad trends across the continent, it will also draw on case studies from particular countries.

Prerequisite: GOVT 4 is strongly recommended but not required.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not taught in AY 2015 - 2016. May be taught in AY 2016 - 2017.

GOVT 44 - Globalization and Global Development

Instructor: Vandewalle

The latest wave of economic globalization has differently affected various regions of the world. One of the most often repeated (and disputed) assertions is that the economic power of the United States is fading and that the fortunes of the so-called BRIC countries (Brazil, Russia, India, and China) as well as other selected Emerging Economies ("the Second World") will mark the dawn of a more equal and, economically speaking, a more balanced global economy. The most recent financial crisis has put into question many of the assertions on both sides of this debate, in ways that question the very basic assumptions analysts of the global economy have been making since the creation of the Bretton Woods system in the aftermath of World War II. In this course we investigate the impact of the economic boom of the last two decades, the current crisis, and their impact on the economic fate and standing of particularly the United States, India, China, and Russia. We focus in part on efforts to create a new financial architecture for the global economy, and investigate how the debate between markets and state intervention has been affected by the ongoing financial crisis--and what this may mean for both countries that rely extensively on markets, and for those that strategically promote state intervention.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 46 - Politics of the Middle East and North Africa

Instructor: Vandewalle

The latest wave of economic globalization has differently affected various regions of the world. One of the most often repeated (and disputed) assertions is that the economic power of the United States is fading and that the fortunes of the so-called BRIC countries (Brazil, Russia, India, and China) as well as other selected Emerging Economies ("the Second World") will mark the dawn of a

more equal and, economically speaking, a more balanced global economy. The most recent financial crisis has put into question many of the assertions on both sides of this debate, in ways that question the very basic assumptions analysts of the global economy have been making since the creation of the Bretton Woods system in the aftermath of World War II. In this course we investigate the impact of the economic boom of the last two decades, the current crisis, and their impact on the economic fate and standing of particularly the United States, India, China, and Russia. We focus in part on efforts to create a new financial architecture for the global economy, and investigate how the debate between markets and state intervention has been affected by the ongoing financial crisis--and what this may mean for both countries that rely extensively on markets, and for those that strategically promote state intervention.

Prerequisite: GOVT 4 or permission of the instructor.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 47 - The Arab-Israeli Conflict (Comparative Politics or International Relations)

Instructor: Sa'adah

For the better part of a century, the conflict over Palestine has defied resolution. The tensions and instability it has generated have profoundly affected--and been affected by--both international relations and the domestic politics of a wide range of countries. This course examines the changing external and local forces that have shaped the confrontation. Using primary as well as secondary sources, we will try to understand how the various parties to the conflict have defined its stakes, understood their interests, viewed their adversaries, mobilized support, and formulated policy. We will consider grassroots politics as well as elite calculations. We will look at the role played by ideas, institutions, material interests, and leadership, at both the regional and the broader international levels. We will end by assessing the current prospects for a settlement.

Prerequisite: GOVT 4 or permission of the instructor.

Distributive: Dist:INT; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 49.01 - Latin American Politics and Government

Instructor: Carey

This course will examine the films, careers, and legacies of two critics and directors who were fundamental to the French New Wave and its legacy: Francois Truffaut and Jean-Luc Godard. Each is an indelible figure in film and media history. The two were at first close colleagues and then diverged radically, both as filmmakers and as

people. Considering their respective careers in relation to one another will place their films into new historical relief. We will survey the important body of film criticism that each produced before becoming a renowned director, along with historical and analytical writings about both. Most importantly, we will examine major films and other media texts (such as television programs) that each created. Our goal will be to understand the phenomena known as "Truffaut" and "Godard" in relation to the development of auteur methodologies, assumptions, and practices. We will also consider the broad international influence of both directors, especially in film form and style. In addition to in-class lectures and screenings, the course will include a range of online and reserve assignments (films, readings, discussions). Two short papers, a research paper, and a final exam will be assigned.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 49.03 - Latin American Politics: Cuba

Instructor: L. Baldez

As one of the world's few remaining socialist regimes, Cuba is unique. But Cuba is also subject to many of the forces that have shaped other countries in Latin America and the third world: a heritage of Spanish colonialism and slavery, a geography that contains a limited array of natural resources and a system of government that has evolved under the constant shadow of the United States. This course examines the politics and culture of Cuba in the 20th and early 21st centuries in order to understand Latin American politics-and politics more generally.

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 49.04 - Sex and the State in Latin America

Instructor: L. Baldez

This course examines women's movements in Latin America. Women in Latin America are perhaps the most highly mobilized population in the world. Throughout the region women have organized around myriad issues, including the right to vote, human rights, poverty, legal rights, anticommunism, the workplace, race, ethnicity and war. Women's efforts to challenge fiercely repressive regimes, deeply entrenched norms of machismo and extreme poverty defy conventional stereotypes about women and provide us with inspiring examples of how to sustain hope during difficult times. The seminar will introduce students to recent scholarship on women's movements in Latin America in the 20th century and seek to understand the emergence, evolution and outcomes of women's movements in particular countries and cross-nationally.

Distributive: Dist:SOC; WCult:NW

Offered: 16W: 2

GOVT 49.05 - Protest and Parties in Latin America

Instructor: L. Baldez

This course will examine the conditions that prompt people to organize on behalf of their collective interests, how those movements evolve, and under what conditions efforts to mobilize will succeed. We compare protests, revolutionary movements, social movements, political parties and other forms of political action in various countries throughout the

Cross-Listed as: LACS 53

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

International Relations

GOVT 50.02 - Civil War, Insurgency, and the International Response

Instructor: Friedman

This course examines why civil wars begin, how they are fought, how they end, and what the international community can do to mitigate their cost. We will use these ideas to ground analysis of prominent conflicts, including Iraq, Vietnam, Colombia, and Congo. Some specific topics include theories of insurgency and counterinsurgency; successes and failures of international peacekeeping; the role of ethnicity and religion; and the relationship between civil conflict and economic development.

Distributive: Dist:INT or TMV; WCult:NW

Offered: 15F: 10 16F: 10

GOVT 50.03 - The Rise of China

Instructor: Lind

This course explores the international strategic implications of the growth of Chinese power. We begin by studying periods of Chinese strength and decline, and by learning the history of China's relations with its neighbors and with the United States. We examine China's recent transition from a position of weakness into one of growing wealth and power. Next, we explore China's relations and disputes with its neighbors, focusing on Japan, the Korean peninsula, and Southeast Asia. We then turn to the issue of U.S.-China relations, and examine the potential for the growth of Chinese power to lead to superpower confrontation. This course has two primary goals: (1) to familiarize students with the international strategic issues – in East Asia and in U.S.-China relations – that are salient to China's rise; and (2) to provide students with analytic tools (theories and military analysis) useful to the study of

security relations in East Asia. Course Prerequisite: Govt 5 is strongly recommended but not required.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W: 2 17W: 2

GOVT 50.04 - War and Peace in the Modern Age

Instructor: Valentino

This course is designed to acquaint students with the fundamentals of war and peace; that is, with the political uses of military power and the respective roles of military and civilian leaders in formulating and implementing foreign policy. We will also investigate how war affects civil society's social movements and how the characteristics of states' domestic politics arrangements affect or constrain the ways that leaders choose to execute their most preferred strategies. Finally, we will also try to come to an understanding of what war is actually like for those, both combatant and non-combatant, that must participate in war on a daily basis.

Distributive: Dist:SOC

Offered: 16W: 10A 17W: 10A

GOVT 50.05 - Human Rights and International Relations

Instructor: Greenhill

States' human rights practices are no longer viewed as simply a domestic political issue. Since the end of WWII, a complex system of international laws and institutions has developed that aims to regulate the human rights practices of states. In this course we will study the politics of the human rights regime and consider the following big questions: What exactly are human rights? Does international human rights law have any impact on states' behavior? If so, how? Is economic globalization good or bad for human rights? Is the evolving human rights regime changing what it means to be a state in the 21st century?

Distributive: Dist:INT or SOC

Offered: 16W: 10 16S: 10 17W: 10 17SL 10

GOVT 50.06 - Nuclear Weapons: Physical and Strategic Effects

Instructor: Press

This course examines the effects of nuclear weapons on the conduct of international politics. It begins by examining the physical properties of nuclear weapons, and then uses evidence from the Cold War to address the following questions: Why did the United States and Soviet Union build such large nuclear arsenals? What did they plan to do with these weapons? How did nuclear weapons fit into U.S. and Soviet military strategy at various phases of the Cold War? The course uses evidence from the Cold War to evaluate theories of nuclear deterrence and the so-called

"nuclear peace." The last section of the course focuses on current issues relating to nuclear weapons: the spread of nuclear weapons in the developing world, the dangers of nuclear terrorism, the potential for effective missile defenses, and the changing strategic nuclear balance of power.

Distributive: Dist:INT or SOC

Offered: 15F: 2A 16F: 2A

GOVT 50.14 - Consequences of Globalization

Instructor: Greenhill

What are some of the consequences of economic and social globalization? Can it be said to be either good or bad for causes such as human rights or protection of the environment? In this course we'll critically examine arguments on both sides of the debates about the effects that globalization is having on a number of different outcomes including human rights, the environment, democratization, international security, women's rights, worker's rights, and national identity formation.

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 52 - Russian Foreign Policy

Instructor: Wohlforth

This course is a survey of Russia's relations with the world, and particularly with Europe and the United States, from the Revolution through the Soviet period to the present. Special emphasis will be placed on the politics of the national security process in the USSR and Russia. Although intended as an overview of Russian foreign policy, the course gives primary attention to three areas: the origins and nature of Soviet-American competition; Russia's political and military relationship with the West; and the future development of Russian-American relations.

Prerequisite: GOVT 4 or GOVT 5; GOVT 42 is recommended. Open only to sophomores, juniors, and seniors.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16S: 11 17S: 11

GOVT 53 - International Security

Instructor: Miller, Press

This course will focus on military strategy in the post-cold war world. The course will cover deterrence theory, crisis stability, nuclear strategy, and the political uses of military coercion. Other topics may include the obsolescence of major war, collective security, nuclear proliferation, and escalation of regional wars.

Prerequisite: GOVT 5 or permission of instructor.

Distributive: Dist:INT or SOC

Offered: 15F: 10A 16F: 10A

GOVT 54 - United States Foreign Policy

Instructor: Mastanduno

An inquiry into relationships between the social structure and ideological tradition of the United States and its conduct in world affairs. Attention is given to the substance of American foreign and military policy; to the roles of the White House, State Department, CIA, the military, Congress, private elites, and mass opinion; and to foreign policy impacts on domestic life.

Prerequisite: GOVT 5 or permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 56 - International Relations Theory

Is war unavoidable? Or is most violent conflict unnecessary and preventable? How should statesmen best protect the interests and physical security of their countrymen? Do they meet that standard, or fall short? Can a people ever be truly safe? Or is the international environment inherently uncertain? Which peoples ought to live together? Or are identities dynamic? These are the enduring questions of international politics. Perhaps not surprisingly, theorists come to different conclusions. This course explores a wide variety of international relations theories and evaluates their implications for real world politics. Realism, Liberalism, Constructivism, and other major strands of IR theory will be discussed as will American hegemony, international laws and norms and grand strategy.

Prerequisite: GOVT 5, or permission of the instructor.

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 57 - International Relations of East Asia

Instructor: Lind

The international relations of Asia are a major concern of the United States. In the past few years, there has been increasing concern about the threat North Korea may pose to the security of the United States. The past decade has seen China emerge as a potential economic, political, and military superpower, that some view as a potential rival to the U.S. Japan's economy, although experiencing difficulties, remains the world's second largest and most technologically advanced. What happens in Asia has a direct and important impact on the U.S.? How do we understand the international relations of these countries? What are the issues, and consequences? In answering these

questions, we will view the international relations of Asia from historical and theoretical viewpoints. I assume that students are familiar with the basic tools of inter-national relations theory, including realism, liberalism, and institutionalism. In addition I assume prior coursework in international relations. I do not assume extensive knowledge of Asia. GOVT 5 is recommended but not required.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F: 10A 16F: 10A

GOVT 58 - International Political Economy

Instructor: Sorens

The political aspects of international and transnational economic relations will be examined. Topics will include economic imperialism, politico-economic dependence and inter-dependence, economic instruments of statecraft, the role of economic factors in foreign policy making, economic causes of international conflict, economic determinants of national power, the politics of international economic organizations, and the role of multi-national corporations in world politics.

Prerequisite: GOVT 5 and ECON 29, or permission of the instructor.

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 59 - Foreign Policy and Decision Making

Instructor: Friedman

The objectives of this course are to introduce the most influential theoretical approaches to the study of strategic decision-making in political science and to apply and evaluate these approaches in a series of historical and contemporary case studies of foreign policy. These immediate objectives serve a larger purpose: to make you a better strategist and more sophisticated analyst of foreign policy. The empirical focus of the course is on states and their problems, but its basic precepts are applicable to other domains as well. Each of the decision-making theories we study represents a venerable tradition of social science scholarship. Mastering them can contribute to the acquisition of extremely useful analytical and critical skills. The first four sections of the course introduce the four most basic models of strategic decision-making and explore them in selected case studies. The last section provides an opportunity to integrate the different models in a series of case studies and simulations exercises involving the foreign policies of major powers.

Distributive: Dist:INT or SOC

Offered: 16W: 11 16W: 11

*Political Theory and Public Law***GOVT 60.01 - Ethics, Everyday Life and Law**

Instructor: Muirhead

What is the right thing to do? What is the best way of life? How, if at all, should the answers to these questions bear on politics and law? Some hold that morality is intensely demanding, and asks us to overcome the natural concern for ourselves and those close to us. Others argue that the moral life is simple and relatively easy to comply with. Are morally excellent people happier-or is happiness beside the point of morality. Does a political community that enshrines the "pursuit of happiness" as among its foundational goals need to take a concern with the moral character of citizens? These questions will be investigated through readings that move between the history of moral and political thought (Plato, Aristotle, Kant, Mill) and cases and questions drawn from contemporary life.

Distributive: Dist:TMV

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 60.03 - Wittgenstein and Political Thought

Instructor: Turner

This course explores the influence of the philosophy of Ludwig Wittgenstein on contemporary political thought. The first part of the course focuses on Wittgenstein's early work, in particular, his understanding of language. The main part of the course is devoted to discussing Wittgenstein's most famous work, *Philosophical Investigations*. The third part of the course explores how some of Wittgenstein's central concepts – language games, family resemblances and rule following – have been used in contemporary political thought.

Distributive: Dist:TMV; WCult:W

Offered: 16S: 12 17S: 12

GOVT 60.04 - Ethics and Public Policy

Instructor: Rose, Swaine

This course examines the nature and validity of arguments about vexing moral issues in public policy. Students examine a number of basic moral controversies in public life, focusing on different frameworks for thinking about justice and the ends of politics. The primary aim of the course is to provide each student with an opportunity to develop his/her ability to think in sophisticated ways about morally difficult policy issues. Among the questions students address will be the following: Are policies that permit torture justifiable under any circumstances? Do people have basic moral claims to unequal economic holdings and rewards, or should economic distribution be patterned for the sake of social justice? Should people be permitted to move freely between countries? Is abortion

wrong, in theory or in practice, and in what ways should it be restricted?

Distributive: Dist:TMV; WCult:W

Offered: 16S: 10A 17S: 10A

GOVT 60.05 - Indigenous Nationalism: Native Rights and Sovereignty

Instructor: Turner

This course focuses on the legal and political relationship between the indigenous peoples of Canada, the United States, Australia, and New Zealand and their respective colonial governments. Students will examine contemporary indigenous demands for self-government, especially territorial claims, within the context of the legislative and political practices of their colonial governments. The course will begin with an examination of the notion of Aboriginal self-government in Canada and develop it in light of the policy recommendations found in the recent report of the Royal Commission on Aboriginal Peoples (1996). Using the Canadian experience as a benchmark, students will then compare these developments to indigenous peoples' experiences in the United States, Australia and New Zealand. An important theme of the course will be to develop an international approach to the issue of indigenous rights and to explore how colonial governments are responding to indigenous demands for justice. Not open to first-year students without permission of instructor.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15W: 12 16W: 12

GOVT 60.09 - Indians and European Political Thought: 1492-1832

Instructor: Turner

This course surveys European political theory in early colonial America. The course is broadly divided into three parts: first, the so-called "Discovery of the New World" in 1492; second, the 17th and 18th century social contract theories of Thomas Hobbes, John Locke, and Jean-Jacques Rousseau; and finally, the early 19th century Marshall cases that laid the foundation for American Indian law in the United States.

Distributive: Dist:TMV; WCult:W

Offered: 15F: 10A

GOVT 60.10 - Environmental Justice

Instructor: Rose

This course examines how principles of justice apply to our environmental choices and public policies. We will first consider different ethical perspectives on our relationship to non-human animals and the environment. Subjects include: population growth and

control; the siting of toxic waste; the use of animals; the protection of endangered species; the conservation of ecosystems; and the human re-creation of nature. In the final section of the course, we will examine in greater depth the ethics of climate change, considering how developed and developing nations are differentially responsible for climate change and its remediation, what our obligations are to future generations, and what obligations individuals bear to contribute to sustainability and limit consumption.

Distributive: Dist:SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2015 - 2016.

GOVT 61 - Jurisprudence

Instructor: Murphy

Jurisprudence is the theory of law-not of a particular body of laws but of law in general. In this course, we explore a variety of approaches to some of the fundamental questions in jurisprudence: Are laws rooted in human nature, in social customs, or in the will of the sovereign authority? How are laws made, interpreted, and enforced? Can morality be legislated? Readings and lectures will draw on both philosophical arguments and legal case-studies to explore these and other questions.

Distributive: Dist:TMV

Offered: Not offered in 2014-2015; may be offered in 2015-2016.

GOVT 62 - Theorizing Free Speech

Instructor: Bedi

The First Amendment of the United States Constitution reads in part: "Congress shall make no law. . . abridging the freedom of speech, or of the press...or the right of the people to peacefully assemble." This course examines the philosophical and constitutional issues regarding the First Amendment's speech, press, and association clauses. Readings draw from Supreme Court cases and secondary sources. Areas covered include: philosophical foundations of free speech, compelled speech, defamation, hate speech, expressive discrimination, obscenity and pornography. Recommended background: A course in law and/or political theory.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in 2014-2015; may be offered in 2015-2016.

GOVT 63 - Origins of Political Thought: Render unto God or unto Caesar?

Instructor: Murphy

The perennial questions of political thought include: who should rule? and what is justice? The ancient world

provides two radically different answers to these questions that of classical philosophy (represented here by Aristotle) and that of the Bible. After contrasting these two ancient perspectives, we then turn to the medieval attempts (by St. Augustine and by St. Thomas Aquinas) to synthesize Greek philosophy and Biblical faith. What is the relation of divine law to human law? What do we owe to God and what to Caesar? Is justice based on human reason or on faith in God?

Prerequisite: GOVT 6, or course work in ancient Greek philosophy.

Distributive: Dist:TMV

Offered: 16W: 11 17W: 11

GOVT 64.01 - Liberalism and Its Critics

Instructor: Swaine

Liberal political theory is renowned for its emphasis on rights, freedoms, and limited government; but critics of liberalism hold that the liberal legacy in free societies is one of misguided energies and broken promises. Students in this course chart the development of liberal thought from the Seventeenth Century to the present, with a view to considering the central values and commitments liberals may share, and examining important contemporary work in liberal theory. The course integrates weighty challenges to the moral and political viability of liberalism, from communitarian, conservative, libertarian, and postmodern critics. GOVT 6 recommended.

Distributive: Dist:TMV

Offered: Not offered in 2014-2015; may be offered in AY 2015-2016.

GOVT 64.02 - Modern Political Thought

Instructor: Muirhead, Swaine

This course complements GOVT 63, presenting the major themes in Western political philosophy from the Reformation to the twentieth century. The natural right tradition, which has served as the basis of liberal democracy, will be examined at its origin (Hobbes' Leviathan) along with Rousseau's revision and criticism of classical liberalism (First and Second Discourses, Social Contract). Then the historicist tradition-the major alternative which has dominated European thought since the French Revolution-will be studied first in Hegel's Philosophy of Right, then in Marx's transformation of the Hegelian dialectic (Critique of Hegelian Philosophy of Right, 1844 M.S.S., and German Ideology). As in GOVT 63, lecture-discussions will focus closely on the texts of the four philosophers being studied while relating them to the development of modern political thought and contemporary social science. While GOVT 63 and GOVT 64 form a sequence, either may be taken separately.

Distributive: Dist:TMV

Offered: Not offered in 2014-2015; may be offered in AY 2015-2016.

GOVT 65 - American Political Thought

Instructor: Muirhead

The course focuses on the period from the Revolution to the Civil War. Topics include toleration, constitutionalism, rights, individualism, and slavery. Readings are drawn mainly from primary sources, including Jefferson, Madison, Adams, Hamilton, Jackson, Calhoun, Taylor, Anthony, Thoreau, and Lincoln.

Distributive: Dist:TMV; WCult:W

Offered: 15F: 10 16F: 10

GOVT 66.02 - Constitutional Law, Development, and Theory

Instructor: Bedi

This course covers some of the main themes of the American Constitution with a particular emphasis on constitutional history, structure, interpretation, development and theory. Areas covered include: federalism, separation of powers, judicial review, slavery and Reconstruction. Open to sophomores, juniors, and seniors.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in AY 2015-2016. May be offered in AY 2016-2017.

GOVT 66.03 - Democratic Theory

Instructor: Clarke

Can we defend the value of democracy against serious and thoughtful criticism? Using a combination of classic and contemporary texts, this course encourages students to think rigorously about one of their most basic political values. It examines the origins of democratic theory in ancient Athenian political practice and the normative and practical criticisms of more contemporary thinkers. What makes politics "democratic?" What features distinguish the democratic regime from other regimes? What is democracy supposed to reflect or achieve? And what kinds of concerns about democracy did ancient philosophers like Plato and Aristotle raise? How (and why) did early modern and Enlightenment thinkers relocate the grounds for preferring democracy to other regimes?

Distributive: Dist:TMV; WCult:W

Offered: 16S: 2 17S: 2

GOVT 67 - Civil Liberties Legal and Normative Approaches

Instructor: Bedi

This course examines the normative and constitutional (textual) bases for protecting certain civil liberties or rights in the United States. The aim is not only to learn the constitutional language of civil liberties but also to think critically about it. Areas covered include: property, race, sex, abortion, religious and cultural rights, sexual freedom and "alternative" marriage, and animal rights. Open to sophomores, juniors, and seniors. Open to sophomores, juniors, and seniors. WCult: W. Bedi.

Distributive: WCult:W

Offered: 16W: 2

GOVT 68 - Gender and Law

This course examines how gender and law in the United States are used to confer rights, create obligations, and define identities. We explore the theoretical, historical, and empirical basis for gender in law, and pay particular attention to how and when gender-based laws have changed over time. Specific topics covered include, for example, federal legislation on educational and workplace equity, constitutional doctrines of equality and privacy, and state policies on family law, criminal responsibility, and domestic violence. We analyze the relationship between gender politics, legal theory, legal doctrine, and social policy. We also ask whether the gender of legal actors (litigants, lawyers, judges) makes a difference in their reasoning or decision-making.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 69 - Federal Indian Law

Instructor: Duthu

This course will focus on the constitutional, statutory and jurisprudential rules of law that make up the field of Federal Indian Law. Attention will be given to the historical framework from which the rules were derived. After tracing the development of the underlying legal doctrines that are prominent today, the course will turn to a consideration of subject-specified areas of Indian law, including hunting and fishing rights, water rights, and preservation of religious and cultural rights.

Cross-Listed as: NAS 50

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

Advanced Courses

GOVT 80 - Readings in Government

Instructor: Varies

Independent work under the direction of a member of the Department. Open to honors students and to other qualified students. Those interested should discuss their plans with a prospective faculty adviser and must submit written statements of their proposed work to the departmental office before electing the course.

Offered: All terms: Arrange

GOVT 81.01 - Advanced Game Theory

Instructor: Herron

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 81.02 - Memory, Nationalism, and War. (Comparative or International Relations)

Instructor: Lind

Distributive: Dist. SOC or INT

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 81.03 - Economic Growth and Reform in the Emerging Economies. (Comparative or International Relations)

Instructor: Vandewalle

Distributive: Dist: SOC or INT; WCult: NW

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 81.05 - Left and Right : Party Spirit and Ideology in American Politics

Instructor: Muirhead

We may be "one nation, indivisible," but our oneness is masked by a politics that contains increasingly important partisan divisions. Partisans today see not one but "two Americas"; they want to live in only one of them. Is party spirit a mark of bad citizenship? What is the connection between partisanship and ideology? Would a just society have partisan or ideological divisions? Should we be post-partisans? Readings from history of political thought and political science. Requirements: weekly short papers and final examination.

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 81.07 - Political Mythbusters: Testing Common Claims about Politics

Instructor: Y. Horiuchi

Declining trust in government is a cause of declining voter turnout in many advanced democracies. The abundance of natural resources inhibits democratic transitions in authoritarian states. It is more difficult to pass legislation under divided government than when the same party

controls Congress and the presidency. ... In this course, we will examine many such common claims ("myths") about politics. Specifically, we will review empirical evidence for each claim and discuss whether each myth can be busted, plausible, or confirmed. We will also discuss how to devise our own tests for renewed scrutiny using statistical data and methods.

Distributive: Dist:SOC

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 81.08 - Global Public Opinion

Instructor: Horiuchi

There has been a rise in attention to the role of global public opinion in international relations. News media usage of the phrase "world public opinion" or "global public opinion," as well as scholarly research about it, dramatically increased during the last decade. But has global public opinion actually played an important role in international affairs? What are the attitudes of citizens around the world towards some crucial global issues that require international cooperation? Do their attitudes substantially affect states' ability to cooperate to address such issues? In this course, by examining these questions through a variety of assignments (writing a short literature review, making a "news story" video, working on a data visualization project, etc.), students will learn important theories and empirical findings on global public opinion. The topics covered include international institutions and human rights, the environment and climate change, nuclear energy, happiness, trust and social capital, global economy, war and peace, terrorism, anti-Americanism, U.S. foreign policy and soft power, soft power competition in Asia, the rise of China, immigration, and foreign aid.

Distributive: Dist:INT or SOC

Offered: 15F: 10A 16F: 10:A

GOVT 81.15 - The Rise and Fall of Great Powers

Instructor: Lind

Great powers disproportionately affect the stability and character of world politics. In this course we explore the complex and consequential process that is the rise and fall of great powers. We begin by examining the nature of the international system, the nature of power, and how the anarchic world system encourages countries to behave. We then turn to the process of "rising" and study how countries achieve economic growth. We examine what is needed for them to sustain growth over time, as opposed to seeing their growth fizzle, as many fast-growing economies have done. We also look at how countries manage the environmental and human consequences of industrialization. We look at how great powers are able (or not able) to develop and deploy effective military power. Finally we examine the causes and consequences of

decline—why great powers fall, and whether the process of decline is expected to be stable or unstable.

Distributive: Dist:INT or SOC

Offered: 15F: 2A 16F: 2A

GOVT 81.21 - Democracy in America: Tocqueville and His Critics

Instructor: Murphy

Distributive: Dist: SOC; WCult: W

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 81.25 - Defying Convention: The United Nations Treaty on Women's Rights and Its Critics

Instructor: Baldez

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.02 - Politics and Markets

Instructor: Fowler

Someone once said, There is a place for the market, and the market must be kept in its place. In this course, we explore the policy debates in the U.S. over the proper role of government in promoting market efficiency and protecting citizens from the adverse consequences of market competition. We begin with an effort to define the scope of the private and public sectors. We then consider an array of policy instruments to correct market failures and redistribute income. Finally, we examine the use of market-oriented approaches to policy problems, such as cost-benefit analysis, vouchers, and pollution rights.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 3B 16F: 3B

GOVT 83.05 - The Media and Advertising in American Politics

Instructor: D. Brooks

This seminar explores the relationships between campaign advertising, the mass media, and political deliberation. We will examine the advertising strategies politicians use to win campaigns, the strategies they use to keep their seats of power once in office, how these efforts are evaluated by the media, and how the entire communication process affects the role of the public in democracy. A course-length political advertising and media simulation in which students will work to successfully communicate campaign messages serves to provide students with a hands-on learning opportunity and a unique culminating experience. Note that there are no prerequisites for this course.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.06 - Political Communication

Instructor: D. Brooks

Distributive: Dist: SOC; WCult: W

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.12 - Gender and American Politics

Instructor: L. Baldez

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.14 - The Role of Government

Instructor: Dropp

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.16 - Voting Irregularities and Issues in Electoral Reform

Instructor: Herron

This political research seminar will provide students with an introduction to the study of voting irregularities like uncounted votes, recounts, and voting technology problems. These sets of issues, among many others, are prominent in ongoing academic and policy debates on electoral reform. Readings in the seminar will focus on the history of American voting, historical election disputes, the 2000 presidential election, the 2004 presidential election, and the 2004 Washington gubernatorial election. Beyond its readings the seminar will require all students to write a research paper on an ostensibly problematic aspect of voting that affects American elections. Prerequisite: Government 10.

Prerequisite: GOVT 10

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.17 - The American Voter through Time

Instructor: Bafumi

The American Voter Through Time will investigate the characteristic American voter beginning when public opinion data were collected (the middle of the 20th century) to today. Such data were made available because the behavioral revolution in the social sciences encouraged the quantitative measurement of public opinion. This movement provided academic researchers a wealth of data with which to study the American voter. The earliest scholars analyzed these data and found evidence of an American public largely devoid of sophisticated political

thinking. From this groundbreaking study, other scholars argued that the unsophisticated electorate of the 1950's gave way to a more sophisticated audience in more politically charged times (1990s and 1970s). Another group of scholars took issue with the early thesis of unsophisticated voters on methodological grounds. They argued that the data were not properly analyzed. Using more advanced technology, scholars continued to try to understand the American electorate. Today, most arguments focus on the degree to which the American public has polarized along political and ideological lines. This course will survey all this research. It will investigate both the substantive and methodological arguments that have been debated as scholars seek to understand the attitudes and behaviors of the characteristic American voter as well as how it has changed over time. Students who have a deep interest in history will be encouraged to research the characteristics of the American voter before data were available using historical records for their class project.

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.19 - American Political Behavior

Instructor: Lacy

Do most Americans have real opinions on political issues, or are their opinions transient and heavily influenced by the media and political elites? What are Americans' opinions on important issues? Do the media determine the issues people care about, or does public concern about an issue drive media coverage? How can we measure people's attitudes, preferences, and opinions? How and why are Democrats, Republicans, and Independents different? Why do some people vote while others do not? Do people in "red states" and "blue states" differ in their political attitudes? If so, why? We will explore these questions and others from a social science perspective. We will read answers to these questions from journalists, political practitioners, and academic researchers, formulate our own hypotheses, and test these hypotheses using data that are available or that we will uncover. Completion of Government 10 or its equivalent is highly recommended before taking this course.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 10A 17W: 10A

GOVT 83.20 - Law and Political Institutions

Instructor: Lacy

This seminar explores the creation, evolution, and enforcement of laws and political institutions. We will begin by defining laws and institutions and exploring their general role in shaping and constraining human behavior. We will then turn to specific political institutions, such as political parties, elections, legislatures, the presidency, the

courts, juries, and bureaucracies. Among the questions we will answer: Why and how do institutions emerge? What is legislative intent, and how can we uncover it? What rules of interpretation do judges use when deciding cases? Are juries capable of making good decisions? How has lawmaking in the US Congress changed over time? Does the president make rather than enforce laws? Does the bureaucracy faithfully implement policy? Completion of Gov 10 or its equivalent is required for this course. Completion of a course in game theory is recommended.

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 83.21 - Experiments in Politics

Instructor: Nyhan

This class is a lab-style seminar in which we will design, field, and analyze an experimental study of political information processing or opinion formation. Our goal is to publish a scholarly article about our findings in a peer-reviewed journal of political science-an ambitious project that will require a substantial commitment from each student. Flexibility will also be essential since the course will evolve during the semester based on the needs of the project.

Distributive: Dist:QDS

Offered: 16S: 2A 17S: 2A

GOVT 84.01 - Dilemmas of Development: India, China and Egypt

Instructor: Vandewalle

China and India have witnessed extraordinary economic growth and development during the last two-three decades, and now rank as two of the world's fastest growing economies. In contrast, the Middle East has economically stagnated, seemingly incapable to implement economic reforms that could lead to sustained growth and development. What prompted these different outcomes? This seminar investigates the multiple strategies and elements behind the economic success of China and India, and those that explain the lack of economic performance in the Middle East.

Offered: 16S: 10A 17W: 10A

GOVT 84.02 - Ethnicity and Representation

Instructor: Chauchard

South Africa, India, Brazil, France, Zambia: most representative democracies also happen to be multiethnic democracies. This seminar examines the role played by ethnicity and ethnic diversity in political campaigns, electoral choices and the political decision-making process. Each class addresses a specific question. While we will usually focus on one "great book" per session - taking time to analyze and critique the author's thought in depth -, the

geographical focus of our readings will change from one week to the next, thus offering a broad range of perspectives on the role played by ethnicity in representative democracies throughout the world.

Distributive: Dist:SOC; WCult:CI

Offered: 16S; 10A

GOVT 84.06 - Identity and Power in the Americas

Instructor: Baldez

How have ideas about class, race, gender and ethnicity shaped Latin American politics in the 20th and 21st centuries? This seminar will focus on the evolution of these categories as the basis for political incorporation and representation over time.

Cross-Listed as: AAAS 90.01

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 84.09 - Political Responses to Capitalism

Instructor: Sa'adah

Capitalism shapes every aspect of the public and private lives of people across the globe: it affects what they eat, what they read, where they live, and how governments are organized and power used. Few people are indifferent to what they see as its effects. But "capitalism" itself is constantly changing. In this seminar, we will explore political responses to capitalism, examining both responses to capitalism as a form of economic activity and responses to capitalism as a process of change.

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 84.11 - Democracy and Accountability in Latin America

Instructor: Carey

The course surveys a range of topics relevant to modern Latin American democracy. The central theme is to examine what factors affect the development of democratic institutions and their effectiveness in providing accountable government. We consider the legacy of authoritarian regimes on contemporary politics, the importance of political culture, the role of elections, and a number of alternative frameworks for organizing representation and bargaining among political actors.

Cross-Listed as: LACS 77

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 84.12 - Gender and American Politics

Instructor: L. Baldez

This course examines the ways in which issues pertaining to gender-related issues are salient to politics in the United States. We will cover four general themes:

- Theme One: Gender, Racism and American Political Development.
- Theme Two: Theories About How Gender is Relevant to Politics.
- Theme Three: Gender and Elective Office.
- Theme Four: Law, Courts and Public Policy.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 84.16 - Rebel Governance During the Civil War

Instructor: Kasfir

In this course, we describe, compare and analyze the governments that guerrillas and other rebels create for people living in the territories they control in the midst of civil wars. Why do rebels do it? What kinds of governments do they form? Are these governments different from those run by states recognized in the international system? Since rebels are usually weaker than the states they challenge, why wouldn't they put all their resources into the war? Is ideology important in explaining why rebels form governments and how they shape those governments? Do guerrillas interested in winning the "hearts and minds" of local residents set up different sorts of governments than warlords? Do rebels who fight for secession of their region make different types of governments from insurgents who want to take over the state? Can civilians influence the governments that rebels set up?

Distributive: Dist:INT or SOC

Offered: 15X; 10A

GOVT 84.23 - Politics of Peace in the Middle East

Instructor: Sa'adah

When Yasir Arafat and Yitzhak Rabin shook hands on the White House lawn in 1993, many people hoped a peace agreement would follow. Agreements were reached, but the Israeli-Palestinian conflict continued. In this seminar, we will analyze efforts undertaken since the late 1980s to resolve the Arab-Israeli conflict. What options are currently open?

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 84.26 - Ethnic Conflict

Instructor: Horowitz

Countries emerging from civil war face a unique set of challenges in creating the conditions for lasting peace and dealing with the trauma and devastation left by war. This course will be structured around several key themes related to post-conflict peacebuilding: the demobilization and reintegration of combatants, designing government institutions for conflict-prone settings, the role of transitional justice, and efforts to address the trauma of violence at the individual level. Throughout the course we will examine the role of international actors – the UN, Western Governments, the International Criminal Court – in post-conflict settings. The course will draw on a rich set of case material from Rwanda, Kenya, Liberia, Yugoslavia, Cambodia, and other relevant countries.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 84.28 - Reform Revolution and Reaction in the Arab World

Instructor: Sa'adah

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 84.30 - Identity and Power in the Americas

This course examines how different forms of collective identity—including class, race, ethnicity, indigeneity and gender—have shaped Latin American and Latino politics in the 20th and 21st centuries. We will focus on a range of cases in Latin America and the U.S. to address the following questions: In what ways does the state create and sustain certain categories of identity as the basis for political inclusion and exclusion? What explains changes in the political salience of certain categories of collective identity? Why do some identities become politically salient and others do not? How have forms of political representation changed over the past century? How does state policy affect the ability of groups to mobilize and press for demands? How do organized groups affect state policy? What are the possibilities and limitations of identity-based mobilization?

Distributive: Dist:INT; WCult:W

GOVT 84.32 - Opposition, Resistance, and Authoritarian Resilience in the Arab Middle East

The Arab uprisings of 2011 raised hopes in and beyond the Middle East that popular pressure might at last transform and democratize political systems long dominated by corrupt, authoritarian regimes. These hopes, like the hopes that had attended previous moments of political ferment in places like Cairo and Damascus, were soon disappointed. In this seminar, we will examine post-2011 patterns of power, opposition, and resistance in the Middle East in order to understand better both the possibilities for political change and the mechanisms that underlie political continuity.

patterns of power, opposition, and resistance in the Middle East in order to understand better both the possibilities for political change and the mechanisms that underlie political continuity.

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 85.01 - Diplomacy

This course explores diplomacy, the essential instrument of foreign policy. We will begin with elemental questions: What is diplomacy? Who uses it and how? The course will examine both the daily work of diplomats -- how they obtain and use information on the politics, economics and society of their host nations -- and the way in which negotiations are conducted at the highest levels. The course will take up a number of case studies (possibilities include Bosnia, the Gulf War, Kirkuk, North Korea, and Iran) in order to answer the following questions: What makes for successful negotiations? Is the threat of force essential to effective diplomacy? When is multilateral diplomacy more effective than unilateral action? What is the role of the United Nations? The class will engage in debates and other in-class exercises that utilize critical diplomatic skills.

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 85.02 - Leadership and Grand Strategy

Instructor: W. Wohlforth

Is strategic leadership possible in international affairs? If so, how is it achieved? The objectives of this course are to introduce you the most influential theoretical approaches to the study of strategy in political science and to apply and evaluate these approaches in a series of historical and contemporary case studies of leadership and grand strategy. These immediate objectives serve a larger purpose: to make you a better strategist and more sophisticated analyst of strategic decision-making. Students will be required to craft and defend alternative grand strategies for real leaders in selected cases, including World War I, the transition from apartheid in South Africa, and the war for Kosovo. The empirical focus of the course is on states and their problems, but its basic precepts are applicable to other domains as well. Prerequisite: Government 5.

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 85.04 - International Relations Theory

International Relations Theory focuses on close reading and discussion of classic and contemporary texts describing the underlying causal patterns of international politics. Major themes include morality and politics; debates over methods and theory; foreign policy and global conflict; and the search for peace and cooperation. Some of the questions we will address include: What might virtue and the national interest mean in international politics? Why is war so common or is it really quite rare? Are there alternatives to nation states? To what extent is "international relations" a gendered concept? These are all questions that are explored in various theories of international relations. The objectives of this course include helping students to interpret and describe international relations, to study a variety of explanations for various events and non-events, and to consider various prescriptions or solutions to different kinds of problems.

Offered: Not offered in AY 2015 - 2016. May be offered in 2016 - 2017.

GOVT 85.05 - The Wilsonian Tradition in U.S. Foreign Policy

Instructor: Babik

This seminar is a critical survey of the international thought and practice of President Woodrow Wilson, his legacy in American statecraft, and the principal criticisms of this approach. Participants will gain a detailed understanding of Wilson's diplomatic ideas and actions, his historical and intellectual context, and his influence on subsequent American statecraft. Specific policies such as the Mexican intervention, World War I entry, and the League of Nations will be discussed against the broader background of Wilson's views on politics, religion, liberty, historical progress, and America's role in the world. As the seminar unfolds, two questions will receive increasing attention: Does Wilson's influence extend to contemporary U.S. foreign policy? If yes, do his ideas constitute a solid foundation for future American statecraft? - See more at: <https://govt.dartmouth.edu/undergraduate/courses/government-seminars/international-relations#sthash.5WxIeKtL.dpuf>

Offered: 15F: 11

GOVT 85.06 - Realism and Its Critics in Contemporary IR

Instructor: Babik

The goal of this seminar is to present the achievements of Realism as the dominant perspective on international relations while simultaneously cultivating a critical awareness of its limits and biases. The seminar pursues this dual aim by delving into the thought of key 20th-century Realist scholars such as E.H. Carr, Hans Morgenthau, Reinhold Niebuhr, George Kennan, Kenneth Waltz, and

John Mearsheimer and subsequently turning attention to a number of alternative approaches which have come to challenge the Realist paradigm since the early 1980s. Examples include the Frankfurt School of critical theory, feminism, and postmodern deconstruction. What is Realism in the first place? Is it coherent? Why is it so popular? What is critical international theory? How is it different from traditional Realism? Is the one perspective better than the other? Guided by questions such as these and careful to treat all theoretical ideas in their proper historical context, the course offers a unique opportunity to gain a nuanced understanding of the purposes, agenda, methodology, and broader epistemological assumptions animating the Realist and critical perspectives. - See more at:

<https://govt.dartmouth.edu/undergraduate/courses/government-seminars/international-relations#sthash.5WxIeKtL.dpuf>

Offered: 16W: 2A

GOVT 85.08 - US Security Policy in the 21st Century

Instructor: S. Brooks

For the past twenty years, the United States has occupied a unique role in the system as the world's only superpower. Yet many analysts argue that the United States will soon have to adjust to a new global order in which it has a less central role. In light of this argument, we will examine a range of questions and debates pertaining to the current and future course of American security policy.

Distributive: Dist:INT or SOC

Offered: 15F: 3A 16S: 3A

GOVT 85.11 - Nation-Building

Instructor: Nyhan

Is it possible to create stable states in the international system by force? This course will examine typologies, theories, and case studies of forcible attempts to create secure and economically productive states. The class will critically assess state building processes such as internal security, political legitimacy, interim governance, and counterinsurgency. It will examine territories that were administered by the British Empire, those that have been administered by the United States (such as the Philippines, Japan, Germany, Vietnam, and Iraq), and those that have been administered by the United Nations (such as Kosovo and East Timor).

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.12 - Military Statecraft in International Relations

Instructor: Press

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Finding answers for many complex foreign policy questions requires weighing a set of political goals against an estimate of the potential military costs and risks. The purpose of this course is to familiarize students with the missions and capabilities of military forces, and to teach them how to estimate the likely costs, risks, and outcomes of military operations. This course will use theoretical works and historical cases to familiarize students with some of the principles of air, ground, and naval operations. Students will use the tools which they learn in class to conduct a detailed military analysis that bears on an important current foreign policy question. No prior knowledge of military forces is needed for this class. Prerequisite: Government 5 or permission of the instructor. The instructor encourages seniors, juniors, as well as sophomores with strong writing and research skills, to enroll in this seminar.

Distributive: Dist:INT or SOC

Offered: 16S: 3A 17S: 3A

GOVT 85.14 - 9/11: Origins, Event, Aftermath

Instructor: Babik

The terrorist attacks against the United States on September 11, 2001, have left an indelible mark in America's collective memory. What brought them about? How were they depicted in the media? What shifts did they effect in America's domestic and foreign policy positions, societal culture, and global position? The purpose of this seminar is to investigate their origins, representation, and implications in the broad perspective of contemporary American foreign relations. Events covered include the end of the Cold War, the inception and radicalization of Al Qaeda after the first Gulf War, the rise of "new" terrorism in the 1990s, the staging and execution of 9/11 itself, and the major domestic and foreign policy responses adopted by the U.S. government under Presidents George W. Bush and Barack Obama (such as the PATRIOT Act, hunt on Osama bin Laden, and wars in Iraq and Afghanistan). Throughout, students will repeatedly grapple with the following question: what, if any, are the lessons of 9/11 for the United States as it tries to navigate the much more chaotic landscape of international relations in the post-Cold War era? - See more at: <https://govt.dartmouth.edu/undergraduate/courses/government-seminars/international-relations#sthash.5WxIeKTl.dpuf>

Offered: 16S: 2A

GOVT 85.16 - The Causes and Prevention of Genocide and Mass Killing

Instructor: Valentino

This course examines genocide and other kinds of mass killing in historical and theoretical perspective. The course will begin by examining the debate over the concept of genocide. Then the course reviews psychological, sociological, and political perspectives on causes of genocide and mass killing. Next, the course examines a number of historical episodes of genocide and mass killing including the Holocaust, the 1994 genocide in Rwanda, mass killings by communist states in China, the Soviet Union and Cambodia, and episodes involving the mass killing of civilian populations during war. Finally, the course addresses the question of what measures the United States and the international community should take to limit or prevent genocide and mass killing in the future. For example, should the international community use military force to prevent genocide if necessary? Will institutions like the international criminal court help to deter genocide and mass killing?

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.21 - International Law and Institutions

Instructor: Greenhill

Can international law, institutions or norms serve as a check on the power of states in the international system? Realists claim the answer is no, whereas constructivists argue that these institutions can go so far as to fundamentally reshape states' interests. In this seminar we'll explore these conflicting theories and consider how they apply in the context of international issues such as trade, the use of force, environmental regulation and human rights.

Distributive: Dist:INT or SOC

Offered: 16W: 3A 17W: 3A

GOVT 85.22 - Techniques of Statecraft

At the beginning of her book on statecraft, Margaret Thatcher describes foreign and security policy as "much more than the two opposing poles of war and peace. It concerns the whole range of risks and opportunities which the far-sighted statesman must appreciate and evaluate in the conduct of his craft." State behavior is complex, and leaders rarely enjoy obvious policy decisions. However, much of the scholarly attention devoted to the study of international relations ignores this uncertainty, concentrating instead on responses to easily discernible markers of power. While this parsimony is appreciated, a simple view of the process omits the politics behind foreign policy and the universe of possible options

available to decision makers. This class provides a contrasting view by concentrating on the techniques of statecraft. We will examine the varied tools at the disposal of statesmen and stateswomen, and dissect the pros and cons of military, economic, and diplomatic statecraft across a variety of foreign policy decisions. Coursework will combine research on grand strategy, statecraft, foreign policy analysis, and decision making with in-depth case histories and in-class exercises. (NOTE: "GOVT. 59: Foreign Policy Decision Making" is recommended as a prerequisite.)

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.23 - Unipolarity and US Security

Instructor: S. Brooks

The end of the Cold War ushered in an era in which the U.S. became the world's only superpower, standing far above all other states in terms of military, economic, and technological capabilities. Analysts commonly argue that today's "unipolar" system is historically unprecedented. In this course, we will explore how unipolarity influences the conduct of US security policy. We will examine a wide range of questions, including: How long can the US maintain its leadership position in the international system? Is the US in a position to effectively reshape international institutions? Why does the US maintain such a large network of overseas military commitments? As the leading power, does the US have a greater obligation to help the world's poor and engage in humanitarian interventions than other states?

Distributive: Dist:INT or SOC

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.26 - International Law

Instructor: W. Wohlforth

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.29 - Lessons from America's Foreign Wars

Instructor: Friedman

This course surveys prominent studies of America's foreign wars, including conflicts in Vietnam, Kosovo, Iraq, Afghanistan, and Libya. We will examine how political scientists have attempted to inform public debates about these wars, how those experiences have shaped broader conceptions of politics and armed conflict, and how many (or how few) lessons we can draw from these controversial experiences.

Distributive: Dist:INT or SOC

Offered: 15F: 2 16F: 2

GOVT 85.30 - Regional Peace and War in the Middle East

Instructor: Miller

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.31 - Civil-Military Relations

This seminar is concerned with the key puzzles of civil-military relations: What is the appropriate role of the military in a modern state? Why do armed soldiers obey unarmed civilians? How does military professionalism shape military politics? Why are some societies prone to military coups? Why do military authoritarian regimes end? We will answer these questions in a variety of political contexts, including the U.S., Russia, China, Latin America, Asia and the Middle East.

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.32 - International Politics of South Asia

IR theories are concerned with general factors shaping war and peace in the international system. Are these general theories useful for explaining conflict and cooperation in a strategically important region like South Asia or do we need specific analytical tools for that purpose? This seminar will explore the strengths and limits of IR theories by applying them to an array of South Asian security issues, including inter-state rivalries, civil wars, nuclear proliferation and terrorism.

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.33 - Intelligence and Policy

Instructor: Simon

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.34 - Mercenaries, Pirates, and Warlords: Non-State Actors in International Relations

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 85.35 - US Security Policy in the Middle East

Instructor: Simon

The interplay of conceptions of strategic interest, patterns of interstate rivalry and cooperation, and politics both at home and within regional states has shaped US security policy toward the Middle East since World War II.

To come to grips with this complex interaction, this course will explore American conceptions of the Middle East

from the 19th century onward and assess evolving conceptions of US interest as well as the process through which these interests are defined. Case studies will cover key aspects of the US reliance on Persian Gulf oil and, relatedly, the US-Saudi relationship; the war on terror; the Iraq wars of 1990-91 and 2003 to the present; the US and Iran, including the 1953 coup and 1979 Islamic revolution through to the ongoing nuclear negotiations and the current debate over Iran's regional objectives; the US and Egypt, from the Eisenhower administration and Gamal Nasr to Obama and Muhammad Morsi and Abd al-Fattah Sisi; the US-Israel relationship and the Middle East peace process; the US response to the Arab Spring; and the range of possible trajectories for US engagement in the Middle East as the old order recedes.

Offered: 15F: 10A 16F: 10A

GOVT 86.01 - Multiculturalism

Instructor: Swaine

This course explores the topic of multiculturalism in the context of contemporary debates in political theory. Students will examine the arguments of authors advocating special political and legal treatment for cultural groups, integrated with responses from liberal, conservative, and feminist critics of multiculturalism. The course is designed to provide students with an understanding of central issues in multicultural debates; but its principal aim is to inspire students to think deeply about the principles, values, and institutions that democratic societies might affirm. Among the questions students consider will be the following: Is a multicultural society desirable or workable? Should government provide minority cultures with special recognition, legal exemptions, or group rights? Is multiculturalism bad for women or harmful otherwise? Could any form of multiculturalism adequately emphasize the values of personal autonomy, equality, and fairness? Prerequisite: one course in political theory or political philosophy.

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.02 - Political Speech

Instructor: Muirhead

This class focuses on political speeches from Cicero to Obama—but mostly on speeches drawn from American politics over the past 100 years. The class aims to answer two basic questions: what is a great speech, and what is so great about political speech? It is often said that what distinguishes and elevates human beings among the animals is the capacity for speech: speech, Aristotle argued, is what makes us “political animals.” What is it about speech that is so special? The answer is found not in every sort of utterance, but in a distinctive kind of speech—political speech. Political speech is believed to

distinctly reveal (and betray) our freedom and dignity. We will listen to, read, and evaluate a number of speeches, each of which vies for the status of “great speech.” In addition to reading a number of allegedly “great” political speeches, we will also read classic accounts of political rhetoric found in Plato and Aristotle, and some contemporary accounts of political rhetoric.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.03 - Contemporary Political Theory

Instructor: Swaine

Students in this course examine important ideas and trends in contemporary political theory. The course focuses on the works of such theorists as Friedrich Nietzsche, Hannah Arendt, Michel Foucault, and recent advocates of related positions. This course has two aims: first, its object is to foster an understanding of the different writers' conceptions of, *inter alia*, freedom, persons, power, and action. Second, and more importantly, the course invites students to assess the viability and relevance of the various views considered, with regard to contemporary politics, institutions, and society. Prerequisite: one course in political theory or political philosophy.

Distributive: Dist:TMV

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.04 - Power and Statecraft in the Ancient World

Instructor: Clarke

Modern political thought is premised on a distinct set of assumptions about human nature, the relationship between politics and morality, and the character of virtue — or so it has been claimed. In this course, students will critically evaluate this argument in light of evidence drawn from Greek and Roman political histories. Working backward from Machiavelli, we will consider a range of classical texts that could be said to offer something like a ‘modern’ understanding of power and statecraft. Readings for this course will include Machiavelli's Prince, Xenophon's Education of Cyrus, Livy's History of Early Rome, Plutarch's Lives of the Noble Greeks and Romans, Josephus's Jewish Antiquities, Tacitus's Annals, and Suetonius's Lives of the Twelve Caesars.

Offered: 15F: 2A 16F: 2A

GOVT 86.07 - Morality of Capitalism

Instructor: Muirhead

Is capitalism moral? Do the qualities of character that conduce to success in a capitalist economy also contribute to becoming a good person? Are the goals of a capitalism

economy primarily material (the production of wealth), or should capitalist markets also aim to elicit, recognize, and reward admirable qualities of mind and character? Readings will be drawn from the history of moral and political thought, including Machiavelli, Locke, and Smith. Topics will also include contemporary controversies such as commodification and the distribution of income. Assignments will include short papers, presentations, and a long paper. A background in political philosophy (such as Gov 6) will be very helpful.

Distributive: Dist:TMV; WCult:W

Offered: 16S: 12 17S: 12

GOVT 86.15 - Tocqueville and His Critics

Instructor: Murphy

How should resources be distributed within a society and between societies? This course will examine contemporary theories of distributive justice, focusing on egalitarianism, libertarianism and utilitarianism. Readings by John Rawls, Robert Nozick, Peter Singer and others.

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.16 - Contemporary Aboriginal Politics in Canada

Instructor: Turner

Distributive: Dist: SOC; WCult: CI

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.17 - Against the Tide: Excellence in Democratic Age

Instructor: Clarke

We live in a democratic age – “the many” now rule, not the few. This is surely one of the great triumphs of modernity. But is democracy really good for *everyone*? This course will explore the troubled relationship between democracy and excellence, or the idea that democratic regimes cannot nurture or appropriately reward our highest possibilities because they are unavailable to “the many.” Students will be asked to think about what excellence *is* and why we should care about it, drawing on several of the most brilliant and enduring treatments of the subject in the Western intellectual tradition.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.18 - Contemporary Readings on Justice

Instructor: Bedi

This seminar covers some of the main contemporary readings on justice. Justice entails the justification of power. Readings include works from Ackerman, Nozick, Rawls, Singer, Young, Walzer, and West. Offering varying accounts of justice, each author attempts to justify power in a particular way. These justifications include utilitarianism, liberal egalitarianism, libertarianism, communitarianism, multiculturalism, and feminism. Active, sustained, and insightful participation is required. Background: one course in political theory/philosophy.

Distributive: Dist:TMV

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.20 - Ideology and Intellectuals

Instructor: Clarke

What is ideology? Who, if anyone, is responsible for creating it? And can we live without it? Beginning with its origins in Enlightenment science, this course will trace the development of the concept of "ideology" through the 19th and 20th centuries, paying special attention to the role that intellectuals have been said to play in the formation, dissemination, maintenance, criticism, and dissolution of ideological systems. Authors will include Marx, Gramsci, Mannheim, Kuhn, Skinner, Bell, Althusser, Habermas, and Foucault.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.22 - Rousseau

Instructor: Clarke

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.24 - Machiavelli

Instructor: Clarke

Machiavelli is famous for instructing princes about the need to be deceitful, unscrupulous, manipulative, and even cruel if they want to maintain their power. In this class we will talk about why Machiavelli has this reputation and whether or not he deserves it. Topics will include the relative importance of force and persuasion in political life; the proper relationship between ethics and politics; the meaning of republican liberty; civil conflict; and gender.

Distributive: Dist:TMV; WCult:W

Offered: 16W: 2A 17W: 2A

GOVT 86.26 - Great Trials in History

Instructor: Murphy

We shall be studying the most famous courtroom dramas in world history: the trials of Socrates, Jesus, Joan of Arc,

Thomas More, Galileo, Oscar Wilde and John Scopes. We shall be comparing the historical account and a literary account of each trial: do we find truth best in history or in literature? Each of these trials raises profound questions about the relationship between law and justice. Why are these most famous trials also the most infamous? In every case, someone widely regarded as innocent was convicted. Do law and legal procedures promote justice? Or is law just another tool used by the powerful to suppress the weak?

Offered: 16W: 2 17W: 2

GOVT 86.27 - Ethics of the Family

Instructor: Rose

The family is a social and political institution profoundly shaped by the law. This course examines the family as a site of justice subject to normative assessment, and asks how the state ought to regulate the family and how citizens ought to act within it. Questions include: Is there a right to procreate? Do parents have rights to determine their children's moral and religious educations? Should marriage be legally recognized or incentivized? How should household labor be shared between partners? Is the gender wage gap unobjectionable if it results from women's choices? Throughout, we consider the practical implications of these theoretical questions for both public policy and individual ethics.

Distributive: Dist:TMV; WCult:W

Offered: 16S: 2A 17S: 2A

GOVT 86.28 - Montesquieu in Enlightenment and Revolution

Instructor: Clark

Montesquieu was one of the formative thinkers of the modern world. His hilarious and incisive *Persian Letters* did much to put the European Enlightenment on a comparative, cross-cultural basis. His *Spirit of the Laws* was a far-reaching study of constitution-making whose concepts of "separation of powers" and "checks and balances" have framed all modern constitutional debate. This seminar will bring those two multi-sided classics alive by situating them in their full Enlightenment and Revolutionary contexts.

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.29 - Leadership: Ancient and Modern

What should "leadership" mean in modern politics? The course contrasts traditional or ancient leadership with modern leadership, though a careful study of Aristotle, Plato, Machiavelli, Hobbes, and variety of case studies focused on figures such as Lincoln, Theodore Roosevelt, Franklin Roosevelt, Huey Long, and George W. Bush.

Offered: Not offered in AY 2015 - 2016. May be offered in AY 2016 - 2017.

GOVT 86.30 - Current Research in Social/Political Philosophy

Instructor: Muirhead, Plunkett

What kind of society should we aim to have? And why should we aim to have that kind of society as opposed to some other kind? And are there objectively right answers to these two previous questions, or are there ultimately only answers that are correct relative to a given social/historical framework? These three abstract questions have long been at the heart of social/political philosophy, from Aristotle and Plato to the present day. They are also questions that matter tremendously to a wide range of citizens in our increasingly globalized world: a world in which different societies, with different cultures, different social/political structures, and different moral values come into increased contact with other. This course will be focused on these three interconnected questions. It will be an advanced discussion-based seminar, and will involve multiple visiting speakers. All students will be expected to have at least two previous courses in philosophy or in political theory.

Prerequisite: at least two previous courses in philosophy or in political theory

Distributive: Dist:TMV

Offered: 15F: 3A

GOVT 90 - Seminar

Course taught by a member of the faculty of the Department of International Relations of the London School of Economics and Political Science. Dartmouth students attend class with the LSE faculty member. (This course counts as a mid-level course and not as a seminar for the major or minor).

Offered: 15F: London F.S.P.

GOVT 91 - Seminar

Course taught by a member of the faculty of the Department of International Relations of the London School of Economics and Political Science. Dartmouth students attend class with LSE faculty. (This course counts as a mid-level course and not as a seminar for the major or minor).

Offered: 15F: London F.S.P.

GOVT 92.02 - Public Policy in Cross-national Perspective

Instructor: Bafumi

This course will investigate four major areas of public policy cross-nationally. The policy areas will include health care, education, Middle East policy and

development policy. We will focus on policy in the U.S. and European nations but we will also review some analyses of developed nations in other parts of the world. We will come to an understanding of how and why approaches to these policy areas vary across nations. We will consider common trends in policy reform. We will also consider what effective policies the U.S. might import and what it might usefully export to other nations. Students will come to understand how and why the U.S. differs culturally, historically and institutionally from the U.K. and other developed nations in its pursuit and implementation of public policy.

Offered: 15F: London FSP

GOVT 93 - Internship Essays

Instructor: Dropp

An internship with a public or private agency or organization intended to give students practical experience of political life in the nation's capital. Each student will write weekly essays relating his or her work experience to broader issues in political science. (This course counts as a mid-level course and not as a seminar course for the major or minor.)

Distributive: Dist:SOC

Offered: 16S: Washington D.C. O.C.P.

GOVT 94 - Myths and Realities in Public Policy Solutions

Instructor: Dropp

This course will investigate major areas of public policy including health care, energy, banking, social security and education. Through readings and lively discussion, students will grow in their understanding of these deeply important issues. The aim of the course will be to dispel public policy myths that benefit candidates or their parties in the political arena but do not have the capacity to solve real world problems. We will approach public policy as academics rather than political practitioners. While we will move from issue to issue quickly, students will have the opportunity to focus on one issue for in-depth study in a final paper.

Distributive: Dist:SOC; WCult:W

Offered: 15S: Washington D.C. O.C.P.

GOVT 95 - The Size and Scope of the United States Government

Instructor: Dropp

This course will study the history and causes of governmental growth with a strong focus on the U.S. government. We will first study the major theories of governmental growth. We will then investigate the major agencies of the federal government in great depth including their history, what they do today, how they do it, what

resources they employ and how these resources have changed over time, whether they provide a useful function and how the agency might be improved. We will be particularly interested in considering ways to achieve budget savings in a tough fiscal climate. Upon completion of this course, students should have a very intimate knowledge of the federal government.

Distributive: Dist:SOC; WCult:W

Offered: 15S: Washington D.C. O.C.P.

GOVT 98 - Honors Research (This course counts as a seminar course for the major or minor.)

Instructor: Clarke, Valentino

Offered: 15F: 3B 16F: 3B

GOVT 99 - Honors Thesis

Instructor: Clarke, Valentino

GOVT 98 and GOVT 99 consist of independent research and writing on a selected topic under the supervision of a Department member who acts as advisor. Open to honors students. In exceptional cases these courses are also open to other qualified students by vote of the Department. Clarke, Valentino.

Offered: 16W: 3B 17W: 3B

History

Chair: Robert Bonner

Vice-Chair: Richard Kremer

Professors R. E. Bonner, C. G. Calloway, P. K. Crossley, M. H. Darrow, D. E. Haynes, D. McMahon, B. Moreton, A. Orleck, W. P. Simons; Associate Professors L. A. Butler, S. J. Ericson, C. B. Estabrook, M. C. Gaposchkin, R. L. Kremer, P. D. Lagomarsino, E. G. Miller, N. Sackeyfio, G. R. Trumbull IV; Assistant Professors E. E. Greenberg, R. R. Johnson, S. J. Link, P. P. Musselwhite, S. Suh, Z. Turkyilmaz; Visiting Professors A. V. Koop.

To view History courses, click here (p. 334).

The Department of History offers a Standard Major, a Modified Major, an Honors Major, and a Minor. Most courses fall into one of four areas: (1) United States and Canada, (2) Europe, (3) Africa, Asia, Latin America and the Caribbean, or (4) Interregional and Comparative. A Major or Minor in History focuses on a field of concentration. Students take the initiative to craft their own concentrations in consultation with their respective faculty advisers within the department. A concentration may be geographical (e.g. European History), chronological (e.g. the 20th Century), or thematic (e.g. Social History).

Participants in the Department's Honors Program then crown their field of concentration with a thesis written in the senior year.

Because planning is essential, it is critical that a student establish a relationship with a faculty member who can act as an adviser. Any member of the Department can serve as a major adviser, and it is best to pursue this relationship as early as possible. If you do not know whom to approach, the Department Chair or Vice Chair will be happy to suggest a possible adviser to suit your interests.

While the course information listed below was complete and accurate as it went to press, it is normal for scheduling changes to occur, including the adding and dropping of courses. For the most up-to-date list of courses, see <http://www.dartmouth.edu/~history/courses/index.html>

Standard Major in History

Required for the Class of 2014 and later. Students in classes prior to 2014 may follow this plan or, if they prefer, the previous major plan. See History Department website (<http://www.dartmouth.edu/~history/standmaj.html>) for the requirements of the previous major.

Requirements:

The Standard Major in History comprises the successful completion of at least ten History courses that meet the following requirements

1. Field of Concentration

- At least four History courses must relate to a field of concentration *selected in consultation with a faculty adviser*. Concentrations may be geographic, chronological or thematic.
- In addition, a culminating experience in the form of HIST 96 taken in the general area of the proposed geographic, chronological or thematic concentration.

2. Geographic Distribution

Your ten History courses must contain at least:

- one course in the history of the United States and Canada (such courses are designated *Major Dist: US & CAN* in the course listing below);
- one course in the history of Europe (designated *Major Dist: EUR* in the course listing below);
- two courses in the histories of Africa, Asia, Latin America & Caribbean (designated *Major Dist: AALAC* in the course listing below);

- one Interregional or Comparative history course (designated *Major Dist: INTER* in the course listing below).

3. Chronological Distribution

Your ten History courses must contain at least two pre-1700 or three pre-1800 courses. In the course listing below, courses fulfilling the pre-1700 requirement are designated <1700, while <1800 designates those fulfilling the pre-1800 requirement.

4. Seminars or Colloquia

Your major must include at least one upper level seminar or colloquium (HIST 96) as part of your field of concentration and one more HIST 96 or HIST 98 or HIST 41; this second seminar does not need to be part of your field of concentration and can be used to fulfill the distributive requirements of the major described in B and C above.

Limits and Exclusions:

- At least five History courses must be taken in residence at Dartmouth College, one of them being HIST 96.
- HIST 7 (First-Year Seminar) and HIST 99 (Honors Thesis) may not be counted toward the Standard Major.
- Students may not include more than two of the following courses: HIST 1, HIST 2 or HIST 3.
- Students may not use more than three seminars and colloquia (HIST 96) and two independent study courses (HIST 97) in satisfying the requirements of the Standard Major.
- Major GPA is figured on *all* History courses taken.
- The Department will consider approving transfer credits for History majors and non-majors only for History courses taken at institutions with which Dartmouth College has institutional exchange programs (see Regulations section of this Catalog).
- Only transfer students may receive credit for courses taken at other colleges or universities prior to matriculation at Dartmouth.

Modified Major in History

A Modified Major will be approved only if the student provides a convincing written rationale for the intellectual coherence of the proposed program of study.

Requirements:

The Modified Major consists of the successful completion of twelve courses, eight of them in History, and four from one or more modifying departments/programs. If the four

modifying courses are in a single department/program, your Modified Major plan and rationale must be approved by the chair of the History Department and the chair of the modifying department/program. If the four modifying courses are drawn from more than one department/program, your plan and rationale for a Modified Major needs to be approved only by the chair of the History Department. The requirements in History need to meet the following requirements:

1. Field of Concentration

- a. At least three History courses must relate to a field of concentration *selected in consultation with a faculty adviser*. Concentrations may be geographic, chronological or thematic.
- b. A culminating experience in the form of an upperclass seminar or colloquia (HIST 96) taken in the general area of the proposed geographic, chronological or thematic concentration.

2. Total of Eight History Courses

Besides the courses in A, select four additional History courses to bring your total up to eight. Honors students may count HIST 98 as one of them. These courses do not need to address your field of concentration, but can be used to fulfill the distributive requirements for the major mentioned below.

3. Geographic Distribution

Your eight History courses from A and B must contain at least one course from each of the following areas:

- a. United States and Canada (such courses are designated *Major Dist: US & CAN* in the course listing below);
- b. Europe (designated *Major Dist: EUR* in the course listing below);
- c. Africa, Asia, Latin America & Caribbean (designated *Major Dist: AALAC* in the course listing below);
- d. Interregional (designated *Major Dist: INTER* in the course listing below).

4. Chronological Distribution

Your eight History courses from A and B must contain at least two pre-1800 courses. In the course listing below, courses fulfilling the pre-1800 requirement are designated <1800 .

Limits and Exclusions , described under the Standard Major, also apply to the Modified Major.

Honors Major in History

Potentially eligible students should meet with their respective advisers to plan for the History Honors Major. History majors who have achieved an overall College grade point average of 3.0 and one of 3.5 in History (based

on a minimum of five graded History courses) may apply for admission to the Honors Program through a written thesis proposal submitted in the spring term of their junior year. Others interested in the program may petition the Department for admission. Please consult the History Department's website at <http://www.dartmouth.edu/~history/major/honors.html> for more information.

The Honors Program in History consists of the successful completion of the following requirements:

1. The minimum number of courses as specified in (A), (B), (C) and (D) under the requirements for the Standard or Modified Majors.
2. In addition to, or as part of, the Standard Major or Modified Major, honors majors must complete the Honors Seminar (HIST 98) in the fall term of their senior year. HIST 98 may serve as one of the two required upper level seminars and colloquia described in (A) for the Standard Major; it *may not* serve as the culminating experience (A2).
3. In addition honors majors submit a thesis written in their senior year (HIST 99). HIST 99 may carry up to two credits toward the degree requirement, but receives *no credit* within the Standard Major.

Limits and Exclusions , described under the Standard Major, also apply to the History Honors Program.

Minor in History

The Minor in History consists of the successful completion of seven History courses:

1. Field of Concentration

- a. At least two History courses must relate to a field of concentration *selected in consultation with a faculty adviser*. Concentrations may be geographic, chronological or thematic.
- b. A culminating experience in the form of an upperclass seminar or colloquium (HIST 96) taken in the general area of the proposed geographic, chronological or thematic concentration.

2. Total of Seven History Courses

Besides the courses in A, select four additional History courses to bring your total up to seven. These do not need to address your field of concentration, but can be used to fulfill the distributive requirements for the major mentioned below.

3. Geographic Distribution

Your seven History courses from A and B must contain at least one course from each of the following areas:

- a. United States and Canada (such courses are designated *Major Dist: US & CAN* in the course listing below);

- b. Europe (designated *Major Dist: EUR* in the course listing below);
- c. Africa, Asia, Latin America & Caribbean (designated *Major Dist: AALAC* in the course listing below);
- d. Interregional (designated *Major Dist: INTER* in the course listing below).

4. Chronological Distribution

Your seven courses from A and B must contain at least two pre-1800 courses. In the course listing below, courses fulfilling the pre-1800 requirement are designated <1800 .

Limits and Exclusions , described under the Standard Major, also apply to the Minor.

INTERREGIONAL AND COMPARATIVE

HIST - History Courses

To view History requirements, [click here](#) (p. 331).

HIST 1 - Turning Points in American History

Instructor: J. Miller and Musselwhite.

Students in this course will analyze and evaluate a very select number of "pivotal moments" over the past four centuries of American history. As an introduction to historical thinking and argumentation, the course will combine close scrutiny of documents from the past with an awareness of interpretive issues of contingency, determinism, and historical agency raised by leading contemporary historians.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 10 17W:9L

HIST 3 - Europe in Medieval and Early Modern Times

Instructor: Lagomarsino, Simons.

Emphasizing the analysis of primary sources, this course examines the foundation of Western European civilization from the fall of the Roman Empire to 1715. Topics include the origins of European nation states, the intellectual and cultural achievements of the Middle Ages and Renaissance, the rise of constitutionalism and absolutism, the economic and technological roots of Europe's global dominance, as well as the social, political, and religious crises that divided the continent. Lectures and small discussion groups.

Distributive: Dist:SOC; WCult:W

Offered: 15F, 16F: 9S

HIST 4.01 - The Crusades

Instructor: Gaposchkin.

The crusades, launched by European Christians who sought to secure military control over the Holy Land, led to a period of sustained and largely inimical contact between Christian and Muslim cultures. Covering the period from 1095-ca.1350, this course explores the cultural, religious, and ideological contexts of crusade history which shaped notions of religious violence, holy war, and ethnic cleansing, along with a long history of distrust between the peoples of Christian Europe (or the Christian West) and the Islamic Middle East.

Offered: 16S: 2

HIST 4.02 - Christians, Jews, and Muslims in the Age of the Crusades

This course will focus on the interactions of the three major religious communities of the medieval Mediterranean—Christians, Jewish, and Muslim—beginning with the First Crusade in 1096 and ending with the arrival of the Black Death in 1347. By examining topics such as pilgrimage, crusade, and jihad, the status of minority communities, and intellectual life, we will explore how Christians, Jews, and Muslims clashed, cooperated, influenced, and misunderstood each other. Open to all classes.

Cross-Listed as: REL 33, JWST 36.01

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

HIST 5.01 - Pre-Colonial African History

Instructor: Sackeyfio-Lenoch

This course will examine the social and economic history of Africa to 1800. Several interrelated themes of social organization, the expansion of trade, rise of new social classes, the emergence and disintegration of various states and European intervention will be discussed. Through our readings, we will visit every major historical region of Africa (north, east, central, west and south) at least once during the semester to illuminate the various themes.

Cross-Listed as: AAAS 14

Distributive: Dist:SOC; WCult:NW

Offered: 16W: 2A 16X:10A 17S: 12

HIST 5.02 - Introduction to the Modern Middle East

Instructor: Turkyilmaz.

This course introduces students to the politico-cultural and social cosmos of the Ottoman Empire from the 1400s until its disintegration in 1918. It focuses on the intricate, conflict-ridden and sometimes violent encounters among the categories of religion, sexuality and social status.

Drawing on scholarly discussions, primary and secondary sources, legal texts, and case studies, this course examines the anxieties, contradictions, and conflicts that defined the societal margins of the Ottoman Empire.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16S, 16X, 17W: 10

HIST 5.03 - The History of China since 1800

Instructor: Crossley.

This survey course traces China's social, political, and cultural development from the relative peace and prosperity of the high Qing period, through the devastating wars and imperialist incursions of the nineteenth century, to the efforts, both vain and fruitful, to build an independent and powerful new nation. Open to all classes.

Distributive: Dist:SOC; WCult:NW

Offered: 15F: 11

HIST 5.04 - Introduction to Korean Culture

Instructor: Suh and Kim.

This course provides an introduction to Korean culture and history, examining Korea's visual and textual expressions from the pre-modern age to the twentieth century. What are the origins of Korean national and cultural identities? How have Korean claims of cultural distinctiveness been manifested and modified over time? Tracing answers to these questions simultaneously helps us to consider how and why Korea has entered America's consciousness. As Korea matters to the US not simply as a fact but as a project, this course avoids portraying Korea through any generalized statements or uncritical categories. Rather, students are encouraged to explore novel perspectives on Korea and thereby unravel their own prejudices and agendas. No prior acquaintance with the Korean language is required.

Distributive: Dist:SOC; WCult:CI

Offered: 16W, 17W: 2A

HIST 5.05 - The Emergence of Modern Japan

Instructor: Ericson

A survey of Japanese history from the mid-nineteenth century to the present. Topics to be covered include the building of a modern state and the growth of political opposition, industrialization and its social consequences, the rise and fall of the Japanese colonial empire, and the postwar economic 'miracle.'

Distributive: Dist:SOC; WCult:NW

Offered: 16W, 16F: 10A

HIST 5.06 - Pre-Columbian and Colonial America (Identical to LACS 10)

Cross-Listed as: LACS 10

Distributive: Dist: SOC; WCult: NW. Major Dist: AALAC; <1700, <1800.

Offered: Not offered in the period from 15F through 17S

HIST 5.08 - Africa and the World

This course focuses on links between Africa and other parts of the world, in particular Europe and Asia. Readings, lectures, and discussions will address travel and migration, economics and trade, identity formation, empire, and cultural production. Rather than viewing Africa as separate from global processes, the course will address historical phenomena across oceans, deserts, cultures, and languages to demonstrate both the diversity of experiences and the long-term global connections among disparate parts of the world.

Cross-Listed as: AAAS 19

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F: 10A 17S: 2A

HIST 5.09 - Colonialism, Nationalism and Revolution in Southeast Asia

This course offers an overview of the political history of Southeast Asia from the early nineteenth century to the present. It examines the character of pre-colonial states, the development of European imperialism and the nature of colonial rule, the emergence of nationalism, the process of decolonization (with a focus on the Vietnamese Revolution), authoritarian and non-authoritarian regimes in post-colonial Southeast Asia, the mass killings in Cambodia and Indonesia, and movements for democracy in the Philippines, Indonesia and Burma (Myanmar). Open to all classes.

Distributive: Dist:SOC; WCult:NW

Offered: 17W: 12

HIST 6.10 - Nationalism and Revolution in the Caribbean

The islands of the Caribbean have seen two revolutionary upheavals of the modern era—the Haitian Revolution and the Cuban Revolution and have produced a diverse cadre of anti-colonial activists and intellectuals. Beginning with the uprising of enslaved laborers in Saint Domingue in 1791, the course explores the history of nationalist movements in the Spanish-, English-, and French-speaking Caribbean. We will analyze and compare the ideological underpinnings of nationalist movements, discuss ways in which nationalist leaders have attempted to mobilize popular support, and consider why violent revolutionary struggles erupted in some Caribbean territories but not in others.

Distributive: Dist:INT or SOC; WCult:NW

HIST 6.29 - Gandhi and Twentieth Century India

Instructor: Haynes

This course explores the history of modern India through the figure of Mahatma Gandhi. After exploring early developments in Gandhi's life and his philosophy of non-violence, we will examine the role of Gandhi and of his image in major political developments in India. We will also take up many key issues relating to Gandhian thought, including Hindu-Muslim relations, caste, gender and sexuality, and social equality. Finally, we will discuss Gandhi's legacy in India and globally.

Offered: 16F: 12

HIST 7 - First-Year Seminars in History

Offered: Consult special listings

HIST 8 - Body Parts, Body Wholes: An Introduction to the Comparative History of Medicine

This course examines the possibilities and problems of comparing medicine across time and region. We will begin by considering divergent conceptions of the body in Chinese and Greek antiquity before moving on to the transformation of the healing traditions and the advance of modern biomedicine since 1800. Instead of imposing "holism" or "reductionism" on medical traditions, this course encourages students to view past expressions of medicine as a means of analyzing our own self here and now.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16S, 17S: 10

HIST 8.02 - The Making of the Modern World Economy

This course introduces students to major economic developments of the last two centuries in global perspective. It addresses themes such as the Industrial Revolution and the "Great Divergence;" the political economy of imperialism; the economics of war; the transformation of the world financial system; the economics of development; and the roots of the crisis of 2007/8. Students can expect to acquire a historically founded understanding of the global economy of today.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16W: 10

HIST 9.01 - Empires and Colonies in North America, 1500-1763

Instructor: Musselwhite

Between 1500 and 1763, the northern half of the western hemisphere became a testing ground for ideas about politics, providence, and profit, which would redefine the

meaning of "empire" and spark the first global war. Although this course will largely be concerned with regions that later became part of the modern United States, our focus will be upon the encounters, struggles, and exchanges within and between the European, African, and Indian people who shared the continent.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16S: 12

HIST 9.03 - The Global Thirties: Economics and Politics

Instructor: Link.

This course provides an overview of the global history of the Great Depression of the 1930s. The course addresses themes such as the international economic order of the 1920s, the economic causes of the Depression, the political responses to the crisis, the rise of economic planning, and the legacy of the 1930s in post-war development states and economic thinking. Students will understand why the Depression influences economic theory and policymaking to this day.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16S: 2

HIST 9.04 - The Intellectual History of Capitalism

Since its inception capitalism has not only been an economic endeavor but also an intellectual challenge. Critics and boosters of capitalism have debated questions such as these: Is capitalism natural? Is capitalism equitable, or should it be? Does capitalism require a specific type of society and politics? This reading-intensive course introduces students to key texts about capitalism since the mid-19th century. Authors covered include Marx, Mill, Veblen, Keynes, Hayek, Polanyi, Friedman, Foucault, and Piketty.

Distributive: Dist:TMV; WCult:W

Offered: 16W: 2

HIST 10 - What is History?

Instructor: Greenberg and E. Miller.

The discipline of History is about much more than names, dates, and events. It is actually a realm of robust argument, changing interpretations, and vivid imagination. This brand-new, team-taught course explores different genres of professional historical research and writing (e.g. biography, political history, cultural history). Through a dynamic mix of lectures and small-group discussions, both History majors and non-majors will gain a new appreciation of the historian's craft. No prerequisites; first-year students welcome.

Distributive: Dist:SOC; WCult:W

Offered: 16X: 10

HIST 11 - The Age of the American Revolution

Instructor: Musselwhite.

This course begins with an examination of relations between England and its American Colonies in the middle of the eighteenth century. It deals with the collapse of British authority in America, emphasizing the social and intellectual sources of rebellion. Treatment of the war years focuses more on the problem of political and economic adjustment than on military history. The final topic covered is the adoption of a federal Constitution.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 12

HIST 12 - The American Civil War

Instructor: Bonner.

The American Civil War was a defining moment in American history. This course examines the causes of the conflict, the war itself, and the period of Reconstruction up to 1877. Topics to be discussed include the diplomatic conduct of the war, political developments in both the north and the south, military developments, the question of race and slavery, emancipation, the participation of African Americans in the war, the women's rights movement and the involvement of women in the war, and medical advances. The social and economic aspects of the war will receive as much emphasis as military and political developments.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 2

HIST 14 - The Invasion of America: American Indian History, Pre-Contact to 1800

Instructor: Ray, Calloway.

This course surveys the history of the American Indians from contact with Europeans to c. 1800. It provides an overview of the major themes and trends in Indian history, supplemented by case studies from a number of regions and readings that illuminate particular issues. The overall context of the course is the conflict generated by the colonial drive of European nations and the U.S. and their citizens, but the primary focus is the historical experience of Indian peoples and their struggles to retain their cultures and autonomy while adapting to great changes in the conditions of their lives. Open to all classes.

Cross-Listed as: NAS 14

Distributive: Dist:SOC; WCult:NW

Offered: 15F, 16F: 11

HIST 15 - American Indians and American Expansion, 1800 to 1924

Instructor: Calloway.

This course surveys Native American history from c. 1800 to the Indian Citizenship Act in 1924. The overall context of the course is the expansion of the U.S. and the Indian policies adopted by the U.S. government, but the primary focus is the historical experience of Indian peoples and their struggles to retain their cultures and autonomy while adapting to great changes in the conditions of their lives. Open to all classes.

Cross-Listed as: NAS 15

Distributive: Dist:SOC; WCult:NW

Offered: 16S, 17S: 11

HIST 16 - Race and Slavery in US History

Instructor: Johnson.

This course deals with the African heritage, origins of white racial attitudes toward blacks, the slave system in colonial and ante-bellum America, and free Black society in North America. Specific emphasis will be placed on the Afro-American experience and on the relationship between blacks and whites in early American society. Open to all classes.

Cross-Listed as: AAAS 12

Distributive: Dist:SOC; WCult:W

Offered: 15F: 12 17W: 2

HIST 17 - Black America since the Civil War

This course is a continuation of HIST 16. Among the topics to be discussed are Black Reconstruction, segregation and disfranchisement, migration, nationalism, Blacks and the New Deal, the impact of war on Blacks, and the 1960s. Open to all classes.

Cross-Listed as: AAAS 13

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 14F through 16S

HIST 18 - United States Political History in the Nineteenth Century

This course studies the growth of the American political system. It will examine the development of both formal and informal political institutions as well as the forces which have shaped these institutions. Among the topics considered are the growth of political parties, Jeffersonian and Jacksonian influences, sectionalism, and the breakdown of the political system, and the political effects of expansion, industrialization, immigration, and urbanization. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S.

HIST 19 - United States Political History in the Twentieth Century

Instructor: Orleck.

This course defines politics broadly to include grass roots political activism, and dissident political philosophy, as well as governmental action and change. The course will trace the evolving relationship between the federal government and American citizens from the end of Reconstruction through 1984. Topics will include Black political participation in Reconstruction; immigrant, labor, and woman suffrage activism; the post-World War I Red Scare and the decline of Progressivism; domestic turbulence and the New Deal state; the Cold War and the decline of New Deal liberalism; national security agencies and covert action; the Civil Rights movement and the Great Society; Vietnam and the youth rebellion of the 1960s; Watergate and the unveiling of the imperial presidency; the rise of the New Right, the revival of the national security state, and the dismantling of the social welfare state.

Distributive: Dist:SOC; WCult:W

Offered: 16F: 2

HIST 20 - American Thought and Culture to 1865

Instructor: Butler.

This course examines major ideas, figures, and movements from the establishment of the colonies of British America to the nation's fragmentation in the Civil War. There is an emphasis upon Puritanism, Enlightenment, and Romanticism as dominant patterns of thought. The course also explores antebellum reform as a case study. Topics to be considered include the migration of ideas from Europe and their subsequent modification in America; the conflict between ideals and actualities in social, political, and cultural life; and the conceptual significance of equality and difference in the construction of American subjectivities. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 15F: 10 17S: 11

HIST 21 - Modern American Thought and Culture

Instructor: Butler.

This course examines leading thinkers, writers, artists, and reformers as a way of understanding American intellectual and cultural history. Some of the issues explored include: the impact of Darwinism; social science and the modern university; responses to industrialization; the tension between self and society; debates over democracy; the challenge of civil rights and feminism; and recent debates over multiculturalism. Almost of all the reading will be drawn from primary sources (including material by Mark Twain, Charlotte Perkins Gilman, William James, Oliver Wendell Holmes, Jr., W.E.B. DuBois, John Dewey;

Langston Hughes; Lionel Trilling; Martin Luther King, Jr.; and Malcolm X). Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 17W: 10

HIST 22 - Civil Rights in the United States in the 20th Century

Instructor: White.

This course examines movements for civil rights, broadly defined, in the 20th-century US. Students explore concepts of American citizenship, considering struggles for political inclusion and efforts to participate fully in the nation's social and cultural life. We focus on women's and gay rights and the struggles of African Americans, Latinos, Native Americans and Asians, examining how these and other groups have envisioned and pursued full American citizenship.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 12

HIST 23 - American History since 1980

Instructor: Rabig.

This course examines American history during the era of rapid globalization. It focuses on the continued ideological power of the American Dream and the diminishing opportunity to actually live that Dream; conflicts between groups struggling to achieve genuine equality for all men and women and other groups determined to maintain traditional hierarchies based on class, race, and gender; and the contested meaning of the actions of the world's sole military superpower. Open to sophomores, juniors, and seniors.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 2

HIST 24 - The Cold War and American Life

This course will examine the diverse ways that the Cold War changed how Americans lived, understood, and experienced their lives at home and abroad from 1945 – 1968. It will explore issues like the rise of the national security state; the impact of the Cold War on thinking about race, gender and sexuality; Cold War consumerism; nuclear cultures; the Cold War and higher education; conflicts in Korea, Cuba, and Vietnam; and new concepts of American internationalism. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S.

HIST 25.01 - The United States and the World from the Colonial Era to 1865

Instructor: Johnson

This course examines the colonial origins of the United States and the ways in which Americans perpetuated, challenged and transformed empire in their dealings with non-American nations and peoples between the American Revolution and the Civil War. Key topics include U.S. relations with Indian nations, the Mexican-American War, the pursuit of informal empire in East Asia and the Pacific, and the colonization of Liberia. Johnson.

Distributive: Dist:INT or SOC; WCult:W

Offered: 15F: 10 17S: 12

HIST 25.02 - The United States and the World, 1865-1945

Instructor: J Miller

This course explores America's interactions with the world and its emergence as a global imperial power in the decades after the end of the U.S. Civil War. Key topics include the conquest of the Great Plains, the War of 1898, U.S. colonialism in the Philippines, Wilsonianism and the U.S. embrace of "total war" during World War II.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16F: 10

HIST 25.03 - The United States and the World since 1945

Instructor: J Miller

This course examines U.S. relations with the wider world during the Cold War and the post-Cold War era. In addition to America's global rivalry with the Soviet Union, students will investigate American responses to decolonization, globalization and the emergence of global norms of human rights. They will also study U.S. interventions in "Third World" nations such as Cuba, Guatemala and Vietnam, as well as U.S. efforts to exercise unprecedented forms of global hegemony in the post-Cold War period.

Distributive: SOC or INT; WCult: W; Major Dist: US & CAN.

Offered: 16S: 11

HIST 26 - The Vietnam War

Instructor: E. Miller.

This course examines the conflict which Americans call "The Vietnam War" as a major event in the 20th century histories of both the United States and Vietnam. In addition to exploring the key decisions made by U.S. and Vietnamese leaders, students will also learn about the experiences of ordinary soldiers and civilians. This course incorporates multiple American and Vietnamese sources and perspectives, and also investigates multiple explanations of the war's origins and outcome. Open to all classes.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16S, 17S: 10, 2

HIST 27 - Gender and Power in American History from the Colonial Period to the Civil War

Instructor: Butler.

This course examines the history of men and women from the period of colonial settlement to the achievement of woman's suffrage. We will explore the construction of gender particularly as it relates to social, political, economic, and cultural power. Topics will include: the role of gender in political thought and practice, the intersection of gender with categories of class and race; gender in the debate over slavery and the Civil War; and the rise and evolution of the woman's rights movement. Open to sophomores, juniors and seniors.

Cross-Listed as: WGSS 23.01

Distributive: Dist:SOC; WCult:W

Offered: 17W: 12

HIST 28 - American Women in the Twentieth Century

Instructor: Orleck.

This course is a multi-cultural multi-media history of American women from the Civil War to the present. We will discuss race and class tensions in the woman suffrage movement; women, labor and radicalism from the 1910s through the 1940s; civil rights, welfare rights, the rebirth of feminism in the 1960s and 1970s, and backlash politics from the 1950s to the 1980s. Open to all classes.

Cross-Listed as: WGSS 23.02

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 2

HIST 29 - Women and American Radicalism Left and Right

Instructor: Orleck.

This course will trace the involvement of U.S. women in radical political movements from the mid-nineteenth century to the present including: Abolitionism; Anti-lynching; Socialist Trade Unionism; the Ku Klux Klan; the Communist Party; the National Welfare Rights Organization; the Civil Rights Movement; the New Left; the New Right; the direct-action wing of the anti-abortion movement; Earth First; and the neo-Nazi American Front. It will also examine the relationship between feminist ideologies and non-gender-specific radical political ideologies centered on race, class, and other social identifiers. Open to all classes.

Cross-Listed as: WGSS 26.02

Distributive: Dist:SOC; WCult:CI

Offered: 16F: 12

HIST 31 - Latinos in the United States: Origins and Histories

Distributive: SOC; WCult: W. Major Dist: INTER.

Offered: Not offered in the period from 15F through 17S.

HIST 34 - Building America: An Architectural and Social History

This course draws upon recent scholarship in anthropology, archaeology, material culture, social history and architectural history in its review of five centuries of American architecture. Course lectures not only emphasize America's principal architects and their designs, but also summarize the social and cultural forces that shaped the country's built landscape. Open to all classes.

Cross-Listed as: ARTH 52

Distributive: Dist:ART; WCult:W

Offered: 16W: 2

HIST 35 - The Creation of 'America' in the Age of Jefferson

The years between the close of the American Revolution and the start of the Age of Jackson have been described as the "most neglected, if not the most despised period of American history." Without the drama of the Revolutionary years or the ominous tension of the Civil War's approach, the Early Republic has been seen as a dull interval between the country's defining events. Now, new methods in the study of American history have completely changed the way we understand the period. This course will focus on the seminal task of nation building, when distinctively American political parties, cities and villages, gender roles, educational systems, decorative arts, cultural institutions, attitudes toward Native peoples, architecture and economic policies took form. Thomas Jefferson actively shaped the debates over these issues, and he serves as the pivotal figure in our study of the formation of a new and specifically American culture in the Early Republican period. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S

HIST 36 - Health Care in American Society: History and Current Issues

Instructor: Koop.

This course is designed to provide students with a basic understanding of critical issues in health care through the study of the historical development of the United States health care system. The course illuminates the influence of historical forces and cultural factors on the delivery of health care and on the discourse about health care reform in American history. By studying the components and

relationships within the American health care system, students are enabled to acquire an understanding of the relationship between American history and the health care system, and also enabled to obtain a working contextual knowledge of the current problems of the American health care system and their proposed solutions. Each topic is presented from an historical perspective. Through an historical investigation of health, disease, and medicine students should be able to understand and discuss the changing organization of health care delivery in American history, the changing methods of financing of health care, the distinctive role of technology in health care, primary ethical issues in health care, comparative features of health care systems of other cultures, the historical changes in public health precepts, images of health care in popular culture, and the process of health care reform in American history. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 15F, 16F: 11

HIST 37 - Black Radical Tradition in America

Throughout the history of the United States, African Americans have offered alternative visions of their nation's future and alternative definitions of their nation's progress. Not limited to reforming the worst social ills, these discourses have called for a fundamental restructuring of our political, economic, and social relations. A radical tradition provided the intellectual continuity and ideological coherence of these critiques, and it allowed African Americans to cultivate and pass on a legacy of social resistance. Open to all classes.

Cross-Listed as: AAAS 24

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10

HIST 38.01 - First Americans and the First President: The Indian World of George Washington

Instructor: Calloway.

George Washington's life intersected constantly with Native America. He surveyed and speculated in Indian lands. He fought Indians in three wars, made Indian treaties, and built a nation on Indian land. His conduct of Indian affairs shaped the authority of the president in war and diplomacy. By restoring Indians to the life of the first president, this class will restore their role in shaping the new nation and counter their erasure from America's historical memory.

Distributive: WCult:NW

Offered: 16W: 2

HIST 38.02 - American Odysseys: Lewis and Clark, American Indians, and the New Nation

In 1804-06, Meriwether Lewis and William Clark completed a remarkable odyssey, from St. Louis to the Pacific, and back. They wrote more than one million words, describing the country, and paid particular attention to the Indian nations they met. This class will use the abridged edition of the journals to examine the context, experiences, and repercussions of an expedition that initiated journeys of discovery for both the young United States and the Native peoples of the American West.

Distributive: WCult:NW

Offered: Not offered in the period from 15F through 17S.

HIST 42 - Gender and European Society from Antiquity to the Reformation

Instructor: Simons.

Cross-Listed as: WGSS 22.01

Distributive: TMV; WCult: CI. Major Dist: EUR; <1700, <1800.

Offered: 16W: 10 16F: 11

HIST 43 - European Intellectual and Cultural History, 400-1300

Instructor: Simons.

A course on the intellectual and cultural origins of European civilization, from the fall of Rome to the advent of the Renaissance. After a review of the Judeo-Christian, Greco-Roman, Celtic, and Germanic components of medieval culture, we will examine the rise of the Christian Church and its impact on values and behavior of Europeans during the middle ages. Of special interest will be the relationship between medieval thinkers and the society in which they lived, the role of ritual, ceremony, and magic, and the persistence of heresy. Along with the products of high culture associated with such intellectuals as Augustine, Peter Abelard, Hildegard of Bingen, and Thomas Aquinas, we will thus review the fundamental values of medieval society at large and explore ways in which popular and elite culture converged or contrasted. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 16W, 17W:12

HIST 43.01 - European Intellectual and Cultural History, 400-1300

A course on the intellectual and cultural origins of European civilization, from the fall of Rome to the advent of the Renaissance. After a review of the Judeo-Christian, Greco-Roman, Celtic, and Germanic components of medieval culture, we will examine the rise of the Christian Church and its impact on values and behavior of

Europeans during the middle ages. Of special interest will be the relationship between medieval thinkers and the society in which they lived, the role of ritual, ceremony, and magic, and the persistence of heresy. Along with the products of high culture associated with such intellectuals as Augustine, Peter Abelard, Hildegard of Bingen, and Thomas Aquinas, we will thus review the fundamental values of medieval society at large and explore ways in which popular and elite culture converged or contrasted. Open to all classes.

Distributive: Dist:TMV; WCult:W

HIST 43.02 - European Intellectual and Cultural History, 1400-1800

Instructor: McMahon.

This course will introduce students to major developments in European culture and thought from the 14th-18th centuries, paying particular attention to the Renaissance, the Reformation, the Scientific Revolution, and the Enlightenment. Substantial class time will be devoted to group discussion of primary texts with the aim of fostering each student's ability to analyze and contextualize works in the Western intellectual tradition. Key authors include Machiavelli, Erasmus, Calvin, Luther, Galileo, Hobbes, Locke, and Rousseau.

Distributive: WCult:W

Offered: 15F: 11

HIST 43.03 - European Intellectual and Cultural History, 1800-present

Through a close reading and discussion of Europe's most influential thinkers from the advent of the Enlightenment to the end of the twentieth century, this course will explore the key concepts that shaped and reflected modern European experiences. We will discuss how European intellectuals of diverse background—social scientists and philosophers, theologians and political theorists—fiercely debated the causes and solutions to major European phenomena, including technological revolution, total war, social upheaval, secularization, and terrorism.

Distributive: Dist:TMV; WCult:W

HIST 44 - Medieval France, 400-1494

The course traces the medieval foundations of the French nation, from the Roman Era to the end of the fifteenth century, with emphasis on institutional, social, and cultural development. Topics include: the Merovingian origins of 'France,' the construction and impact of feudal relationships, the emergence of French vernacular culture, regional diversity within centralized rule, and the formation of a French national identity. In addition we will examine how French medieval history became a testing-ground for innovative research on the Middle Ages, and to

what extent these views have changed our concept of medieval France in the last decades. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S.

HIST 45 - Early Modern Europe (1300-1650)

Instructor: Lagomarsino.

A study of Western Europe's transition from medieval to modern times, tracing the impact of new forces on traditional structures. Among the topics covered are Italian culture and society in the 14th-15th centuries; the concept of the Renaissance; intellectual and religious themes of the Reformation; the emergence of the basic forms of the modern state; developments in warfare and international relations; the political and ideological polarization of Europe after Luther; the 'general crisis' of the mid-17th century. Open to sophomores, juniors, and seniors.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 11

HIST 46 - Spain in the Golden Age

Instructor: Lagomarsino.

The course deals with the unification of Spain under Ferdinand and Isabella, its rise to world primacy in the sixteenth century, and its decline in the seventeenth. Among topics examined are the development of a system of imperial government, the impact on Spain of colonial empire, the problems of multi-cultural society within the Iberian peninsula, the struggle against heresy, and the political challenges of the great European powers. Open to sophomores, juniors, and seniors.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 12

HIST 47 - The French Revolution and Napoleon

Instructor: Darrow

The course studies the French Revolution and its implications for Europe and the world. It considers the social, political and ideological causes of the Revolution in 1789 and then pays close attention to the successive stages of revolution from the experiment with constitutional monarchy to the radical republic and the Terror to Napoleon's popular dictatorship. The revolutionary wars, the development of democratic and nationalist ideology and their spread beyond France and beyond Europe, and also beyond elite men to peasants, city workers, Blacks and women are important themes. Open to sophomores, juniors, and seniors.

Distributive: Dist:SOC; WCult:W

Offered: 16S: 12 17S: 10

HIST 48 - European Society in the Industrial Age

Instructor: Darrow.

This course traces the transformation of Western European society through the industrial period from the mid-18th century to the mid-20th century. Focusing upon social class and gender, it examines how economic and social change intertwined to produce the world's first industrial societies. Work, family, leisure and nationalism are topics of specific attention. Although the course deals primarily with the core societies of Western Europe-France, Germany and Great Britain-it provides the opportunity for student research in other areas such as Italy, Ireland, Spain and Eastern Europe. Open to all classes.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 11

HIST 49 - Early Modern England, 1485-1780

Instructor: Estabrook.

This course explores the relationships among economic, social, cultural and political developments in England during the Tudor, Stuart, and Hanoverian periods. Topics for discussion include: family and gender; village and city life; religious reformation and the reformation of government; the Elizabethan renaissance; responses to poverty, crime, and nonconformity; the development of political parties; the British enlightenment; commercialization and consumerism; the interaction of 'plebeians' and 'patricians'; rebellions and civil wars; and radicalism, conservatism, and imperialism. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10 16F: 2

HIST 50 - Modern Britain, 1780 to Present

Instructor: Estabrook.

This course explores the relationships among economic, social, cultural and political developments in Britain from the modern industrial revolution to Thatcherism and New Labour. Topics for discussion include: industrialization and its effects; Liberals, Conservatives, and Parliamentary politics; enduring Victorian attitudes about class, gender, sexuality, ethnicity, and race; the rise of Labour politics; suffragism; the Irish question; the impact of imperialism and world wars on British subjects; and responses to Britain's postwar decline and post-colonial multiculturalism. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 16S, 17S: 10

HIST 52 - Modern Germany: 1871-1990

Instructor: Greenberg.

This course will explore the dramatic transformations that permeated German culture, politics, and society from 1871 to the end of the Cold War. We will discuss the diverse trends, visions and anxieties that shaped German life through the birth of the German state, industrialization and expansion, World War I, the creation of the Weimar Republic, the rise of Nazism, total War and genocide, and the country's division between Communist dictatorship and Western democracy during the Cold War. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 16X: 10 17W: 2

HIST 53 - World War II: Ideology, Experience, Legacy

Instructor: Greenberg.

This course will explore the origins, nature, and legacies of the most dramatic war in modern times. Rather than focusing only on the military aspect, we will discuss the different ideological, cultural, political, and social factors that intersected in this monumental conflict. Students will learn about the worldviews that led to the war; the experiences of soldiers, policymakers, and ordinary people at the home fronts; and the institutions and cultures that emerged at the war's aftermath. Open to all classes.

Distributive: Dist:INT or SOC

Offered: 15F: 10, 2 17S: 9L

HIST 55 - The Russian Revolutions and the New Regime

Following an introductory survey of the social and political problems confronting Imperial Russia, the course concentrates on the causes and processes underlying the Revolutions of 1905 and 1917, the development of Marxism-Leninism, and the eventual establishment and consolidation of the new Soviet Regime. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S

HIST 56 - Twentieth-Century Russia

An examination of major developments and problems in twentieth-century Russian history with particular attention to the consequences of the October Revolution, Leninism, civil war and its impact, politics and society during the New Economic Policy of the 1920s, the formation of the Stalinist system and its historical legacy, the Krushchev era, the Brezhnev years of "stagnation," Gorbachev's perestroika and the problems of transition to a law based on democratic and open market system of the Russian Federation, the successor state to the Soviet Union. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S

HIST 57 - Scientific Revolutions and Modern Society

Instructor: Kremer.

An introduction to major revolutions in Western science since 1700, focusing on changing definitions of science; on political and religious implications of scientific theories; and on the effect of national contexts on scientific practice. Topics include Newton and Newtonianism in the 18th century, the Darwinian Revolution, Einstein and the birth of modern physics, and science under 'banners' in revolutionary France, Nazi Germany, and Soviet Russia. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 16W: 12

HIST 58 - History of the Holocaust

Prerequisite: Major Dist: <1700.

Cross-Listed as: JWST 37.01

Distributive: SOC; WCult: W. Major Dist: INTER.

Offered: Not offered in the period from 15F through 17S

HIST 61 - Britain and the Sea

Instructor: Estabrook.

This course explores the role of the sea in bringing Britons into contact with a wide world of environments and peoples over the last four centuries during which time Britain was transformed from a cluster of islands on the margins of Europe into an influential global hub. Topics include: voyages of exploration; maritime commerce and warfare; life and work at sea; piracy and slavery; ports and coastal life; the sea as a site of recreation, imagination, and the experience of nature. Open to all classes.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16S, 17S: 2A

HIST 62 - The First World War

Instructor: Darrow.

The First World War was fought in Europe for the most part but it involved belligerents from every continent and had global effects, many of which bedevil our world today. This course introduces you to the vast subject of what the British still call The Great War, its causes, combat, homefronts and far-reaching consequences as well as to some of the unresolved questions that continue to propel our research. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 9L, 16F:10

HIST 63 - History of Recent Science and Technology

This course will consider selected case studies of scientific and technological work since 1960, using analytical tools from science studies, historical sociology, philosophy of science and gender studies. Participants will read classic books deploying these tools, and then will research and present their own case studies on topics such as the development of the personal computer, invention of the "abortion pill" RU-486, or disposal of high level nuclear waste. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 17W: 12

HIST 63.01 - History of Recent Science and Technology

This course will consider selected case studies of scientific and technological work since 1960, using analytical tools from science studies, historical sociology, philosophy of science and gender studies. Participants will read classic books deploying these tools, and then will research and present their own case studies on topics such as the development of the personal computer, invention of the "abortion pill" RU-486, or disposal of high level nuclear waste. Open to all classes.

Distributive: Dist:TMV; WCult:W

HIST 63.02 - Reading Artifacts: The Material Culture of Science

Emphasizing hands-on examination of artifacts in Dartmouth's Collection of Historic Scientific Instruments, this class seeks to study history using 3-d rather than the usual 2-d textual sources. Topics include the rise of American science, science at Dartmouth, the role of experiment and demonstration in science, aesthetics and design of objects, and international trade in instruments. Students will create and curate an exhibition of artifacts from Dartmouth's Collection. Open to all classes.

Distributive: WCult:W

Offered: 17S: 10A

HIST 64 - Modern Europe: The Enlightenment Through the First World War

An examination of the major political, social, economic and cultural developments in Europe from the early eighteenth century through the First World War. In this crucial period of world history, Europe generated the Enlightenment, constitutional democracy, industrial capitalism, advanced technology and global imperialism. Topics include: political revolutions in France, the Germanies and Russia; the industrial revolution and its consequences; liberalism, nationalism and imperialism, the rise of socialism and world wars over the course of two centuries. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S

HIST 65 - Modern Europe: The Twentieth Century

Instructor: Koop.

An examination of major political, social, economic, and cultural developments in twentieth-century Europe. Topics to be treated include the impact of the World Wars and Cold War, the Great Depression, the growth of totalitarianism, the recession and integration of Europe. A subsidiary focus of the course will be the perspective taken on these developments by some major European thinkers. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 16S: 11

HIST 66 - History of Africa since 1800

Instructor: Sackeyfio-Lenoch.

This course explores some of the major historical processes unfolding in Africa since 1800. Our analysis will focus on social and economic history as we examine Africa's integration into the international economy during the nineteenth century, the rise of new social classes, and the creation of the colonial and post-colonial state. Our primary case studies will be drawn from east, west and southern Africa to highlight both the similarities and differences of their historical development. Open to all classes.

Cross-Listed as: AAAS 15

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 12 17S:10

HIST 67 - The History of Modern South Africa

Instructor: Sackeyfio-Lenoch.

After an initial overview of colonialism in Africa, this course will concentrate on Southern Africa, with special emphasis on the historical development, effects, and implications of the racial situation in the Republic of South Africa. Readings will be drawn from primary and secondary materials and from works of fiction. Illustrative films will be shown, and some opportunity offered to compare the history of race relations in South Africa with that in other African countries and in the United States. Open to all classes.

Cross-Listed as: AAAS 46

Distributive: Dist:SOC; WCult:NW

Offered: 16X: 2A

HIST 68 - History of North Africa from the Arrival of Islam to the Present

Instructor: Trumbull.

This course offers an introduction to the history of North Africa from its conversion to Islam to its current, transnational political and social formations. Focusing on religion and conversion, Sufism and mysticism, French and Italian colonialism, trade and economic history, environment, the region's engagement with the Sahara, literature and culture, and migration, assignments will emphasize major themes in the social, political, economic, and cultural history of the region. Open to all classes.

Cross-Listed as: AAAS 52

Distributive: Dist:SOC; WCult:NW

Offered: 15F: 2A

HIST 69 - Islam in Africa

Instructor: Trumbull.

This course aims to introduce students to the formation of Islam in the Maghrib, Saharan Africa, and Africa south of the desert. Assignments will address continuities with and differences from the practices of Muslims in other parts of the world while emphasizing the central role the religion has played in the unfolding of history in various parts of Africa. Topics covered will include conversion, popular religion and mysticism, cultural formations, and social organization. Open to all classes.

Cross-Listed as: AAAS 53

Distributive: Dist:SOC; WCult:CI

Offered: 17W: 2A

HIST 71 - Conflict and Violence in the Middle East

Instructor: Turkyilmaz.

This course will explore the major episodes that have transformed the Middle East since World War I through the prisms of conflict and violence. Challenging the discourses that characterize Middle Eastern societies as essentially stagnant, authoritarian and violent, this course will look critically at the complexities and dynamism of the conflicts with respect to their origins, the actors involved, and the key historical and political factors that have shaped them. Open to all classes.

Distributive: Dist:INT or SOC

Offered: 16S, 17W: 12

HIST 72 - Late Imperial China in Global Context

Instructor: Crossley.

China's history, from the 3rd century BCE to the twentieth century, examined in the context of global developments in

demography, economy, urbanization, technology, trade, and the arts. Open to sophomores, juniors, and seniors.

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 11

HIST 74 - Intellectual History of East Asia

Instructor: Crossley.

A comparative exploration of Chinese and Japanese thought, from the formation of Confucianism in the Warring States period to the confrontation between traditional thought and the imported ideologies of the twentieth centuries. In writing assignments, students may concentrate upon either Chinese or Japanese topics. Open to sophomores, juniors, and seniors.

Distributive: Dist:TMV; WCult:NW

Offered: 16W: 2A

HIST 75 - Colonialism, Development, and the Environment in Africa and Asia

Instructor: Haynes.

This course examines the environmental history of Africa and Asia, focusing on the period of European colonialism and its aftermath. Topics include deforestation and desertification under colonial rule; imperialism and conservation; the consequences of environmental change for rural Africans and Asians; irrigation, big dams and transformations in water landscapes; the development of national parks and their impact on wildlife and humans; the environmentalism of the poor; urbanization and pollution; and global climate change in Africa and Asia. Open to all classes.

Cross-Listed as: ENVS 45 and AAAS 50

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F, 16F: 10

HIST 76 - The History of Modern South Asia

Instructor: Haynes.

This course examines the history of South Asia during the nineteenth and twentieth centuries. Themes of the course include the development of British imperialism, the impact of colonial rule on Indian rural society and economy, processes of cultural change, the development of nationalism, the historical role of Gandhi, the emergence of Hindu-Muslim conflict, and the character of post-colonial South Asia. Open to all classes.

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16S, 17W: 10

HIST 77 - Imperialism in Modern East Asia

Instructor: Ericson.

An examination of Western and Japanese imperialism in East Asia from the Opium War to the Pacific War. Subjects to be treated include the imposition of unequal treaties, the "scramble for concessions" in China, the creation of Japan's formal and informal empires, and the rise and fall of the Greater East Asia Co-Prosperity Sphere. Open to all classes.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16F: 2A

HIST 78 - Christianity in Korea

Instructor: Suh.

This course examines Korean Christians' beliefs and practices, which have shaped and brought tensions to current socio-religious phenomena. Topics include the Korean origins of Christianity, the encounter between Catholicism and Neo-Confucianism in the eighteenth century. Protestant missionaries' role in medicine and education, the rise of nationalism and Christianity under Japanese colonialism, churches in North Korea, Pentacostalism under South Korea's rapid industrialization and democratization, Korean missionaries around the world, and Christian missions and entertainers in Korea, as well as the interface between gender and Korean Christian culture.

Cross-Listed as: AMES 21.05

Distributive: Dist:TMV; WCult:NW

Offered: 16S, 17S: 12

HIST 78.02 - North Korea: Origins and Transitions

Instructor: Suh.

This course explores the history of the Democratic People's Republic of Korea (North Korea) from a global perspective. Topics include the Japanese colonial legacies; liberation, division, and foreign occupation between 1945 and 1950; the meanings of the Korean War; comparing Kim Il-Sung's North Korean revolution with Park Chung-hee's state building in the South; the reality of "Self-Reliance"; social control and everyday life; and issues around human rights.

Distributive: WCult:NW

Offered: 16W: 10

HIST 79 - Postwar Japan: From Occupied Nation to Economic Superpower

Instructor: Ericson.

This course examines the internal and external forces that have shaped Japan's government, economy, and society since 1945. Topics to be treated include American Occupation reforms, the conservative hegemony in politics, rapid economic growth and its costs, the mass

middle-class society, and Japan's changing world role. Open to all classes.

Distributive: Dist:SOC; WCult:NW

Offered: 17W: 11

HIST 83 - Twentieth-Century Latin America

This course seeks to address major issues in twentieth-century Latin America through the history of three or four countries. Topics discussed will include development, imperialism, nationalism, revolution, state formation and violence. Open to all classes.

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 2

HIST 87 - Culture and Identity in Modern Mexico

From the Porfiriato and the Revolution to the present, a survey of Mexican society and politics, with emphasis on the connections between economic developments, social justice, and political organization. Topics include fin de siècle modernization and the agrarian problem; causes and consequences of the Revolution of 1910; the making of the modern Mexican State; relations with the United States; industrialism and land reform; urbanization and migration; ethnicity, culture, and nationalism; neoliberalism and social inequality; the problems of political reform; and the zapatista rebellion in Chiapas. Open to all classes.

Cross-Listed as: LACS 76

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15F through 17S

HIST 94.01 - War and Peace: A Global History

This course explores how the changing character of modern warfare, the collapse of empires, and globalization have enabled increasingly diverse and successful efforts to establish more peaceful relations between nations and among previously hostile groups within nations. The focus is on developments since 1890. Subjects covered include war and human nature, total war and nuclear weapons, disarmament and antiwar movements, international law, transitional justice, human rights, and the rising success rate of nonviolent revolutions. Open to all classes.

Distributive: Dist:INT or TMV

Offered: Not offered in the period from 15F through 17S.

HIST 94.02 - Science, Technology and Culture in the Nuclear Age

An examination of the social, political and cultural dimensions of nuclear technology from the discovery of fission in 1938 through the 1980s. We will consider how contexts and politics shaped the development of nuclear weapons and power reactors, and how these technologies in turn affected politics and culture. Topics include efforts

in Germany, USA, USSR, Japan and England to build fission weapons during World War II; Hiroshima and Nagasaki in American and Japanese memory; the arms race, atomic scientists and the Cold War; the nuclear power industry in international comparison; living in and resisting the Nuclear Age; literary and film representations of the Nuclear Age; and the impact of the Nuclear Age on the development of science and technology since 1945. Open to all classes.

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period from 15F through 17S

HIST 94.03 - Greek History: Archaic and Classical Greece (Identical to, and described under, Classical Studies 14)

Instructor: Christesen.

Cross-Listed as: CLST 14

Distributive: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800.

Offered: 15W: 11

HIST 94.04 - Alexander the Great and the Macedonian Kings (Identical to, and described under, Classical Studies 15)

Instructor: Christesen.

Distributive: Dist: SOC or INT; WCult: W. Major Dist: INTER; <1700, <1800.

Offered: Not offered in the period from 15F through 17S.

HIST 94.05 - Roman History: The Republic (Identical to, and described under, Classical Studies 17)

Instructor: Stewart.

Cross-Listed as: CLST 17

Distributive: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800.

Offered: Not offered in the period from 15F through 17S.

HIST 94.06 - History of the Roman Empire: Roman Principate to Christian Empire (Identical to, and described under, Classical Studies 18)

Instructor: Stewart.

Cross-Listed as: CLST 18

Distributive: Dist: INT or SOC; WCult: W. Major Dist: INTER; <1700, <1800.

Offered: 16W: 12

HIST 94.07 - Methods and Theory in Ancient History (Identical to, and described under, Classical Studies 19)

Cross-Listed as: CLST 19

Distributive: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800.

Offered: Not offered in the period from 15F through 17S.

HIST 94.08 - History and Culture of the Jews: The Classical Period

Cross-Listed as: JWST 10

Distributive: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800.

Offered: Not offered in the period from 15F through 17S

HIST 94.09 - History and Culture of the Jews: The Modern Period (Identical to, and described under, JWST 11)

Instructor: Heschel.

Cross-Listed as: JWST 11

Distributive: Dist: SOC; WCult: CI

Offered: Not offered in the period from 15F through 17S.

HIST 95.01 - Foreign Study Program: London in History

Instructor: Ericson.

Through lectures, readings, discussions, and fieldwork this course explores aspects of London's history from medieval to modern times. Using the city itself as a living laboratory for historical thinking, the course relates the development of London and its neighborhoods to the larger concentric histories of nation, region, empire, and world.

Distributive: Dist:SOC; WCult:W

Offered: 15F, 16F: DFSP

HIST 95.02 - Foreign Study Program: History Study Abroad

Instructor: Ericson.

Graded credit for this course is awarded to students who have successfully completed an approved course offered by the History faculty of University College London while a member of the Dartmouth Foreign Study Program in History. Selections for 2013 include: "Slavery in the Classical World"; "Natural Law and State Sovereignty: European Political Thought in the 17th Century"; "The Human and Its Others: Enlightenment Ideas of Ethnicity and Race"; "Crime and Popular Disorder in England 1714-1780"; "Ireland 1689-1801"; Remembering Slavery: Britain, Colonial Slavery and Abolition" and "Law's Empire: Legal Cultures in the British Colonial World."

Distributive: WCult:W

Offered: 15F, 16F: DFSP

HIST 96.01 - Seminar: Colonialism and Culture in Asia and Africa

Instructor: Haynes.

Departmental placement and instructor permission is required.

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 3A

HIST 96.02 - Seminar: Empires, Imperialism and the United States

Instructor: E. Miller.

Departmental placement and instructor permission is required.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 2A

HIST 96.03 - Seminar: Topics in British History

Instructor: Estabrook.

Departmental placement and instructor permission is required.

Distributive: Dist:SOC; WCult:W

Offered: 16W, 17W: 2A

HIST 96.05 - Seminar: World War I and the Middle East

Instructor: Garthwaite.

Departmental placement and instructor permission is required.

Offered: 16W, 17S: 2A

HIST 96.06 - Seminar: Approaches to American Intellectual and Cultural History

Instructor: Butler.

Departmental placement and instructor permission is required.

Distributive: Dist:TMV; WCult:W

Offered: 15F, 16F: 10A

HIST 96.07 - Seminar: Topics in Modern Japanese History

Instructor: Ericson.

Departmental placement and instructor permission is required.

Offered: 17W: Arr

HIST 96.08 - Seminar: Pen and Ink Witchcraft: Native American History Through Treaties

Instructor: Calloway.

Treaties enabled European colonists to establish a foothold in North America and charted the territorial expansion of the United States. Indian people were often deceived by treaties and they referred to them as "pen and ink witchcraft." But the hundreds of Indian treaties generated unique records of cultural encounter. Each treaty had its own story and cast of characters. Working with the records of key treaties, this seminar will examine the protocols of Indian diplomacy, the maneuverings and agendas of the different participants, as well as the outcomes and legacies of Indian treaties. Open to Juniors and Seniors with written permission of the instructor.

Prerequisite: Departmental placement and instructor permission is required.

Cross-Listed as: NAS 81.03

Distributive: Dist:INT or TMV; WCult:NW

Offered: 16W, 17W: 2A

HIST 96.12 - Seminar: Race, Ethnicity and Immigration in U.S. History

Departmental placement and instructor permission is required.

Distributive: Dist:SOC; WCult:CI

Offered: Not being offered in the period from 15F through 17S.

HIST 96.13 - Colloquium: Great Explanations: Global Methods

Instructor: Crossley.

Historians and other social scientists are supposed to explain the big things. But great explanations—the causes of everything, or most things, or everything that matters—are risky and sometimes hilarious. This colloquium explores both the results of risk-taking in interpreting the past and the tools used by social scientists to come up with yet one more great explanation.

Offered: 16S: 3A

HIST 96.14 - Seminar: Napoleon and His Enemies

Instructor: Darrow.

Departmental placement and instructor permission is required.

Distributive: Dist:SOC; WCult:W

Offered: 16S, 16F: 10A

HIST 96.16 - Colloquium: The Mongols

Departmental placement and instructor permission is required.

Offered: Not being offered in the period from 15F through 17S.

HIST 96.19 - Seminar: Labor, Migration, and the Making of the American South

Instructor: Johnson.

Departmental placement and instructor permission is required.

Distributive: Dist:SOC; WCult:W

Offered: 17S: 10A

HIST 96.21 - Political Thought in Colonial America

Open with permission of the instructor to juniors and seniors. For details concerning individual seminars consult the Department. Section numbers follow the decimals.

HIST 96.22 - Nazism: Culture, Society, War

Open with written permission of the instructor to juniors and seniors. For details concerning individual seminars consult the Department. Section numbers follow the decimals.

HIST 96.23 - Topics in West African History

Open with written permission of the instructor to juniors and seniors. For details concerning individual seminars consult the Department. Section numbers follow the decimals.

HIST 96.24 - Seminar: Joan of Arc

Departmental placement and instructor permission is required.

Offered: Not offered in the period from 15F through 17S.

HIST 96.25 - World War II in the Pacific, 1931-1945

Instructor: J. Miller.

This seminar examines the origins, experiences, and consequences of World War II in the Pacific from 1931 – 1945. Moving beyond a U.S.-Japanese framework, we will explore the Pacific War's complex cultural, diplomatic, and geopolitical roots, examining it as a clash between empires, liberation movements, and Communist organizations. Course materials will include both primary and second sources, along with films, comics, and memoirs that examine the experience and legacies of these wars.

Distributive: WCult:W

Offered: 15F: 10A

HIST 96.26 - Ritual and Violence in Crusader Jerusalem

Open with written permission of the instructor to juniors and seniors. For details concerning individual seminars consult the Department. Section numbers follow the decimals.

HIST 96.27 - Great Historians: Classic Works from Herodotus

Open with written permission of the instructor to juniors and seniors. For details concerning individual seminars consult the Department. Section numbers follow the decimals.

HIST 97 - Independent Study

Instructor: The Chair.

This course offers an opportunity for a student to pursue some subject of special interest under the direction of a member of the Department through a specially designed program of readings and reports. Open to qualified students with written permission of the instructor and the Chair. Offered: All terms: Arrange. Independent Field Project 14F, 15F: D.F.S.P. In consultation with members of the Dartmouth faculty, each student will design and carry out an independent project which makes use of London's unique research opportunities. The project may relate to any aspect of British, European, and World History. Prerequisite: membership in the Foreign Study Program. Padilla.

Prerequisite: membership in the Foreign Study Program

Offered: 15F, 16W, 16S, 16X, 16F, 17W, 17S: Arrange.

HIST 98 - Honors Seminar

Instructor: Simons.

The focus of the seminar is historiographic and great emphasis will be placed on the skills needed to write a research thesis in History. Only students enrolled in the Honors Program may take HIST 98; permission of the instructor. This course does not fulfill the requirement of a culminating experience in the Major and it may be taken only once.

Offered: 15F: ARR 16F: ARR

HIST 99 - Thesis

Instructor: The Chair.

This course involves an extensive investigation of some topic and submission of a bound undergraduate thesis by the designated deadline. Only students enrolled in the Honors Program may take HIST 99; permission of the thesis advisor and the Chair.

Offered: 16W, 16S, 17W, 17S: Arrange

Humanities

Director: Andrea W. N. Tarnowski

To view Humanities courses, click here (p. 350).

HUM - Humanities Courses

To view Humanities requirements, click here (p. 350).

HUM 1 - Dialogues with the Classics

Instructor: Brown, Carranza, Tarnowski

An introduction to classics of Western Literature and the ways in which later writers have engaged with them. Readings may include Homer's *Odyssey*, Dante's *Inferno*, Plato's *Phaedrus*, Mann's *Death in Venice*, Sophocles' *Philoctetes*, Shakespeare's *Twelfth Night* and Alice Munro's *The Beggar Maid*. The course alternates between lectures and discussion sections, with emphasis on students' class participation and essay writing. Enrollment restricted to 48 first-year students.

Offered: 14F: 12

HUM 2 - Dialogues with the Classics

Instructor: Chaudhuri, Carranza, Tarnowski

A continuation of Humanities 1. Readings may include Nabokov's *Pale Fire*, Borges' *Ficciones*, Woolf's *Mrs. Dalloway*, Faulkner's *Absalom, Absalom*, Flaubert's *Madame Bovary* and selected readings from Catullus' *Wedding poem*. The course alternates between lectures and discussion sections, with emphasis on students' class participation and essay writing. Enrollment limited to 48 first-year students.

Prerequisite: HUM 1, or the permission of the course director.

Distributive: Dist:LIT; WCult:W

Offered: 15W: 12

Jewish Studies

Chair: S. Heschel

Professors S. Ackerman (Religion), L. H. Glinert (AMELL), S. Heschel (Religion), I. Kacandes (German), L. D. Kritzman (French), A. Orleck (History); Associate Professors E. Z. Benor (Religion), V. Fuechtner (German), M. F. Zeiger (English); Senior Lecturers N. Ben Yehuda (AMELL), M. A. Bronski (Women's and Gender Studies), S. E. Kangas (Art History), B. S. Kreiger (English), K. F. Milich (Liberal Studies); Adjunct Professor A. Lelchuk (Liberal Studies), Visiting Brownstone Professor: D. Rubenstein; Visiting Professor: L. Grinberg; Visiting Associate Professor S. Finkel

The Jewish Studies Program serves to provide a multi-disciplinary focal point for the various courses in Jewish history, religion, literature, and culture that are given at Dartmouth as well as to sponsor special course offerings (including those by the annual Brownstone Visiting Professor) and a variety of academic activities related to the discipline. The program currently offers a minor.

To view Jewish Studies courses, click here (p. 350).

Jewish Studies Minor

The minor is designed to offer a general introduction to the historical and cultural experience of Jews throughout the world, and to Jewish thought, literature, and contemporary political and social issues. At the same time, it provides the opportunity for students who wish to do more intensive work in a single discipline. Those completing the minor are encouraged, but not required, to obtain at least a working knowledge of Hebrew (HEBR 3, or equivalent).

Requirements: A total of six courses, which must include:

Two Introductory courses

JWST 4/REL 4, Religion of Israel: The Hebrew Bible (Old Testament), or JWST 6/Religion 6, Introduction to Judaism

And

JWST 10/HIST 94.8, History and Culture of the Jews I: The Classical Period or JWST 11/History 94.9, History and Culture of the Jews II: The Modern Period

One course in the Literature, Language and Culture of the Jewish People

Three courses chosen from the other course offerings in the program, selected in consultation with the advisor.

JWST - Jewish Studies Courses

To view Jewish Studies requirements, click here (p. 350).

Associated Courses

Associated courses, listed below, have either significant Jewish Studies content or significant methodological focus on issues that are central for understanding Jewish life and culture. To obtain credit, students must petition the Jewish Studies Steering Committee explaining how their work in a particular course satisfies the above criteria. Students may also petition for Jewish Studies credit for work in courses not in this list.

ANTH 53 Anthropology of Ethnicity and Nationalism

JWST 4 - Religion of Israel: The Hebrew Bible (Old Testament)

An introduction to the religion of ancient Israel through an examination of a number of the books of the Old Testament (Hebrew Bible), including Genesis, Exodus, Joshua, Samuel, the Psalms, Job, and the prophets. Attention will also be given to the religion of Israel's Phoenician and Mesopotamian neighbors. Open to all classes.

Cross-Listed as: REL 4

Distributive: Dist:TMV; WCult:W

JWST 6 - Introduction to Judaism

Instructor: Wright, Benor

This course offers an introduction to Judaism by examining three of its central spiritual manifestations: (1) development, observance, and study of the Halaka (religious law); (2) philosophical contemplation; and (3) mystical experience and theosophical speculation. Ancient and modern challenges to the tradition will be studied in some detail, and an attempt will be made to determine what might constitute a unity of such a diverse tradition. Open to all classes.

Cross-Listed as: REL 6

Distributive: Dist:TMV; WCult:W

Offered: 16W: 10; 16F: 12

JWST 7 - First-Year Seminars in Jewish Studies

Offered: Consult special listings

JWST 10 - History and Culture of the Jews I: The Classical Period

A survey of the history and culture of the Jews from the post-Biblical period to the Middle Ages.

Cross-Listed as: HIST 94.08

Distributive: Dist:SOC; WCult:W

JWST 11 - History and Culture of the Jews II: The Modern Period

Instructor: Heschel

A continuation of JWST 10, but may be taken independently. This course provides a survey of Jewish history and culture from the European enlightenment to the establishment of the State of Israel.

Cross-Listed as: HIST 94.09

Distributive: Dist:SOC; WCult:CI

Offered: 16X, 17S: TBD

JWST 16 - Introduction to Hebraic and Israeli Culture

Instructor: Glinert

This course explores the interaction of Hebrew literature, film, music, religion, and society. For millennia, Hebrew has had a unique spiritual hold on both the Jewish and Christian identity. We will focus on the Bible as wisdom, law, and poetry, the Talmud of the ancient Rabbis, Kabbalah and Hebrew alphabet mysticism, war and the Israeli cinema, Hebrew folk and rock culture, and a modern political mystery: how today's Hebrew created a new Jewish identity. Required for the major and minor. No knowledge of Hebrew is required. Glinert.

Cross-Listed as: HEBR 10 and AMES 17; described under HEBR 10

Distributive: Dist:LIT; WCult:CI

Offered: 17S: 10A

JWST 21 - Jewish American Literature

The content of Jewish American Literature reflects that of many literatures including the broad variety of historical, political, social, and cultural experiences that Jews from very different places and backgrounds have brought to the United States. The course introduces students to the central topics, motives, and literary strategies from the beginnings of a tangible Jewish American literature in the late nineteenth century to the present. Dist: LIT; WCult: CI. Milich.

Distributive: Dist:LIT; WCult:CI

JWST 21.01 - Jewish American Literature

Instructor: Milich

The content of Jewish American Literature reflects that of many literatures including the broad variety of historical, political, social, and cultural experiences that Jews from very different places and backgrounds have brought to the United States. The course introduces students to the central topics, motives, and literary strategies from the beginnings of a tangible Jewish American literature in the late nineteenth century to the present

Distributive: Dist:LIT; WCult:CI

Offered: 16S: 12, 17W: TBD

JWST 21.02 - Modern Jewish American Women Writers

This course will explore the literature of Jewish American women from the late nineteenth century to the present; topics for discussion will include feminism, sexuality, identity politics, activism, and literary transmission. Among the readings will be poetry, fiction, memoir, and essays by such writers as Lazarus, Antin, Yeziarska, Stock, Stein, Olsen, Rukeyser, Paley, Ozick, Rich, Piercy, Levertov, Gluck, Goldstein, Wasserstein, Goodman, Klepfisz, Feinberg, Chernin.

Distributive: Dist:LIT; WCult:CI

JWST 22.01 - Jews and Hollywood

Instructor: Bronski

This course will look at the complex, rich tradition of Jewish artists as well as the history of representations of Jews in film. We will focus on American films and examine how Jews became American and how American culture became Jewish. Topics will include: the role of Jews in the creation of the product and myth of Hollywood, how antisemitism shaped images of Jews in film, and how mainstream film has shaped contemporary Jewish identity.

Distributive: Dist:LIT; WCult:CI

Offered: 16W: 10A

JWST 22.02 - Jews in American Culture: The New York Intellectuals

No other group of Jewish critics has been so influential in American literary and cultural politics as the New York Intellectuals, who came to prominence with the foundation of the Partisan Review (1937-2003). Starting from the assumption of what Russel Jacoby has identified as a Jewish-gentile split among the NYI, this course shall focus on how the political and cultural debates informed their notions of Jewish-American identity, particularly with respect to other minorities.

Distributive: Dist:LIT; WCult:NW

JWST 22.03 - From Fanny to the Nanny: Jewish Women and Humor (Identical to WGST 56.7)

Cross-Listed as: WGSS 56.07

Distributive: Dist: LIT; WCult: CI

JWST 24.01 - The Hebrew of the Bible

Instructor: Ben-Yehuda

An introduction to the language of the Hebrew Bible. The course teaches basic Biblical grammar, script, and vocabulary for recognition. Readings will be taken from a sampling of Biblical texts. This course serves as a requirement for students wishing to major and minor in Hebrew language and literature.

Cross-Listed as: HEBR 51

Distributive: Dist:LIT; WCult:NW

Offered: 16W, 17W: Arrange

JWST 24.02 - Rabbis, Rogues, and Schlemiels: Jewish Humor and Its Roots

Instructor: Glinert

What is Jewish humor, what are its roots, and what can it begin to tell us about Jewish society, its values and its self-image? Using Freudian and other humor theory, we examine 2000 years of Hebrew comedy and satire, from

the Bible to contemporary Israel, in such genres as short stories, jokes, and strip cartoons, and its relationship to American Jewish humor.

Cross-Listed as: HEBR 63.01

Distributive: Dist:LIT; WCult:W

Offered: 16F: 2A

JWST 24.03 - Midrash: How the Rabbis Interpreted the Bible

Midrash is the ancient Jewish term for Biblical interpretation. We examine how the Bible was interpreted by the Rabbis 1500 to 2000 years ago, at the crucial juncture in history when the Bible was being canonized in the form it now has. We focus on powerful motifs such as Creation, the Flood, Jacob and Esau, the Sacrifice of Isaac, and the Exodus, and view them through two prisms: through a wide range of ancient Midrashic texts themselves; and through one influential modern Jewish literary reading of the Midrashic themes of Genesis. Glinert.

Cross-Listed as: HEBR 62.01

Distributive: Dist:LIT; WCult:NW

JWST 24.04 - Struggle and Rebirth in Hebrew and Yiddish Literature

Distributive: Dist: LIT; WCult: NW

JWST 24.05 - Rabbis, Rogues, and Schlemiels: Jewish Humor and Its Roots

What is Jewish humor, what are its roots, and what can it begin to tell us about Jewish society, its values and its self-image? Using Freudian and other humor theory, we examine 2000 years of Hebrew comedy and satire, from the Bible to contemporary Israel, in such genres as short stories, jokes, and strip cartoons, and its relationship to American Jewish humor.

Cross-Listed as: HEBR 63.01

Distributive: Dist:LIT; WCult:W

JWST 25.01 - On Editing Fiction

Fiction editing is a profession of little theory and lengthy practice. This course is meant to offer students a short but intensive encounter with both. It will give students an opportunity to study, share, and discuss strategies for editing and exercise critical thinking on writing and editing fiction under guidance of a leading professional editor of Israeli fiction. The course will introduce, in English translation, the writings of three leading Israeli contemporary writers whose work the instructor has edited. The course will include video or live online chats with one or more of these authors. Writing and editing will be done both in and out of class. Class sessions will begin with a short lecture of a group discussion on an assigned topic,

then go on to focus on assignments designed to improved writing and editing skills.

Distributive: Dist:LIT; WCult:W

JWST 25.02 - 20th Century Jewish Memoir

In this course we'll read memoirs written by Jews in various places and circumstances during the twentieth century. Some came to the U.S. or went to Canada or Israel; others were trapped or chose to remain in Europe. Still others were born in places from which they never emigrated, and yet their narratives reveal some of the same questions raised in the work of those who did. All of them lived either on the fringe or with the uncertainty that was a condition of their lives, laboring under the stress of assimilation, displacement, or a threat to their survival. Who were these individuals, and what do their personal narratives offer about themselves, their communities, and their time? Did their dual participation in society contribute to an enriched or problematic identity? What did they create from their ambiguous or excluded status? We'll also look at the role memoir has played in Jewish life. Does it have a long tradition, or have Jews avoided presentations of the self? Where do memory and survival intersect? How does each writer see him or herself—as a conveyor of individual or collective memory? To what extent is writing rescue of the past, and to what extent affirmation of a future? Readings will include sections, to be selected, of the following. Dates will be assigned before the start of the term. Selections will be accompanied by supplementary readings.

Distributive: Dist:LIT

JWST 26 - European Jewish Intellectuals

The course will examine the role of the Jewish intellectual in twentieth central Europe. We shall focus on several paradigmatic figures (Arendt-, Benjamin, Adorno, Levinas, Derrida) who confront- the redefinition of politics and civil society in modern times. Some attempt- to deal with these changes through a critical reflection on the concepts of democracy and ethics and on how justice can be practiced either within or outside of the geographical and spiritual boundaries of the modern nation state. We shall examine how Jewish self-consciousness and a deep attachment to biblical tradition enables these intellectuals to reconcile ethical imperative with political realities. Particular attention will be paid to topics such as the challenges of Eurocentric Christian humanism and universalism to Jewish assimilation; the promises of totalitarianism, Marxism and messianism; the politics of biblical exegesis; history and Jewish mysticism; Zionism, anti-Zionism and the Arab-Israeli conflict-.

Cross-Listed as: COLT 70.03

JWST 27 - The Jewish Family

This course will explore the intersections of literary and familial structures in social and psychological contexts. It will study ideologies which both support and contest the family's cultural hegemony. Individual offerings might concentrate on mothers and daughters, fathers and sons, family romances, marriage, family and society. Readings will range from myth and fairy tale to some of the great family novels or dramas.

JWST 27.01 - The Jewish Family

Distributive: LIT

JWST 27.03 - Islam and Judaism: Europe's Orientalist Visions

Distributive: Dist: LIT; WCult: CI

JWST 33 - American Jewish History

Distributive: Dist: SOC; WCult: CI

JWST 34.02 - History of the Jews in Germany

Instructor: Heschel

This course is designed as an introductory survey of the history, culture, and identity of the Jews in Germany from the 18th century to the present. Our interest will be in examining the unique Jewish identities, male and female, religious and secular, that were shaped as Jews gradually emerged from a state of internal colonization and began their struggle for political emancipation and social integration during the era marked by the rise of anti-Semitism, liberalism, socialism, Christian tolerance, Nazism, two world wars, and, eventually, the emergence of the two Germanys and their unification after 1989.

Distributive: Dist:SOC; WCult:CI

Offered: 16X: TBD

JWST 36 - Topics in Medieval Jewish History

This course will focus on the interactions of the three major religious communities of the medieval Mediterranean—Christians, Jewish, and Muslim—beginning with the First Crusade in 1096 and ending with the arrival of the Black Death in 1347. By examining topics such as pilgrimage, crusade, and jihad, the status of minority communities, and intellectual life, we will explore how Christians, Jews, and Muslims clashed, cooperated, influenced, and misunderstood each other. Open to all classes.

JWST 36.01 - Christians, Jews, and Muslims in the Age of the Crusades

This course will focus on the interactions of the three major religious communities of the medieval Mediterranean—Christians, Jewish, and Muslim—beginning with the First Crusade in 1096 and ending with

the arrival of the Black Death in 1347. By examining topics such as pilgrimage, crusade, and jihad, the status of minority communities, and intellectual life, we will explore how Christians, Jews, and Muslims clashed, cooperated, influenced, and misunderstood each other. Open to all classes.

Cross-Listed as: REL 33 and HIST 4.02

Distributive: Dist:TMV; WCult:W

JWST 37.01 - History of the Holocaust

Identical to HIST 58

Cross-Listed as: HIST 58

Distributive: Dist: SOC; WCult: W

JWST 37.02 - Burden of the Nazi Past: World War, Genocide, Population Transfer, and Firebombing

Identical to COLT 64 and GERM 45.

Cross-Listed as: COLT 64, GERM 45

Distributive: Dist: LIT; WCult: CI

JWST 37.03 - Representing the Holocaust: History, Memory, and Survival

Distributive: Dist: INT; WCult: W

JWST 40.01 - Politics of Israel and Palestine

Instructor: Avishai

This course explores the century-old conflict as seen from the political structures and changing narratives of Israelis and Palestinians, including the Zionist movement and the responses of the Palestinian Arab community to it; the formation of the Arab national movement as a whole—and within this, the claims of Palestinians before and after the British Mandate; the founding of the state of Israel and the formation of the post-1948 Palestinian national movement; the aftermath of the 1967 war; the start of the Israeli occupation and the latter's impact on Israeli institutions, economy, and political parties; and the Palestine Liberation Organization and the founding of Hamas. We will explore contemporary political and economic developments in light of the global forces operating on the region, and consider the plausibility of a two-state solution.

Cross-Listed as: GOVT 40.09

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F: 2

JWST 41 - Art and Archaeology of Israel: From Prehistory to the Roman Period

This course will examine the archaeology of Israel from prehistory through the early Roman period, with emphasis on cultural interactions and their material manifestations. Ancient Israel was a crossroads where many different

cultures met. Home to Canaanites and Israelites, Israel successively experienced the cultural and artistic impact of Egyptians, Assyrians, Greeks, and Romans, who either invaded this region or came into contact with it through a variety of more peaceful processes.

Cross-Listed as: ARTH 17.11

JWST 41.02 - Synagogue and Church: Archaeology of Roman Palestine

Distributive: Dist: ART; WCult: W

JWST 41.03 - Cities of the Biblical World

This course will study some of the cosmopolitan centers where Jews interacted with other peoples of the Middle East and Eastern Mediterranean, where Jewish identity was first formulated, and where early Jewish history unfolded. It was in antiquity that the Jewish people's special, complex, and often problematical relationship to place first took shape. We will explore this issue in light of archaeological materials distributed over a wide geographical and chronological range, from Jerusalem - the first capital of the Israelites - to Ninevah and Babylon, to powerful centers of the Roman world such as Sepphoris in the Galilee and the port at Caesarea.

JWST 42 - Film, Fiction and the Arab-Israeli Conflict

Instructor: Glinert

This course explores Israeli cinema in the context of the social and historical backdrop of the Arab-Israeli conflict and the painful emergence of a new Jewish-Israeli identity in the shadow of the Holocaust and constant warfare. We will study a dozen films in depth, situate them in the evolution of an Israeli cinema, and consider the problems of turning fiction into film.

Cross-Listed as: HEBR 61.01

Distributive: Dist:LIT; WCult:CI

Offered: 16F: 10A

JWST 51 - Freud: Psychoanalysis, Jews, and Gender

This course will examine how Freud's own writings, his biography, and his biographers have shaped the perceptions of psychoanalysis as a specifically Jewish theory and practice. Through a reading of Freud's texts on gender, sexuality, and religion, we will trace the connections between psychoanalysis, Jewishness, and gender that have impacted theoretical discussion. We will explore critique, including Horney, Reich, and Marcuse, and recent debate on the status of Freud in the U.S.

JWST 52 - Judaism, Sexuality, and Queerness

Distributive: Dist: TMV; WCult: CI

JWST 53 - Gender and Judaism

Cross-Listed as: WGSS 33.03

Distributive: Dist: TMV; WCult: CI

JWST 55 - Performing National Identities: Representations of Blacks and Jews in U.S. Culture

Distributive: Dist: LIT; WCult: CI

JWST 56 - Women in Islam and Judaism

Focusing on how concepts of women and gender have shaped meanings of religious and national lives and communities within Judaism and Islam in a variety of regions of the world and historical periods, this course will survey variations in gender with attention to historical and cultural specificities. Using a variety of sources, the course will explore the ways in which Muslim and Jewish women exercise different forms of agency both in opposition to as well as from within socio-religious prescriptions.

Cross-Listed as: REL 19, WGSS 44.02

Distributive: Dist: TMV; WCult: CI

JWST 57 - Ethnomusicology

Ethnomusicology is the study of music-particularly that outside the Western classical tradition-in its social and cultural context. In 2008, the course focuses on the musical cultures of one large geographical area: the Middle East, North Africa, and Central Asia, where the interaction of Christianity, Islam, and Judaism has produced both convergence and contrast in the rich array of musical traditions shaped by the Abrahamic belief systems and the social practices that have emerged from them. Open to all students. Reading music not a prerequisite.

Cross-Listed as: MUS 45

JWST 58 - Jewish Views of Islam

This course will examine Jewish views of Islam by reviewing the history of medieval and modern Jewish experience under Muslim rule, Jewish theological understandings of Islam, and modern Jewish historiographical interpretations of Islamic origins within Judaism. We will study Jewish understandings of Islam: the articulated differences between Jewish and Muslim beliefs, particularly in relation to prophecy, revelation, scripture, and messianism; the ways that Islam served as a template for presenting Judaism to modern Christian Europe; the alliance forged between Jewish scholars and their imagined Islam as a polemical tool against Christianity; the rise of Oriental Studies and Religious Studies in Europe and the role played within that field by Jewish scholars; Jewish-authored travelogues to Muslim countries; and individual cases of conversions from Judaism to Islam. We will examine Arab-Jewish intellectual and literary creativity and how Orientalism has

shaped other cultural phenomena, specifically early psychoanalytic writings.

Cross-Listed as: REL 74

Distributive: Dist: TMV; WCult: CI

JWST 60 - Judaism in Late Antiquity: The Rabbinic Revolution

Instructor: Benor

The course begins with a survey of the development of Judaism from a Persian-era temple religion into the religion of the synagogue and the academy in response to Greco-Roman civilization and its eventual Christianization. The course engages the students in careful interrogation of texts from the Mishna and the Talmud to recover the theological and experiential contours and concerns of a religious world in formative transition. Some of these developments are then traced through the Middle Ages to early modernity. Open to all classes.

Cross-Listed as: REL 21

JWST 61 - Modern Judaism

Distributive: Dist: TMV; WCult: W

JWST 62 - Jewish Mysticism

Instructor: Benor

The course examines the nature of claims to mystical experience or knowledge that appear in various aspects of the Jewish tradition, with primary focus on the enchanted and demonic worlds of the Kabbala. Forms of ecstasy and magic will be studied, along with their theoretical and social backgrounds and their impact on elitist and popular Jewish practice. Open to all classes.

Cross-Listed as: REL 23

Distributive: Dist: TMV; WCult: W

Offered: 17W: 2

JWST 63 - Jewish Philosophers of Religion

The course is conducted through close reading and discussion of works by Spinoza, Buber, and Levinas that translate insights from the Jewish experience to the idiom of modern European culture and, in so doing, make unique contributions to such subjects of modern religious thought as: God and infinity; religion, morality, and politics; autonomy and transcendence; and the role of Jewish intellectuals in the modern era. Open to all classes.

Cross-Listed as: REL 24

JWST 66.02 - Jews and Arabs: Entangled Histories

In this course we'll read memoirs written by Jews in various places and circumstances during the twentieth century. Some came to the U.S. or went to Canada or

Israel; others were trapped or chose to remain in Europe. Still others were born in places from which they never emigrated, and yet their narratives reveal some of the same questions raised in the work of those who did. All of them lived either on the fringe or with the uncertainty that was a condition of their lives, laboring under the stress of assimilation, displacement, or a threat to their survival. Who were these individuals, and what do their personal narratives offer about themselves, their communities, and their time? Did their dual participation in society contribute to an enriched or problematic identity? What did they create from their ambiguous or excluded status? We'll also look at the role memoir has played in Jewish life. Does it have a long tradition, or have Jews avoided presentations of the self? Where do memory and survival intersect? How does each writer see him or herself—as a conveyor of individual or collective memory? To what extent is writing rescue of the past, and to what extent affirmation of a future? Readings will include sections, to be selected, of the following. Dates will be assigned before the start of the term. Selections will be accompanied by supplementary readings.

Cross-Listed as: ANTH 12.10

Distributive: Dist:SOC; WCult:CI

JWST 68.01 - Israeli Society—Structure, Institutions, Identities and Dynamics

Instructor: Grinberg

The goal of this course is to study Israeli society from a sociological perspective. The course analyzes the economic, political and social factors that shaped Israeli society from its inception, its historical transformation at the structural and institutional levels, and in the changing relations among different social groups. This course examines the establishment of the state, absorption of immigrants, ethnicity, messianic politics, Palestinian uprisings, peace process, and redefinitions of nationalism.

Cross-Listed as: SOCY 49.12

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 10A

JWST 68.02 - Sociology of the Israeli-Palestinian Conflict

Instructor: Grinberg

The course aims to comprehend Israeli-Palestinian relations from the first moments of Zionist-Palestinian encounter. It presents different approaches to the interpretation of these relations, the beginning of the conflict before the establishment of the Jewish State, and its further developments. The course will enter key debates on military-society relations, Jewish democracy, economic relations, and the failure of the

peace process, ending with a discussion of options for the future.

Cross-Listed as: SOCY 49.15

Distributive: Dist:SOC

Offered: 15F: 2A

JWST 70 - The Jew in the Protestant Imagination: The Merchant of Venice

Distributive: Dist: LIT, WCult: W

JWST 70.03 - Orientalism and Origins of Religion

The growing nineteenth-century German empire stimulated interest in the Near and Far East on the part of scholars, novelists, and artists. This course examines Germany's fascination with the cultures of India, China, Africa, and the Middle East, the origins of religion as a unifying concept, and the impact of the new field of Oriental Studies on German political, military, and colonial activities from the 1830s to the 1930s. Suzanne Marchand, *German Orientalism in an Age of Empire*, will be the textbook for this course.

JWST 72 - History of Heaven

Cross-Listed as: REL 57

Distributive: TMV

JWST 80 - History of Holocaust Historiography

Distributive: Dist: SOC; WCult: W

JWST 85 - Independent Study and Research

This course offers qualified students of Jewish Studies the opportunity to pursue work on a topic of special interest through an individually designed program. Requires permission of the instructor and the Chair.

Offered: All terms: Arrange

JWST 68 - Topics in Sociology

Distributive: varies

Language and Advanced Language Study Abroad Program

Departments of Asian and Middle Eastern Languages and Literatures, French and Italian, German Studies, Russian, and Spanish and Portuguese Languages and Literatures

A student may choose to satisfy the Language Requirement through a combination of two preparatory courses at Dartmouth and one term of study abroad. It is preferred that students take the preparatory courses as close to departure as possible. After satisfactory completion of the required language prerequisite, the student will spend one term abroad living with a family and studying the language and culture. Language Study Abroad (LSA) is

available in France, Germany, Italy, Brazil, Mexico, or Spain. On the LSA the student will be enrolled in one of the following sets of courses: FREN 3, FREN 5, and FREN 6; GERM 3, GERM 5, and GERM 6; ITAL 3, ITAL 5, and 6; PORT 3, PORT 5, and PORT 6; and SPAN 3, SPAN 5, and SPAN 6.

Advanced Language Study Abroad (LSA+) is available in French (Toulouse, France), Italian (Rome, Italy), Japanese (Tokyo, Japan), and Russian (St. Petersburg, Russia). Students must have the equivalent of language 3.

Possible enrollment is limited by the number of spaces available; all students who wish to participate in an LSA or LSA + program must receive the department's minimum grade in French, German, Italian, Portuguese or Spanish in their preparatory course or courses. Students will be selected on the basis of their application forms and letters of reference; actual participation is subject to maintenance of satisfactory academic standing. Admission to these programs cannot be guaranteed. Formal applications are available online from the Off-Campus Programs website. It is the student's responsibility to contact Off-Campus Programs for application deadline information. Students interested in an LSA but unable to participate in their second year for curricular reasons should review the Regulations Regulations section of this catalog. For a complete listing of these offerings, see Language Study Abroad in the Regulations section of this catalog.

Latin American, Latino, and Caribbean Studies

Chair: Lisa Baldez

Professors, L. Baldez (LALACS, Government), R. Bueno-Chávez (Spanish and Portuguese), J. M. Carey (Government), D. L. Nichols (Anthropology), B. Pastor (Spanish and Portuguese), S. D. Spitta (Spanish and Portuguese), K. L. Walker (French and Italian), R. A. Wright (Geography); Associate Professors, R. E. Biron (Spanish and Portuguese), M. K. Coffey (Art History), R. A. Franconi (Spanish and Portuguese), A. Gómez (Spanish and Portuguese), T. Padilla (History), I. Reyes (Spanish and Portuguese), Assistant Professors S. Díaz (Spanish and Portuguese), R.N. Goldthree (AAAS); S. A. M. Vásquez (English); Senior Lecturer D. J. Moody (Spanish and Portuguese); Lecturers R. Herr (LALACS), Visiting Professor P. DeShazo (GOVT); Visiting Assistant Professor C. Gómez (LALACS), Lecturer A. P. Hernández (LALACS, WGSS, MALS).

Latin American, Latino and Caribbean Studies (LALACS) is an interdisciplinary program.

The standard major and minor in LALACS offer students the option of focusing their studies on Latin America and the Caribbean (LACS), Latino Studies (LATS), or a combination of both.

The LACS/LATS major and minor are designed to ensure both a broad exposure to Latin American, Latino, and Caribbean Studies and the theoretical and empirical rigor of study in a single discipline or area of scholarship. The standard major consists of ten (10) courses, not counting the prerequisite.

To view Latin American and Caribbean Studies courses, click here (p. 359).

To view Latino Studies courses, click here (p. 364).

Prerequisite: Requirement for the LACS/LATS Major

Language Competency—Demonstrated competency in Spanish or Portuguese equivalent to SPAN 3 or PORT 3. This requirement must normally be satisfied before the end of the sixth term. Students are strongly encouraged to study a second language, preferably Portuguese, Spanish, or French. Students planning to take a Foreign Study Program (FSP) must fulfill departmental requirements.

Requirements for the LACS/LATS Major

1. Two of the three survey courses: LACS 1, LACS 4, or LATS 3
2. Seven LACS and/or LATS courses including associated courses from our list
 - a. Of the seven courses, at least two must be from the Social Sciences and at least two must be from the Humanities
 - b. Four of the seven courses must constitute a concentration that reflects a disciplinary or scholarly focus that can combine courses from one or more departments and programs. All four-course concentrations must be approved by the LALACS Chair
3. A culminating experience, consisting of one of the following
 - a. A LACS or LATS Senior Seminar
 - b. An approved independent study with a LALACS professor
 - c. A senior honors thesis in LACS or LATS

Students may fulfill their Humanities requirement by taking the Spanish FSP in Argentina or the Portuguese FSP in Brazil. Of the three FSP credits, two may be counted towards the major.

Courses Counting Toward A LACS/LATS Minor

Students wishing to pursue a minor in LALACS must take two of the survey courses (LACS 1, LACS 4, or LATS 3) plus a total of four additional courses, normally from two different regions and two different disciplines.

Modifying Another Major with LACS/LATS

Students wishing to modify another major with LACS/LATS must take one of the survey courses (LACS 1, LACS 4, or LATS 3) and four additional courses from at least two different disciplines.

Honors Program

Senior Honors Thesis Prerequisite and Application Process:

1. Determine that you have successfully completed two of our survey courses before the end of your junior year: LACS 1, LACS 4, or LATS 3.
2. Determine that you meet the minimum grade point average (GPA) of 3.3 for all Dartmouth courses, and 3.3 in the LACS/LATS major.
3. Obtain a faculty advisor.
4. Write a thesis proposal, have it signed by your faculty advisor, and submit it to the LALACS Program Administrator, Sheila Laplante, by May 15 of the junior year.
5. Enroll in LACS/LATS 98 in the fall of your Senior year, and LACS/LATS 99 in the winter. If necessary, LACS/LATS 99 may be taken again in the spring. A grade of "Ongoing" will be assigned for LACS 99/LATS 99 for the winter term, and the final grade will be assigned at the end of the spring term.
6. At the end of Fall term students will write a five- to seven-page thesis prospectus. The prospectus should be presented to the LALACS Program Office no later than the first week of winter term to be approved by the LALACS Steering Committee.
7. Theses must be completed by the eighth week of spring term of the senior year. Students missing this deadline may be liable to lose eligibility for honors

Georgetown Program

During their junior year, LACS/LATS majors may attend a summer program offered by Georgetown University at the Georgetown Center for Latin American Studies in Santiago, Chile. Applications for the pro-gram may be obtained from the LALACS office. These summer courses carry Georgetown credit. Students may apply for transfer credit from this program by contacting the registrar's office for transfer application forms. All transfer terms and credit must be preapproved by the Committee On Off-Campus Activities. The deadline for COCA transfer applications is one term in advance of the transfer term.

Students who take this program may apply to Georgetown to matriculate the summer after they graduate from Dartmouth. These students may be able to complete a

Masters degree in Latin American Studies in two semesters instead of three.

For additional information contact Sheila Laplante in the LALACS office.

ASSOCIATED COURSES FOR LACS/LATS

ASSOCIATED COURSES FOR LACS/LATS

Courses with a central focus on Latin America, Latino and the Caribbean offered by various departments. These classes count toward the LACS/LATS major.

African and African American Studies 83.4: Caribbean History

African and African American Studies 85: Afro-Latin American Literature in Translation

Anthropology 35: Maya Indians under Mexican and Guatemalan Rule

Anthropology 37: Legacies of Conquest: Latin America

Anthropology 44: Globalization from Above and Below

Art History 16: Mexican Art

Comparative Literature: 46: Children on the Streets

Comparative Literature 52: Latin American Literatures

Geography 43: Geographies of Latin America

Government 49.1: Latin American Politics and Government

Government 80: Readings in Government

History 31: Latinos in the United States: Origins and Histories

History 96.4: Latin American Rebels

Portuguese 20: The Portuguese-Speaking World and its

Literatures and Cultures: The Definition of an Identity

Portuguese 35: Advanced Studies in Brazilian Culture and Society (DFSP)

Portuguese 36: Studies in Contemporary Brazilian Literature (DFSP)

Portuguese Courses listed below: count when main content is Brazil

Portuguese 60: The Portuguese-Speaking World: Literature and Culture by Period

Portuguese 61: The Portuguese-Speaking World: Genre

Portuguese 62: Film, Media, Performance and the Arts in the Portuguese-Speaking World

Portuguese 63: Special Topics: Literary and Cultural Productions in the Portuguese-Speaking World

Portuguese 80: Seminar

Portuguese 87: Independent Study

Spanish 33: Argentine Civilization: Society, Culture and Politics in Argentina

Spanish 35: Studies in Spanish-American Literature & Culture

Spanish Courses listed below: count when main content is Latin American/Latino.

Spanish 40: Hispanic Literature by Culture and Period
 Spanish 43: Hispanic Literature by Culture and Genre
 Spanish 45: Regional/National/Trans-Atlantic Approaches to Hispanic Studies
 Spanish 50: Gender and Sexuality in Hispanic Studies
 Spanish 55: Hispanic Literature, Culture, and Politics
 Spanish 60: Race and Ethnicity in Hispanic Studies
 Spanish 63: Hispanic Film Studies

LACS - Latin American and Caribbean Studies Courses

To view Latin American and Caribbean Studies requirements, click here (p. 357).

LACS 1 - Introduction to Latin America and the Caribbean

Instructor: Hynson

This interdisciplinary course introduces students to the geographical conditions, historical roots, and enduring cultural diversity of Latin America and the Caribbean. After a brief survey of the physical and cultural geography of the region, the course examines the history of selected countries to highlight the way European conquest and colonialism have molded Latin American institutions and attitudes. The course then turns to particular case studies of contemporary life and society to analyze the ongoing problems of ethnicity, inequality, and political repression engendered by the region's colonial past. Finally, the course draws on these historical and anthropological understandings to assess recent economic, social, and political developments in Latin America. By juxtaposing historical realities with their living consequences, the course presents a multi-disciplinary perspective on the nature, dynamics-and future prospects-of the many peoples who inhabit this vast and diverse continent.

Distributive: Dist:SOC; WCult:NW

Offered: 15F: 10

LACS 4 - History, Culture and Society: The Many Faces of Latin America

Instructor: Buéno, Walker

The Spanish discovery and conquest of this continent created Latin America and the Caribbean out of the diverse and complex realities of the pre-Columbian world. Since colonial times Latin American and Caribbean cultures have developed against a background of cultural repression, racial conflict, political domination, colonial exploitation, and gender inequality. And yet, in the midst of all this turmoil, Latin America and the Caribbean have produced an extraordinary variety and wealth of artistic creations, ranging from literature to the visual arts, from music to film. In this course we will turn to some of the works by Latin American and Caribbean artists and writers in an attempt to illuminate and explore some of the wonders of

the cultural dynamics that shape the many faces of what we call Latin America and the Caribbean.

Cross-Listed as: AAAS 16

Distributive: Dist:LIT; WCult:NW

Offered: Not offered 15F through 16X

LACS 7 - First Year Seminars in Latin American, Latino and Caribbean Studies

Instructor: Herr

Consult special listings

Distributive: Dist:LIT; WCult:NW

Offered: 16W: 11

LACS 10 - Pre-Columbian and Colonial America

(Identical to HIST 5.06 (p. 335))

Cross-Listed as: HIST 5.06

Offered: Not offered in the period from 15F through 17S

LACS 20 - The Politics and Ethics of Development in Latin America: The Nicaraguan Context

Instructor: Moody

In LACS 20 we consider the political and ethnical issues of international development programs in Latin America with a focus on Nicaragua. This course promotes and expanded model of international community-based learning in the context of Nicaragua, through collaborative projects and community service that address the health care and development needs of this region.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 2A

LACS 23 - Testimonial and Truth in Latin America

Instructor: Biron, Hernandez

From Conquest to Colony, to Independence, and on to the modern republics, Latin American political conflict has been conducted through textual battles as much as through physical ones. *Testimonio*, or the intertwining of appeals to justice in the public sphere, the personal, and the literary in historical accounts, persists as a significant mode of contemporary expression in Latin America. It claims to tell the truth about historical events and conflicts, yet it also demands an active, ethical, personal response from readers, courts, and governments. Its generic indeterminacy dares readers to challenge its truths.

Distributive: Dist:LIT; WCult:NW

Offered: 16S: 10A

LACS 30.05 - Intro to Visual Culture in Latin American

Instructor: Diaz

Violence, death, sex, disability, race, gender, poverty, and politics were regarded as unthinkable, untreatable, intolerable, or simply "offensive" in different times and regions in Latin America. This course will provide a critical and theoretical approach to textual and visual representations from the 19th century to the present, which have generated controversy over their depiction of these cultural topics. Images of destruction, pictures of war, or paintings excluded by the mainstream culture will be used to familiarize the students with the production and consumption of visual and textual culture and the ethics of representation. The goal of the course is, first to introduce students to Visual Culture/Studies in Latin America, second, to problematize the relation between representation and culture, and finally, to evaluate the implication of these topics (violence, sex, race, gender, disability, etc...) in relation to power, knowledge, and ethics in Latin American culture.

Distributive: Dist:INT; WCult:NW

Offered: Not offered in 15X through 16F

LACS 30.06 - New Latin American Cinema

With emergence of filmmakers such as Alejandro Inarritu (México), Lucrecia Martel (Argentina), and José Padilha (Brazil), the last decade has seen a creative boom in Latin American cinema that includes art house cinema, blockbusters, documentary, and experimental film. Beginning with a quick overview of key forerunners, this course will focus on the major directors, genres and aesthetic trends that characterize the new Latin American cinema. On the one hand, we will pay special attention to the distinct national cinemas: the different historical and cultural contexts out of which they emerge; and the different aesthetics that this gives rise to.

Distributive: Dist:INT

LACS 30.09 - Mexican Modernism

From Revolution to the Drug Wars, Mexican art has engaged, refracted, and informed our understanding of 20th century Mexico. In this course we will place artists like Jose Clemente Orozco and Frida Kahlo within a broader visual cultural context that includes not only mural art and painting, but also sculpture, architecture, printmaking, photography, installation, film, and performance. We will cover art produced in Mexico from the turn of the 20th century through the "boom" years of the 1990s, with a focus on issues of race, class, gender, and sexuality throughout. To concretize our understanding of modern art in Mexico, we will research and create an exhibition of select works from the Hood Museum of Art's collection of Mexican art. Students will learn about the

history of Mexican art, enhance skills in the visual analysis of modern and contemporary art, refine their ability to conduct original research and write effectively, and develop an understanding of the logistics, politics, and aesthetics of mounting an exhibition.

Distributive: Dist:ART; WCult:CI

LACS 30.10 - Slave Societies, Ancient and Modern: Imperial Rome and Brazil

Although slavery has existed in virtually all cultures, scholars of comparative world slavery have identified only five societies in all of human history as "slave societies": two were in the ancient world (classical Athens, Rome) and three were in the New World (the American South, the Caribbean, Brazil). This course examines slave systems in the ancient and modern worlds comparatively, focusing on Rome and Brazil. In Rome, the emergence of the state, including the development of the concept of the citizen, coincided with the development of the slave society. African slavery in Brazil was introduced soon after the establishment of the colonial government and drew heavily from classical legal definitions. In this course we compare the social and political structures of these two slave systems (high art, popular culture, institutions). We examine how each slave society was legitimated, perpetuated—and ultimately challenged. Specific topics include: the construction of the slave and the emergence of racializing discourse, the slave trade and the commodification of the body, trickster narratives, modern theories of power and domination, resistance and rebellion, and the problem of freedom for previously dominated peoples. Through comparison, students will not only become aware of the similarities and differences between these two slave societies, but will also be better equipped to evaluate slavery as a discourse of power that facilitates a system of domination.

LACS 42 - The Aztecs

Instructor: Nichols

Mexico City once the capital of New Spain overlies the remains of Tenochtitlan, capital of the Aztec empire. This course examines the development of the Aztec empire, the organization of Aztec society and religion, and the Spanish conquest of the Aztec. It ends with an introduction to Nahua society in the first century after conquest. We will also consider the varied perspectives of Aztec history offered by Nahua texts, archaeology, history, and art history. (ARCH)

Cross-Listed as: ANTH 21

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15x through 16F

LACS 43 - Olmecs, Maya, and Toltecs: Ancient Civilizations of Mesoamerica

Instructor: Nichols

The course begins by discussing how people first occupied Mesoamerica during the Ice Age and then examines the development of agriculture and early villages that laid the foundations for Mesoamerica's earliest complex societies, including the Olmecs. We then explore the Classic period civilizations of Teotihuacan, Monte Albán, and the Maya and the Postclassic city-states of the Toltecs, Mixtecs, and Maya and the Aztec empire at the time of the Spanish Conquest. (ARCH)

Cross-Listed as: ANTH 22

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period between 15X and 16F

LACS 48 - Mexican Muralism

Instructor: Coffey

This survey course introduces students to Mexican muralism. Students will learn about the fresco technique and how to visually analyze a mural. We will consider the following themes: cultural nationalism; art and class politics; the legacy of muralism in the US; the ethics of aesthetic indigenism; and the gender politics of public art. Student projects will concentrate on Jose Clemente Orozco's mural at Dartmouth College.

Cross-Listed as: ARTH 72

Distributive: Dist:ART

Offered: Not offered in the period between 15X and 16F

LACS 50.04 - The Cuban Revolution: Origins and Legacies

Instructor: Hynson

Little more than fifty years ago, John F. Kennedy declared, "Castro and his gang have betrayed the ideals of the Cuban revolution and the hopes of the Cuban people." What did he mean by this statement? Why did he care? Did Fidel Castro truly betray the ideals of the revolution? What is the Cuban revolution? This last query will serve as the central question of our course. By the end of the semester, you should come to an understanding of how to answer this question. Of course, it is not easy to define or explain the Cuban revolution. Cubans and foreigners, insiders and outsiders, the specialists and the uninformed, have all attempted to write the story of the Cuban revolution; many people disagree. The difficulty in resolving the mystery, however, should not discourage us from pursuing the task. In this introductory course, we will examine how Cuban leaders and ordinary people experienced the revolution. An understanding of intersectionality is an essential part of this study. Class, race, sex, education, and other factors influenced how individual Cubans perceived

and participated in the revolution. For this reason, there are numerous ways in which we will be able to answer the course's central question of "What is the Cuban revolution?" Of key importance will be your ability to substantiate your assessments with clear and concise historical fact. Your interpretations of the Cuban revolution can be valid only when supported by suitable historical evidence. Thus, by looking at concrete examples in Cuban history, we can come to varied interpretations of the revolution's character. These answers will collectively enable us to arrive at an understanding of what historical developments and phenomena best encapsulate the Cuban revolutionary experience. At the end of the semester, you will write a 7-page paper answering the question "What is the Cuban revolution?" *[I] Speech by Senator John F. Kennedy, Cincinnati, Ohio, Democratic Dinner, 6 October 1960; Taken from The American Presidency Project, <http://www.presidency.ucsb.edu/ws/?pid=25660>.*

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period between 15X and 16X

LACS 50.07 - Latin America's Search for Democracy and Development

Instructor: DeShazo

This course examines the political, economic, and social development of the five countries of the Andean region of South American (Venezuela, Colombia, Ecuador, Peru, Bolivia). It contrasts the current governance and economic policy approaches taken by the five countries as a means of analysing variables linked to the consolidation of democracy and sustained economics development.

Distributive: Dist:INT; WCult:NW

Offered: Not offered in 15F through 16X

LACS 50.08 - Commodities, Globalization, and Development in Latin America

Instructor: DeShazo

The course traces the economics history of Latin America since 1870 by highlighting the different stages in macro-policy (export-led growth, import substitution industrialization, current models juxtaposed) and by focusing on the role of commodities in the national and regional developmental process. Specific commodities to be studied include silver, guano, nitrates, coffee, sugar, cereals, beef, henequen, rubber, cocaine, and oil. Topics will be covered more or less chronologically, with the last classes analyzing current developments. Particular attention will be paid to the larger economies of the region (Mexico, Brazil, Argentina, Colombia, Peru, Chile, Venezuela) and the development strategies they pursued. The course will take on the issues of why Latin America has failed to reach levels of development achieved by industrialized countries in Europe and Asia and what can be done to achieve sustained development.

Distributive: Dist:INT; WCult:NW

Offered: 15F: 12

LACS 50.09 - Revolution, Reform and Reaction: The Cold War in Latin America

Instructor: DeShazo

This course examines and analyzes the key variables that determined the course of Latin America's political, economic, and social evolution during the period of the Cold War (1946-1990). It focuses on the relationship of Latin America to the global Cold War, the manifestation of U.S. and Soviet foreign policy in the region, and the responses of key actors in Latin America to the geo-strategic, ideological and political rivalry between the two superpowers.

Cross-Listed as: GOVT 20.05

Distributive: Dist:INT; WCult:NW

Offered: 15X: 2A

LACS 50.10 - Health and Disease in Latin American and the Caribbean

Instructor: Hynson

The course has five aims that are influenced by recent scholarship. First, we will explore how communication between physicians and patients constructed policies on public health, conceptions of gender, sex, and race, and notions of how disease is defined. Second, students will cultivate an understanding of the cultural and political aspects of health and wellness. Third, they will develop an awareness of how health and illness mirror broader historical trends in Latin America. Fourth, we will explore how ordinary men and women have fashioned health policies. Finally, students will gain insight not just on disease and health, but also on the intersectionality of racial, economic, and other inequalities.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10A

LACS 51 - Latin American Politics

Instructor: Carey

This course is an introduction to the political development and the current context of politics in Latin America. It combines examination of the region as a whole with material on the politics of specific countries. The central theme of the course is to evaluate the challenges of establishing democracy in the region. We consider the impact of political culture, populism, economic development, the 'curse' of natural resources, guerrillas and narco-traffickers, and the legacies of military rule and revolutionary regimes on contemporary Latin American politics.

Cross-Listed as: GOVT 49.01

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period between 15F and 16X

LACS 52 - Sex and the State in Latin America

Instructor: Baldez

This course examines women's movements in Latin America. Women in Latin America are perhaps the most highly mobilized population in the world. Throughout the region women have organized around myriad issues, including the right to vote, human rights, poverty, legal rights, anticommunism, the workplace, race, ethnicity and war. Women's efforts to challenge fiercely repressive regimes, deeply entrenched norms of machismo and extreme poverty defy conventional stereotypes about women and provide us with inspiring examples of how to sustain hope during difficult times. The seminar will introduce students to recent scholarship on women's movements in Latin America in the 20th century and seek to understand the emergence, evolution and outcomes of women's movements in particular countries and cross-nationally.

Cross-Listed as: GOVT 49.04 and WGSS 31.01

Distributive: Dist:SOC; WCult:NW

Offered: 16W: 2

LACS 53 - Protests and Parties in Latin America

Instructor: Baldez

For many people, Che Guevara remains the key symbol of protest in Latin America. His passionate belief in social justice, his refusal to compromise and the extraordinary personal sacrifices he made on behalf of the poor all contribute to his enduring legacy. While this legacy continues to inspire people to engage in protest and revolutionary movements, it does little to help us understand the conditions under which organized movements will succeed in their goals-or even form in the first place. Under what conditions do people organize on behalf of their collective interests? We compare revolutionary movements, social movements, political parties and other forms of political action in various countries throughout the region.

Cross-Listed as: GOVT 49.05

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period between 15F and 16F

LACS 54 - Nationalism and Revolution in the Caribbean

Instructor: Goldthree

The islands of the Caribbean have served as the site for two of the most significant revolutionary upheavals of the modern era-the Haitian Revolution and the Cuban Revolution and have produced anti-colonial luminaries

such as José Martí, Frantz Fanon, Marcus Garvey, and Claudia Jones. This course will explore the origin, trajectory, and outcome of nationalist struggles in the Caribbean from the eighteenth-century to the present through primary and secondary materials, memoirs, fiction, and film.

Cross-Listed as: HIST 6.10

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16S: 10

LACS 57 - From Coca to Cocaine: Drug Economies in Latin America

Instructor: Padilla

The coca leaf has a sacred history in Andean culture, but coca's relationship to cocaine production has also made this plant the centerpiece of international controversy. U.S. drug control policy has associated the cocaine trade with leftist movements and even terrorism. This course will explore the way in which drug production has affected Latin America's political, cultural and economic life and shaped U.S. foreign policy toward the region. Open to all classes.

Cross-Listed as: HIST 81

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered between 15F and 16F

LACS 58 - Slavery and Emancipation in Latin America and the Caribbean

Instructor: Goldthree

For over 300 years, Africans were transported to Latin America and the Caribbean to work as enslaved laborers. This course will examine the history of African slavery in the region from the beginning of the Atlantic slave trade to the abolition of slavery in Brazil in 1888. For each class session, students will review primary source documents such as autobiographies, slave codes, plantation journals, visual images, and anti-slavery tracts as well as historical scholarship.

Cross-Listed as: AAAS 60, HIST 86

Distributive: Dist:INT or SOC; WCult:NW

Offered: Not offered in the period between 15X and 16F

LACS 59 - Caribbean History 1898 to the present

Instructor: Goldthree

This course surveys the major issues that have shaped Caribbean society from the late 19th-century to the present, including: imperialism, urbanization, migration and globalization, struggles for national independence, the transition from plantation to tourism-based economies, and the global spread of Caribbean popular culture. Our readings and discussions will focus on the historical

trajectories of Cuba, Haiti, Jamaica, Puerto Rico, Trinidad, and the Dominican Republic using historical scholarship, music, literature, film, and personal narratives.

Offered: 16W: TBA

LACS 60 - War and Representation in 19th Century Latin American Culture

Instructor: Díaz

This course will be offered periodically and with varying content. It will explore the rich relations that exist between literature and politics, focusing on literature both as an instrument of political interest and as a product of political contexts.

Cross-Listed as: COLT 63

Distributive: Dist:LIT

Offered: Not offered in the period from 15X through 16X

LACS 66 - Caribbean Lyric and Literature

Instructor: Vasquez

This course will examine the work of a variety of Caribbean writers from former British colonies. We will look at several issues that reappear throughout the work of these authors. The class will move from early twentieth century writers like Claude McKay to the important contributions of later writers such as Kamau Brathwaite, Jamaica Kincaid, George Lamming, V.S. Naipaul, Sam Selvon, Olive Senior and Derek Walcott. We will examine the more recent innovations in form, as musical elements are introduced by writers such as Mikey Smith and Kwame Dawes. Each week's readings will be supplemented with seminal critical writings including excerpts from the text *The Empire Writes Back*. Formerly 67.1

Cross-Listed as: ENGL 53.23 and AAAS 83.06

Offered: Not offered in the period between 15F and 16F

LACS 76 - Culture and Identity in Modern Mexico

Instructor: Padilla

From the Porfiriato and the Revolution to the present, a survey of Mexican society and politics, with emphasis on the connections between economic developments, social justice, and political organization. Topics include fin de siècle modernization and the agrarian problem; causes and consequences of the Revolution of 1910; the making of the modern Mexican State; relations with the United States; industrialism and land reform; urbanization and migration; ethnicity, culture, and nationalism; neoliberalism and social inequality; the problems of political reform; and the zapatista rebellion in Chiapas. Open to all classes.

Cross-Listed as: HIST 87

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period between 15F and 16S

LACS 77 - Democracy and Accountability in Latin America

Instructor: Carey

Cross-Listed as: GOVT 84.11

Distributive: SOC

Offered: Not offered from 15F through 16S

LACS 78 - Twentieth Century Art from Latin America

Instructor: Coffey

This course surveys art produced by Latin Americans during the 20th century through case studies of the major figures and movements in the cosmopolitan centers of Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, Puerto Rico, Uruguay, and the U. S. We treat Latin America as a geopolitical construct rather than an essential unity, and examine how national identity, racial formation, class difference, gender inequality, political struggle, and state violence have been addressed by artists from the region and in diaspora.

Cross-Listed as: ARTH 75

Distributive: Dist:ART; WCult:CI

Offered: Not offered in the period between 15X and 16S

LACS 80.02 - Identity and Power in the Americas

Instructor: Baldez

This course examines how different forms of collective identity—including class, race, ethnicity, indigeneity and gender—have shaped Latin American and Latino politics in the 20th and 21st centuries. We will focus on a range of cases in Latin America and the U.S. to address the following questions: In what ways does the state create and sustain certain categories of identity as the basis for political inclusion and exclusion? What explains changes in the political salience of certain categories of collective identity? Why do some identities become politically salient and others do not? How have forms of political representation changed over the past century? How does state policy affect the ability of groups to mobilize and press for demands? How do organized groups affect state policy? What are the possibilities and limitations of identity-based mobilization?

Distributive: Dist:INT; WCult:W

Offered: Not offered in the period between 15F through 16F

LACS 82 - Popular Struggle, Political Change and U.S. Intervention in Central America

Instructor: Padilla

This course will explore the history of popular struggles, political change and U.S. intervention in Central America. The region's rich and complex history has been marked both by repressive dictatorships and by struggles for national liberation, social justice and indigenous rights. We will look at the different factors that played a part in determining this history including commodity production, labor systems, U.S. foreign policy, race relations, liberation theology and revolution. Open to all classes.

Cross-Listed as: HIST 82

Offered: Not offered in the period between 15x and 16S

LACS 89 - Independent Study

Instructor: See chair

Students wishing to pursue intensive supervised study in some aspect of Latin American and Caribbean Studies should consult the appropriate member of the LACS faculty to design and carry out an independent study project. Students are required to submit a short description proposal to the program office in the term prior to doing the independent study. This course fulfills the "culminating experience" requirement for all majors who do not complete the Honors Program. Prerequisite: permission of the instructor.

Offered: All terms

LACS 98 - Honors Thesis I

Instructor: Arrange: Chair

Guidance in the selection of a topic and in research and writing will be provided by the student's thesis adviser. Only students accepted into the Honors Program may take this sequence.

Offered: All terms: Arrange

LACS 99 - Honors Thesis II

Instructor: arrange: Chair

Guidance in the selection of a topic and in research and writing will be provided by the student's thesis adviser. Only students accepted into the Honors Program may take this sequence.

Offered: All terms: Arrange

LATS - Latino Studies Courses

To view Latino Studies requirements, click here (p. 357).

LATS 3 - Introduction to Latino Studies

Instructor: Reyes

This course provides students with a critical overview of some of the most central themes and issues that have shaped the experiences of Latina/o populations in the U.S. The main areas of inquiry that this course will address

include: the history of ethnic communities, the formation of transnational communities and identities; the politics of language and bilingualism; race, class, and ethnicity; gender and sexuality; political and social movements; geographic space and localities; and media and popular culture. In order to foster an interdisciplinary and hemispheric approach to Latina/o Studies, course materials will draw from the social sciences and the humanities, as well as from U.S. and Latin American scholarship and cultural traditions. This course will serve as a general introduction to the more focused areas of study developed in intermediate and upper level LATS .

Distributive: Dist:SOC; WCult:CI

Offered: Not offered 15F though 16F

LATS 5 - Complexities of Latino Identity

Instructor: Gómez

The Latino population currently consists of approximately 40 million people in the United States; by the year 2050, the Census estimates that the Latino population will makeup at least 25 percent of the total U.S. population. This diverse group traces its origins to a variety of countries. Their experiences and identities in the United States are quite varied. This introductory course examines the experiences of reception, settlement, and transnational lives of various Latino groups - Chicanos, Puerto Ricans, Cubans, Dominicans, Central and South Americans - in the United States. By using interdisciplinary research, this course explores issues of race, class, gender, migration, and representation of group politics.

Cross-Listed as: SOCY 44

Distributive: Dist:SOC; WCult:W

Offered: 15X: 10A

LATS 7 - First Year Seminar in Latino Studies

Instructor: Herr

Consult Special Listings

Offered: Not offered in the period between 15F and 16X

LATS 35 - Topics Course in Latino Studies

Offered: Not offered in the period between 15X and 16S

LATS 40 - Immigration, Race and Ethnicity

Instructor: Wright

This course examines 20th century immigration to the United States and pays special attention to issues of race and ethnicity. The course begins with a brief history of US immigration and then thematically covers specific topics such as economic impacts and costs, social mobility, citizenship, transnationalism, assimilation, and religious issues and their relationship to the immigrant experience.

We feature nativist reactions to immigration and highlight differences within and between Latino, Asian, and European groups throughout the course.

Cross-Listed as: GEOG 28 and SOCY 48

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 10A

LATS 41 - Representations of/from Latinos in the Media and the Arts

Instructor: Moody

What role do the media and the arts play in the formation of ethnic, racial and cultural identities for Latinos/as? How do Latinos respond to these representations of themselves through various electronic media and the arts? This class investigates how race, ethnicity, gender, and "otherness" are represented in various media and art forms, including: cinema, radio broadcasting, performance art, mural art, graphic novels, and the Internet. We will trace the history of Latinos in various media and artistic movements, as well as hold online discussions and video conferences with students and professionals working in these areas. Students will explore the politics and dynamics of representation by producing their own creative and critical work and presenting it to the Dartmouth community through their final projects.

Distributive: Dist:ART

Offered: 16S: 2

LATS 51 - Beyond Sex, Drugs, Rock and Roll: Radical Latinos in the 60's

Instructor: Spitta

The 1960s and '70s were a time of tremendous political and creative turmoil. Joining in the Civil Rights Movement, Latinos fought for their rights, founding important political organizations such as the United Farm Workers. Beyond stereotypes of the 60s as the period of drugs, sex and rock 'n roll, Latino protesters and political activists were inordinately adept at creating and mobilizing artistic symbols, music, and literature to promote a political agenda of social transformation.

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 2A

LATS 89 - Independent Study

Instructor: See Chair

Students wishing to pursue intensive supervised study in some aspect of Latino Studies should consult the appropriate member of the LALACS faculty to design and carry out an independent study project. Students are required to submit a short description proposal to the program office in the term prior to doing the independent study. This course fulfills the 'culminating experience'

requirement for all majors who do not complete the Honors Program. Prerequisite: permission of the instructor.

Offered: All terms

LATS 98 - Honors Thesis I

Instructor: See Chair

Guidance in the selection of a topic and in research and writing will be provided by the student's thesis adviser. Only students accepted into the Honors Program may take this sequence (LATS 98-LATS 99).

Offered: All terms: Arrange

LATS 99 - Honors Thesis II

Instructor: See Chair

Guidance in the selection of a topic and in research and writing will be provided by the student's thesis adviser. Only students accepted into the Honors Program may take this sequence (LATS 98-LATS 99).

Offered: All terms: Arrange

Lesbian, Gay, Bisexual, and Transgender Studies

Associated faculty: S. Ackerman (Religion, Women's, Gender, and Sexuality Studies), A. S. Bahng (English), C. G. Boggs (English, Women's, Gender, and Sexuality Studies), S. J. Brison (Philosophy), M. A. Bronski (Women's, Gender, and Sexuality Studies), A. A. Coly (African and African American Studies, Comparative Literature), M. Desjardins (Film Studies), M. R. Dietrich (Biological Sciences), T. C. Ellison (Geography, Women's, Gender, and Sexuality Studies), V. Fuechtner (German), M. R. Graver (Classics), E. B. Lim (Women's, Gender, and Sexuality Studies), C. H. MacEvitt (Religion), K. F. Milich (Liberal Studies), G. Munafo (Women's, Gender, and Sexuality Studies), A. Orleck (History), I. Reyes (Spanish and Portuguese), I. T. Schweitzer (English, Women's, Gender, and Sexuality Studies), S. Swayne (Music), B. E. Will (English), M. Williamson (Classics), M. F. Zeiger (English).

ABOUT LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES

Lesbian, Gay, Bisexual, and Transgender Studies examines the lives, experiences, and representations of lesbian, gay, bisexual, and transgender persons, studying in historical, contemporary, and theoretical contexts LGBT communities, institutions, politics, languages, art, literature, and relationships to heterosexual norms. Drawing upon interdisciplinary and multicultural resources, LGBT Studies analyzes sexuality and sexual identity as complex social and historical phenomena. Up-

to-date listings for LGBT courses can be found under Women's, Gender, and Sexuality Studies.

Liberal Studies

Chair: Donald E. Pease

Dartmouth College offers a graduate program leading to the degree of Master of Arts in Liberal Studies (M.A.L.S.). This program places special emphasis on a multidisciplinary approach to advanced study in the liberal arts. The program offers an advanced liberal studies education through both directed and independent study. The M.A.L.S. program is described briefly in the Graduate Study section of this catalog. M.A.L.S. courses are open only to graduate students.

Linguistics

Chair: David A. Peterson

Professors B. Duncan (German), L. H. Glinert (AMELL), P. W. Travis (English), L. J. Whaley (Linguistics and Classics); Associate Professors C. K. Donahue (Linguistics), D. A. Garretson (Russian), D. A. Peterson (Linguistics), J. N. Stanford (Linguistics); Assistant Professor L. McPherson (Linguistics); Senior Lecturer T. J. Pulju (Linguistics).

To view Linguistics courses, click here (p. 367).

Linguistics

Students who pursue a *major* in linguistics should take ten courses beyond LING 1. Also, in addition to fulfilling the College foreign language requirement, linguistics majors should take two more foreign language courses. They may fulfill this requirement by taking two courses in a single language beyond the first-year level. Alternatively, one or both of these additional language courses may be in a different language not closely related to the first.

The ten courses for the major should include the following:

1. LING 22
2. LING 20 or LING 21
3. At least three additional LING courses in the 20s or 30s (LING 20, LING 21, LING 23, LING 24, LING 25, LING 26, LING 27, LING 35)
4. At least two more courses in Linguistics, including one that satisfies the requirement for a culminating activity, which may be met in one of three ways:
 - a. completing a senior Honors thesis (LING 86-87)
 - b. taking an advanced seminar in linguistics (LING 80)
 - c. carrying out a one or two term independent study project (LING 85)

5. Up to three other courses, either from the Linguistics offerings or selected from the following list, *in consultation with an adviser*. ANTH 9; EDUC 58; FREN 35; PHIL 6, PHIL 34; RUSS 48. Certain courses not listed here, such as advanced seminars in various departments, may also be counted towards the major with permission of the Chair.

The *modified major in linguistics* combines linguistics with another discipline in a coherent program of study. It has as its prerequisites LING 1 and a solid competence in a foreign language.

The six courses for the linguistics portion of the major should include the following:

1. At least three linguistics courses in the 20s (LING 20, LING 21, LING 22, LING 23, LING 24, LING 25, LING 26, LING 27)
2. At least two other courses, chosen from the offerings in linguistics and/or the related courses approved for the regular major in linguistics
3. A course which satisfies the requirement for a culminating activity, which may be met as for the regular major in linguistics

Students who wish to *modify* another major with linguistics should take LING 1 as a prerequisite. They should then take four other courses, distributed as follows: (a) two courses in the history or structure of natural languages (one of these will normally be LING 21, LING 22, LING 23, LING 24, LING 25, LING 26 or LING 27 and the other may be LING 18, FREN 35, RUSS 62, or SPAN 40); (b) one course in language and culture (ANTH 9, LING 17 or LING 40); and (c) one course in formal linguistics (LING 20, LING 21, LING 22, LING 23, LING 25 or LING 26, PHIL 34, or PSYC 51 [when offered as Psycholinguistics]).

The *minor* in Linguistics has a prerequisite of Linguistics 1 and then five additional courses. Three or more of the five must be courses taught in the Linguistics Program, and at least two of these should be numbered in the 20s. The remaining courses are to be selected in conjunction with the student's adviser.

Honors Program

The Honors Program in Linguistics offers qualified students the opportunity to undertake independent research under the direction of a faculty member. Students who plan to undertake such a project should have a 3.0 grade average in all courses taken at the College and an average of 3.3 for courses within the major. It is important to consult with a prospective adviser as early as possible, preferably during the junior year; applications to the Honors Program may be submitted to the Chair either during the spring of the junior year or the fall of the senior year. The project itself normally lasts two terms. Special majors in Linguistics take corresponding linguistics

courses. The completed thesis is to be submitted during the spring term, and then an oral presentation is given at a special seminar of students and faculty.

See Linguistics (p. 367) courses

LING - Linguistics Courses

To view *Linguistics requirements*, [click here](#) (p. 366).

LING 1 - Introductory Linguistics

Instructor: Peterson, Pulju, Stanford/McPherson

An introduction to the scientific description of human language. The course teaches methods of analyzing languages' sound systems (phonology), word structure (morphology), sentence patterns (syntax), and systems of meaning (semantics and pragmatics). Some important implications of linguistics for the study of human cognition and cultural behavior will be discussed. This course is a prerequisite for all majors in linguistics. Open to all classes.

Distributive: Dist:QDS

Offered: 15F, 16W, 16S: 12

LING 7 - First-Year Seminar in Linguistics

Offered: Consult special listings

LING 8 - The Structure of Maori

This course is an introduction to the structure of the Maori language. Emphasis is given to the morphology and syntax of basic Maori clause structure. This course is taught by a member of the Department of Maori Studies at the University of Auckland.

Prerequisite: LING 1 and one other Linguistics course in the 20s.

Offered: 16W, 17W: D.F.S.P. (New Zealand)

LING 10 - Language Acquisition

Distributive: Dist: SOC

LING 11.06 - Language Revitalization

There is currently a measurable reduction in the amount of linguistic diversity around the world as many languages become moribund or cease to be spoken. With greater awareness of language endangerment and attrition, there have been counteracting efforts to maintain and revive the use of many of these languages. In this course we examine the phenomena of language endangerment and language revitalization. We will evaluate the socio-historical reasons for language shift, the rationale for language revitalization and the relative degrees of success in different revitalization programs. There will be a focus on the languages of North America.

Cross-Listed as: NAS 40

Distributive: Dist:SOC; WCult:CI

LING 11.09 - The World's Englishes

Instructor: Stanford/Donahue

Billions of people can speak and write some form of English. The course explores diverse Englishes around the world, taking up both linguistic and philosophical questions such as: Why is English so widespread? What are the structural differences among different Englishes? Why are some forms of English considered prestigious while others are viewed negatively? How are personal, ethnic, and national identities constructed through language practices? How are international power relations perpetuated and contested through language?

Distributive: Dist:INT or TMV; WCult:CI

Offered: 15F: 2A

LING 17 - Sociolinguistics

Instructor: Stanford

The field of sociolinguistics deals with the ways in which language serves to define and maintain group identity and social relationships among speakers. In this course we will consider such topics as regional and social variation in language; the relationship of language and ethnicity, sex and gender; language and social context; pidgin and creole languages; language endangerment and the fate of minority languages in the US and other countries; language planning, multiculturalism and education. Open to all classes.

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 10A

LING 18 - History of the English Language

Instructor: Pulju

The development of English as a spoken and written language as a member of the Indo-European language family, from Old English (Beowulf), Middle English (Chaucer), and Early Modern English (Shakespeare), to contemporary American English. Topics may include some or all of the following: the linguistic and cultural reasons for 'language change,' the literary possibilities of the language, and the political significance of class and race. Open to all classes.

Cross-Listed as: ENGL 47

Distributive: Dist:QDS; WCult:W

Offered: 15F: 10

LING 20 - Experimental Phonetics

Instructor: McPherson

This course is an introduction to speech physiology, articulation, and the acoustic analysis of speech. Students will acquire knowledge of the experimental and computational techniques that are relevant for investigating the production of speech. This includes equipment functioning, data collection and recording techniques, techniques for analyzing speech acoustics, and analysis of data from a variety of languages.

Prerequisite: LING 1

Distributive: Dist:TAS

Offered: 16S: TBD

LING 21 - Phonology

Instructor: McPherson

Phonology is the study of the system underlying selection and use of sounds in languages of the world. The course will introduce students to investigation of these topics from the perspective of recent theories of phonology. Readings, class discussions, and homework problems will provide a basis for understanding the origin, role, and uses of sound systems in spoken languages.

Prerequisite: LING 1.

Distributive: Dist:QDS

LING 22 - Syntax

Instructor: Stanford

An introduction to the formal analysis of grammatical structure. The course aims to familiarize the student with Principles and Parameters Theory (PPT), the theoretical framework which currently dominates the field of syntax in North America. The course also provides an introduction to using data to support one syntactic analysis over another, and an overview of some of the major syntactic phenomena in the world's languages.

Prerequisite: LING 1.

Distributive: Dist:QDS

Offered: 15F: 2

LING 23 - Semantics and Pragmatics

Instructor: Pulju

An investigation of 'meaning' in language: word meaning, sentence meaning and its relation to syntactic structure, and the role of both linguistic and extra-linguistic context.

Prerequisite: LING 1.

Distributive: Dist:QDS

LING 24 - Discourse Analysis

Instructor: Peterson

Discourse analysis examines linguistic structure that exists beyond the sentence level. In this course we will consider the structures of naturally occurring spontaneous speech (such as conversations, interviews, oral narratives) and those in written text. Special attention is given to the global priorities of connected speech and writing, including mechanisms of coherence and cohesion. Other topics include narrative structures, new and old information, topicalization, foregrounding and backgrounding, and the methods of conversational analysis and variation analysis.

Prerequisite: LING 1.

Distributive: Dist:SOC

Offered: 16S: 10

LING 25 - Typology

Instructor: Peterson

This course is an introduction to the field of language typology. We begin by exploring the core assumptions and methods of the discipline, and by reviewing typologies based on word order and morphology. Then, we examine a variety of grammatical categories and constructions including tense/aspect, case, relative, clauses, serial verbs, and switch-reference. Throughout the course we will also consider the sorts of explanations which have been put forth to account for typological patterns.

Prerequisite: LING 1.

Distributive: Dist:SOC

LING 26 - Morphology

Instructor: McPherson

Morphology is the study of word structure and word-formation processes, and how these interact with phonology, syntax, and the lexicon. This course focuses on analyzing morphological phenomena in a wide range of typologically diverse languages. Topics to be addressed include the place of word formation in relation to phonological and syntactic phenomena, as well as the contribution of morphological analysis to our understanding of lexical processing. We will consider the history of morphological theory in generative grammar, with special attention to recent approaches, including Distributed Morphology.

Prerequisite: LING 1

Distributive: Dist:QDS

LING 27 - Historical Linguistics

Instructor: Pulju

This course serves as an introduction to historical linguistics and the comparative method. Linguistic change on all levels (phonetic/phonological, morphological, syntactic and semantic) will be studied, with special attention to the problems of historical reconstruction. The

course will investigate families in general, with emphasis on the Indo-European languages.

Prerequisite: LING 1 or LING 18.

Distributive: Dist:QDS

Offered: 16W: 10

LING 35 - Field Methods

Instructor: McPherson

This course provides an overview of issues that arise in collecting language data in the field. We will examine techniques used in the gathering and analysis of data and practical problems that confront the fieldworker.

Prerequisite: LING 21 and one other course in the 20s.

Distributive: Dist:QDS

Offered: 15F: 2A

LING 50.01 - Computational Linguistics

Instructor: Lefkowitz

The study of human language from a computational perspective. This course will survey formal models for representing linguistic objects, and statistical approaches to learning from natural language data. We will pay attention to the use of computational techniques to understand the structure of language, as well as practical engineering applications like speech recognition and machine translation. Students will implement simple algorithms for several key tasks in language processing and learning.

Prerequisite: COSC 1 or instructor permission for a comparable quantitative course.

Cross-Listed as: COSC 73

Distributive: Dist:QDS

Offered: 16W: TBD

LING 54 - Foreign Study in Linguistics

Instructor: McPherson, Staff

This course is one of two local courses that will be taken by linguistics students on the Dartmouth Foreign Study Program at the University of Auckland in New Zealand. The course will be taught by one or more faculty at the University of Auckland. Although the content of the course may vary, the course will normally be an advanced level course on an aspect of the languages of the Pacific, Maori culture or Maori language. Credit is awarded to students who have successfully completed the designated course at the University of Auckland.

Prerequisite: LING 1 and one other Linguistics course in the 20s.

Distributive: Dist:SOC

Offered: 16W, 17W: D.F.S.P. (New Zealand)

LING 80 - Seminar in Linguistics

In 15S, *Language and Gender*. Stanford. In 16S, *Advanced Theoretical Issues in Historical Linguistics*. Pulju.

Prerequisite: Prerequisite: two or more 20s-level LING courses, or permission of instructor.

LING 80.04 - Language and Gender

Instructor: Stanford

Prerequisite: Two or more 20s-level LING courses, or permission of instructor.

LING 80.05 - Advanced Theoretical Issues in Historical Linguistics

Instructor: Pulju

Issues to be examined include: regularity of sound change, grammaticalization, contact phenomena, causes and mechanisms of language change, models of language relationship, distant relationships, and quantitative methods in historical linguistics. Prereq. LING 27 or permission of instructor

Distributive: Dist:QDS

Offered: 16S: 2A

LING 85 - Independent Study and Research

This course offers qualified students of linguistics the opportunity to pursue work on a topic of special interest through an individually designed program. Requires permission of the instructor and the Chair.

Offered: All terms: Arrange

LING 86 - Honors Research

Linguistics 86 and 87 consist of independent research and writing on a selected topic under the supervision of a Program member who acts as advisor. Open to honors majors in Linguistics. Permission of the thesis advisor and the Chair required.

Offered: All terms: Arrange

LING 87 - Honors Thesis

Linguistics 86 and 87 consist of independent research and writing on a selected topic under the supervision of a Program member who acts as advisor. Open to honors majors in Linguistics. Permission of the thesis advisor and the Chair required.

Offered: All terms: Arrange

Literature in Translation

COURSE LISTING

Minor in Materials Science

Joseph J. BelBruno, Director, Nanomaterials Center

Ian Baker, Sherman Fairchild Professor of Engineering

The minor in Materials Science is sponsored by faculty in Chemistry, Physics and Engineering who share an interest in interdisciplinary education and research in materials science. The program is coordinated through the Center for Nanomaterials Research at Dartmouth. The minor can be readily combined with majors in any of the three departments.

Prerequisites : The necessary background is obtained by completion of CHEM 5 and CHEM 6, and PHYS 13 and PHYS 14 or equivalent courses.

Requirements: A total of four additional courses are required. These must include ENGS 24 and PHYS 76 or ENGS 137. Two elective courses are chosen from the following combinations: ENGS 131 or PHYS 73; ENGS 74; CHEM 108 or CHEM 109; ENGS 73, ENGS 132 or PHYS 43. (If ENGS 137 is taken, one of the electives must be from outside the engineering department.)

Mathematics - Undergraduate

Chair: Dana P. Williams

Vice Chair: Scott D. Pauls

Professors V. Chernov, P. G. Doyle, C. S. Gordon, M. J. Groszek, P. J. Hanlon, R. C. Orellana, S. D. Pauls, D. Rockmore, T. R. Shemanske, D. I. Wallace, D. L. Webb, D. P. Williams, P. Winkler; Associate Professors A. H. Barnett, S. Elizalde, C. J. Sutton, J. D. Trout, J. Voight; Assistant Professor F. Fu, E. van Erp; Research Instructors P. Clare, E. Costa, N. Malik, B. Muetzel, J. Pantone, R. Sadykov; Visitors ; P. Herbrich, S. Miner, A. Riddell, J. Sijlsing, N. Tanabe; Adjunct Professor E. Demidenko; Adjunct Associate Professor B. F. Cole.

To view Mathematics Undergraduate courses, click here. (p. 376)

To view Mathematics Graduate requirements, click here. (p. 586)

To view Mathematics Graduate courses, click here. (p. 587)

Introductory Courses

The three courses MATH 3, MATH 8, and MATH 13 provide a coherent three-term sequence in calculus. MATH 3 and MATH 8 cover the basic calculus of functions of a single variable, as well as vector geometry and calculus of scalar-valued functions of several variables. In addition, these two courses are prerequisite for many advanced

courses in Mathematics and Computer Science. MATH 13 covers the basic calculus of vector-valued functions of several variables. MATH 11 is a special version of MATH 13 for first-year students with two terms of advanced placement. Most students planning advanced work in mathematics or the physical sciences will need a fourth course in calculus, MATH 23. Students with two terms of advanced placement credit who possibly are interested in a mathematics major or minor should consider MATH 17 as an option in their second term. MATH 17, “An Introduction to Mathematics Beyond Calculus,” is a course designed for students interested in learning about some of the aspects of mathematics not usually encountered in the first years of mathematical studies. Topics change from year to year but may include aspects of combinatorics, algebra, analysis, number theory, geometry, and/or topology. Students planning to take upper-level mathematics courses are strongly encouraged to take MATH 22 or MATH 24 (linear algebra) early in their curriculum.

A student wishing to devote only two to three terms to the study of mathematics is encouraged to choose among courses MATH 3, MATH 5, and MATH 10 (as well as MATH 1 and MATH 2 if his or her background indicates this is desirable). MATH 3 will introduce the student to the ideas and applications of the differential and integral calculus. MATH 5 is a topics and sometimes interdisciplinary course. Recent topics include “Chance,” “The World According to Mathematics,” “Pattern,” “Machine Readings: Text Analysis in the Information Age,” “Geometry in Art and Architecture,” “A Matter of Time,” “Applications of Calculus to Medicine and Biology,” “Music and Computers,” “The Mathematics of Music and Sound,” and “Geometry and the Imagination.” MATH 10 covers the fundamental concepts of statistics.

The Mathematics Department offers two distinct majors: (I) The Major in Mathematics and (II) The Major in Mathematical Data Science.

I. THE MAJOR IN MATHEMATICS

The major in mathematics is intended both for students who plan careers in mathematics and related fields, and for those who simply find mathematics interesting and wish to continue its study. The content of the major is quite flexible, and courses may be selected largely to reflect student interests. Students who major in mathematics have an opportunity to participate in activities that bring them in close contact with a faculty member—for example, through a small seminar or through an independent research project under the direction of a faculty member. In addition to regular course offerings, a student with specialized interests, not reflected in our current course offerings, often arranges for an independent reading course. Proposals for independent activities should be directed to the Departmental Advisor to Mathematics Majors.

In general, the mathematics major requires the student to pass eight mathematics or computer science courses beyond prerequisites. At least six of the required eight courses must be mathematics, and at least four of these courses must be taken at Dartmouth. In addition, a student must fulfill the College’s requirement for a culminating experience in the major (see below). Additional requirements for honors are described below in a separate section.

Students are encouraged to take MATH 22/ MATH 24 as soon as feasible, since not only is it an explicit prerequisite to many upper-division courses, but also the level of mathematical sophistication developed in MATH 22/ MATH 24 will be presumed in many upper-division courses for which MATH 22/ MATH 24 is not an explicit prerequisite.

Mathematics Major Requirements

Prerequisite Courses: MATH 3; MATH 8; MATH 13; MATH 22 or MATH 24

Requirements: To complete the major, it is necessary to complete successfully at least eight courses in addition to the prerequisites, as well as a culminating experience (which may or may not be part of the eight major courses). These eight courses must include:

1. (Algebra) MATH 31 or MATH 71;
2. (Analysis) At least one of MATH 35, MATH 43, or MATH 63;
3. Six additional Mathematics/Computer Science courses numbered 20 or above for Mathematics, and 30 or above for Computer Science.

Caveats:

Also acceptable: MATH 17

Not acceptable: MATH 97, COSC 99

At most two Computer Science courses may be used. The culminating experience requirements are described in a separate section below.

Choosing Courses for the Major

While the student interested only in a general exposure to mathematics may choose their major courses subject only to the constraints above, those with more focused interests (pure mathematics, applied mathematics, and mathematics education), will want to consider the course recommendations below.

1. (Pure Mathematics) For students interested in pure mathematics, MATH 24 is preferable to MATH 22 as prerequisite.

We recommend that the following courses be included among the eight courses needed for the major:

(Algebra) MATH 71 and MATH 81;
(Analysis) MATH 63, and MATH 43 or MATH 73;

(Topology/Geometry) MATH 54, and at least one of MATH 32, MATH 42 or MATH 72, MATH 74.

Students planning to attend graduate school should take substantially more than the minimum requirements for the major. In particular, such students are strongly urged to take both MATH 43 and MATH 73; moreover, undergraduates with adequate preparation are encouraged to enroll in graduate courses.

2. (Applied Mathematics) Applied mathematics now encompasses a wide expanse of mathematical activity in the sciences, ranging across finance, sociology, psychology, biology, physics, computer science, and engineering. Students interested in applied mathematics, especially those considering graduate school in applied mathematics or any of the sciences, are advised to take MATH 23, MATH 20 or MATH 60, MATH 46, and MATH 40.

We recommend choosing additional courses from among the following: MATH 26, MATH 28, MATH 36, MATH 38, MATH 42, MATH 43, MATH 46, MATH 53, MATH 75, MATH 76.

We do not make any specific recommendations concerning the choice of MATH 22 versus MATH 24 as prerequisite and the choices for requirements (1) Algebra and (2) Analysis; these choices depend on the interest of the student.

All students planning to attend graduate school should take substantially more than the minimum requirements for the major. In particular, undergraduates with adequate preparation are encouraged to enroll in graduate courses.

3. (Mathematics Education) Certification as a public school Mathematics teacher is available through partnership with the Education Department. Contact the Education Department for details about course requirements.

Students who are considering a career in teaching should pay close attention to the recommendations of the National Council of Teachers of Mathematics (NCTM). The NCTM has endorsed a series of recommendations for a suggested course of study for those people interested in teaching mathematics at the secondary level. In general, their recommendations (www.nctm.org) are for a vigorous course of study. At the moment, these recommendations far exceed the requirements for obtaining a teaching certificate, but indicate the direction in which the NCTM hopes that educators will proceed. Highly qualified teachers in the elementary and secondary schools are of vital national importance, and these guidelines should be carefully considered. Dartmouth courses that closely fit the recommendations of the NCTM are (in addition to the prerequisites): MATH 20 or MATH 60; MATH 23 or MATH 36; MATH 25 or MATH 75; MATH 28, MATH 38 or MATH 68; MATH 31 or MATH 71; MATH 32 or MATH 42 or MATH 72; MATH 35 or MATH 43 or MATH 63; MATH 40

II. THE MAJOR IN MATHEMATICAL DATA SCIENCE

Statistics has become a ubiquitous tool not only in traditional areas in the natural and social sciences, but in emerging cross-disciplinary fields in data science. The major combines a solid theoretical foundation with application to one or more fields of study.

Prerequisites: MATH 3, MATH 8, MATH 13; MATH 22 or 24; COSC 1 or other programming experience.

Four course are required: MATH 20, MATH 40, MATH 50, and MATH 70.

Students must also satisfy a computational requirement for the major, selecting at least one course from COSC 35, COSC 70, or COSC 74. Students taking more than one of these courses may count additional selections as partially satisfying the next requirement.

Further students must select three courses from the following list. At the discretion of the Adviser to Majors, other courses can be substituted.

MATH 76, MATH 86, MATH 96, MATH 116, MATH 120, MATH 126;

QSS 41, QSS 45;

BIOL 29, BIOL 47, BIOL 59;

COSC 35, COSC 70, COSC 74 (see above);

ECON 20, ECON 80:

QBS 149.

Culminating Experience: Majors in Mathematical Data Science must complete a data intensive research project to satisfy the culminating experience. Students may complete this by writing a thesis, completing an independent research project, or completing a course with a significant statistical project. The culminating experience must be approved in advance by the Adviser to Majors.

Culminating Experience

The Department will accept any of the following in satisfaction of the requirement of a culminating experience:

1. Submission of an Honors thesis acceptable for honors or high honors.
2. Satisfactory completion of any graduate course in mathematics except MATH 147.
3. Satisfactory completion of a one-term independent research project (subject to approval by the advisor to majors).
4. Satisfactory completion of an advanced undergraduate course from among: MATH 66, MATH 68, MATH 69, MATH 70, MATH 72, MATH 73, MATH 74, MATH

75, MATH 76, MATH 81, MATH 86, MATH 89, MATH 96 (p. 385).

Minors in Mathematics

The following minors are available to all students who are not majoring in mathematics and who do not have a modified major with the Mathematics Department. For each minor, the prerequisites and required courses are listed below. Approval of a minor can be obtained through the Department's Advisor to Mathematics Majors.

I. Mathematics

Prerequisites: MATH 3, MATH 8, MATH 13, MATH 22

Required Courses (4 courses): MATH 31 or MATH 71; MATH 35 or MATH 43 or MATH 63; plus two other Mathematics courses numbered 20 or above. MATH 17 is also acceptable.

II. Applied Mathematics for Physical and Engineering Sciences

Prerequisites: MATH 3, MATH 8, MATH 13 or MATH 22, COSC 1

Required Courses (4 courses): MATH 23, MATH 46, MATH 40* or MATH 60, MATH 43 or MATH 53 or MATH 76.

III. Applied Mathematics for Biological and Social Sciences

Prerequisites: MATH 3, MATH 8, MATH 13, MATH 22

Required Courses (5 courses): MATH 20, MATH 23, MATH 27, MATH 28 or MATH 36, MATH 40* or MATH 53 or MATH 76.

IV. Mathematical Biology

Prerequisites: MATH 3, MATH 8, MATH 13, and either MATH 22 or MATH 23; MATH 10 or BIOL 29

Required Courses (4 courses): Two courses chosen from among MATH 26, MATH 27, MATH 36, MATH 40*; and two courses chosen from among BIOL 21/BIOL 51, BIOL 39, BIOL 47, BIOL 59, COSC 75, and ENGS 41 (p. 236).

V. Mathematical Logic

Prerequisites: MATH 3, MATH 8, MATH 24 (MATH 22 by permission)

Required Courses (5 courses): MATH 29 or COSC 39; MATH 39 or MATH 69; MATH 63 (not MATH 35); MATH 89; one additional course chosen from among MATH 31, MATH 71, MATH 54, PHIL 32, MATH 29 if COSC 39 is taken as a required course.

VI. Mathematical Physics

This minor is sponsored by the faculty in Mathematics and Physics. It may be combined with majors in either of the two departments, or any other department. Students

majoring in both physics and mathematics cannot take the minor.

Prerequisites: PHYS 13, PHYS 14, PHYS 19 (or PHYS 15 and PHYS 16), and PHYS 40, MATH 3, MATH 8, MATH 13, and MATH 22 or MATH 24.

Requirements: A total of four additional courses are required. These must include MATH 23 and MATH 46. Mathematics majors must choose two elective physics courses from the following list; physics majors must choose two elective mathematics courses; students majoring in a department other than mathematics or physics must choose one math and one physics course.

PHYS 30, PHYS 31 (p. 424), PHYS 41, PHYS 43, PHYS 44, PHYS 47, PHYS 66, PHYS 50, PHYS 72, PHYS 75, PHYS 77, PHYS 90 (p. 427).

MATH 31 or MATH 71, MATH 42, MATH 43, MATH 53, MATH 54, MATH 63, MATH 66, MATH 73, MATH 76.

An advanced undergraduate or graduate level physics or mathematics course may be substituted, with permission from the physics or mathematics department undergraduate advisor. No course may count towards both the major and minor.

VII. Mathematical Finance

Mathematical Finance is an interdisciplinary minor that will provide students with the opportunity to see how mathematics, economics and computer science can be used to study theoretical and applied problems arising in economics, finance and risk management. The minor requires students to take 5 courses beyond the prerequisites. To allow for maximum flexibility in scheduling, students are encouraged to complete (either MATH 60 or both MATH 20 and MATH 40*), MATH 23 and COSC 1 by the end of their sophomore year as these courses are requirements for MATH 86, which serves as the capstone for the minor.

Prerequisites: MATH 3, MATH 8, MATH 13, MATH 22 or MATH 24, COSC 1, ECON 21 (p. 213).

Required Courses (5 courses): MATH 60 or both Math 20 and Math 40*, MATH 23, MATH 86, ECON 26, ECON 36

VIII. Complex Systems

Complex Systems is an interdisciplinary field that integrates ideas and techniques from mathematics and the sciences to study emergent phenomena, generally characterized by an evolutionary nature in which the "whole is more than the sum of its parts." Examples include the collective of species-species interactions that give rise to an ecosystem, the aggregate of buyer-seller interactions that create economies or markets, the neuron-neuron signalings that create the brain and mind, or individual social relationships that result in a coherent

society, all of which display properties of adaptation and selection and multiscale structure. The study of complex systems is highly interdisciplinary, at its best, using insights into the etiology of one phenomenon to inform another, a kind of analogical reasoning made possible through the use of common mathematical and computational tools.

The minor requires students to take 5 courses beyond the prerequisites and includes the accomplishment of an integrative independent project, advised by a faculty member in mathematics, as evidence of the ability to integrate these ideas into a coherent whole.

Prerequisites: MATH 3, MATH 8, MATH 13, MATH 22 or MATH 24; One of COSC 1, COSC 3, COSC 8, COSC 10 or ENGS 20; BIOL 11 or PHYS 30/ENGS 30.

Required Courses:

- (a) Two of MATH 27, MATH 36, MATH 53, MATH 76, at least one of which must be either MATH 36 or MATH 76.
- (b) MATH 87 (Note that students will need to find an advisor for their MATH 87 project, which must be integrative in nature);
- (c) One course from among the following: BIOL 15, BIOL 16; ECON 29, ECON 49, ECON 76; SOCY 16, SOCY 27; EARS 15, EARS 67; PSYC 40/COSC 79, PSYC 46; PHYS 30, PHYS 43; COSC 58, COSC 75, COSC 79, COSC 81; CHEM 41, CHEM 75; ENGS 30, ENGS 35, ENGS 114 (p. 570). Students may substitute for the additional course either in biology, chemistry, economics, sociology, environmental sciences, computer science, physics, or psychological and brain sciences with the approval of the advisor to majors.

IX. Minor in Statistics

It is difficult to overstate the importance of statistical training in the twenty-first century, especially in today's (and the future) job market. Students completing this minor will have the skills to perform advanced statistical analyses and with the accompanying accreditation will be able to compete successfully for employment and professional school admission.

Prerequisites: MATH 3, MATH 8, MATH 13; COSC 1 or ENGS 20 or Permission of the Instructor.

Required Courses (4 courses): MATH 20 (or MATH 60), MATH 22, MATH 40*, MATH 70. At the discretion of the Advisor to Majors, students may substitute MATH 30, BIOL 59, COSC 74, or ENGS 107 for MATH 70.

**NOTE: Prior to Fall 2014, Math 40 was numbered Math 50 and can be used accordingly.*

The Honors Program in Mathematics

A student who satisfies the requirements of the College for admission to the Honors Program and is interested in doing independent work is strongly encouraged to participate in the departmental Honors Program. Students who successfully complete the Honors Program will have their degrees conferred with 'Honors' or 'High Honors' in mathematics; high honors is awarded only if the student submits a written thesis. Interested students should read this section of the ORC carefully and consult the Department Advisor to Mathematics Majors. This program can be especially important to those who contemplate graduate work in mathematics or a related field.

Admission: Admission to the Honors Program requires a general College average of B, and a B average in the Mathematics Department at the time of admission and at the time of graduation. Moreover, a B+ average is required in the work of the Honors Program. The B average in the Department is computed as follows: Courses prerequisite to the major and undergraduate research courses (MATH 97) are not counted, but all other courses titled (or cross listed with) mathematics which the student has taken are counted, whether or not these courses form part of the student's formal major. In the case of a modified major, this average may include courses outside the Mathematics Department. The B+ average required in the work of the Honors Program is defined to be a grade of B+ given by the faculty advisor on the research project. Questions about this requirement should be directed to the Departmental Advisor to Mathematics Majors.

Requirements: Under the supervision of a faculty member, the student must complete an independent research project or thesis beyond what is required as part of a course. Often the subject of the project or thesis will be motivated by concepts or the content of an advanced seminar or course in which the student has participated, and, typically, the project or thesis will be completed over a period of three terms. The student should consult with his/her prospective faculty advisor and submit to the Advisor to Mathematics Majors a brief written proposal of the project that has the written approval of the faculty advisor. The Advisor to Majors will then review the student's proposal and the courses that have been selected for the Honors major. Approval of the proposal and course selection constitutes formal admission into the Honors Program. This procedure should be completed by the beginning of fall term of the student's senior year. The student may then register for (at most two terms of) MATH 97, Undergraduate Research.

In the first week of the student's final term in residence, the student must register with his/her faculty advisor for 'Honors Thesis/Project Supervision.' This is not an official College course; rather, it represents a declaration of intent to the Department that the student wishes to be considered

for honors at the time of graduation. Forms for this purpose are available from the Advisor to Majors. No student who has failed to file this intent form with the Advisor to Majors will be considered for honors in the major.

After the thesis is completed and submitted to the faculty advisor, the student will give a short presentation of their results. The advisor can then offer a recommendation for honors or high honors on behalf of the student; this recommendation must be ratified by a vote of the Department faculty.

Modified Majors

Modified Major with Mathematics as the primary Department

Prerequisite: Same as mathematics major plus some additional prerequisites from modifying major (subject to approval of Advisor to Majors).

Requirements: An algebra and an analysis course that satisfy the requirements of the mathematics major, together with four additional courses that normally count towards the major in mathematics, including one course that satisfies the culminating experience requirement (choice subject to approval of Advisor to Majors). Subject to the approval of the Advisor to Majors, the algebra course can be replaced by one of the following courses: MATH 28, MATH 38, MATH 54, MATH 69, MATH 89.

Four additional courses from the secondary department selected with the approval of the Advisor to Majors and the secondary department. In particular, these ten non-prerequisite courses must form a coherent unit that renders the modified major academically more valuable than an abbreviated major together with a minor in the secondary department.

Mathematics Modified with Biology

Prerequisite: MATH 3, MATH 8, MATH 13, MATH 22. Students may replace MATH 22 with MATH 24 if they prefer.

Requirements: All students pursuing this modified major must complete an algebra and an analysis course which would satisfy the requirements for the Mathematics major, together with four additional courses that normally count towards the major in mathematics. One of these courses must fulfill the culminating experience requirement and two of these courses must be from the following list: MATH 20, MATH 27, MATH 36, MATH 46, MATH 40*, MATH 53 and MATH 76.

All students pursuing the modified major must take one course from among BIOL 12 (Cell Structure and Function), BIOL 13 (Gene Expression and Inheritance), BIOL 30 (Physiology), BIOL 15 (Genetic Variation and Evolution) or BIOL 16 (Ecology) and three other biology courses from the list below. Note that BIOL 11 is a prerequisite for these courses. One additional course from

among BIOL 12 - 16 may be used as one of the three additional courses. These should be chosen in consultation with the departments. Some possible areas of focus include:

Genomics & Bioinformatics: BIOL 36 (History of Genetics), BIOL 39 (Computational Molecular Biology), BIOL 47 (p. 149) (Human Genomics), BIOL 50 (Evolutionary Genomics), BIOL 75 (Genomic Circuitry).

Biostatistics & Experimental Design: BIOL 22 (Methods in Ecology), BIOL 29 (Biostatistics), BIOL 59 (Advanced Biostatistics).

Ecology: BIOL 21/51 (Population Ecology), BIOL 27 (Animal Behavior), BIOL 58 (Advanced Community Ecology), BIOL 60.01 (p. 152) (Evolutionary Ecology).

Molecular & Cellular Biology: BIOL 38 (Experimental Genetic Analysis), BIOL 40 (Biochemistry), BIOL 45 (Molecular Biology), BIOL 66 (Molecular Basis of Cancer), BIOL 69 (Cell Signaling), BIOL 71 (Advanced Topics in Cell Biology).

In every case, the collection of courses must be approved. Majors should demonstrate a coherent intellectual rationale.

Modified Major in Mathematics with Philosophy

Prerequisite: MATH 3, MATH 8, MATH 13, MATH 24 (MATH 22 with permission); PHIL 1, PHIL 6.

Requirements: To complete the major, it is necessary to complete successfully at least six mathematics courses and four philosophy courses (as described below) in addition to the prerequisites, including a culminating experience. MATH 69 and MATH 89 both satisfy the culminating experience requirement. Modified majors may participate in the honors program and write an honors thesis. The required courses are: MATH 31 or MATH 71, MATH 35 or MATH 63, MATH 29 (COSC 39 may be substituted), MATH 39 or MATH 69, MATH 89, and an additional mathematics course numbered 20 or above, excluding MATH 97 (MATH 17 is also acceptable). Four philosophy courses chosen from among PHIL 26, PHIL 27, PHIL 29, PHIL 32, PHIL 33, PHIL 34 (p. 412).

Modified Major for Complex Systems

Complex Systems is an interdisciplinary field that integrates ideas and techniques from mathematics and the sciences to study emergent phenomena, generally characterized by an evolutionary nature in which the "whole is more than the sum of its parts." Examples include the collective of species-species interactions that give rise to an ecosystem, the aggregate of buyer-seller interactions that create economies or markets, the neuron-neuron signalings that create the brain and mind, or

individual social relationships that result in a coherent society, all of which display properties of adaptation and selection and multiscale structure. The study of complex systems is highly interdisciplinary, at its best, using insights into the etiology of one phenomenon to inform another, a kind of analogical reasoning made possible through the use of common mathematical and computational tools.

The major requires students to take 10 courses beyond the prerequisites, 6 in mathematics and 4 in other departments, and includes the accomplishment of an integrative independent project, advised by a faculty member in mathematics, as evidence of the ability to integrate these ideas into a coherent whole. This independent project satisfies the culminating experience requirement. Modified majors may participate in the mathematics department honors program; with the approval of the advisor to majors, the independent project may comprise part of an honors thesis project.

In every case, the collection of courses should be approved. Majors should demonstrate a coherent intellectual rationale.

Prerequisites: MATH 3, MATH 8, MATH 13, MATH 22 or MATH 24; One of COSC 1, COSC 3, COSC 8, COSC 10, or ENGS 20; BIOL 11 or PHYS 30/ENGS 30.

Required Courses:

- (a) A course in differential equations (MATH 23 or MATH 46);
- (b) A course in probability or statistics (MATH 20, MATH 40*, or MATH 60);
- (c) Two courses from among MATH 27, MATH 36, MATH 53, MATH 76, at least one of which must be either MATH 36 or MATH 76.
- (d) MATH 87 (Note that students will need to find an advisor for their MATH 87 project, which must be integrative in nature);
- (e) One course from among MATH 31, MATH 35, MATH 43, MATH 63, and MATH 71.
- (f) Four courses chosen from BIOL 15, BIOL 16; ECON 29, ECON 49, ECON 76; SOCY 16, SOCY 27; EARS 15, EARS 67; PSYC 40/COSC 79, PSYC 46; PHYS 30, PHYS 43; COSC 58, COSC 75, COSC 81; CHEM 41, CHEM 75; ENGS 30, ENGS 35, ENGS 114. With the approval of the advisor to majors, students may replace up to two of these courses with other appropriate courses in biology, chemistry, economics, sociology, environmental

sciences, computer science, physics, or psychology, or, with a compelling rationale, another department.

Courses

Course Numbering System: For most courses numbered 20 or above, the last digit in the course number indicates the field of mathematics as follows: probability and statistics, 0; algebra, 1; geometry, 2; analysis, 3; topology, 4; number theory, 5; applications, 6; combinatorics, 8; logic and foundations, 9.

Course Prerequisites: In all cases in which a prerequisite to a course is listed, the honors or advanced placement equivalent of that course may be substituted. For example, wherever MATH 13 appears as a prerequisite, MATH 14 will serve. MATH 11 and MATH 12 also serve in place of MATH 13 as a prerequisite.

MATH - Mathematics - Undergraduate Courses

To view Mathematics Undergraduate requirements, click here. (p. 370)

To view Mathematics Graduate requirements, click here. (p. 586)

To view Mathematics Graduate courses, click here. (p. 587)

MATH 1 - Calculus with Algebra

Instructor: The staff

MATH 1-2 is a two-term sequence. This course is open only to students having the permission of the Department. Its purpose is to cover the calculus of MATH 3, the standard introduction to calculus, and, at the same time, to develop proficiency in algebra. The sequence is specifically designed for first-year students whose manipulative skill with the techniques of secondary-school algebra is inadequate for MATH 3. The objective is to introduce and develop algebraic techniques as they are needed to study the ideas of calculus. The techniques will be taught in class, and the students will be required to practice by solving many drill problems for homework. There will be tutorial-help sessions. MATH 1 will include the concepts of function and graph and the basic ideas and applications of differential and integral calculus, at least as they pertain to polynomial functions. In the second course, MATH 2, the study of calculus will be continued so that by the end of the sequence the students will have been introduced to the algebra and calculus of the exponential and logarithm functions and the trigonometric functions and to differential equations.

Distributive: Dist:QDS

Offered: 15F: 11, 12, 16F: Arrange

MATH 2 - Calculus with Algebra and Trigonometry

Instructor: The staff

MATH 1-2 is a two-term sequence. The course description is given under MATH 1. This course is open only to students having the permission of the Department.

Prerequisite: MATH 1, or permission of the Department.

Distributive: Dist:QDS

Offered: 16W: 11, 12, 17W: Arrange

MATH 3 - Introduction to Calculus

Instructor: Pauls, The Staff, Miner, Tanabe (fall), Tanabe, Malik, Muetzel (winter)

This course is the basic introduction to calculus. Students planning to specialize in mathematics, computer science, chemistry, physics, or engineering should elect this course in the fall term. Others may elect it in the winter. A study of polynomials and rational functions leads to the introduction of the basic ideas of differential and integral calculus. The course also introduces exponential, logarithmic, and trigonometric functions. The emphasis throughout is on fundamental ideas and problem solving. MATH 3 is open to all students who have had intermediate algebra and plane geometry. No knowledge of trigonometry is required. The lectures are supplemented by problem sessions.

Distributive: Dist:QDS

Offered: 15F: 9L, 10, 11, 12, 2, 16W: 11, 12, 2, 16F, 17W: Arrange

MATH 4 - Applications of Calculus to Medicine and Biology

Instructor: Wallace (Spring)

This course will establish the relevance of calculus to medicine. It will develop mathematical tools extending the techniques of introductory calculus, including some matrix algebra and solution techniques for first order differential equations. These methods will be used to construct simple and elegant models of phenomena such as the mutation of HIV, spread of infectious disease, and biological disposition of drugs and inorganic toxins, enzyme kinetics and population growth.

Prerequisite: MATH 3. Note: This is a second-term calculus course, but it does not cover the same material as MATH 8, and does not serve as a prerequisite for MATH 13. There is a version of this course suitable for major credit: see MATH 27.

Distributive: Dist:QDS

Offered: 16S: 10A, 17S: Arrange.

MATH 5.01 - Machine Readings: Text Analysis in the Information Age

Instructor: Riddell

Library digitization has made millions of books, newspapers, and other printed materials accessible to the public. In this course we will learn how to draw on computational resources to analyze a range of materials, including poetry, novels, science fiction short stories, and personal diaries. We will explore debates about the representation of literary texts as "data" and consider the challenges "machine reading" poses for research in the humanities and how we think about what it means to "read" a text. Through case studies we will reflect critically on the history of the digital humanities (formerly known as humanities computing) and will gain practical experience in text analysis.

Prerequisite: High School Mathematics and Writing 5

Distributive: Dist:LIT

Offered: 15W: 12, 16W: Arrange

MATH 7 - First-Year Seminar in Mathematics

Offered: Consult special listing

MATH 8 - Calculus of Functions of One and Several Variables

Instructor: Herbrich, Groszek, The Staff (fall), The Staff, Herbrich (winter), Herbrich, Groszek (spring)

This course is a sequel to MATH 3 and is appropriate for students who have successfully completed an AB calculus curriculum in secondary school. Roughly half of the course is devoted to topics in one-variable calculus: techniques of integrations, areas, volumes, trigonometric integrals and substitutions, numerical integration, sequences and series including Taylor series. The second half of the course generally studies scalar valued functions of several variables. It begins with the study of vector geometry, equations of lines and planes, and space curves (velocity, acceleration, arclength). The rest of the course is devoted to studying differential calculus of functions of several variables. Topics include limits and continuity, partial derivatives, tangent planes and differentials, the Chain Rule, directional derivatives and applications, and optimization problems including the use of Lagrange multipliers.

Prerequisite: MATH 3 or equivalent.

Distributive: Dist:QDS

Offered: 15F: 10, 11, 12, 16W: 11, 2, 16S: 10, 11, 16F, 17W, 17S: Arrange

MATH 9 - Calculus of Functions of One and Several Variables, Honors Section

Open to interested students qualified to take MATH 8.

Distributive: Dist:QDS

MATH 10 - Introductory Statistics

Instructor: Wallace, The Staff

An introduction to the basic concepts of statistics. Topics include elementary probability theory, descriptive statistics, the binomial and normal distributions, confidence intervals, basic concepts of tests of hypotheses, chi-square tests, nonparametric tests, normal theory t-tests, correlation, and simple regression. Packaged statistical programs will be used. Because of the large overlap in material covered, no student may receive credit for more than one of the courses ECON 10, GOVT 10, MATH 10, PSYC 10, Social Sciences 10, or SOCY 10 except by special petition.

Distributive: Dist:QDS

Offered: 16S: 11, 2A, 17S: Arrange

MATH 11 - Multivariable Calculus for Two-Term Advanced Placement First-Year Students

Instructor: Sutton, van Erp, Pantone, Barnett

This course can be viewed as equivalent to MATH 13, but is designed especially for first-year students who have successfully completed a BC calculus curriculum in secondary school. In particular, as part of its syllabus it includes most of the multivariable calculus material present in MATH 8. Topics include vector geometry, equations of lines and planes, and space curves (velocity, acceleration, arclength), limits and continuity, partial derivatives, tangent planes and differentials, the Chain Rule, directional derivatives and applications, and optimization problems. It continues with multiple integration, vector fields, line integrals, and finishes with a study of Green's and Stokes' theorem.

Distributive: Dist:QDS

Offered: 15F: 10, 11, 12, 2, 16F: Arrange

MATH 12 - Calculus Plus

This version of MATH 11 is designed for students who are curious about the broader role of calculus within mathematics and the sciences. Non-routine problems and examples will be discussed, and side topics explored. Some of the more routine calculus skills will be left to students to learn on their own or in groups. Open to students who have placed into MATH 11.

Distributive: Dist:QDS

Offered: Not offered in the period from 15F through 17S

MATH 13 - Calculus of Vector-Valued Functions

Instructor: Williams (fall), Sijsling, Shemanske, Miner (winter), The Staff, Miner (spring)

This course is a sequel to MATH 8 and provides an introduction to calculus of vector-valued functions. Topics include differentiation and integration of parametrically defined functions with interpretations of velocity, acceleration, arclength and curvature. Other topics include iterated, double, triple and surface integrals including change of coordinates. The remainder of the course is devoted to vector fields, line integrals, Green's theorem, curl and divergence, and Stokes' theorem.

Prerequisite: MATH 8 or equivalent. Note: First-year students who have received two terms on the BC exam generally should take MATH 11 instead. On the other hand, if the student has had substantial exposure to multivariable techniques, they are encouraged to take a placement exam during orientation week to determine if placement into MATH 13 is more appropriate.

Distributive: Dist:QDS

Offered: 15F: 11, 16W: 10, 11, 2, 16S: 10, 12, 16F, 17W, 17S: Arrange

MATH 17 - An Introduction to Mathematics Beyond Calculus

Instructor: Herbrich (winter), Winkler (spring)

Gives prospective Mathematics majors an early opportunity to delve into topics outside the standard calculus sequence. Specific topics will vary from term to term, according to the interests and expertise of the instructor. Designed to be accessible to bright and curious students who have mastered BC Calculus, or its equivalent. This course counts toward the Mathematics major, and is open to all students, but enrollment may be limited, with preference given to first-year students.

Prerequisite: MATH 8, or placement into MATH 11.

Distributive: Dist:QDS

Offered: 16W: 11, 16S: 2, 17W, 17S: Arrange

MATH 20 - Probability

Instructor: Sadykov (fall), Costa (spring)

Our capacity to fathom the world around us hinges on our ability to understand quantities which are inherently unpredictable. Therefore, in order to gain more accurate mathematical models of the natural world we must incorporate probability into the mix. This course will serve as an introduction to the foundations of probability theory. Topics covered will include some of the following: (discrete and continuous) random variable, random vectors, multivariate distributions, expectations; independence, conditioning, conditional distributions and expectations; strong law of large numbers and the central limit theorem; random walks and Markov chains. There is an honors version of this course: see MATH 60.

Prerequisite: MATH 8.

Distributive: Dist:QDS

Offered: 15F: 12, 16S: 11, 16X, 16F, 17S: Arrange

MATH 22 - Linear Algebra with Applications

Instructor: Orellana, Tanabe(fall), Trout, Muetzel, The Staff, Pantone (spring)

This course presents the fundamental concepts and applications of linear algebra with emphasis on Euclidean space. Significant goals of the course are that the student develop the ability to perform meaningful computations and to write accurate proofs. Topics include bases, subspaces, dimension, determinants, characteristic polynomials, eigenvalues, eigenvectors, and especially matrix representations of linear transformations and change of basis. Applications may be drawn from areas such as optimization, statistics, biology, physics, and signal processing. Students who plan to take either MATH 63 or MATH 71 are strongly encouraged to take MATH 24.

Prerequisite: MATH 8.

Distributive: Dist:QDS

Offered: 15F: 10, 2, 16S: 10, 11, 12, 2, 16X, 16F, 17S: Arrange

MATH 23 - Differential Equations

Instructor: Chernov (fall), Costa, Fu (winter), Tanabe, The Staff (spring)

This course is a survey of important types of differential equations, both linear and non-linear. Topics include the study of systems of ordinary differential equations using eigenvectors and eigenvalues, numerical solutions of first and second order equations and of systems, and the solution of elementary partial differential equations using Fourier series.

Prerequisite: MATH 13.

Distributive: Dist:QDS

Offered: 15F: 11, 2, 16W: 12, 2, 16S: 11, 12, 16F, 17W, 17S: Arrange

MATH 24 - Linear Algebra

Instructor: Sadykov (winter), Shemanske (spring)

This course is an introduction to the fundamental concepts of linear algebra in abstract vector spaces. The topics and goals of this course are similar to those of MATH 22, but with an additional emphasis on mathematical abstraction and theory. (MATH 24 can be substituted for MATH 22 as a prerequisite for any course or program.)

Distributive: Dist:QDS

Offered: 16W: 10, 16S: 10, 17W, 17S: Arrange

MATH 25 - Number Theory

Instructor: Shemanske

The great mathematician C. F. Gauss once wrote "Mathematics is the queen of sciences and number theory is the queen of mathematics." Number theory is that part of mathematics dealing with the integers and certain natural generalizations. Topics include modular arithmetic, unique factorization into primes, linear Diophantine equations, and Fermat's Little Theorem. Discretionary topics may include cryptography, primality testing, partition functions, multiplicative functions, the law of quadratic reciprocity, historically interesting problems.

Prerequisite: MATH 8.

Distributive: Dist:QDS

Offered: 15F: 11, 16F: Arrange

MATH 26 - Numerical Methods in Computation (Identical to, and described under, ENGS 91; also COSC 71)

Instructor: Shepherd

Prerequisite: COSC 1 and COSC 10, or ENGS 20; ENGS 22 or MATH 23, or equivalent.

Cross-Listed as: ENGS 91, COSC 71

Distributive: QDS

Offered: 14F, 15F: 12

MATH 27 - Advanced Calculus and Dynamics in Biology and Medicine

Instructor: Wallace

This course will prepare students to read the technical literature in mathematical biology, epidemiology, pharmacokinetics, ecological modeling and related areas. Topics include systems of nonlinear ordinary differential equations, equilibria and steady state solutions, phase portraits, bifurcation diagrams, and some aspects of stability analysis. Emphasis is placed on the student's ability to analyze phenomena and create mathematical models. This interdisciplinary course is open to mathematics majors, biology majors, and students preparing for a career in medicine.

Prerequisite: MATH 22. Note: Students without the mathematical prerequisites can take this course as MATH 4: no student may take both MATH 4 and MATH 27 for credit, and only MATH 27 is eligible to count towards the major in mathematics.

Distributive: Dist:QDS

Offered: 16S: 10A, 17S: Arrange.

MATH 28 - Introduction to Combinatorics

Instructor: Orellana

Beginning with techniques for counting-permutations and combinations, inclusion-exclusion, recursions, and generating functions-the course then takes up graphs and directed graphs and ordered sets, and concludes with some examples of maximum-minimum problems of finite sets. Topics in the course have application in the areas of probability, statistics, and computing.

Prerequisite: MATH 8.

Distributive: Dist:QDS

Offered: 16W: 12, 17W: Arrange

MATH 29 - Introduction to Computability

What does it mean for a function to be computable? This course examines several different mathematical formalizations of the notion of computability, inspired by widely varying viewpoints, and establishes the surprising result that all these formalizations are equivalent. It goes on to demonstrate the existence of noncomputable sets and functions, and to make connections to undecidable problems in other areas of mathematics. The course concludes with an introduction to relative computability. This is a good companion course to COSC 39; the two share only the introduction of Turing machines. Offered in alternate years.

Prerequisite: None, but the student must be willing to learn to work abstractly and to read and write proofs.

Distributive: Dist:QDS

Offered: 17S: Arrange.

MATH 31 - Topics in Algebra

This course will provide an introduction to fundamental algebraic structures, and may include significant applications. The majority of the course will consist of an introduction to the basic algebraic structures of groups and rings. Additional work will consist either of the development of further algebraic structures or applications of the previously developed theory to areas such as coding theory or crystallography. As a result of the variable syllabus, this course may not serve as an adequate prerequisite for MATH 81. Students who contemplate taking MATH 81 should consider taking MATH 71 instead of this course.

Distributive: Dist:QDS

MATH 31.01 - Topics in Algebra

Instructor: van Erp

This course will provide an introduction to fundamental algebraic structures, and may include significant applications. The majority of the course will consist of an introduction to the basic algebraic structures of groups and rings. Additional work will consist either of the development of further algebraic structures or applications of the previously developed theory to areas such as coding

theory or crystallography. As a result of the variable syllabus, this course may not serve as an adequate prerequisite for MATH 81. Students who contemplate taking MATH 81 should consider taking MATH 71 instead of this course.

Prerequisite: MATH 22.

Distributive: Dist:QDS

Offered: 15F: 2, 16X, 16F: Arrange

MATH 32 - The Shape of Space

Instructor: Doyle

Topics in intuitive geometry and topology, for example: how to turn a sphere inside out; knots, links, and their invariants; polyhedra in 2, 3, and 4 dimensions; the classification of surfaces; curvature and the Gauss-Bonnet theorem; spherical and hyperbolic geometry; Escher patterns and their quotients; the shape of the universe. Offered in alternate years.

Prerequisite: MATH 22 or MATH 24.

Distributive: Dist:QDS

Offered: 16W: 12.

MATH 35 - Real Analysis

Instructor: Trout

This course introduces the basic concepts of real-variable theory. Topics include real numbers and cardinality of sets, sequences and series of real numbers, metric spaces, continuous functions, integration theory, sequences and series of functions, and polynomial approximation. Some applications of the theory may be presented. MATH 63 presents similar material, but from a more sophisticated point of view. This course may not serve as an adequate prerequisite for either MATH 73 or 83. Students who contemplate taking one of these two advanced courses should consider taking MATH 63 instead of this course.

Prerequisite: MATH 13 and permission of the instructor, or MATH 22.

Distributive: Dist:QDS

Offered: 16W: 11, 17W: Arrange

MATH 36 - Mathematical Models in the Social Sciences

Instructor: Pauls

Disciplines such as anthropology, economics, sociology, psychology, and linguistics all now make extensive use of mathematical models, using the tools of calculus, probability, game theory, network theory, often mixed with a healthy dose of computing. This course introduces students to a range of techniques using current and relevant examples. Students interested in further study of these and related topics are referred to the courses listed in the Mathematics and Social Sciences program.

Prerequisite: MATH 13, MATH 20.

Cross-Listed as: QSS 36

Distributive: Dist:TAS

Offered: 15F: 10, 16F: Arrange

MATH 38 - Graph Theory

Instructor: Groszek

The theory of graphs has roots in both practical and recreational mathematics. Today there are major applications of graph theory in management science (operations research) and computer science. This course is a survey of the theory and applications of graphs. Topics will be chosen from among connectivity, trees, and Hamiltonian and Eulerian paths and cycles; isomorphism and reconstructability; planarity, duality, and genus; independence and coloring problems, including interval graphs, interval orderings and perfect graphs, color-critical graphs and the four-color theorem; matchings; network flows, including applications to matchings, higher connectivity, and transportation problems; matroids and their relationship with optimization.

Prerequisite: MATH 22 (or COSC 55 and permission of the instructor).

Distributive: Dist:QDS

Offered: 16S: 12, 17S: Arrange

MATH 39 - Logic

Prerequisite: one of MATH 22, MATH 28, and MATH 29, or PHIL 6 by permission of the instructor.

Distributive: QDS.

Offered: Not offered in the period from 15F through 17S

MATH 40 - Probability and Statistical Inference

Instructor: Demidenko

Introduction to continuous probability and statistical inference for data analysis. Includes the theory of estimation and the theory of hypothesis testing using normal theory t-tests and nonparametric tests for means and medians, tests for variances, chi-square tests, and an introduction to the theory of the analysis of variance and regression analysis. Analysis of explicit data sets and computation are an important part of this hands-on statistics course. *NOTE: Prior to Fall 2014 Math 40 was numbered Math 50.

Prerequisite: MATH 13 and MATH 20, or permission of the instructor.

Distributive: Dist:QDS

Offered: 16W: 12, 17W: Arrange

MATH 42 - Differential Geometry I

This course will cover curves and surfaces in Euclidean 3-dimensional space. Topics include curvature and torsion of curves, the Frenet-Serret equations, Gaussian and mean curvature of surfaces, geodesics and parallel transport, isometries and Gauss's Theorem Egregium, the Riemann Curvature tensor. One or more of the following topics will be studied if time permits: vector fields, tangent bundles, hypersurfaces, connections, and curvature. Offered in alternate years.

Prerequisite: MATH 22 or permission of the instructor, and MATH 23.

Distributive: Dist:QDS

Offered: 17W: Arrange.

MATH 43 - Functions of a Complex Variable

Instructor: Gordon

This course covers the differential and integral calculus of complex variables including such topics as Cauchy's theorem, Cauchy's integral formula and their consequences; singularities, Laurent's theorem, and the residue calculus; harmonic functions and conformal mapping. Applications will include two-dimensional potential theory, fluid flow, and aspects of Fourier analysis.

Prerequisite: MATH 13.

Distributive: Dist:QDS

Offered: 16S: 10, 17S: Arrange

MATH 46 - Introduction to Applied Mathematics

Instructor: Malik

Develops tools to analyze phenomena in the physical and life sciences, from cell aggregation to vibrating drums to traffic jams. Focus is on applied linear and nonlinear partial differential equations: methods for Laplace, heat and wave equations (Fourier transform, Green's functions, eigenfunction expansions), Burger's and reaction-diffusion equation. Further topics may include linear and integral operators, nonlinear optimization, linear programming, asymptotics, boundary layers, or inverse problems. Students will develop numerical skills with a package like MATLAB/Octave.

Prerequisite: MATH 22 and MATH 23, or permission of the instructor.

Distributive: Dist:TAS

Offered: 16S: 12, 17S: Arrange

MATH 50 - Introduction to Linear Models

Instructor: Malik

This course provides an introduction to the most common model used in statistical data analysis. Simple linear regression, multiple regression, and analysis of variance are covered, as well as statistical model-building strategies. Regression diagnostics, analysis of complex data sets and scientific writing skills are emphasized. Methods are illustrated with data sets drawn from the health, biological, and social sciences. Computations require the use of a statistical software package such as STATA. Offered in alternate years.

Prerequisite: MATH 10, another elementary statistics course, or permission of the instructor.

Distributive: Dist:TAS

Offered: 15F: 11.

MATH 53 - Chaos!

Instructor: Barnett

Chaotic dynamical systems are everywhere: weather patterns, swinging pendula, population dynamics, even human heart rhythms. With a balance of theory and applications, this course will introduce: flows, fixed points, bifurcations, Lorenz equations, Lyapunov exponent, one-dimensional maps, period-doubling, Julia sets, fractal dimension. Optional topics may include: Hamiltonian systems, symbolic dynamics. Numerical explorations will involve a package like MATLAB/Octave, and students will present a final project investigating a related topic. Offered in alternate years.

Prerequisite: MATH 22 and MATH 23, or permission of the instructor.

Distributive: Dist:QDS

Offered: 15F: 10A.

MATH 54 - Topology I

This course begins with the definitions of topological space, open sets, closed sets, neighborhoods, bases and subbases, closure operator, continuous functions, and homeomorphisms. The course will study constructions of spaces including subspaces, product spaces, and quotient spaces. Special categories of spaces and their interrelations will be covered, including the categories defined by the various separation axioms, first and second countable spaces, compact spaces, and connected spaces. Subspaces of Euclidean and general metric spaces will be among the examples studied in some detail.

Prerequisite: MATH 13 and MATH 22.

Distributive: Dist:QDS

Offered: 16X: Arrange

MATH 56 - Computational and Experimental Mathematics

Computations have always played a key role in mathematical progress both pure and applied: generating conjectures (e.g. distribution of prime numbers), and numerically solving models of the real world (e.g. climate change). An exponential growth in computing power has made this game-changing. This course surveys computational methods, algorithms, and software environments that are an essential part of the modern mathematicians toolkit. Possible topics include: the fast Fourier transform, visualization, computer assisted proofs, numerical integration, high-precision computing, computation combinatorics and number theory. Offered in alternate years.

Prerequisite: MATH 22 or MATH 24, COSC 1 or ENGS 20, or permission of the instructor.

Distributive: Dist:QDS

Offered: 17S: Arrange.

MATH 60 - Probability (Honors Section of MATH 20)

Instructor: Fu

This course is a more theoretical introduction to probability theory than MATH 20. In addition to the basic content of MATH 20, the course will include other topics such as continuous probability distributions and their applications. Offered in alternate years.

Prerequisite: MATH 13, or permission of the instructor.

Distributive: Dist:QDS

Offered: 16S: 11.

MATH 63 - Real Analysis

Instructor: van Erp

This course introduces the basic concepts of real-variable theory. Topics include real numbers and cardinality of sets, sequences and series of real numbers, metric spaces, continuous functions, integration theory, sequences and series of functions, and polynomial approximation. Students may not take both MATH 35 and 63 for credit.

Prerequisite: MATH 22 or MATH 24, or MATH 13 and permission of the instructor.

Distributive: Dist:QDS

Offered: 16W: 11, 17W: Arrange

MATH 66 - Mathematical Topics in Modern Physics

This introductory course presents mathematical topics that are relevant to issues in modern physics. It is mainly designed for two audiences: mathematics majors who would like to see modern physics and the historical motivations for theory in their coursework, and physics majors who want to learn mathematics beyond linear

algebra and calculus. Possible topics include (but are not limited to) introductory Hilbert space theory, quantum logics, quantum computing, symplectic geometry, Einstein's theory of special relativity, Lie groups in quantum field theory, etc. No background in physics is assumed. Offered in alternate years.

Prerequisite: Math 23 and MATH 24 (or MATH 22 with permission of the instructor).

Distributive: Dist:QDS

Offered: 17S: Arrange.

MATH 68 - Algebraic Combinatorics

Instructor: Orellana

This course covers the use of abstract algebra in studying the existence, construction, enumeration, and classification of combinatorial structures. The theory of enumeration, including both Polya Theory and the Incidence Algebra, and culminating in a study of algebras of generating functions, will be a central theme in the course. Other topics that may be included if time permits are the construction of block designs, error-correcting codes, lattice theory, the combinatorial theory of the symmetric group, and incidence matrices of combinatorial structures. Offered in alternate years.

Prerequisite: MATH 28 and MATH 31, or MATH 71, or permission of the instructor.

Distributive: Dist:QDS

Offered: 15F: 12.

MATH 69 - Logic (Honors Section of MATH 39)

This course begins with a study of relational systems as they occur in mathematics. First-order languages suitable for formalizing such systems are treated in detail, and several important theorems about such languages, including the compactness and Lowenheim-Skolem theorems, are studied. The implications of these theorems for the mathematical theories being formulated are assessed. Emphasis is placed on those problems relating to first-order languages that are of fundamental interest in logic. Offered in alternate years.

Prerequisite: experience with mathematical structures and proofs, as offered by such courses as MATH 71, MATH 54, or MATH 24; or permission of the instructor.

Distributive: Dist:QDS

Offered: 17W: Arrange.

MATH 70 - Elements of Multivariable Statistics & Statistical Learning

Instructor: Demidenko

This course focuses on modern methods of statistical analysis including nonlinear models, data mining, and

classification. Students gain a theoretical basis for multivariate statistical analysis, optimal statistical hypothesis testing, and point and interval estimation. The course is grounded in applications and students will gain experience in solving problems in data analysis. Students are required to use the statistical package R.

Prerequisite: MATH 40

Distributive: Dist:QDS

Offered: 16S: 12 17S: Arrange

MATH 71 - Algebra

Instructor: Clare

The sequence MATH 71 and 81 is intended as an introduction to abstract algebra. MATH 71 develops basic theorems on groups, rings, fields, and vector spaces.

Prerequisite: MATH 22 or MATH 24.

Distributive: Dist:QDS

Offered: 15F: 10, 16F: Arrange

MATH 72 - Topics in Geometry

This course develops one or more topics in geometry. Possible topics include hyperbolic geometry; Riemannian geometry; the geometry of special and general relativity; Lie groups and algebras; algebraic geometry; projective geometry. Offered in alternate years.

Prerequisite: MATH 71, or permission of the instructor. Depending on the specific topics covered, MATH 31 may not be an acceptable prerequisite; however, in consultation with the instructor, MATH 31 together with some outside reading should be adequate preparation for the course.

Distributive: Dist:QDS

Offered: 17S: Arrange.

MATH 73 - Measure Theory and Complex Analysis

Instructor: Gordon

This course is an introduction to graduate level analysis. Divided roughly in half, the first part of the course covers abstract measure theory. The second half of the course covers complex analysis.

Prerequisite: MATH 43 and MATH 63 or a basic course in real analysis and an undergraduate complex analysis course or permission of the instructor.

Cross-Listed as: MATH 103, Analysis A

Distributive: Dist:QDS

Offered: 15F: 2 16F: Arrange

MATH 74 - Algebraic Topology

Instructor: Sadykov

This course provides a foundation in algebraic topology, including both homotopy theory and homology theory. Topics may include: the fundamental group, covering spaces, calculation of the fundamental group, singular homology theory, Eilenberg-Steenrod axioms, Mayer-Vietoris sequence, computations, applications to fixed points and vector fields.

Prerequisite: MATH 31/ MATH 71 and MATH 54 or their equivalents, or permission of the instructor.

Cross-Listed as: MATH 114

Distributive: Dist:QDS

Offered: 16S: 11, 17S: Arrange

MATH 75 - Applied Topics in Number Theory and Algebra

Provides some applications of number theory and algebra. Specific topics will vary; two possibilities are cryptology and coding theory. The former allows for secure communication and authentication on the Internet, while the latter allows for efficient and error-free electronic communication over noisy channels. Students may take Math 75 for credit more than once. Offered in alternate years.

Distributive: Dist:QDS

MATH 75.01 - Applied Topics in Number Theory and Algebra

Instructor: Voight

Provides some applications of number theory and algebra. Specific topics will vary; two possibilities are cryptology and coding theory. The former allows for secure communication and authentication on the Internet, while the latter allows for efficient and error-free electronic communication over noisy channels. Students may take Math 75 for credit more than once. Offered in alternate years.

Prerequisite: MATH 25 or MATH 22/ MATH 24 or MATH 31/ MATH 71, or permission of the instructor.

Distributive: Dist:QDS

Offered: 16S: 10.

MATH 76 - Topics in Applied Mathematics

The numerical nature of twenty-first century society means that applied mathematics is everywhere: animation studios, search engines, hedge funds and derivatives markets, and drug design. Students will gain an in-depth introduction to an advanced topic in applied mathematics. Possible subjects include digital signal and image processing, quantum chaos, computational biology, cryptography, coding theory, waves in nature, inverse problems, information theory, stochastic processes, machine learning, and mathematical finance.

Distributive: Dist:QDS

MATH 76.01 - Topics in Applied Mathematics

Instructor: Rockmore

The numerical nature of twenty-first century society means that applied mathematics is everywhere: animation studios, search engines, hedge funds and derivatives markets, and drug design. Students will gain an in-depth introduction to an advanced topic in applied mathematics. Possible subjects include digital signal and image processing, quantum chaos, computational biology, cryptography, coding theory, waves in nature, inverse problems, information theory, stochastic processes, machine learning, and mathematical finance.

Prerequisite: MATH 22, MATH 23, or permission of the instructor.

Distributive: Dist:QDS

Offered: 16W: 10A, 17W: Arrange

MATH 81 - Abstract Algebra

Instructor: Miner

This course provides a foundation in core areas in the theory of rings and fields. Specifically, it provides an introduction to commutative ring theory with a particular emphasis on polynomial rings and their applications to unique factorization and to finite and algebraic extensions of fields. The study of fields continues with an introduction to Galois Theory, including the fundamental theorem of Galois Theory and numerous applications.

Prerequisite: MATH 71. In general, MATH 31 is not an acceptable prerequisite; however, in consultation with the instructor, MATH 31 together with some outside reading should be adequate preparation for the course.

Cross-Listed as: MATH 111

Distributive: Dist:QDS

Offered: 16W: 10, 17W: Arrange

MATH 86 - Mathematical Finance I

Instructor: Sutton

Financial derivatives can be thought of as insurance against uncertain future financial events. This course will take a mathematically rigorous approach to understanding the Black-Scholes-Merton model and its applications to pricing financial derivatives and risk management. Topics may include: arbitrage-free pricing, binomial tree models, Ito calculus, the Black-Scholes analysis, Monte Carlo simulation, pricing of equities options, and hedging.

Prerequisite: MATH 20 and MATH 40, or MATH 60; MATH 23; and COSC 1 or the equivalent.

Distributive: Dist:QDS

Offered: 15F: 12, 16F: Arrange

MATH 87 - Reading Course

Advanced undergraduates occasionally arrange with a faculty member a reading course in a subject not occurring in the regularly scheduled curriculum.

Offered: All terms: Arrange

MATH 89 - Seminar in Logic

Instructor: The Staff

A study of selected topics in logic, such as model theory, set theory, recursive function theory, or undecidability and incompleteness. Offered in alternate years.

Prerequisite: MATH 39 or MATH 69.

Distributive: Dist:QDS

Offered: 16W: 2

MATH 96 - Mathematical Finance II

This course is a continuation of MATH 86 with an emphasis on the mathematics underlying fixed income derivatives. Topics may include: stochastic calculus, Radon-Nikodym derivative and change of measure, Girsanov's theorem, the Martingale representation theorem, interest rate models (e.g., H-J-M, Ho-Lee, Vasicek, C-I-R), interest rate derivatives, interest rate trees and model calibration, and credit derivatives. Offered in alternate years

Prerequisite: MATH 86.

Offered: 17S: Arrange.

MATH 97 - Undergraduate Research

Open only to students who are officially registered in the Honors Program. Permission of the adviser to majors and thesis adviser required. This course does not serve for major credit nor for distributive credit, and may be taken at most twice.

Offered: All terms: Arrange

MATH 98 - Senior Seminar

A qualified honors major may apply to the course instructor for permission to elect a graduate course.

Offered: Not offered in the period from 14F through 16S

Medieval and Renaissance Studies

Steering Committee: J. L. Carroll (Art History); N. Cirmigliaro (Spanish and Portuguese); M. C. Gaposchkin (History); T. Luxon (English); C. H. MacEvitt (Religion); M. Otter (English and Comparative Literature); A. K. Reinhart (Religion); W. P. Simons (History); C. Quaintance (French and Italian); A. Tarnowski (French and Italian); M. Warren (Comparative Literature).

Medieval and Renaissance Studies offers students the ability to modify their majors with a broad array of courses concerning societies and cultures that developed and flourished from late antiquity to early modernity. While centered on Europe, the concentration also embraces developments in related cultures, especially, but not only, those of the Mediterranean. This interdisciplinary course of study provides students with the opportunity to examine the period from a variety of interconnected perspectives. The Medieval and Renaissance Studies concentration is coordinated through the Leslie Center for the Humanities.

Modification

Students who choose to modify their majors with Medieval and Renaissance Studies are required to take four Medieval and Renaissance Studies courses in at least two departments and/or programs (not including the department or program of the student's major). A list of Medieval and Renaissance Studies courses is available at www.dartmouth.edu/~medren/courses. Cross-listed courses may be taken for Medieval and Renaissance Studies credit, even if the student is majoring in one of the departments or programs offering the course. Although courses used to fulfill the requirements for a Medieval and Renaissance Studies modification cannot count toward a major, students are strongly advised to take Medieval and Renaissance Studies courses, when possible, within their majors. Students are also strongly advised to enroll in language courses appropriate to their field of study.

Students who wish to modify their majors with Medieval and Renaissance Studies must sign up for it no later than the third term prior to their graduation. Courses counting toward the modification will be chosen in consultation with a member of the Medieval and Renaissance Studies faculty. These courses, along with a short description of the student's reasons for modification, must be approved by a member of the Steering Committee.

Music - Undergraduate

Chair: Steve Swayne

Professors M. Casey, K. Dong, T. C. Levin, M. P. O'Neal, S. Pinkas, S. R. Swayne; Assistant Professors W. Cheng, A. Fure, S. Topel; Senior Lecturers T. E. Atherton, N. V. Boyer, L. G. Burkot, M. L. Cassidy, T. C. Haunton, G. M. Hayes, E. C. Mellinger, J. D. Muratore, D. R. Newsam, A. Ogle, J. E. Polk; Lecturers D. J. Baldini, D. M. Belcher, E. Carroll, J. Dunlop, A. Garapic, J. Halloran, C. Latham; Adjunct Associate Professor H. F. Shabazz; Adjunct Assistant Professor F. L. Haas; Visiting Lecturers M. M. Marsit, R. Moseley.

Directors of Hopkins Center performing organizations: D. M. Glasgo, Director, Barbary Coast Jazz Ensemble; L. G. Burkot Jr., Conductor, Dartmouth College Glee Club; W. L. Cunningham, Director, Dartmouth College Gospel Choir; R. P. D. Duff, Conductor, Handel Society of

Dartmouth College; TBA, Conductor, Dartmouth Symphony Orchestra; M. M. Marsit, Conductor, Dartmouth College Wind Ensemble and Director, Dartmouth College Marching Band; H. F. Shabazz, Director, World Music Percussion Ensemble.

To view Music Undergraduate courses, [click here](#) (p. 388).

To view Music Graduate requirements, [click here](#). (p. 591)

To view Music Graduate courses, [click here](#). (p. 592)

Music Major

Prerequisites: MUS 20 (unless exempted by a grade of 5 on the AP Music Theory exam or by an equivalent exam administered by the Music Department) and MUS 25 (unless exempted by an equivalent exam administered by the Music Department).

Requirements:

General music major

1. Two courses numbered between 21 and 29 exclusive of the prerequisites (theory)
2. One course numbered between 40 and 49 (time, place, and culture)
3. Six additional courses, of which four or more must be numbered 21 or above, and including: a) at least one course in the Individual Instruction Program (MUS 53–58), b) one course that represents the Non-Western Cultures category within the World Cultures Requirement (these courses include: MUS 4; MUS 17.1, MUS 17.2, MUS 45; MUS 50, section 4; and MUS 51). (MUS 45 may be used to fulfill 2 above; and MUS 50, section 4, and MUS 51 may be used to fulfill 3b above.) MUS 1 and MUS 7 may not be used to fulfill any requirements for the music major.
4. Enrollment for credit in MUS 50 or three terms of documented participation in a Hopkins Center ensemble.
5. Culminating Experience: participation in the Department of Music's culminating experience program during the senior year.
6. Demonstration of proficiency on keyboard instruments either by enrolling in MUS 53 (individual piano lessons) or by passing a keyboard proficiency exam administered by the department. Students taking the keyboard proficiency exam must do so no later than the spring term of their third year.

The course pathways listed below also fulfill the requirements for the general music major. They are offered as suggestions for students who wish to concentrate their musical studies in a particular area.

Major with a concentration on composition & sonic arts

Students who follow this pathway will focus on gaining the necessary skills for making music in contemporary styles.

1. MUS 2 or MUS 8
2. Two courses numbered between 21 and 29 exclusive of the prerequisites (theory)
3. Two courses numbered between 30 and 39 (composition)
4. One course numbered between 40 and 49 (time, place, and culture)
5. Four additional courses, of which two or more must be numbered 21 or above, and including: a) at least one course in the Individual Instruction Program (MUS 53–58), and b) one course that represents the Non-Western Cultures category within the World Cultures Requirement (these courses include: MUS 4; MUS 17.1, MUS 17.2, MUS 45; MUS 50, section 4; and MUS 51). MUS 1 and MUS 7 may not be used to fulfill the elective requirement. (MUS 45 may be used to fulfill 4 above; and MUS 50, section 4 and MUS 51 may be used to fulfill 5b) above). MUS 1 and MUS 7 may not be used to fulfill any requirements for the music major.
6. Enrollment for credit in MUS 50 or three terms of documented participation in a Hopkins Center ensemble.
7. Culminating Experience: participation in the Department of Music's culminating experience program during the senior year.
8. Demonstration of proficiency on keyboard instruments either by enrolling in MUS 53 (individual piano lessons) or by passing a keyboard proficiency exam administered by the department. Students taking the keyboard proficiency exam must do so no later than the spring term of their third year.

Major with a concentration on performance

Students who follow this pathway will focus on the development of their artistic and technical skills as performing musicians within the context of studying music history and culture, literature, and theory.

1. MUS 6 or MUS 10
2. Two courses numbered between 21 and 29 exclusive of the prerequisites (theory)
3. Two courses numbered between 40 and 49 (time, place, and culture)

4. Three performance laboratory/lesson credits (MUS 50, 53–58), where there must be at least a) one credit in MUS 50 or three terms of documented participation in a Hopkins Center ensemble, and b) one credit in MUS 53–58. MUS 52 may be substituted for one performance laboratory credit or one credit in MUS 53–58 or three terms of documented participation in a Hopkins Center ensemble. One credit in MUS 53–58 may be substituted with one MUS 60–68 course or with MUS 87.
5. Three additional courses, of which one course must represent the Non--Western Cultures category within the World Cultures Requirement (these courses include: MUS 4; MUS 17.1, MUS 17.2, MUS 45; MUS 50, section 4; and MUS 51). MUS 1 and MUS 7 may not be used to fulfill the elective requirement. (MUS 45 may be used to fulfill 3 above; and MUS 50, section 4, and MUS 51 may be used to fulfill a portion of 4 above.) MUS 1 and MUS 7 may not be used to fulfill any requirements for the music major.
6. Culminating Experience: participation in the Department of Music's culminating experience program during the senior year.
7. Demonstration of proficiency on keyboard instruments either by enrolling in MUS 53 (individual piano lessons) or by passing a keyboard proficiency exam administered by the department. Students taking the keyboard proficiency exam must do so no later than the spring term of their third year.

Major with a concentration on time, place, and culture

Students who follow this pathway will focus on the ways that history and culture have shaped music in particular times and places, and develop their ability to interpret, analyze, and critique music as a key element of culture, history, and social life.

1. MUS 4 or MUS 6
2. Two courses numbered between 21 and 29 exclusive of the prerequisites (theory)
3. Two courses numbered between 40 and 49 (time, place, and culture)
4. One additional TPC course (these courses include: MUS 2–6, MUS 10–12, and MUS 40–49)
5. Four additional courses, of which two or more must be numbered 21 or above, and including: a) at least one course in the Individual Instruction Program (MUS 53–58), b) one course in the Performance Laboratories (MUS 50), and c) one course that represents the Non--Western Cultures category within the World Cultures Requirement (these courses include: MUS 4; MUS 17.1, MUS 17.2, MUS 45; MUS 50, section 4;

and MUS 51). MUS 1 and MUS 7 may not be used to fulfill the elective requirement. (MUS 45 may be used to fulfill 3 above; and MUS 50, section 4, and MUS 51 may be used to fulfill a portion of 4 above.) MUS 1 and MUS 7 may not be used to fulfill any requirements for the music major.

6. Culminating Experience: participation in the Department of Music's culminating experience program during the senior year.
7. Demonstration of proficiency on keyboard instruments either by enrolling in MUS 53 (individual piano lessons) or by passing a keyboard proficiency exam administered by the department. Students taking the keyboard proficiency exam must do so no later than the spring term of their third year.

Modified Major

Requirements:

1. Six music courses exclusive of the prerequisite, together with four courses from another department or from multiple departments. The six music courses must include at least one course from MUS 21–29 and one course involving musical performance or composition. MUS 1 and MUS 7 may not be used to fulfill the modified major.
2. Culminating Experience: participation in the Department of Music's culminating experience program during the senior year.
3. Demonstration of proficiency on keyboard instruments either by enrolling in MUS 53 (individual piano lessons) or by passing a keyboard proficiency exam administered by the department. Students taking the keyboard proficiency exam must do so no later than the spring term of their third year.

Music Minor

Prerequisite: MUS 20 (unless exempted by a grade of 5 on the AP Music Theory exam or by an equivalent exam administered by the Music Department) or MUS 25 (unless exempted by an equivalent exam administered by the Music Department).

Requirements:

1. Two courses numbered between 21 and 29 exclusive of the prerequisite (theory)
2. One course numbered between 40 and 49 (time, place, and culture)

3. Three additional courses, of which two must be numbered 21 or above, and including at least one course in the Department of Music's Individual Instruction Program (Music 53–58) or one course in the Department of Music's Performance Laboratories (MUS 50). MUS 1 and MUS 7 may not be used to fulfill the elective requirement. MUS 87 may count as an elective but may not be used as a substitute for the Individual Instruction Program. Demonstration of proficiency on keyboard instruments is recommended but not required.

Honors Program

The Honors thesis requirement (Music 88) may be fulfilled by any of the following:

1. A thesis
2. A recital and supporting paper.
3. A musical composition and supporting paper. A paper submitted in support of a performance or a composition should be regarded as the equivalent of a term paper, with an analytical, historical, or interpretive focus related to the performance or composition. An Honors thesis should demonstrate a high standard of analytical and research skill. The student is responsible for obtaining the Department's honors guidelines and meeting all criteria and deadlines.

To qualify for Honors, the student must have at least a 3.3 grade average in Music, in addition to the college G.P.A. requirement.

Foreign Study Program

Offered every year, the Music Foreign Study Program provides a unique opportunity for students to combine the study of music with an intensive exposure to musical performance. The program is open to vocalists, instrumentalists, and composers, as well as to students whose focus is on music history, theory, or ethnomusicology. Enrollment is limited to 16 students. Selection will be based on a student's interest in music as demonstrated by past study and performance ability.

Prerequisite: MUS 20, with MUS 21 recommended, plus one music history course. Also, two terms of a music department Performance Laboratory (MUS 50), or Individual Instruction (Music 53-58). MUS 87 may count as an elective but may not be used as a substitute for the Individual Instruction Program requirement for the Music Major.

MUS - Music - Undergraduate Courses

To view Music Undergraduate requirements, click here (p. 385).

To view Music Graduate requirements, click here. (p. 591)

To view Music Graduate courses, click here. (p. 592)

Introductory Courses

MUS 1 - Beginning Music Theory

Instructor: Moseley, Haas, O'Neal

A course intended for students with little or no knowledge of music theory. Among topics covered are musical notation, intervals, scales, rhythm and meter, and general musical terminology. Concepts will be directly related to music literature in class and through assignments. Students will have the opportunity to compose simple pieces and work on ear training. In 15S, the course will focus on jazz theory, composition, and improvisation.

Prerequisite: None.

Distributive: Dist:ART

Offered: 15F, 16S: 2, 16X: 10

MUS 2 - The Music of Today

From Sonic Youth, They Might Be Giants, Battles, Peter Schickele/PDQ Bach, John Zorn, Philip Glass, Arvo Pärt, Ligeti, Xenakis, Tan Dun, Christian Wolff, to Indonesian Quran Reciter Maria Ulfah, this course investigates the sound and ideas of punk/alternative/experimental rock bands, the avant-garde Jazz phenomenon, comic music parody, American and European minimalism, experimentalism, complexity, and ethnic fusion in contemporary classical music.

Prerequisite: None.

Distributive: Dist:ART; WCult:W

Offered: Not offered in 2015-16

MUS 3 - American Music

Instructor: Swayne

A survey of major influences, great works, important styles, and prominent musicians in American music. Topics vary from year to year, but may include popular music from the eighteenth century to the present; the concert music tradition, both populist and avant-garde; the influence of black music; sacred music; the musical contributions of ethnic and regional subcultures; and the impact of recording, amplification, mediation, and market-driven approaches to music.

Prerequisite: None.

Distributive: Dist:ART; WCult:W

Offered: 16S: 10A

MUS 4 - Global Sounds

Instructor: Levin

A survey of music and music-making whose origins are at least partially in the non-European world. In Spring 2015, the class will address ways that particular kinds of music are culturally and socially contextualized, commodified, and transformed as they circulate globally. Examples include Indian raga, Javanese gamelan, and Gnawa trance music. Course work will include listening, reading, and critical writing assignments. Where possible, visiting musicians will be invited to demonstrate and discuss the music under consideration.

Prerequisite: None.

Distributive: Dist:ART; WCult:NW

Offered: 15F, 16F: 10A

MUS 5.01 - History of Jazz to 1965

Instructor: Haas

This course examines jazz from its origins to 1965, with special attention to pivotal figures in the history of jazz such as Louis Armstrong, Duke Ellington, Count Basie, Charlie Parker, Miles Davis, John Coltrane, and Ornette Coleman. Class work includes listening to, analyzing, and discussing a wide variety of recorded jazz performances, and watching jazz films. Class sessions include performances by visiting artists. Outside of class, students will attend live jazz performances, listen to recordings, and read about the artists who brought this music to life. The goal is to help increase understanding, appreciation and enjoyment of the great American art form called jazz.

Distributive: Dist:ART; WCult:W

Offered: 15F: 10A

MUS 5.02 - History of Jazz since 1965

Instructor: Glasgo

This class examines developments in jazz such as soul jazz, jazz funk, the avant-garde, big bands, Afro-Latin jazz and world jazz. Class work includes close listening and discussions of audio and video recordings, collaborations and in-class presentations, supplemented with performances by visiting artists. Students will also complete required reading, listening and writing assignments and attend jazz performances, resulting in a deeper understanding and appreciation for jazz and improvisation, both worldwide and in our daily lives.

Distributive: Dist:ART; WCult:W

Offered: 16S: 10A

MUS 6 - Masterpieces of Western Music

Instructor: Marsit

An introduction to Western classical music. After a brief introduction to the rudiments of musical notation and theory and to the instruments of the traditional orchestra, the course proceeds to an examination of selected masterworks, with an emphasis on music of the past three hundred years.

Prerequisite: No previous knowledge of music is assumed.

Distributive: Dist:ART; WCult:W

Offered: 16S: 2A

MUS 7 - First-Year Seminar

Offered: Consult special listings

MUS 8 - Programming for Interactive Audio-Visual Art

Instructor: Casey

This course introduces programming techniques necessary to generate interactive audio-visual art on a computer. Students write their own programs to create compositions with which users can interact whilst learning fundamental concepts of how to represent and manipulate color, two- and three-dimensional shapes, sounds, images, motion, video, and the Web. Coursework includes short programming assignments, to practice the concepts introduced during lectures, and projects to explore audio-visual composition. The course assumes no prior knowledge of programming.

Prerequisite: None.

Cross-Listed as: COSC 2

Distributive: Dist:TLA

Offered: 16W, 17W: 2

MUS 10 - Lives and Works of the Great Composers

Prerequisite: None.

Distributive: ART; WCult: W

Offered: Not offered in 2015-16

MUS 11 - Introduction to Opera

Instructor: Swayne

The term 'opera' encompasses a vast range of music-dramatic forms and involves the extra-musical domains of literature, mythology, the visual arts, religion, philosophy, and social commentary. From its origins in late Renaissance Italy to the present, opera has been a most complex and compelling performing art, as well as a mirror of Western culture. This course will survey the development of opera, focusing on representative works by such composers as Monteverdi, Handel, Purcell, Mozart, Verdi, Wagner, Bizet, R. Strauss, Berg, and Britten. Special attention will be given to music as it relates to libretto and dramatic structure.

Prerequisite: None.

Distributive: Dist:ART; WCult:W

Offered: Not offered in 2015-16

MUS 12 - Music, Ceremony, Ritual, and Sacred Chant

Instructor: Levin

Prerequisite: None.

Distributive: ART; WCult: NW

Offered: Not offered in 2015-16

MUS 13 - Literature and Music

Instructor: Kopper

The affinities between literature and music have always held a special fascination for poets, writers, musicians, and critics. By studying the two arts as comparable media of expression, this course will test the legitimacy of interart parallels. An introduction to the major aspects, aesthetic implications, and interpretive methods comparing the two arts. Topics for lectures and discussion will include: musical structures as literary form; verbal music, word music, and program music; word-tone synthesis in the Lied; music and drama in opera; music in fiction; and the writer as music critic. Music-related poetry and prose examples, complemented by musical illustrations and ranging from the German and English Romantics through the French symbolists and the Dadaists to contemporary writing, will be selected from texts by Goethe, Brentano, Hoffmann, DeQuincey, Poe, Baudelaire, Mallarmé, Proust, Thomas Mann, Joyce, Eliot, Huxley, Shaw, and Pound. No particular musical background or technical knowledge of music required.

Prerequisite: No particular musical background or technical knowledge of music required.

Cross-Listed as: COLT 60.01

Distributive: Dist:INT or LIT; WCult:W

Offered: Not offered in 2016-17

MUS 14 - Music and Science

Instructor: Casey

This course covers theory and practice of music information systems with an emphasis on creative applications. Topics include information theory, audio feature extraction methods, metric spaces, similarity methods, mathematical and computational models of music, probability and statistics of music feature spaces, machine learning and decision support systems, links between surface-levels and deep structure in music, comparative analysis of music collections, audio and multimedia search engines, scalability to large audio collections, and modeling of human music cognition using fMRI data.

Prerequisite: Permission of the instructor.

Cross-Listed as: MUS 102

Offered: 16W, 17W: Arrange

MUS 15 - Music and Mathematics

Offered: Not offered in 2014-15

MUS 16 - Music and Image

This course investigates how musical media stimulate social, cultural, and ideological exchange in the twenty-first century. Through global perspectives, we will consider the roles of film, television, video games, music videos, and related media—from autotune controversies to *Guitar Hero* tournaments, from the live-tweeting of Wagner's *Ring* to Tan Dun's *Internet Symphony* for the YouTube Orchestra. Prominent themes include: new media's purported democratizing effects on the production, circulation, and consumption of music; the changing roles and responsibilities of musicians in an age of digital globalization; and the power of musical media to structure human experience writ large.

Prerequisite: None.

Distributive: Dist:ART

Offered: Not offered in 2015-16

MUS 16.01 - Visual Music

Instructor: Mack

This course is an introduction to the history of visual music, the exploration of the relationship between music and (mostly) abstract imagery. We will investigate this subject from its predecessors to current day—tracing the constantly expanding practices of visual music through painting, cinema, performance, and installation—from intuitive sketch films to complex algorithmic works. Students should bring an enthusiastic interest in the medium and devote serious effort to reading about, viewing, researching, and discussing all things visual music.

Distributive: Dist:ART; WCult:W

Offered: 15F: 10A

MUS 17 - Interdisciplinary Studies

This rubric covers courses that approach physical, social, and cultural aspects of music through the perspective of two or more scholarly disciplines and/or artistic practices. Such courses will typically be cross-listed with other departments or programs and co-taught.

Prerequisite: None.

Distributive: Dist:ART

MUS 17.01 - Sonic Landscapes

Instructor: Levin, Casas

This experimental interdisciplinary course explores the intersection of ethnography and art as means of documenting how humans interact with landscape and soundscape in some of the earth's most extreme environments. Examples are drawn from music and sound art, field recordings, film, photography, writing, and emerging multimedia practices, with a focus on the "cross-breeding" of documentary media and methodologies that are mutually enriching. In addition to reading, writing, listening, and viewing assignments, students will conduct their own empirical exploration of the interrelationship of landscape and soundscape through a self-designed audiovisual project. Throughout the course, students will be challenged to develop their own critical, creative, and sensorial understanding of the relationship of nature and culture, and of the relevance of artistic practice to the human sciences.

Cross-Listed as: COCO 8.04

Distributive: Dist:INT or ART; WCult:NW

Offered: 16W, 17W: 10A

MUS 17.02 - Music and Dance of North India

Instructor: Levin, Das

This experimental interdisciplinary course explores traditional North Indian (Hindustani) music and dance as both an artistic practice and a cultural system. Course work combines regular group lessons on the tabla—the principal percussion instrument in the performance of Hindustani raga—with weekly reading, listening, and viewing assignments focusing on Indian music theory, history, and aesthetics. Visiting artists will demonstrate the central dance, instrumental, and vocal forms of Hindustani performing arts. No prior musical experience required.

Distributive: Dist:ART; WCult:NW

Offered: 16W: 2A

*Theory and Composition***MUS 20 - Introduction to Music Theory**

Instructor: TBA

This course begins a sequence in harmony and theory and is intended for those who may consider a music major or minor. Topics include music notation, interval identification, common-practice scales and modes, harmonic function, melodic construction, and formal analysis. In addition, students will have an opportunity to improve skills in rhythmic, melodic, and harmonic dictation, sight singing, and score reading.

Prerequisite: The ability to read music in two or more clefs, or permission of the instructor.

Distributive: Dist:ART

Offered: 15F, 16S, 16F, 17S: 10

MUS 21 - Melody and Rhythm

Instructor: Moseley

Through a focus on the relation of melody and rhythm, this course aims to develop students' understanding of how composers organize pitch and time and bring the linear and temporal elements of music into play with one another. Examples are drawn from a variety of musical sources ranging from popular songs and jazz compositions to symphonies and chamber works. Course work includes analysis, reflection, and directed composition.

Prerequisite: MUS 20, or Music Department-approved exemption from MUS 20.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16F: 10

MUS 22 - Harmony and Rhythm

Instructor: TBA

This course focuses on musical literature of the eighteenth and nineteenth century, and examines the harmonic principles and implications of counterpoint and orchestration. Course work includes score analysis of a variety of musical genres, readings from theoretical treatises, written critiques of musical compositions, directed composition exercises, and in-class performances of musical works.

Prerequisite: MUS 20 or Music Department-approved exemption from MUS 20.

Distributive: Dist:ART; WCult:W

Offered: 16S, 17W: 10

MUS 23 - Timbre and Form

Instructor: Dong

An exploration of instrumentation and principles of musical form in Western music. Through weekly analysis and scoring exercises, students learn to read scores, understand musical structure, and write for combinations of instruments with attention to timbre, range, performance techniques, and orchestral idioms. Assignments include arrangements, for small and large ensemble, and formal analyses of several musical works whose aim is to show how composers shape melody, harmony and timbre to create large-scale musical structures.

Prerequisite: MUS 21 and MUS 22.

Distributive: Dist:ART; WCult:W

Offered: 16W, 17S: 10

MUS 25 - Introduction to Sonic Arts

Instructor: Fure, TBA

This course provides an introduction to the study of music with sound technology, using notable examples in music, sound art, intermedia, and installation. Starting with the birth of electricity, Futurism, and Dada, students will examine the practices and innovations that led to the most current ideas about Sonic Art, and from here develop analytical methods for exploring music of more distant times and places. Students will be expected to develop a rounded 21st-century musicianship through the weekly Tonmeister labs, and the culmination of this course will be the creation of a basic original sonic arts composition using the technique and aesthetic principles learned throughout the course.

Prerequisite: None

Distributive: Dist:TAS

Offered: 15F, 16W, 16F, 17W: 3B

MUS 26 - Sonic Linearity

Students learn how to design and synthesize sonic experiences in acoustic, analog, and digital media. Examples are drawn from a wide range of music examples from Medieval chant and Tuvan throat singing through twentieth-century and electronic music. Topics include: resonance, partials, harmonics, envelopes, modulation, pitch, timbre, filtering, dissonance, modes, and noise. Students will be assigned weekly reading, listening, and sound synthesis/composition exercises using both open source and commercial music production tools. Tonmeister lab participation required.

Distributive: Dist:ART; WCult:W

Offered: Not taught in 2015-16

MUS 27 - Sonic Spectrum

Instructor: TBA

The aim of this course is further develop students' abilities in analyzing and synthesizing sound objects by acquiring a working understanding of the sonic spectrum. Applications of the spectrum include analysis and visualization of music by Fourier analysis, advanced audio synthesis via spectrum modification, and understanding human hearing as analogous to a Fourier analysis. Musical spectrum properties such as pitch, timbre, consonance and dissonance, and polyphony are also covered. Students will be assigned weekly reading, listening, and sound analysis and synthesis exercises.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16F

MUS 28 - Sonic Space and Form

Instructor: TBA

An exploration of mixing, shaping, and controlling sound and form in notated, produced, recorded, and live audio. Through weekly analysis and production exercises, students learn to read and manipulate mixes, filters, phase, convolution, and more advanced spectral techniques to apply these principles to musical structure, and write for combinations of sounds with attention to timbre, range, spatialization/imaging, and production idioms. Assignments include three "orchestration" assignments, ranging from elementary to complex—the aim of which is to show how composers and producers shape sound, density, and timbre to create vibrant sonic forms.

Distributive: ART

Offered: 15F: 3B

MUS 30 - Composition Seminar

Instructor: Dong

This course is for those intending to pursue compositional studies of any genre, style, or type of music at either the basic, intermediate, or advanced levels. Students will engage in extended creative projects designed in conjunction with the instructor during which they will receive intensive private instruction and participate in composition seminars. Projects may be undertaken in any of the following musical domains: acoustic, avant-garde, culturally-grounded, experimental, folk, inter- or multi-media, jazz, popular, rock, and traditional, or any other creative interest of the students enrolled. The term's work will include analyzing literature pertinent to the current session, and writing short compositions and essays involving the aesthetic, creative, and technical issues at hand.

Prerequisite: MUS 21 or MUS 22. MUS 30 may be repeated once for credit.

Distributive: Dist:ART

Offered: 15F, 16F: 2

MUS 32 - Improvisation

Instructor: Dong

"Improvisation" describes a wide variety of musical practices around the world through which musicians at least partially extemporize a musical performance. This course aims to develop skills in improvisatory music-making both through practical experimentation and exercises, and by analyzing approaches to improvisation in selected musical styles, traditions, and works, with a focus on pieces by contemporary composers and avant-garde free improvisation. For a final project, students will prepare and present a concert of improvised works. In 15S, the course will focus on jazz improvisation. This course will present the essential elements of the "jazz vocabulary" to

instrumentalists and vocalists. This vocabulary consists of the common melodic phrases, rhythms, harmonies and timbres that are employed by jazz musicians. Students will learn to use this language by applying to a wide variety of compositions from the standard jazz repertoire. Listening to jazz recordings, watching jazz videos, ear training, studying and playing transcriptions of improvised solos, in-class rehearsal and performance, and individual practice will be the focus of this course. The development of the student's creativity will also be an integral part of the work in this class.

Prerequisite: MUS 1 or exemption from MUS 1.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16F: 11

MUS 33 - Theories of Music

An in-depth review of contemporary music-theoretic thought including cognitive theories, harmony and timbre concepts, and listening strategies. Focusing on primary sources --through original works of composers/theorists-- the class will be in seminar format requiring in-depth discussion of ideas, and individual research and presentation. One of the primary aims is to illustrate diverse ways in which musical concepts are articulated in this century.

Prerequisite: MUS 21 or MUS 22.

Distributive: Dist:ART; WCult:W

Offered: Not offered in 2016-17

MUS 34 - Advanced Sound Design

Instructor: Fure

This class explores the interdisciplinary nature of sound and music outside of conventional performance spaces. The course will introduce concepts and technologies relating to mixed media, such as site-adaptive sound art, sound installations using GPS and smart phones, performance art, intervention, and sound ecology. Emphasis will be placed on thinking about music in new ways and students will be expected to participate in the design, fabrication, and installation of their final projects as part of their course requirement.

Distributive: Dist:TAS; WCult:W

Offered: 16S, 17S: 2A

Time, Place, and Culture

MUS 40.04 - Music and Social Identity

This course introduces students to the circulation and construction of gender, sexuality, race, ethnicity, nationality, class, disability, religious belief, political affiliation, and other forms of identity in musical cultures from c. 1750 to the present. Much attention will be devoted

to Western art repertoire, but global perspectives and popular music will also come into play. Overarching themes include cooperation, dissent, protest, activism, propaganda, and censorship. Was Schubert gay—and does it matter? Is anti-Semitism discernible in Wagner's music? What are the roles of music in Deaf cultures? Should we care about Obama's iPod playlist? In navigating such questions, we will contemplate how composers, performers, critics, fans, scholars, and teachers of music negotiate their identities in everyday life.

Distributive: Dist:ART; WCult:W

Offered: Not offered in 2015-16

MUS 41 - Composer Seminar

Prerequisite: MUS 21 or MUS 22, or permission of the instructor

Distributive: ART; WCult: W.

Offered: Not offered in 2015-16

MUS 44 - Music in the Twentieth Century

In classical music, the twentieth century was characterized by a tension between innovative experiments with new styles, media, and techniques and the continuing evolution of older musical forms and languages. Drawing on the work of the century's most influential composers, including Schoenberg, Berg, Webern, Ives, Bartok, Stravinsky, Shostakovich, Cage, Britten, Reich, Glass, and Adams, the course will trace the interplay of innovation, tradition, and reinvention in twentieth-century concert music.

Prerequisite: MUS 21 or MUS 22, or permission of the instructor.

Offered: Not offered in 2015-16

MUS 45 - Ethnomusicology

Ethnomusicology is the study of music-particularly that outside the Western classical tradition-in its social and cultural context. In 2014, the course focuses on the musical cultures of one large geographical area: the Middle East, North Africa, and Central Asia, where the interaction of Christianity, Islam, and Judaism has produced both convergence and contrast in the rich array of musical traditions shaped by the Abrahamic belief systems and the social practices that have emerged from them. Open to all students. Reading music not a prerequisite.

Distributive: Dist:ART; WCult:NW

MUS 45.03 - The Music of Central Asia

Instructor: Levin

The course will focus on music in Central Eurasia—the core region of the historical Silk Road—and on musical connections between Central Asia and regions to which it has been historically linked by trade and cultural exchange.

Course work includes reading and critical writing as well as listening and viewing assignments. No prerequisite.

Distributive: Dist:ART; WCult:NW

Offered: 15F, 16F: 2A

Performance Courses

MUS 50 - Performance Laboratories

Performance Laboratories provide weekly coaching and instruction in diverse forms of music making and are open by audition to all Dartmouth students. Course work centers on musical readings and informal performance of selected repertoire chosen both for its intrinsic interest and for its relevance to the contents of course syllabi within the Department of Music. Performance laboratories may be taken for credit (three terms equals one credit) or on a not-for-credit basis. Subject to space availability, students may enroll in different laboratories during different terms. Terms of enrollment need not be consecutive.

Distributive: Dist:ART

MUS 50.01 - Chamber Music

Instructor: Ogle

Depending on enrollment and distribution of instruments, this laboratory may be broken down into several configurations, e.g., quartet, piano quintet, wind octet, string trio, etc. Repertoire focuses on chamber music from the eighteenth century through the first half of the twentieth.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16W, 16S, 16X, 16F, 17W, 17S, 17X:
Arrange

MUS 50.02 - Contemporary Music

Instructor: Garapic

The contemporary music laboratory will read through and study works appropriate to the participants' skill level, and where possible, collaborate with Dartmouth's compositional community in informal performances of newly-composed works.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16W, 16S, 16F, 17W, 17S: Arrange

MUS 50.03 - Jazz Improvisation

Instructor: Haas

This course serves as a laboratory for students with some preparation in jazz to develop skills in composition, arranging, and performance. Ensemble configurations will be determined each term on the basis of enrollment.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16W, 16S, 16F, 17W, 17S: Arrange

MUS 51 - Oral Tradition Musicianship

Instructor: Shabazz

Through disciplined practice of West African, Afro-Caribbean, and Afro-Brazilian percussion-based music under the leadership of a master drummer, students will enter a musical world in which creating, mentoring, and communicating are all rooted in oral tradition. Weekly music making is integrated with discussions and audio-visual materials that culturally contextualize the musical traditions being performed.

Prerequisite: None.

Distributive: Dist:ART; WCult:NW

Offered: 15F, 16W, 16S, 16F, 17W, 17S: 2A

MUS 52 - Conducting

Instructor: O'Neal

The conductor has ultimate responsibility for an ensemble's performance. This course is designed to provide a philosophical basis and practical introduction to the art and discipline of conducting music. Preparation of the score (melodic, harmonic and form analysis, transposing instruments and clefs), baton technique, historical styles and performance practices, and rehearsal procedures will be studied and applied. Instrumental and vocal music will be incorporated into daily class assignments as well as midterm and final project performances.

Prerequisite: MUS 20, or permission of the instructor.

Distributive: Dist:ART

Offered: 16X: 2

Individual Instruction Program - IIP

Courses within the Individual Instruction Program (IIP: MUS 53–58) receive one course credit for three terms of work.

Prior to the initial term, prospective students contact and audition for the instructor and receive permission from the instructor to enroll for the course.

Students enroll for each term of the three-term IIP courses during the normal course registration periods. Credit and a letter grade for the courses will be given only upon successful completion of all three terms. Students are reminded to register for each term of the three-course IIP sequence.

At the end of the first and second terms of enrollment, students will receive the grade of "ON," indicating that the student is in the process of completing three terms of IIP courses (the "ON" grades will remain on the transcript). At the end of the third term, the student will receive one course credit and a final grade from the instructor. The

course will count in the course load the third term only. Students are reminded to manage their course loads, recognizing that the IIP course will count in the third term of enrollment. (See course load regulations (p. 59) for information about course load regulations.)

Students will receive a “W” on their transcript if they drop an IIP course following the normal course withdrawal regulations for each term.

Students may take courses within the Individual Instruction Program more than once. To initiate a new three-course sequence, they again receive instructor permission for the initial course.

No more than four course credits from the following courses may be counted by any student toward the Dartmouth degree: MUS 050, MUS 053, MUS 054, MUS 055, MUS 056, MUS 057, MUS 058.

MUS 53.01 - Keyboard Individual Instruction: Classical and Jazz Piano

Offered: All terms except Summer. Arrange.

MUS 53.02 - Keyboard Individual Instruction: Classical and Jazz Piano

Offered: All terms except Summer. Arrange.

MUS 53.03 - Keyboard Individual Instruction: Classical and Jazz Piano

Offered: All terms except Summer. Arrange.

MUS 54.01 - Woodwind Individual Instruction: Flute, Oboe, Clarinet, Bassoon, Saxophone

Offered: All terms except Summer. Arrange.

MUS 54.02 - Woodwind Individual Instruction: Flute, Oboe, Clarinet, Bassoon, Saxophone

Offered: All terms except Summer. Arrange.

MUS 54.03 - Woodwind Individual Instruction: Flute, Oboe, Clarinet, Bassoon, Saxophone

Offered: All terms except Summer. Arrange.

MUS 55.01 - Brass Individual Instruction: Trumpet, French Horn, Trombone, Tuba

Offered: All terms except Summer. Arrange.

MUS 55.02 - Brass Individual Instruction: Trumpet, French Horn, Trombone, Tuba

Offered: All terms except Summer. Arrange.

MUS 55.03 - Brass Individual Instruction: Trumpet, French Horn, Trombone, Tuba

Offered: All terms except Summer. Arrange.

MUS 56.01 - String Individual Instruction: Violin, Viola, Cello, Bass Viol, Electric Bass, Classical and Electrical Guitar

Offered: All terms except Summer. Arrange.

MUS 56.02 - String Individual Instruction: Violin, Viola, Cello, Bass Viol, Electric Bass, Classical and Electrical Guitar

Offered: All terms except Summer. Arrange.

MUS 56.03 - String Individual Instruction: Violin, Viola, Cello, Bass Viol, Electric Bass, Classical and Electrical Guitar

Offered: All terms except Summer. Arrange.

MUS 57.01 - Voice Individual Instruction

Offered: All terms except Summer. Arrange.

MUS 57.02 - Voice Individual Instruction

Offered: All terms except Summer. Arrange.

MUS 57.03 - Voice Individual Instruction

Offered: All terms except Summer. Arrange.

MUS 58.01 - Percussion Individual Instruction

Instructor: Garapic

Offered: All terms except Summer. Arrange.

MUS 58.02 - Percussion Individual Instruction

Instructor: Garapic

Offered: All terms except Summer. Arrange.

MUS 58.03 - Percussion Individual Instruction

Instructor: Garapic

Offered: All terms except Summer. Arrange.

MUS 60 - Studies in Musical Performance: Keyboard

This course consists of the intensive private study of a small number of selected works through their performance. Beyond technical mastery of the instrument, emphasis is placed upon the relation between performance problems (dynamics, phrasing, rubato) and multi-level analysis (harmonic, structural, stylistic). In addition to private instruction for one ninety-minute period each week, the student will be required to present a one-hour recital and to provide either written or oral program notes.

Prerequisite: MUS 53 and permission of the instructor.

Distributive: Dist:ART

Offered: All terms except summer: Arrange

MUS 61 - Studies in Musical Performance: Woodwinds

(see details under MUS 60)

Prerequisite: MUS 54 and permission of the instructor.

Distributive: Dist:ART

Offered: All terms except summer: Arrange

MUS 62 - Studies in Musical Performance: Brass

(see details under MUS 60)

Prerequisite: MUS 55 and permission of the instructor.

Distributive: Dist:ART

Offered: All terms except summer: Arrange

MUS 63 - Studies in Musical Performance: Strings

(see details under MUS 60)

Prerequisite: MUS 56 and permission of the instructor.

Distributive: Dist:ART

Offered: All terms except summer: Arrange

MUS 64 - Studies in Musical Performance: Voice

(see details under MUS 60)

Prerequisite: MUS 57 and permission of the instructor.

Distributive: Dist:ART

Offered: All terms except summer: Arrange

MUS 65 - Studies in Musical Performance: Percussion

Instructor: Garapic

(see details under MUS 60)

Prerequisite: MUS 58 and permission of the instructor.

Distributive: Dist:ART

Offered: All terms except summer: Arrange

Foreign Study Courses

MUS 70 - Perspectives in Music Performance

This course combines the study of music with an intensive exposure to musical performance. Students attend concerts, examine works selected from the repertoire, and keep a journal of concert observations. Performance practices of various historical style periods are reviewed in their historical context, including such factors as the circumstances of composition, the place of the work within a composer's total output, and the contribution of individual works to the development of musical form and style.

Prerequisite: MUS 20.

Distributive: Dist:ART

Offered: Not offered in 2015-16

MUS 71 - The History of Music in England

Instructor: TBA

A close examination of the circumstances in which music has been composed and performed in England from early times to the present. Course topics include the effects of ruling monarchs and changing religious affiliations on musical life, the rise of music societies, and the influence of music from Continental Europe such as opera and the Italian madrigal. Students will study works by Dunstable, Tallis, Dowland, Byrd, Purcell, Handel, Elgar, Walton, Britten, and Tippett.

Prerequisite: MUS 20.

Distributive: Dist:ART; WCult:W

Offered: Not offered in 2015-16

MUS 74 - The History of Music in Central Europe

This course takes advantage of our study in Vienna to explore the sites and environs where many of the composers and performers we will study were born, worked and died. Reading and listening assignments will be augmented by day trips and overnight excursions to Salzburg, Prague and other locales. Local guest lecturers who are experts on various aspects of Central European musical and intellectual history will join us throughout the course.

Distributive: Dist:ART; WCult:W

Offered: Not offered in 2015-16

Independent Research Courses

MUS 82 - Special Study in History, Musicology, Ethnomusicology

Distributive: ART.

Offered: Permission of the instructor.

MUS 83 - Special Study in Composition and Theory

Distributive: ART.

Offered: Permission of the instructor.

MUS 84 - Special Study in Performance

Distributive: ART.

Offered: Permission of the instructor

MUS 86 - Other Special Studies

Offered: Permission of the instructor.

MUS 87 - Special Studies in Music Abroad (Individual Instruction on Music FSP)

MUS 87 may count as an elective but may not be used as a substitute for the Individual Instruction Program.

Distributive: ART. MUS 87 may count as an elective but may not be used as a substitute for the Individual Instruction Program.

Offered: Not offered in 2015-16

MUS 88 - Honors

Offered: All terms: Arrange

Native American Studies Program

Chair: N. Bruce Duthu

Professors C. G. Calloway (History and Native American Studies), N. B. Duthu (Native American Studies), S. A. Kan (Anthropology and Native American Studies), D. L. Nichols (Anthropology); Associate Professors D. A. Turner (Government and Native American Studies); M. R. Benson Taylor (Native American Studies), N. J. Reo (Native American Studies and Environmental Studies; Senior Lecturer V. B. B. Palmer (Native American Studies) .

To view Native American Studies courses, click here (p. 398).

Native American Studies offers students the opportunity to pursue a program of study that will increase their understanding of the historical experiences, cultural traditions and innovations, and political aspirations of Indian peoples in the United States (including Alaska and Hawaii) and Canada. Students explore the intersection of Indian and European histories and systems of knowledge. Students will learn essential information about Native American ways of living, organizing societies, and understanding the world, and about their relations with Euro-American colonizing powers. They will learn to appreciate how the value systems of different cultures function and to understand the dynamics of cultural change. They will examine contact and conflict between Native and non-Native societies and will appreciate the unique status of Indian peoples in the United States and Canada.

Students who elect to take a major or minor in Native American Studies will take a number of core courses and will explore interdisciplinary approaches to Native American Studies. Courses in Native American Studies are open to all students. Indeed, the mission of the Native American Studies program depends upon attracting a varied student body who bring their own perspectives and build upon their individual experiences and understandings.

Major Requirements

Students pursue their own interests and develop an individual program, but they also take certain required

courses, to ensure that they acquire a common body of substantive knowledge, gain exposure to crucial ways of critical thinking, and explore several essential approaches to Native American Studies.

In order to qualify for a major in Native American Studies, a student must take ten courses, to be selected as follows:

One Prerequisite:

NAS 8: Perspectives in Native American Studies

One Class in Literature and Languages:

NAS 31, NAS 32, NAS 34, NAS 35, NAS 41, or NAS 47

One Class in History and Culture:

NAS 10, NAS 14, NAS 15, NAS 18, NAS 19, NAS 42 , or NAS 55

One Class in Governance and Sovereignty:

NAS 25, NAS 36, NAS 44, or NAS 50

A Culminating Experience course:

NAS 81

Five Electives:

NAS 10 (p. 398), NAS 11, NAS 14, NAS 15, NAS 18, NAS 19, NAS 22, NAS 25

NAS 30, NAS 31, NAS 32, NAS 34, NAS 35, NAS 36, NAS 37, NAS 38, NAS 40, NAS 41, NAS 42, NAS 45, NAS 47, NAS 48, NAS 49, NAS 50

NAS 80 (p. 403)

NAS 85 (permission required)

NAS 86 (p. 403) (permission required)

NAS 87 (p. 403) (see Honors Program)

All required courses and most electives are usually offered on an annual basis. However, students should consult the Program for current course offerings and special course offerings for each term.

MINOR REQUIREMENTS

In order to qualify for a minor in Native American Studies, a student must successfully complete six courses in the Program, as follows:

One Prerequisite:

Native American Studies 8: Perspectives in Native American Studies

Four Elective Courses

A Culminating Experience course:

Native American Studies 81

NAS - Native American Studies Courses

To view Native American Studies requirements, click here (p. 397).

NAS 7 - First-Year Seminars in Native American Studies

Instructor: Melanie Benson Taylor

First Year Seminar: TBA

Offered: Consult special listings

NAS 8 - Perspectives in Native American Studies

Instructor: Palmer

The growing field of Native American Studies is inherently interdisciplinary. This course gives an overview of the relevant intellectual and cultural questions of tribal expression, identity, traditional thought, continuity, and sovereignty. Using readings from the areas of literature, philosophy, visual arts, anthropology, philosophy of history, and cultural and political discourse, we will examine how their discourses are used in the construction of tribal people as Other, and how these discourses either promote or inhibit the ongoing project of colonialism in indigenous communities and lives. Open to all classes.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 10

NAS 10 - Peoples and Cultures of Native North America

Instructor: Kan

The course provides an introduction to the peoples and cultures of Native North America. A single indigenous group (nation) from different "culture areas" is highlighted to emphasize particular forms of economy, social organization, and spirituality. The course focuses on the more traditional American Indian cultures that existed before the establishment of Western domination, as well as on the more recent native culture history and modern-day economic, sociopolitical and cultural continuity, change, and revitalization. Open to all classes.

Cross-Listed as: ANTH 4

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 2

NAS 11 - Ancient Native Americans

Instructor: Nichols

This course provides an introduction to the ancient societies of North America. The course examines the populating of the Americas and related controversies. We then concentrate on the subsequent development of diverse pre-Columbian societies that included hunter-gatherer bands in the Great Basin, the Arctic, and the sub-Arctic; Northwest Coast chiefdoms; farmers of the Southwest, such as Chaco Canyon and the desert Hohokam; and the mound-builders of the Eastern Woodlands. (ARCH)

Cross-Listed as: ANTH 11

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period between 15F and 16X

NAS 14 - The Invasion of America: American Indian History Pre-Contact to 1800

Instructor: Calloway

This course surveys Native American history from pre-contact times to 1800. It offers a chronological overview of major trends and developments, supplemented by case studies and readings that illustrate key issues and events. The overall context of the course is the conflict generated by the colonial agendas of various European nations and the early republic, but the primary focus will be the historical experiences of the diverse Indian peoples of North America in the wake of European invasion and their struggles to survive in the new world that invasion and created.

Cross-Listed as: HIST 14

Distributive: Dist:SOC; WCult:NW

Offered: 15F: 11

NAS 15 - American Indians and American Expansion: 1800 to 1924

Instructor: Calloway

This course surveys Native American history from c. 1800 to the Indian Citizenship Act in 1924. The overall context of the course is the expansion of the U.S. and the Indian policies adopted by the U.S. government, but the primary focus is the historical experience of Indian peoples and their struggles to retain their cultures and autonomy while adapting to great changes in the conditions of their lives. Open to all classes.

Cross-Listed as: HIST 15

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 11

NAS 18 - Native Peoples in a Changing Global Environment

Instructor: Reo

This course is about indigenous peoples' relationships to land and natural resources and the threats that rapid environmental changes, such as climate change and invasive species, pose to indigenous societies. What is at stake when significant changes, like the loss of a cultural keystone species, occur on indigenous homelands? In NAS 18/ENVS 18, we attempt to understand the societal impacts of rapid environmental change from multiple perspectives including those of indigenous and non-indigenous actors.

Prerequisite: NAS 8 or NAS 10 or NAS 25 or ENVS 11 or ENVS 2 or ENVS 3; or permission of instructor

Cross-Listed as: ENVS 18

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period between 15X and 16X

NAS 19 - Encountering Forests

Instructor: Reo

Why do people care about forests? How do people become knowledgeable about a landscape and how do they use theoretical and place-based, practical knowledge about forests? In this course, we attempt to see forests from different cultural and professional lenses including those of Abenaki resource practitioners and natural resource managers. We look at the ways different types of information and different cultural perspectives influence ecological restoration, conservation and land use decisions. Open to all classes.

Prerequisite: NAS 8 or NAS 10 or NAS 25 and ENVS 2; or permission of the instructor

Cross-Listed as: ENVS 19

Offered: Not offered in the period between 15X and 16X

NAS 22 - Native American Lives

Instructor: Palmer

In the past, American Indian history and experience have usually been taught through the lens of the dominant culture, while ignoring the accounts that Indian people have presented in their own words. This course will examine some key issues in Native American history and culture reflected in the biographies and autobiographies of individual American Indians. Their life stories, some contemporary and some historical, will help us understand the forces affecting the world of Native people, and how they shaped their own lives in response. Many early (auto)biographies are "as-told-to" narratives. Consequently, as a point of methodology, we will take time to consider the role, motives, and the effect of the

amanuensis (the recorder of an oral narrative) on the story, and as a non-Native mediator of Native experience. Open to all classes.

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 2

NAS 25 - Indian Country Today

Instructor: Parker

This course introduces students to Indian Country by way of exploring contemporary issues of importance to American Indians. Students will begin by examining briefly the concept of "tribal sovereignty" and the role it has, and continues to have, in driving tribal politics. Students will then broaden their understanding of Indian Country by exploring practical issues such as: American Indian political activism, repatriation of sacred objects and remains, American Indian water rights, hunting and fishing rights, gaming in Indian Country, education, and contemporary American Indian arts. Open to all classes.

Distributive: Dist:SOC; WCult:NW

Offered: 14F: 12

NAS 30 - Special Topics in Native American Studies**NAS 30.07 - Indians and Europeans in the Early Modern Southeast (1540-1763)**

Instructor: Ray

This class is designed to acquaint you with the interaction of Indians and Europeans in the American Southeast from the arrival of Hernando de Soto to the end of the Seven Years' War (1540-1763). There are no prerequisites but a general understanding of "colonial" America will be very helpful to you.

Distributive: Dist:SOC; WCult:NW

Offered: 15S: 2

NAS 30.08 - Contemporary Native American Art

An introduction to contemporary Native American art from North America with attention given to traditional forms, techniques and designs employed in different media (e.g. paintings, basketry, carving, sculpture, ceramics, photography and textiles). The course will feature excursions to local galleries, studios and museums and meetings with local Native American artists.

Taught by visiting Prof. Lara Evans

no distribs requested

NAS 30.09 - The Native Southwest: Peoples, Places & Stories

Sante Fe and northern New Mexico are living "Textbooks" that reveal the multiple cultural influences that have helped shaped the people, the landscape and daily life of this special part of the United States. The course will focus on the past, present and future of the Native peoples of this region and their efforts to sustain their indigenous lifeways over time.

NAS 31 - Indians in American Literature

Instructor: Taylor

Indians are uncanny absences in the American narrative and yet persistent fixtures in our national literature from its origins to the present day. This course examines the pervasive appearance of the seductive, strange, and evolving Indian figure in works by prominent American authors such as Nathaniel Hawthorne, Herman Melville, James Fenimore Cooper, William Faulkner, Ernest Hemingway, Willa Cather, and Toni Morrison. We will explore the shifting and ideological role of the Indian as tragic emblem, savage defender, spiritual ally, and modern foil. We will explore the complicated ways that the literary Indian has served to both authenticate and trouble the nation's founding narratives and desires, and more recently, to stand as a mythical antidote to postmodern crises of value, economics, ecology, and spirituality. We will consider the appeal of such tropes in particular regional and historical contexts, such as the Reconstruction South, as well as racial or ethnic ones, such as the African American appropriation of Indian resistance, nobility, and genealogies.

Distributive: Dist:LIT; WCult:W

Offered: Not offered in the period between 15X and 16X

NAS 32 - Indian Killers: Murder and Mystery in Native American Literature and Film

Instructor: Benson-Taylor

This course explores the abundant crime fiction and murder mysteries by contemporary Native American artists. These works imagine a democratized space where colonial violence is avenged, American law is malleable, and intellect triumphs over racism. While most critics applaud such decolonizing efforts, we will ask more difficult questions: do these sensational narratives do real cultural work? Do they suggest that colonial violence begets only more violence? And in the end, who are its true victims? Open to all classes.

Cross-Listed as: ENGL 53.20

Offered: 16W: 10A

NAS 34 - Native American Oral Traditional Literatures

Instructor: Palmer

Native American oral tradition constitutes a rich and complex dimension of the American literary heritage. This course will examine a range of oral genres from several time periods and tribal sources. Oral traditions and the textual sources into which they are anthologized provide valuable insights into the nature of human creativity. They are also full of unique hermentical challenges. This course will include some contemporary theoretical approaches to orality and the metaphysics of the voice to unpack some of these questions.

Cross-Listed as: ENGL 55.14

Distributive: Dist:LIT; WCult:NW

Offered: 16W: 10

NAS 35 - Native American Literature

Instructor: Taylor

Published Native American writing has always incorporated a cross-cultural perspective that mediates among traditions. The novels, short stories, and essays that constitute the Native American contribution to the American literary tradition reveal the literary potential of diverse aesthetic traditions. This course will study representative authors with particular emphasis on contemporary writers. Open to all classes.

Cross-Listed as: ENGL 32

Distributive: Dist:LIT; WCult:NW

Offered: 16S: 2A

NAS 36 - Indigenous Nationalism: Native Rights and Sovereignty

Instructor: Turner

This course focuses on the legal and political relationship between the indigenous peoples of Canada, the United States, Australia, and New Zealand and their respective colonial governments. Students will examine contemporary indigenous demands for self-government, especially territorial claims, within the context of the legislative and political practices of their colonial governments. The course will begin with an examination of the notion of Aboriginal self-government in Canada and develop it in light of the policy recommendations found in the recent report of the Royal Commission on Aboriginal Peoples (1996). Using the Canadian experience as a benchmark, students will then compare these developments to indigenous peoples' experiences in the United States, Australia and New Zealand. An important theme of the course will be to develop an international approach to the issue of indigenous rights and to explore how colonial governments are responding to indigenous demands for justice. Not open to first-year students without permission of instructor.

Cross-Listed as: GOVT 60.05

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W: 10A

NAS 37 - Alaska: American Dreams and Native Realities

Instructor: Kan

Since the time the United States "purchased" Alaska from Russia, this land has been seen by many as the "last frontier"-a place where tough and adventurous Euro-Americans could strike it rich or get away from the negative consequences of civilized living. Using anthropological and historical works as well as fiction, film and other media, this class explores the mythology surrounding the "land of the midnight sun." This myth of the last frontier-in its development-driven as well as conservationist versions-is also contrasted with the ways Alaska Natives have viewed and lived on their land. Open to all classes.

Cross-Listed as: ANTH 47

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 2A

NAS 38 - American Odysseys: Lewis and Clark, American Indians, and the New Nation

Instructor: Calloway

In 1804-06, Meriwether Lewis and William Clark completed a remarkable odyssey, from St. Louis to the Pacific, and back. They wrote more than one million words, describing the country, and paid particular attention to the Indian nations they met. This class will use the abridged edition of the journals to examine the context, experiences, and repercussions of an expedition that initiated journeys of discovery for both the young United States and the Native peoples of the American West. Dist. Soc; WCult: W. Calloway.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in 14F through 16S

NAS 40 - Language Revitalization

Instructor: Whaley (16W)

There is currently a measurable reduction in the amount of linguistic diversity around the world as many languages become moribund or cease to be spoken. With greater awareness of language endangerment and attrition, there have been counteracting efforts to maintain and revive the use of many of these languages. In this course we examine the phenomena of language endangerment and language revitalization. We will evaluate the socio-historical reasons for language shift, the rationale for language revitalization and the relative degrees of success in different revitalization programs. There will be a focus on the languages of North America.

Cross-Listed as: LING 11.06

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 2

NAS 41 - Native American Literature and the Law

Instructor: Duthu

The Acoma Pueblo poet Simon Ortiz once noted that "because of the insistence to keep telling and creating stories, Indian life continues, and it is this resistance against loss that has made life possible." The regenerative and reaffirming force of tribal stories has been most severely tested when confronted by the overwhelming and often destructive power of federal law in Indian affairs. The complex matrix of legal and political relations between Indian tribes and the federal government thus serves as a singularly important arena to examine contested notions of national identity, sovereignty, relationships to lands and people, and concepts of justice. Students will read literary texts produced by Native authors and legal texts involving Indian tribes in an effort to understand how the Native production of stories contributes to the persistence of tribalism in contemporary Native America. Open to all classes.

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in 15X through 16S

NAS 42 - Gender Topics in Native American Life

Instructor: Palmer

This course will address a range of topics concerning gender that are of particular significance to indigenous communities. These topics will be considered from historical, political, cultural and social perspectives. In the context of this class, the term "indigenous" is a category that includes tribal nations of the United States including Hawaii, the First Nations of Canada, and the indigenous people of Australia and New Zealand. The material is presented with particular concern for the diversity of indigenous groups and the variety of their own experiences and autochthony. We will explore their responses to misconceptions of tribal gender roles and identities projected upon Native people by the agents and institutions of settler colonialism. This approach opens a broader discussion about the many actions of indigenous communities to deconstruct and decolonize gender categories that are alien to the continuity, integrity, and vitality of their own traditions. The interdisciplinary approach of this course will engage texts from philosophy, literature, semiotics, history, and policy, as well as gender studies from various socio-cultural perspectives.

Cross-Listed as: WGSS 40.01

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 2

NAS 44 - Indigenous Law, the State & Legal Pluralism

Instructor: Duthu

This course focuses on Indigenous law and legal systems, primarily from the United States but with some attention to the *jurisgenerative* (or law-creating) roles of Canadian First Nations and Australian Aboriginal Peoples. For Indigenous peoples, the resurgence of traditional Indigenous laws and their accompanying legal structures serves as an important marker of indigenous self-determination and nation (re)building. At the same time, these developments challenge the long-standing hegemony of the nation-state, particularly the centrality of the state's legal system and the presumption that the state is the sole author and arbiter of law. The resurgence of Indigenous law and legal systems, in short, tests the limits of legal pluralism, the notion that two or more legal systems can co-exist peacefully in shared territories. Open to all classes.

Distributive: Dist:SOC; WCult:NW

Offered: Not offered from 15X through 16S

NAS 45 - American Indian Intellectuals

This seminar surveys some of the prominent voices in American Indian intellectual culture from the 1960s to the present. The seminar will examine four kinds of American Indian intellectuals in order to make better sense of what an American Indian intellectual is, and more importantly, what does it mean for one to be part of an American Indian intellectual culture? The course will explore the work of tribal leaders, American Indian scholars, artists and writers, and Native women. Permission of Instructor required.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered during the period from 15F through 16X

NAS 47 - Contemporary Native American Poetry

Instructor: Palmer

Muscogee poet, Joy Harjo has stated that Native Peoples are "...still dealing with a holocaust of outrageous proportion in these lands...Many of us...are using the 'enemy language' with which to tell our truths, to sing, to remember ourselves during these troubled times." This course examines the ways contemporary American Indian and other indigenous poets employ literary gestures of resistance and creativity to outlive the ongoing effects of colonialism. We explore how their poetry contributes to the reclamation and continuity of tribal memory and the regeneration of tribal traditions and communities. Our course includes lyric voices from the reservation, from the city, and from indigenous spaces in diasporic and global contexts. We will examine the combined influences that oral tradition, ritual life, and tribal values have on these contemporary poets. The indigenous poetic voice

occupies a unique position in contemporary American poetry, but also in the discourse of settler colonialism. This course traces how the themes of these poetic voices bring forward images of past and contemporary experience, to craft a poetic tradition that is distinctly indigenous. Open to all classes.

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in the period between 15F and 16X

NAS 48 - Indians and European Political Thought: 1492-1832

Instructor: Turner

This course surveys European political theory in early colonial America. The course is broadly divided into three parts: first, the so-called "Discovery of the New World" in 1492; second, the 17th and 18th century social contract theories of Thomas Hobbes, John Locke, and Jean-Jacques Rousseau; and finally, the early 19th century Marshall cases that laid the foundation for American Indian law in the United States.

Distributive: Dist:TMV; WCult:W

Offered: 16W: 2A

NAS 49 - The Land of the Totem Poles: Native Peoples of the Northwest Coast

Instructor: Kan

Open to all classes.

Cross-Listed as: ANTH 25

Distributive: Dist:SOC; WCult:NW

Offered: Not offered in the period from 15X through 16S

NAS 50 - Federal Indian Law

Instructor: Duthu

This course will focus on the constitutional, statutory and jurisprudential rules of law that make up the field of Federal Indian Law. Attention will be given to the historical framework from which the rules were derived. After outlining the respective sources and limits of federal, tribal and state political authority in Indian Country, the course will turn to a consideration of subject-specific areas of law, including criminal justice, economic development, environmental and natural resource regulation, hunting and fishing rights, Indian child welfare and preservation of religious and cultural rights. Open to all classes.

Cross-Listed as: GOVT 69

Distributive: Dist:SOC; WCult:NW

Offered: 15F

NAS 80 - Advanced Seminars in Native American Studies

Instructor:

NAS 80.01 - Bear Clan Texts

Instructor: Palmer

Wherever ursidae carnivora finds a natural habitat, the indigenous peoples of these geographies honor and acknowledge the Bear in particular ways that are central to individual and cultural expression. This course engages various texts that feature Bear imagery in traditional stories, songs, and ritual representations—all vehicles that transmit both sacred and practical knowledge. We use readings in mythopoetics, performance narratives, nature writing, some early ethnographic accounts and recordings, environmental literature, and the contemporary writing of several Native American authors. Discussion about the tribal significance of the Bear is a means to examine ontological distinctions between human self and animal being, and the constructions of human consciousness within the natural world. We also discuss how concepts of "wildness" and "wilderness," and ideas about "control" and "freedom" are expressed within imaginative and geographical spaces.

Prerequisite: Open to Juniors and Seniors, and to others with written permission of the instructor.

Distributive: Dist:LIT; WCult:NW

Offered: 16S: 10A

NAS 81.02 - American Indian Intellectuals

Instructor: Turner

This seminar surveys some of the prominent voices in American Indian intellectual culture from the 1960s to the present. The seminar will examine four "kinds" of American Indian intellectuals in order to make better sense of what an American Indian intellectual is, and more importantly, what does it mean for one to be part of an American Indian intellectual culture? The course will explore the work of tribal leaders, American Indian scholars, artists and writers, and Native women. Permission of Instructor required.

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 12

NAS 81.03 - Pen and Ink Witchcraft: Native American History Through Treaties

Instructor: Calloway

Treaties enabled European colonists to establish a foothold in North America and charted the territorial expansion of the United States. Indian people were often deceived by treaties and they referred to them as "pen and ink witch-

craft." But the hundreds of Indian treaties generated unique records of cultural encounter. Each treaty had its own story and cast of characters. Working with the records of key treaties, this seminar will examine the protocols of Indian diplomacy, the maneuverings and agendas of the different participants, as well as the outcomes and legacies of Indian treaties. Open to Juniors and Seniors with written permission of the instructor.

Cross-Listed as: HIST 96.08

Distributive: Dist:INT or TMV; WCult:NW

Offered: 16W: 2A

NAS 85 - Independent Study in Native American Studies

Instructor: The Chair

This course is designed for students who wish to pursue in depth some subject in Native American Studies not currently offered at the College. Students may not register for independent study until they have discussed their topic with the instructor, and have a course permission card signed by the Chair. Please consult the rules and regulations for NAS 85 in the Program office.

Prerequisite: at least two Native American Studies courses

Offered: All Terms: Arrange

NAS 86 - Independent Research in Native American Studies

Instructor: The Chair

This course is designed for a student who wishes to research a particular problem in greater depth than is possible in an Independent Study course (NAS 085). The Chair must give approval, and a faculty advisor will be assigned to each student to supervise the work through regular class meetings. Usually a formal paper embodying the results of the research is required. A student wishing to enroll in this course must first discuss the topic with a faculty member, who will serve as research advisor, and then submit a formal research proposal to the Program.

Prerequisite: at least three Native American Studies courses

Offered: All Terms: Arrange

NAS 87 - Native American Studies Honors

Instructor: The Chair

This course is open only to majors and double majors by arrangement with the Chair. The course requires the completion of a formal thesis. Please consult the rules for this course in the Native American Studies Program office.

Prerequisite: NAS 85, NAS 86, and permission of the Chair of the program and the faculty member who will be advising the student

Offered: All Terms: Arrange

Neuroscience

MAJOR IN NEUROSCIENCE

Neuroscience is a broad interdisciplinary field requiring a rigorous preparation in basic science. Students in this discipline are expected to understand basic principles of neuroscience, cell biology and statistics. They are also expected to gain competency in calculus, chemistry, physics or computer science. These prerequisites are fundamental to understanding contemporary experimental methods in neuroscience.

Required courses are intended to provide a strong background for the broad spectrum of neuroscience, which spans molecular, cellular, systems, behavioral, and cognitive components. Then, students are expected to choose a set of electives that will lead them towards a broad understanding of the neuroscience field, as well as techniques used by neuroscientists to study the brain. With this background students are encouraged to engage in a research project with a specific emphasis in neuroscience. Many of the elective courses are offered through the Department of Psychological and Brain Sciences, but courses can be taken through other departments depending upon the area of specialization. For example electives in Computer Science and Mathematics could be selected that emphasize computational methods. Alternatively, a student might choose electives, including advanced seminars or independent research, that emphasize cell or molecular biology. The list of electives is flexible. In consultation with their advisor, students develop an elective list that is subject to approval by the Neuroscience Steering Committee.

A central mission of the major is to encourage students to work closely with sponsoring faculty to learn experimental methods in neuroscience. Students fulfill their culminating experience by either conducting research in neuroscience under the direction of a faculty advisor or taking an upper level seminar with an emphasis in neuroscience. Faculty in the Department of Psychological and Brain Sciences provide a core resource for research opportunities for students; however, neuroscience research opportunities for undergraduate majors also involve faculty in the School of Medicine, the Thayer Engineering School, and other departments within the College of Arts and Sciences, subject to approval by the Neuroscience Steering Committee.

Potential majors are encouraged to begin planning their course of study by the end of their first year. Information concerning course requirements, transfer credit, checklists, along with a worksheet to help in planning your schedule can be viewed on the PBS department website. Sign-up for courses requiring permission is also handled through the PBS department website starting in May of the prior

academic year in which the course will be taught. Neuroscience majors and potential majors should begin by contacting the PBS department office in 103 Moore Hall. A department staff member will assign neuroscience majors to one of the Neuroscience faculty advisors.

MINOR IN NEUROSCIENCE

The Minor in Neuroscience is sponsored by the Department of Psychological and Brain Sciences. It is intended to provide formal recognition for students who have concentrated some of their academic work in the interdisciplinary area of Neuroscience. The minor requires six courses: one prerequisite, two required courses, and three electives. Many of the courses may require permission of the instructor in addition to prerequisite courses.

Philosophy

Chair: Christine J. Thomas

Professors S. J. Brison, J. H. Moor, A. L. Roskies; Associate Professors J. V. Kulvicki, S. S. Levey, C. J. Thomas; Assistant Professors D. Plunkett, T. Rosenkoetter, K. Walden; Visiting Professor J. S. Lavelle; Senior Lecturer A. E. Bumpus; Lecturers S. Aldea, J. Binkoski; Post-Doctoral Fellow I. Lindsay.

To view Philosophy courses, click here (p. 406).

For up-to-date Philosophy course schedules, topics course descriptions, syllabi, and Philosophy event listings, go to the Philosophy Department website, click here.

For Class Years 2018 and Earlier:

a. Majors, Minors, and Modifieds should review regulations in the archived ORC of the year they matriculated.

b. Majors, Minors, and Modifieds should review Transition Plan, click here.

The Major For Class Years 2019 and Later

1. Prerequisites:

- a. One from: PHIL 1, PHIL 4, PHIL 5, PHIL 8, PHIL 9, and PHIL 10
- b. PHIL 3 or PHIL 6

2. Requirements: Eight additional philosophy courses, at least seven of which are beyond the introductory level,

including:

- a. Two from PHIL 11, PHIL 12, PHIL 13, PHIL 16, and PHIL 19
- b. One advanced topics seminar, PHIL 50
- c. One culminating experience seminar, PHIL 80

The Modified Major for Class Years 2019 and Later

1. Prerequisites:

- a. One from: PHIL 1, PHIL 4, PHIL 5, PHIL 8, PHIL 9, and PHIL 10
- b. PHIL 3 or PHIL 6

2. Requirements:

Six philosophy courses beyond the introductory level, including:

- a. Two from PHIL 11, PHIL 12, PHIL 13, PHIL 16, and PHIL 19
- b. One advanced topics seminar, PHIL 50
- c. One culminating experience seminar, PHIL 80

Plus four courses beyond prerequisites in one, or more than one, field outside of the Philosophy Department. The four courses must contribute to a reasonably unified and connected program of study and must be approved in writing by the Chair of the Department of Philosophy.

The Minor in Philosophy for Class Years 2019 and Later

1. Prerequisites:

- a. Two courses from: PHIL 1, PHIL 3, PHIL 4, PHIL 5, PHIL 6, PHIL 8, PHIL 9, and PHIL 10

2. Requirements: Four philosophy courses beyond the prerequisites including:

- a. One culminating experience seminar, PHIL 80

Non-Recording Option

No course with a grade of NR resulting from use of the Non-Recording Option may be counted for the philosophy major, modified major, or minor.

Transfer Credit

At most, two transfer credits may be counted toward the major, modified major or minor, subject to approval by the Chair and the Registrar. Transfer credit cannot be used to satisfy the advanced topics and culminating experience seminar requirements.

Foreign Study

Each year the Department of Philosophy offers up to fifteen students the opportunity to spend a fall term at the University of Edinburgh, Scotland. While there, students will take a course in philosophy taught by a Dartmouth faculty member (Philosophy 50). In addition, each student takes two university courses (PHIL 60, PHIL 61). Students

will receive at most three course credits in this term.

Students participating in the program must have completed *two* courses in philosophy prior to their participation, but not necessarily prior to their application for admission to the program. Preference will be given, however, to those students who have completed more philosophy courses. A member of the University of Edinburgh philosophy faculty typically offers a course at Dartmouth once per year. Students going to Edinburgh are encouraged to consider taking this course. Application for admission to the program should be made during the fall term prior to the contemplated term in Edinburgh. There will be an opportunity for eligible students to participate in the Junior Honors Seminar while in Edinburgh.

Philosophy Honors Program

The Honors Program is designed for qualified students interested in doing intensive and individualized work in philosophy. Only those students who have successfully completed the Honors Program are eligible to receive major standings of Honors or High Honors.

The program is divided into three stages: the Junior Honors Seminar, preparation and submission of a thesis proposal, and thesis writing. All students who register for the Philosophy Major and who expect to have the necessary cumulative averages (3.50 in Philosophy and 3.33 overall) are invited to join the Junior Honors Seminars. In order to be accepted for thesis writing, a student must successfully complete a Junior Honors Seminar, maintain or attain by the end of the Junior year the required averages, and have a thesis proposal approved by the Philosophy Department by the end of the term in residence prior to commencement of thesis writing.

Junior Honors Seminars. Honors students are required to complete a Junior Honors Seminar by the end of the spring term of their junior year and prior to submission of a thesis proposal for departmental approval. These small, not-for-credit seminars meet four or five times per term. Students engage in independent research and writing, discuss their research with participants in the seminar, and produce a sample senior thesis proposal. The proposal produced need not be the proposal ultimately submitted to the department.

Students may take the seminar in any or all terms of their junior year. In spring term, the junior honors seminar ends in the sixth week, so students have time to revise any proposals for final submission to the department (see below).

Preparation and Submission of Thesis Proposal. During the junior year, students should consult with faculty members who might serve as advisors in the preparation and submission of a thesis proposal. Senior thesis proposals must be submitted to the Chair of the department by the end of the seventh week of spring term in the junior year. These proposals may be the result of work in the Junior Honors Seminar, but they may also be on a different

topic, or significantly modified versions of the junior honors work. Students are strongly encouraged to complete and to submit their proposals before the spring term deadline, since the department may ask for modifications before allowing students to proceed with thesis writing. All proposals will be approved or denied by the Philosophy Department before the start of fall term in the senior year, and typically soon after they are submitted. Once proposals are approved by the Philosophy Department, the Chair of the department appoints a thesis supervisor for each student. Typically, this will be the faculty member with whom the student has been working to produce a proposal. In some cases, however, another supervisor may be appointed, especially if a single faculty member has been in consultation with multiple students.

Thesis Writing. Students writing a senior thesis are strongly encouraged to be in residence for the entirety of their senior year. Students writing theses are enrolled in PHIL 89 for the fall and winter quarters of their senior year. Only one term of PHIL 89 may count towards satisfying the major requirements. In extraordinary cases, a student may be permitted to write a winter-spring or fall-spring thesis. In such cases, students are expected to consult with the Chair of the department during the junior year and to request special accommodations when submitting their senior thesis proposals.

Thesis students and their supervisors work together to prepare a research and writing plan, and meet regularly throughout the fall and winter terms. Thesis writers also attend a Senior Honors Seminar four times in the fall term and two in the winter, at which they read and discuss one another's thesis work.

Students must submit a full draft of the thesis by the sixth Monday of the winter term. This draft is read by two faculty members, appointed by the Chair, who are not the student's thesis supervisor. The student and these external readers meet by the ninth week of winter term to discuss the thesis. The external readers can insist on significant revisions before submission of the final product. Final versions of theses are submitted to the supervisor and external readers on the second Monday of spring term. Public defenses are scheduled for the last few weeks of the spring term. Thesis grades are determined by supervisors and external readers.

The final version of the thesis should be between 20,000 and 30,000 words long. Students must submit four bound copies of the thesis, one of which is printed on acid-free bond paper, to the department administrator by the last Monday of the spring term.

PHIL - Philosophy Courses

To view Philosophy requirements, click here (p. 404).

PHIL 1 - Introduction to Philosophical Topics

Instructor: The staff

Students will engage with central topics, debates and methods in philosophical inquiry. Emphasis is placed on developing critical reading and analytical writing skills. Readings may draw on both historical and contemporary sources.

Distributive: Dist:TMV

Offered: 15F, 16W, 16S, 16F, 17W, 17S:10 15F, 16W, 16S, 16F, 17W, 17S:11 15F, 16F:12 16X:3A

PHIL 1.01 - The Problems of Philosophy

This course acquaints the student with some of the fundamental problems in at least three main areas of Philosophy: Theory of Knowledge, Metaphysics, and Ethics. Questions treated in lectures normally include: Can we know anything, and, if so, how? Does God exist? What is the relation between mind and body? Are our actions free or determined? What makes an act morally right or wrong? Some attention will be paid to the ways in which answers to these questions can be combined to create philosophical systems or total world views. The readings might include both contemporary essays and classic works by such philosophers as Plato, Descartes, and Hume.

Distributive: DIST: TMV

Offered: Not offered in the period of 15F through 17S

PHIL 1.02 - Existentialist Ethics

Instructor: Aldea

Inescapable freedom – this is what the existentialists held to be the mark of the human condition. Despite this shared view, however, they each proposed distinct and novel ways of understanding this freedom and its ethical import. To uncover the richness of their analyses of the human condition, the class will explore the complexity of freedom through the lens of core existentialist topics such as radical responsibility, transcendence, nothingness, alterity, intersubjectivity, finitude, and the absurd.

Distributive: DIST: TMV

Offered: 15F: 10

PHIL 1.03 - Philosophy and Economics

Instructor: Lindsay

What makes an economic system fair or unfair? What does it mean to be economically rational? How should we evaluate public policy? How do we know when things go better or worse for a person? This course will explore a range of fundamental issues in ethics and political philosophy that have deep implications for economic analysis including distributive justice, well-being, and rationality. It will also examine philosophical perspectives on economic efficiency and social choice theory.

Distributive: Dist:TMV

Offered: 15F: 12

PHIL 1.04 - God, Darwin, and the Cosmos

This course will examine the relation between science and religion. The course will consider evolution, creationism, and intelligent design. Topics will include the compatibility of Darwinism and theism, and the question whether "Intelligent Design" is a scientific theory. The course will consider questions such as 'Is the Big Bang evidence for or against the existence of God?' and 'Is the fact that the universe is life-permitting evidence for the existence of God?'

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 1.05 - Reasons, Values, Persons

Instructor: Levey

We will consider such questions as: What makes a life worth living? What makes a life a good life? What, if anything, makes a life a meaningful life? What, if anything, are the grounds of values? What is a person? What relation, exactly, do you bear to the person who first enrolled in this course? What is freedom? Are you free? What, if anything, do personhood, freedom and morality have to do with one another?

Distributive: Dist:TMV

Offered: 16S: 10

PHIL 1.06 - Classic and Experimental Philosophy

Instructor: Roskies

What is God and does she exist? What can we know and what should we believe? Do we have free will? What action is the morally right action? Who or what deserves our care and concern? These fundamental questions about human existence have gripped deep thinkers, from bearded sages to college students, for centuries. What makes this course unique is that we explore these questions and others through readings from traditional philosophical texts and experimental approaches, to see how these questions can be approached by both philosophical and psychological perspectives.

Distributive: Dist:TMV

Offered: 15F, 17S: 11

PHIL 1.07 - Life, Death, Relationships, and Meaning

Instructor: Rosenkoetter

In this course we will philosophize about what is valuable and how to live a life, asking how our answers to those questions are affected by the fact that lives don't go on forever.

Distributive: Dist:TMV

Offered: 16W, 16F: 10

PHIL 1.08 - Philosophy of Time & Time Travel

Instructor: Binkoski

On the one hand, time is completely familiar. On the other, it is a total mystery. As you might expect, the combination makes for good philosophy. In this course, we will study a variety of philosophical puzzles concerning the nature of time. Is time an illusion? Does time pass? Is the present special? Is time travel possible? Do the past and future exist? Does time have a direction? What is spacetime? What are the special and general theories of relativity? What do they imply about the nature of time?

Distributive: Dist:TMV

Offered: 16S: 11

PHIL 1.09 - Science, Superstition, and Skepticism

Instructor: Walden

Most of us believe that matter is made up of atoms, that smoking causes emphysema, and that the universe is billions of years old. Few believe that Virgos are hot-tempered, that you can see the future through a crystal ball, or that baking soda cures AIDS. We often hear that the difference between such beliefs is that one sort is based on science and the other isn't. But what makes a method of inquiring into the world distinctively scientific? And what makes us justified in believing on the basis of these methods? This course is an introduction to the philosophical theory of knowledge that focuses on the knowledge that science is purported to offer. Possible topics include competing theories of justification, scientific induction, the nature of explanation, probability, scientific 'revolutions', the goals of science, trust in scientific authority, and skepticism.

Distributive: Dist:TMV

Offered: 15F: 12 16X: 3A

PHIL 1.10 - Minds, Meanings, and Images

Most things don't mean anything. How is it that the contents of our minds mean something? And what do different answers to that question tell us about the nature of minds, what it is to be self-conscious, what makes a person identical over time, and what we can know about the world and other persons? This course will compare the answers that we find in Descartes, Locke, Berkeley, Hume, and Kant. Their theories provide common reference points in much of contemporary philosophy.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 1.11 - True, Beautiful, Nasty: Philosophy and The Arts

Instructor: Kulvicki

Art is often cast as a pleasant distraction, but artists are lionized, ostracized, imprisoned, and even killed. Devotion to sub-genres of music, video games, literature, and street art builds and divides communities. What explains the role of the arts, and artists, in society, and what should their role be? How do positive (nice!) and negative (nasty!) aesthetic responses affect art's function? Might art be an important, yet non-scientific, approach to understanding our world?

Distributive: Dist:TMV

Offered: 16W: 11

PHIL 3 - Reason and Argument

Instructor: The staff

An introduction to informal logic with special attention to the analysis of actual arguments as they arise in daily life as well as in legal, scientific, and moral reasoning. Along with the analysis and criticism of arguments, the course will also consider the methods for constructing arguments that are both logically correct and persuasive. Open to all classes.

Distributive: Dist:TMV

Offered: 15F, 16F, 17S: 2

PHIL 4 - Philosophy and Gender

This course will focus primarily on the following questions: What is feminism? What is sexism? What is oppression? What is gender? Is knowledge gendered? Is value gendered? What is a (gendered) self? What would liberation be? In exploring these issues, we will examine the ways feminist theorists have rethought basic concepts in core areas of philosophy such as ethics, social and political philosophy, metaphysics, epistemology, philosophy of law, and philosophy of mind. Open to all classes.

Cross-Listed as: WGSS 46.01

Distributive: Dist:TMV; WCult:CI

Offered: Not offered in the period from 15F through 17S

PHIL 5 - Philosophy and Medicine

Instructor: Bumpus

An examination of some philosophical issues in the field of medicine. Primary focus will be on the moral issues that arise in dealing with individual patients, e.g., paternalism, informed consent, euthanasia, and abortion. There will also be an attempt to clarify such important concepts as death, illness, and disease. Open to all.

Distributive: Dist:TMV

Offered: 16S, 17S: 11

PHIL 6 - Logic and Language

Instructor: Levey

This course introduces contemporary sentential logic and predicate logic. Both the theory of logic and its application to ordinary language are developed. Topics include symbolization, truth tables, truth trees, interpretations, and derivations. Each week one lecture, three quiz days, and three afternoon individualized discussion sessions are offered (normally MWF 4:45-5:15pm). The individual discussion sessions allow students to pursue their questions and obtain feedback on quizzes on a one-on-one basis. The self-pacing aspect of the course allows students who have difficulty to receive more assistance and those who do not need as much assistance to move ahead more quickly. Open to all classes.

Distributive: Dist:QDS

Offered: 16W, 16S, 17W, 17S: 9S

PHIL 7 - First-Year Seminars in Philosophy

Instructor: The staff.

Offered: Consult special listings

PHIL 8 - Introduction to Moral Philosophy

Instructor: Plunkett

An introduction to the foundations and nature of ethics. Questions may include: What is the good life? What is it for something to have value? Are there acts that ought never to be done, no matter the consequences? Is ethics objective or relative to different perspectives? We inevitably make assumptions whenever we offer ethical verdicts about particular cases. This course aims to think systematically about those assumptions. Open to all classes.

Distributive: Dist:TMV

Offered: 15F: 10A 17W: 10

PHIL 9 - Applied Ethics

Instructor: The staff.

An examination of the ethical dimensions of some contemporary controversies. Topics will vary from year to year but may include: business, death, discrimination, the environment, gender, law, media, race, sex, technology, and war. The course may be taken more than once for credit with permission of the instructor. Open to all classes. No prerequisites.

Distributive: Dist:TMV

Offered: 15F, 16X, 16F: 11 16S: 2

PHIL 9.01 - Reproductive Ethics

Instructor: Bumpus

What do we owe human life, once it has begun to develop? Is a woman morally required to continue gestating a fetus, once it has begun developing? Does the answer depend upon whether or not the fetus is a person? Some forms of assisted reproduction yield a surplus of human embryos. Is using these embryos for research moral? Is it moral to dispose of them? What may we do in the interest of creating human life? We tend to grant people broad procreative liberty. Should deaf couples be allowed to select for deafness? And what about choosing enhanced traits for our children? Some people worry we are facing a future where the rich can design their babies – choosing to create a musical prodigy or a baby Einstein – but the poor cannot. If so, is distributive justice the only concern about such a future?

Distributive: Dist:TMV

Offered: 15F: 11

PHIL 9.02 - Environmental Ethics

This course provides a general introduction to ethical problems concerning the environment. The course will cover some standard positions in the field, including biocentrism (the thesis that all living organisms have intrinsic moral worth) and ecocentrism (the thesis that entire natural systems have intrinsic moral worth). Topics considered may include: the ethics of food; the ethics of climate change; the moral status of non-human animals; population, consumption, and sustainability; GMOs and organic food; our duties to other persons, including future persons; and the difficulty of formulating comprehensive climate policy.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 9.06 - Friends, Lovers, and Comrades: Ethical Issues of Special Relationships

Instructor: Walden

This course will investigate philosophical issues that arise in our relationships with other people. What kind of attitude is love? What makes someone a genuine friend? Is partiality to one's friends and family morally justifiable? Is patriotism? What are the moral responsibilities of sex? Readings from classic and contemporary sources, including Plato, Aristotle, Pufendorf, Hume, Kant, Freud, and Beauvoir.

Distributive: Dist:TMV

Offered: 15X, 16F: 11

PHIL 9.07 - Ethics of Freedom, Paternalism, and Intervention

Instructor: Rosenkoetter

We will begin by considering foundational issues in the morality of attempts to steer actors (people as well as states) towards better outcomes. We apply the resulting theories to concrete issues such as speech, health, drugs, guns, dangerous pursuits, incarceration, and intervention in the affairs of other nations.

Distributive: Dist:TMV

Offered: 16S: 2 16F: 12

PHIL 10 - Philosophy and Cognitive Science

Instructor: Roskies

What is the mind and how can we model it? This course will cover the classical foundations of cognitive science, and some of the more recent developments in the field. The course is designed to introduce students to central debates and arguments in the philosophy of cognitive science. We will study philosophical views of the relationship between the mind and the physical world, the computational theory of the mind and its implications, connectionism, theories of embodiment, dynamical systems, and recent statistical approaches to cognition. Open to all.

Cross-Listed as: COGS 11.01

Distributive: Dist:TAS

Offered: 16S: 10

PHIL 11 - Ancient Greek and Roman Philosophy

Instructor: Thomas

Students will study the origins of Western philosophical thought as it emerges in classical Greece and Rome from 6th century BCE through the 4th century CE. Topics may include: the methods and value of philosophy; the fundamental nature of reality; the possibility of knowledge; the roles of logic and mathematics in inquiry; philosophy of biology; philosophy of medicine; moral psychology and human action; virtue and human flourishing; political philosophy; fatalism; death.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: 15F, 16F: 10

PHIL 12 - Medieval and Renaissance Philosophy

Inspired by classical philosophy, Jewish and Islamic thought, and Christian doctrine, medieval philosophy (from, roughly, the 4th-15th centuries) strives to reconcile its various influences while making creative contributions and great strides in philosophy of religion, logic, natural

philosophy, philosophy of mind and metaphysics. The late medieval period paves the way for intellectual revolutions in the philosophy of science, philosophy of religion and political theory of the Renaissance period (roughly the 14th – 16th centuries).

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

PHIL 13 - Early Modern Philosophy

Instructor: Levey

Early modern philosophy is western European philosophy mostly of the 17th and 18th centuries, sometimes indicated as spanning from the early writings of Descartes (c. 1619) to the publication of Kant's *Critique of Pure Reason* (1781). It encapsulates the break from prior Scholastic and Renaissance traditions in philosophy and science and becomes hugely influential in setting the agenda of western philosophy—in epistemology, metaphysics, philosophy of mind, ethics, political philosophy, etc.—through the 20th century and up to today.

Prerequisite: One course in Philosophy, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: 16W, 17W:12

PHIL 13.01 - 17th Century Rationalists

Instructor: Levey

A study of central themes in the works of the three most celebrated philosophers of the seventeenth century: Descartes, Spinoza and Leibniz. Metaphysics and epistemology will be our focus, and the topics we'll explore include mind, matter, necessity, contingency, truth, causation, space, time, knowledge, reason and the existence of God. We'll approach their philosophy through a variety of their texts, in English translation, including treatises, papers, dialogues, letters and unpublished drafts and notes.

Prerequisite: One course in Philosophy, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: 16W: 12

PHIL 16 - Late Modern Philosophy

Instructor: Rosenkoetter

In this course students will engage with figures and topics from the period initiated by Kant's *Critique of Pure Reason* in 1781 and ending, roughly, with Nietzsche's last work in 1888. Figures may include: Kant, Herder, Schleiermacher, Reinhold, Schelling, Schlegel, Fichte, Hegel,

Schopenhauer, Kierkegaard, Feuerbach, Marx, Bolzano, Brentano, Meinong, Mill, and Nietzsche. Topics may include: idealism and realism, materialism, social and political philosophy, religion, value, existentialism, psychologism, logic, semantics, philosophy of cognition, and philosophical methodology.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: 16S: 11

PHIL 16.01 - Self-Consciousness in German Idealism

Instructor: Rosenkoetter

Our theories of action and knowledge are condemned to fail if they are not guided by a philosophically fundamental inquiry into the nature of self-consciousness. Kant maintains a modest version of this thesis. Fichte and Hegel make it the key to their ambitious systematic philosophies. This course aims to isolate and evaluate the basic insights that animate German Idealism.

Prerequisite: One Philosophy course or permission of the Instructor

Distributive: Dist:TMV; WCult:W

Offered: 16S: 11

PHIL 19 - History of 19th/20th Century Philosophy

This course treats philosophical topics and figures in the rich and influential period that spans the 19th and 20th centuries. Topics may include: subjectivity, agency, power, atomism, idealism, positivism, critiques of metaphysics, ideology, psychologism, the unconscious, intentionality, consciousness, analysis, naturalism and modality.

Prerequisite: One course in philosophy or permission of the instructor.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period of 15F through 17S

PHIL 23 - Art and Aesthetics

Instructor: Walden

What is art, and what's the point of it? Does it help us understand the world better or enjoy it more? Does art distract us from what is really important? What is beauty, and ought the arts aim at producing it? What are representation, expression, and realism, and how do they figure in different art forms? The course addresses combinations of these questions through both reading philosophy and engaging with artwork.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:ART

Offered: 17W: 2

PHIL 23.01 - Ethics and the Arts

Instructor: Walden

From novels, films, and television to painting, sculpture, and symphonies, the influence of art on our character, our values, and how we see the world is pervasive. This raises a number of important philosophical questions at the intersection of ethics and the philosophy of art. Do both moral properties like goodness and aesthetic properties like beauty exist only "in the eye of the beholder", or are one or both of them more objective? Can we learn things about what is good and right, or how to be better people from reading great literature or seeing important paintings? How might the moral character of a work of art affect its aesthetic merit? Is *Birth of a Nation*, for example, a worse film because of its racism?

Distributive: DIST: ART

Offered: 17W: 2

PHIL 24 - Law and Philosophy

Legal practice raises a wide range of questions of interest to philosophers. Some concern how best to understand central concepts invoked in laws: What are contracts? What is free speech? Other questions concern what kinds of laws and legal institutions we should have: What kinds of laws should regulate hate speech? When is the state justified in using coercion to enforce laws? Still other questions concern law itself: How are legal norms related to moral norms?

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

PHIL 26 - Philosophy and Computers

Instructor: Moor

The accomplishments of artificial intelligence research and the widespread use of computers in our society confront us with many interesting philosophical questions. What are the limits of artificial intelligence? Could computers ever think or feel? Is the Turing test a good test? Are we really computers? Are there decisions computers should never make? Do computers threaten our privacy in special ways? This course will consider such issues in order to explore the philosophical implications of computing. Open to all classes.

Prerequisite: One Philosophy course, or permission of the instructor.

Cross-Listed as: COGS 26

Distributive: Dist:TAS

Offered: 16S, 17S: 10

PHIL 28 - Phenomenology and Existentialism

Instructor: Plunkett

This course examines the traditions of phenomenology and existentialism, primarily through a study of German, Austrian, and French philosophy from the first half of the twentieth century, but also including more recent work inspired by these traditions. Major historical figures covered in this course may include: Franz Brentano, Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty, Jean-Paul Sartre, Simone de Beauvoir, and Emmanuel Levinas. Special topics may include: the nature of subjectivity or consciousness; theories of intentionality; phenomenology and post-phenomenology; historicity; freedom and responsibility; existentialist theories of oppression; and existentialist ethics.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: 16S: 3B

PHIL 28.01 - Heidegger's Being and Time

Instructor: Plunkett

This course will focus on Heidegger's *Being and Time*. Topics to be discussed include: the foundations of metaphysics, knowing-how vs. knowing-that, agency, practical reason, social identity, social ontology, philosophical methodology, and the phenomenology of everyday experience.

Distributive: Dist:TMV; WCult:W

Offered: 16S: 3B

PHIL 29 - Philosophy of Logic and Mathematics

Instructor: Levey

Logic and philosophy of mathematics are ancient fields of study and have also flowered in recent times. Courses in this rubric study principles, results and methods of logic (whether in 'classical' or 'non-classical' systems) or philosophical issues concerning the interpretation of logic and mathematics (e.g., what *justifies* the rules of inference? what is mathematics *about*? what is logical or mathematical *truth*? what does a proof *prove*?). Emphasis may be historical or contemporary.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: 16F: 11

PHIL 29.01 - Of Time and Necessity: Philosophy of Logic

Instructor: Levey

Often we reason about what is now, actually the case. But often we also reason about what was or will be. Or about what could or might or would have been; or about what must be, even if some things could have been otherwise. What are the correct rules for this? What, if anything, makes them correct? We shall develop some elementary parts of modal and temporal logic and consider their interpretation and philosophical significance.

Prerequisite: One Philosophy course or permission of the Instructor.

Distributive: Dist:TMV

Offered: 16F: 11

PHIL 30 - Epistemology and Methodology

Instructor: Roskies

This course deals with the nature of inquiry. Which methods of inquiry should we rely on? Can we know or understand anything? Of what value are knowledge and understanding? Topics covered may include skepticism, the methodologies of science, mathematics and philosophy, the social nature of knowledge, self-knowledge, the nature of memory and knowledge of the past.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: 16S: 2

PHIL 31 - Metaphysics

Instructor: The staff.

This course will focus on one or more central topics in metaphysics, possibly including the existence and nature of the divine, the infinite, free will, personal identity, the self, actions and intentions, space and time, change, the nature of properties, truth, necessity and modality.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: 16S, 17S: 12

PHIL 31.04 - Realism and AntiRealism

In this course, we will explore a portion of the complex web of debates between realists and antirealists. Questions we will consider include: What is realism? On what bases do we commit to the existence of something? To what extent, if any, are objects of experience and inquiry (e.g. colors, values, natural laws, numbers) independent of the

mind? What role, if any, does the mind play in the construction or conception of meanings, properties or things? What role does language play in determining ontological commitments? What is truth? What, if anything, do distinct conceptions of meaning, objectivity and truth suggest about the nature of reality or about the mind's capacity to determine or to know what is real?

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 31.05 - Time, Truth and Fate

Instructor: Levey

If it's already true that I'll die in an avalanche tomorrow or else that I won't—logic says it's one or the other—is it pointless to take precautions? Is everything fated to happen as it does? Is the future open? Can we change the past? Is anything real apart from the present? Does the present exist? Does the truth about time require different rules of logic? We'll draw on sources from Aristotle to today.

Prerequisite: One Philosophy course or permission of the Instructor.

Distributive: Dist:TMV

Offered: 16S: 12

PHIL 32 - Intermediate Logic

An investigation of three branches of symbolic logic: first-order predicate logic with identity, sentential modal logic, and predicate modal logic. Topics to be covered may include Russell's theory of definite descriptions; the treatment of non-denoting terms in logics known as "free logics;" investigations of various modalities, involving pairs of concepts such as necessity and possibility, being obligatory and being permitted, and being known and being believed; Kripke-style "possible world" semantics.

Prerequisite: PHIL 6, or MATH 39 or MATH 69, or permission of the instructor.

Distributive: Dist:QDS

Offered: Not offered in the period from 15F through 17S

PHIL 34 - Language and Thought

Instructor: Thomas

Studies of language and cognition play central and defining roles in the history and development of philosophy. Students will investigate the nature of language and its relations to logic, thought and reality. Specific topics may include theories of signs, meaning, reference, truth, and speech acts. Other possibilities include necessity, analyticity, tensed

statements, counterfactual conditionals, indexicals, pragmatics, metaphor, intentionality and vagueness.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: 15F: 2

PHIL 35 - Mind and Psychology

Instructor: Kulvicki

The mind is both a part of the world and the source of our perspectives on it. A variety of approaches to understanding the mind consider such questions as: What is consciousness? What is it to think about things? How does the world as we know it through the sciences allow for conscious, thinking creatures to exist? Are there unconscious thoughts and desires? Can psychology, neuroscience, philosophy and psychiatry help us answer these questions?

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: 16W: 2 17W: 2A

PHIL 36 - Metaethics

Instructor: Plunkett

This course explores foundational questions about ethics. For instance: What, if anything, makes an ethical judgment correct? Are ethical facts created or discovered? Can ethical judgments ever be objectively true, or are they only true "from a point of view?" How are ethical judgments related to natural science and the picture of the world it offers us? How can we come to justified beliefs about ethics?

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: 16S: 10A

PHIL 37 - Ethical Theory

Instructor: Rosenkoetter

This course is broadly concerned with questions about what is right, good and virtuous. Some instances of the course will treat abstract questions. For example: Are moral principles universal or relative to a particular group? Is an act right just in case it maximizes happiness? Do we have good reason to be moral? More focused instances might include: Do we have duties to non-humans? When is it morally permissible to kill a person?

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: 16W: 2 16F: 10A

PHIL 37.01 - Consequences and Contracts

Instructor: Walden

Ethical theory begins with questions about the foundations of morality: Why should I care about other people at all? It then asks very general questions about what shape our duties to self and others should take: Given that I owe something to other people, do I owe them pleasure? Happiness? To help them pursue their projects? To solicit their consent? This class is devoted to two systems of answers to these questions. The first, consequentialism, holds that the moral status of an action is primarily a matter of whether it brings about good or bad consequences. The second, contractualism, understands moral principles as grounded in a hypothetical contract between agents.

Distributive: DIST: TMV

Offered: 16F: 10A

PHIL 38 - Social and Political Philosophy

Through the study of classical and contemporary texts in political and social theory, we will consider such issues as how and to what extent (if at all) political authority can be justified, what the criteria are for distributive justice, and how social and political inequalities (such as those based on race and gender) should be conceptualized and addressed.

Prerequisite: One Philosophy course, or permission of the instructor.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 39 - Critical Theory and Post-Structuralism

This course examines themes in 20th and 21st century French and German philosophy, with a focus on critical social theory of the Frankfurt School and French post-structuralism, and contemporary work inspired by these traditions. Figures covered in this course may include: Adorno, Horkheimer, Habermas, Foucault, Deleuze, Derrida, and Honneth. Topics may include: the dialectic of enlightenment; the critique of power; the Frankfurt School; structuralism and post-structuralism; and the problem of modernity.

Prerequisite: One course in Philosophy, or permission of the instructor.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period of 15F to 17S

PHIL 45 - Special Topics in Philosophy

Instructor: Visiting Edinburgh Professor

The content of this course varies from term to term. See individual topic descriptions for details.

Prerequisite: One Philosophy course or permission of the instructor.

Prerequisite: One Philosophy course or permission of the Instructor.

Offered: 16X: 2A

PHIL 50 - Advanced Seminar in Philosophy

Instructor: The staff.

This course may be offered in any term and the content varies; see individual topic descriptions.

Prerequisite: Two Philosophy courses or permission of the Instructor.

Distributive: Dist:TMV

Offered: 15F: FSP 15F: 3A 16W, 17W, 17S: 10A

PHIL 50.14 - Property, Markets, and Capitalism

Instructor: Lindsay

Property is a fundamental topic in political philosophy, legal theory and the social sciences. This course integrates philosophical theories of property rights with social scientific perspectives on social cooperation and economic perspectives on private law. It explores the implications of recent work in these areas for broader questions about economic inequality, the fairness of market outcomes, constitutional limitations on state authority, and the proper balance between private control and public regulation.

Prerequisite: Two Philosophy courses or permission of the Instructor.

Distributive: Dist:TMV

Offered: 16S: 10A

PHIL 50.15 - Neuroethics

Instructor: Roskies

The brain is the seat of who we are. This course will examine ethical issues that arise from our growing understanding of the brain, and our consequent ability to monitor and manipulate it. We will discuss timely issues such as cognitive enhancement, the ethics of brain interventions, drugs, and neural gene therapies, and the possibility of mindreading. Later in the course we will examine the ways in which our growing knowledge of the biological basis of moral cognition may or may not have effects on our moral theorizing.

Prerequisite: Two Philosophy courses, or permission of the Instructor.

Distributive: Dist:TMV

Offered: 16F: FSP

PHIL 50.17 - Global Expressive Rights

Instructor: Brison

Does the right to free speech have boundaries? Philosophical defenses of the right to free speech, developed in the context of the town square and the printing press, have yet to catch up with the revolution in communication brought about by the Internet. Technological innovations such as social media have made it possible to communicate instantaneously with hundreds of millions of people around the world and have, for purposes of regulating speech, rendered national boundaries virtually irrelevant. There is now an urgent need to determine how to assess and protect the values of free speech in this global context. Questions we will discuss include: Is there a universal human right to freedom of expression? If so, what is the philosophical basis for it? What are its limits? Does it protect racist hate speech as well as political dissent? How should the different free speech regimes currently in effect in different countries be reconciled in cases of conflict?

Prerequisite: Two Philosophy courses or permission of the Instructor.

Distributive: Dist:TMV

Offered: 15F: FSP

PHIL 50.18 - Animal Minds

Instructor: Roskies

This course focuses on questions about the minds of nonhuman animals. We will consider what kind of thought, if any, is possible for beings that lack language. Can animals have propositional thought? What limits are there on the contents of nonlinguistic thought? We will also consider other aspects of mentality: Can animals feel pain? Can they suffer? Are they conscious? Finally, we will consider the ethical implications of the answers we find to the above questions.

Prerequisite: Two Philosophy courses, or permission of the Instructor.

Distributive: Dist:TMV

Offered: 16W: 10A

PHIL 50.21 - Current Research in Social/Political Philosophy

Instructor: Plunkett and Muirhead

What kind of society should we aim to have? And *why* should we aim to have *that* kind of society as opposed to some other kind? And are there *objectively right* answers to these two previous questions, or are there ultimately only answers that are correct *relative to* a given social/historical framework? These three abstract questions have long been at the heart of social/political philosophy, from Aristotle and Plato to the present day. They are also

questions that matter tremendously to a wide range of citizens in our increasingly globalized world: a world in which different societies, with different cultures, different social/political structures, and different moral values come into increased contact with other. This course will be focused on these three interconnected questions. It will be an advanced discussion-based seminar, and will involve multiple visiting speakers. All students will be expected to have at least two previous courses in philosophy or in political theory.

Prerequisite: Two courses in philosophy or permission of the instructor.

Cross-Listed as: GOVT 86.30

Distributive: Dist:TMV

Offered: 15F: 3A

PHIL 50.22 - Value

Instructor: Rosenkoetter

What is it for something to be valuable or disvaluable? Are there irreducible truths about value? Are knowledge and achievement per se valuable? Or can their value ultimately be explained by the value of happiness? Are persons valuable in a way that cannot be captured by the sum total of their happiness, knowledge, and the like? What role should truths about value play in ethics as a whole?

Prerequisite: Two Philosophy courses or permission of the Instructor.

Distributive: Dist:TMV

Offered: 17S: 10A

PHIL 60 - Foreign Study in Philosophy I

Instructor: University of Edinburgh staff.

Credit for this course is awarded to students who have successfully completed a Philosophy course at the University of Edinburgh while a member of the Dartmouth Foreign Study Program at the University of Edinburgh.

Prerequisite: Two courses in Philosophy

Distributive: Dist:TMV

Offered: 15F, 16F: D.F.S.P.

PHIL 61 - Foreign Study in Philosophy II

Instructor: University of Edinburgh staff.

Credit for this course is awarded to students who have successfully completed a Philosophy course at the University of Edinburgh while a member of the Dartmouth Foreign Study Program at the University of Edinburgh.

Prerequisite: Two courses in Philosophy

Distributive: Dist:TMV

Offered: 15F, 16F: D.F.S.P.

PHIL 80 - Culminating Experience in Philosophy

Instructor: The staff.

This course may be offered in any term and the content varies. Although intended primarily for students majoring in Philosophy, properly qualified students from other departments may be admitted. In every case admission requires the permission of the instructor.

Prerequisite: Requires the permission of the instructor

Distributive: Dist:TMV

Offered: 15F: 2A 16W:3A 16S, 16F, 17W, 17S: 2A

PHIL 80.01 - Kant's Critique of Pure Reason

A close study of this epoch-making work, which has set the agenda for many sub-fields of philosophy since its publication in 1781. Kant observes that philosophy, in contrast to mathematics and natural science, cannot point to any results that are acknowledged by all able practitioners. Thus, philosophy has made no progress. Kant proposes a method and foundation for philosophy that will change that.

Prerequisite: Requires the permission of the instructor

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 80.11 - Ethical Issues in Artificial Intelligence

Prerequisite: Requires the permission of the instructor

Distributive: DIST:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 80.12 - Free Will, Responsibility and the Brain

Do we have free will? Does brain science show that we do or do not? How does moral responsibility depend on freedom? Can we be responsible if we are merely physical mechanisms? Can we blame people for their actions? This course will explore the philosophical questions and neuroscientific literature regarding free will, and will address the implications of this debate for law and society

Prerequisite: Requires the permission of the instructor

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

PHIL 80.13 - Love, Respect, and Moral Obligation

Instructor: Walden

A survey of closely connected questions about the attitudes of love and respect, as well as the distinctive moral duties associated with each. Questions will include: What is distinctive about the attitudes of love and respect? Do we have universal duties of respect for all persons? If so, what

do these duties entail for us? How is the partiality of an attitude like love to be reconciled with the impartiality of respect?

Prerequisite: Requires the permission of the Instructor.

Distributive: Dist:TMV

Offered: 15F: 2A

PHIL 80.14 - Kant on Being, Goodness, and Beauty

Instructor: Rosenkoetter

This course will cover Kant's accounts of what it is to judge of something that it *is*, that it is *good*, and that it is *beautiful*. By far the most time will be devoted to the first of these accounts (his so-called theoretical philosophy), since it serves as a foundation for all of the rest. Coverage of the latter two will focus on how all three accounts are unified in a single system of philosophy.

Prerequisite: Requires the permission of the Instructor.

Distributive: Dist:TMV

Offered: 17S: 2A

PHIL 80.15 - Epistemic Normativity

Instructor: Plunkett

This seminar is on foundational issues in contemporary epistemology, focusing on questions about the nature and grounds of epistemic normativity. Possible topics include: the relationship between epistemic rationality and reasons for belief, whether or not epistemic justification is ultimately dependent on our psychologies or practical interests, the relationship between truth and epistemic justification, and the bearing of general metanormative theorizing on our understanding of normativity within epistemology.

Prerequisite: Requires the permission of the Instructor.

Distributive: Dist:TMV

Offered: 16W: 3A

PHIL 80.16 - Plato's (Super)Naturalism

Instructor: Thomas

Platonists, ancient and contemporary alike, commit themselves to the existence of abstract, nonphysical, intelligible beings (e.g. numbers, properties, propositions) in addition to concrete, spatiotemporal, perceptibles (e.g. horses, vases, mountains). For Plato, in particular, changeless, intelligible beings are metaphysically and epistemologically prior to changing, perceptibles. The supernatural is prior to the natural. We will attempt to reconstruct and to assess (a) Plato's reasons for positing and privileging supernatural entities; (b) his view of how, if at all, the "two worlds" interact; (c) his view of how, if at all, we are to understand or to explain the natural in terms

of the supernatural; and (d) the prospects for "natural science" as Plato understands them.

Prerequisite: Requires the permission of the Instructor.

Distributive: Dist:TMV

Offered: 17W: 2A

PHIL 80.17 - Unity, Necessity, Infinity: Themes from Leibniz

Instructor: Levey

This seminar is a study of three great philosophical topics in Leibniz's work and their contemporary counterparts.

Prerequisite: Requires the permission of the instructor

Distributive: DIST: TMV

Offered: 16F: 2A

PHIL 86 - Research in Philosophy for the Ethics Minor

Instructor: Donovan

This course is the senior culminating experience for students pursuing the Ethics Minor. The culminating experience is an independent study resulting in a substantial paper (20-30 pages in length) on a topic related to the student's minor plan of study. Philosophy 86 does not count toward satisfaction of the Philosophy major, modified major, or minor.

Prerequisite: Permission of the instructor

Offered: All terms: Arrange

PHIL 87 - Research in Philosophy

The purpose of Philosophy 87 is to provide opportunity for a student to do advanced work on a topic that the student has studied in a regularly offered course, or to study a topic not normally covered in a regularly offered course. In order to enroll in Philosophy 87, a student must prepare a brief (one page) proposal which describes what the student wishes to study and accomplish by taking this research course. All proposals for Philosophy 87 must be reviewed by the faculty of the Department after having been provisionally approved by the faculty member who is the prospective director. This must be done before the beginning of the term in which the course is to be taken. May be taken for more than one course credit, but at most, one election will count toward satisfaction of the requirements of the major. The staff.

Offered: All terms: Arrange

PHIL 89 - Honors Program

Open only to Philosophy senior majors who are participating in the Honors Program. The Honors Program is designed for qualified students interested in doing intensive and individualized work in philosophy. Only those students who have successfully completed the

Honors Program are eligible to receive major standings of Honors or High Honors. The program is divided into three stages: the Junior Honors Seminar, preparation and submission of a thesis proposal, and Honors thesis writing. All students who register for the Philosophy Major and who expect to have the necessary cumulative averages (3.50 in Philosophy and 3.33 overall) are invited to join the Junior Honors Seminars. In order to be accepted for Honors thesis writing, a student must successfully complete a Junior Honors Seminar, maintain or attain by the end of the Junior year the required grade point averages, and have a thesis proposal approved by the Philosophy Department by the end of the term in residence prior to commencement of thesis writing.

Offered: All terms: Arrange

Physical Education

Director of Athletics: Harry Sheehy

Roger B. Demment, Senior Associate Director for Physical Education and Recreation; Joann A. Brislin, Assistant Director for Intramural and Club Sports.

The purpose of the Physical Education Department is to provide students with the opportunity to experience a variety of activity courses and, in turn, to appreciate the importance of the balance of a healthy mind and body. It is our goal to introduce undergraduates to a wide range of lifetime sports so that they may benefit from them throughout their adult lives. The department offers both individual and team activities. There is an emphasis on the out-of-doors.

All students must complete three terms of physical education and pass an untimed 50 yard swim test to fulfill their graduation requirement. Credit in physical education courses is awarded dependent on participation and skill development. All students are expected to fulfill their physical education requirements before the end of their final term at Dartmouth.

Students who participate in an intercollegiate or club sport may receive credit for that activity during the term in which they participate. A maximum of two credits may be earned in this manner. An additional credit for intercollegiate sports may be earned through supervised out-of-season training.

Physical Education Activities

Individual sports include skiing, skating, sailing, golf, fly fishing, mountain biking, rock climbing, tennis, swimming, racquetball, strength training, squash, fencing, karate, ballroom dance, swing dance, kayaking, aerobics, lifeguarding, yoga, tai chi, tae kwan do, aikido and jujitsu, RAD, and pilates. Courses are also offered in ice hockey and figure skating.

During the winter season, special emphasis is placed on skiing. Classes in downhill, cross-country, telemarking,

snowboarding, and snowshoeing are offered in a wide range of abilities from beginning to advanced.

Several non-activity courses are also offered through Physical Education. They are PEAC Training and Learning at Dartmouth. Fitness courses of all levels are also offered through the College's FLIP program.

Intramural Athletics

The Intramural Program is open to the entire student body. Competition in more than thirty activities is organized in three divisions—female, male, and co-ed. Leagues in the different seasonal activities are organized among the dormitories, fraternities, sororities, graduate students, staff, faculty, and administrators. It is the goal of the Intramural Program to organize a constructive, recreational program that provides recreational opportunities for every student, and encourages a spirit of participation, friendliness, and sportsmanship.

Physics and Astronomy - Undergraduate

Chair: James W. LaBelle

Professors M. P. Blencowe, R. R. Caldwell, B. C. Chaboyer, R. A. Fesen, M. Gleiser, M. K. Hudson, J. W. LaBelle, K. A. Lynch, R. Onofrio, A. J. Rimberg, B. N. Rogers, J. R. Thorstensen, L. Viola, G. A. Wegner, M. N. Wybourne; Associate Professors S. H. Alexander, R. M. Millan; Assistant Professors R. C. Hickox, C. Ramanathan, K. C. Wright; Visiting Associate Professor Y. J. Brown; Adjunct Professors P. Crane, W. Lotko, B. W. Pogue, J. B. Weaver; Adjunct Associate Professors A. H. Barnett, B. T. Kress, C. G. Levey, T. P. Smith, A. Ukhorskiy, S. Weinstein; Adjunct Assistant Professor J. Liu, F. Ticozzi; Research Professors R. E. Denton, J. G. Lyon, H-R Mueller.

To view Astronomy Undergraduate courses, click here. (p. 421)

To view Physics Undergraduate courses, click here. (p. 423)

To view Physics and Astronomy Graduate requirements, click here. (p. 599)

To view Astronomy Graduate courses, click here. (p. 600)

To view Physics Graduate courses, click here. (p. 601)

Courses for Students in the Humanities and Social Sciences

The following courses are especially recommended for students not majoring in one of the sciences: PHYS 1/2 and PHYS 5, and ASTR 1 and ASTR 2/3.

Requirements for the Major in Physics

Prior to the class of 2018:

Prerequisite: MATH 3, MATH 8, MATH 13, and MATH 23; PHYS 13 and PHYS 14. Students with advanced placement may substitute PHYS 15 and PHYS 16 for PHYS 13 and PHYS 14.

Students completing a major in physics are required to take a minimum of eight courses in physics, including PHYS 19, PHYS 24, PHYS 41, PHYS 42, PHYS 43, PHYS 44, and two electives including the culminating experience. Students taking PHYS 15 may substitute a third elective for PHYS 19. The major requires one upper-level laboratory course: PHYS 47, PHYS 48, PHYS 76 or ASTR 61. Elective courses are PHYS 30, PHYS 31, PHYS 47, PHYS 48, ASTR 15 or ASTR 25, and all physics and astronomy courses numbered in the sixties, seventies and nineties. Courses numbered in the forties may be taken in any order. Students planning graduate study in physics or another science are encouraged to take PHYS 66, PHYS 76, PHYS 91 and other advanced courses in physics and astronomy. Graduate courses in physics and astronomy are open to qualified undergraduates. Students should consult the Undergraduate Advisor about additional courses in mathematics and other science departments.

Students are required to complete a culminating activity in the major. For the physics major this requirement may be satisfied by receiving credit for one of the following courses: PHYS 68, Introductory Plasma Physics; PHYS 72, Introductory Particle Physics; PHYS 73, Introductory Condensed Matter Physics; PHYS 74, Space Plasma Physics; PHYS 77, Introduction to General Relativity and Gravitation; PHYS 76, Methods of Experimental Physics; PHYS 82, Special Topics Seminar; ASTR 74, Astrophysics; ASTR 75, High Energy Astrophysics; ASTR 81, Special Topics in Astronomy; PHYS 87, Undergraduate Research. The culminating experience is included in, not in addition to, the eight courses required for the major.

All major programs require an average GPA of 2.0 in all courses counted toward the major, including prerequisites.

A typical program is outlined below. In addition to these courses, a physics major may be completed with almost any Dartmouth Plan attendance pattern, provided that at least one summer and one fall term are spent on campus.

First	MATH 3	MATH 8	(MATH 13)
		PHYS 13	PHYS 14
Subsequently	(MATH 13)	MATH 23	PHYS 24
	PHYS 19	PHYS 24	PHYS 44

It is desirable that those students who plan to complete more than the minimal major in physics take PHYS 13 and PHYS 14 in the first year, and PHYS 19 and PHYS 24 in the sophomore year. Students taking PHYS 13 in the fall must have AP credit for Math 3. Those beginning Physics in their sophomore year, however, can easily complete at least the minimal major.

Beginning with the class of 2018:

Prerequisite: MATH 3, MATH 8, MATH 13, and MATH 23; PHYS 13 and PHYS 14. Students with advanced placement may substitute PHYS 15 and PHYS 16 for PHYS 13 and PHYS 14.

Students completing a major in physics are required to take a minimum of eight courses in physics, including PHYS 19, PHYS 40, PHYS 41, PHYS 43, PHYS 44 [ENGS 72 may be substituted], PHYS 50 and two electives including the culminating experience. Students taking PHYS 15 may substitute a third elective for PHYS 19. The major requires one upper-level laboratory course: PHYS 47, PHYS 48, PHYS 76 or ASTR 61. Elective courses are PHYS 30, PHYS 31, PHYS 47, PHYS 48, ASTR 15 or ASTR 25, and all physics and astronomy courses numbered in the sixties, seventies and nineties. Courses numbered in the forties may be taken in any order. Students planning graduate study in physics or another science are encouraged to take PHYS 66, PHYS 76, PHYS 90 and other advanced courses in physics and astronomy. Graduate courses in physics and astronomy are open to qualified undergraduates. Students should consult the Undergraduate Advisor about additional courses in mathematics and other science departments.

Students are required to complete a culminating activity in the major. For the physics major this requirement may be satisfied by receiving credit for one of the following courses: PHYS 68, Introductory Plasma Physics; PHYS 72, Introductory Particle Physics; PHYS 73, Introductory Condensed Matter Physics; PHYS 74, Space Plasma Physics; PHYS 77, Introduction to General Relativity and Gravitation; PHYS 76, Methods of Experimental Physics; PHYS 82, Special Topics Seminar; ASTR 74, Astrophysics; ASTR 75, High Energy Astrophysics; ASTR 81, Special Topics in Astronomy; PHYS 87, Undergraduate Research. The culminating experience is included in, not in addition to, the eight courses required for the major.

Year	Fall	Winter	Spring
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All major programs require an average GPA of 2.0 in all courses counted toward the major, including prerequisites.

Students who plan to complete an ambitious physics major suitable for graduate school in physics should take PHYS 13 and PHYS 14 in the freshman year, combined with PHYS 19 either spring term first year or fall term sophomore year, or they should take PHYS 15 and PHYS 16 in the first year, in all cases taking MATH 13 and MATH 23 as soon as their math preparation allows. Any of these combinations allows the student to start taking the intermediate courses (PHYS 40-41-43-44) in the sophomore year and to start taking advanced courses in the junior year. Those students beginning physics in the sophomore year can, however, easily complete the major. Note that PHYS 15 is intended for students who had calculus-based classical mechanics in high school, and students must pass a placement exam in order to take it. Entering students taking PHYS 13 in the Fall quarter must have placement into MATH 8 or higher.

Typical programs are outlined below. A physics major may be completed with almost any Dartmouth Plan attendance pattern.

First-year students with no advanced placement can do an ambitious physics major and might follow the following example program.

Year	Fall	Winter	Spring
First	MATH 3	MATH 8 PHYS 13	(MATH 13) PHYS 14
Subsequently	(MATH 13) PHYS 19	MATH 23	PHYS 40

First-year students with advanced placement in physics and mathematics qualify for Physics 15-16 and might follow the following example program:

Fall	Winter	Spring
MATH 8 or MATH 11	MATH 13	MATH 13 or MATH 23
PHYS 15	PHYS 16	PHYS 31

First-year students with advanced placement in mathematics qualify for taking Physics 13 fall term and might follow the following example program:

Fall	Winter	Spring
MATH 8 or 11	MATH 13	MATH 13 or MATH 23
PHYS 13	PHYS 14	PHYS 19 or PHYS 31

In either case, MATH 23 could be taken fall term of the sophomore year, concurrently with PHYS 43. The intermediate courses PHYS 40, 41, 43, 44 can be started in the sophomore year.

The Modified Physics Major

A modified physics major may be desirable for students interested in a broad range of careers such as medicine, the health professions, public policy, or journalism. The prerequisites for the modified major are the same as those for the physics major. The modified major consists of ten additional courses, of which at least six must be in the Department of Physics and Astronomy. Courses selected in other departments (science or otherwise) should form a unified whole with the physics courses, and should draw on and relate to a physics background. It is also possible to modify the physics major with courses outside the science division, subject to these same general guidelines. A written rationale explaining the intellectual coherence of the proposed program of courses, approved by the Undergraduate Advisor, is required in all cases. Interested students are urged to consult the Undergraduate Advisor.

Requirements for the Engineering Physics Major

The Department of Engineering Sciences and the Department of Physics and Astronomy offer a major in Engineering Physics. This major features a 5/5 split in courses, unlike a modified major which requires six courses from one field and four from the other.

The prerequisite courses for the Engineering Physics major are MATH 3, MATH 8, MATH 13, MATH 23; PHYS 13, PHYS 14; CHEM 5; and COSC 1 and COSC 10 or ENGS 20 (p. 233).

The Engineering Physics major is a ten-course program consisting of three Engineering Sciences core courses (ENGS 22, ENGS 23, ENGS 24); three Physics core courses (PHYS 19, PHYS 40 [formerly 24], PHYS 43 [Students taking PHYS 15 and PHYS 16 should substitute a third physics elective for PHYS 19]); and four electives, two from each department. Two electives must be selected

from the following list: ENGS 25, ENGS 33, ENGS 34; PHYS 50 [formerly 42], PHYS 68, PHYS 90 [formerly 91]; PHYS 73 or ENGS 131; PHYS 66 or ENGS 120; PHYS 44 or ENGS 72 [formerly 140]. The other two electives may be courses from the Engineering Sciences Department numbered above 20, excluding ENGS 80 and ENGS 87, or courses from the Physics and Astronomy Department which fulfill the straight physics major.

A culminating experience is required in the major which can be taken instead of one of the electives above. It must be one of the following: a project or a thesis, ENGS 86, ENGS 88 or ENGS 89*; an advanced engineering sciences course with a significant design or research project, normally taken in the senior year, chosen from an approved list (consult the Engineering Sciences Department for the most recent list); or PHYS 68, PHYS 72, PHYS 73, PHYS 74, PHYS 76, PHYS 82, or PHYS 87.

**ENGS 89 must be taken as part of the two-course design sequence ENGS 89/ ENGS 90 [formerly ENGS 190/ ENGS 290]. Prior to enrollment in ENGS 89 [formerly ENGS 190], at least six engineering sciences courses must be completed: ENGS 21 plus five additional courses numbered 22 - 76.*

All major programs require an average GPA of 2.0 in all courses counted toward the major, including prerequisites.

For more information contact Professor Hudson (Physics and Astronomy) or Professor Lotko (Engineering Sciences).

Students who major in Engineering Physics or major in Physics with an Engineering Sciences minor can enter the professionally-accredited Bachelor of Engineering (B.E.) program at the Thayer School and complete the requirements for the B.E. degree with an additional year of study beyond the A.B. Students interested in pursuing the B.E. are strongly encouraged to work closely with their major advisor to choose their elective courses.

A detailed description of the B.E. requirements can be found on the Engineering Sciences ORC page.

Requirements for the Major in Astronomy

Prerequisite: MATH 3, MATH 8, MATH 13; and two courses from the introductory physics sequence: PHYS 3 and 4, or PHYS 13 and 14, or PHYS 15 and 16.

Students completing a major in astronomy are required to take ASTR 15, ASTR 25, ASTR 61 and one elective from ASTR 74, ASTR 75, ASTR 81, ASTR 87. Two additional courses must be selected from Physics and Astronomy courses numbered 19 or above. The remaining two courses

may be selected from any Physics and Astronomy course numbered 19 or above, or given the interdisciplinary nature of astronomy, two suitable advanced courses from other science departments may be taken as part of the astronomy major, subject to department approval.

Graduate courses in Physics and Astronomy are open to qualified undergraduates. Students are required to complete a culminating activity in the major. For the astronomy major this requirement may be satisfied by receiving credit for one of the following courses: ASTR 74, Astrophysics; ASTR 75, High Energy Astrophysics; ASTR 81, Special Topics in Astronomy; ASTR 87, Undergraduate Research in Astronomy; PHYS 77, Introduction to General Relativity and Gravitation. The culminating experience is included in, not in addition to, the eight courses required for the major.

All major programs require an average GPA of 2.0 in all courses counted toward the major, including prerequisites.

Requirements for Physics and Astronomy Minors

Physics Minor

Prerequisite: MATH 3, MATH 8, MATH 13, MATH 23, or equivalents; PHYS 13 and PHYS 14 (or PHYS 3 and PHYS 4, or PHYS 15 and PHYS 16).

Four courses are required in addition to the prerequisites. One of these must be PHYS 19 except that students taking PHYS 15 and PHYS 16 may substitute another elective for PHYS 19. The other three must be chosen from physics courses numbered 30, 31 or 40 and above, and/or astronomy 15 or 25 and above, at least one of which must be numbered above all of these.

Astronomy Minor

Prerequisites: MATH 3 and MATH 8 or equivalents; PHYS 13 and PHYS 14 (or PHYS 3 and PHYS 4, or PHYS 15 and PHYS 16).

Four courses are required in addition to the prerequisites. One of these must be ASTR 15. The other three are ASTR 25, ASTR 61, and ASTR 81. Any physics or astronomy course numbered 20 or above may be substituted for one of these three.

Note that ASTR 25 has PHYS 14 as prerequisite.

Requirements for the Mathematical Physics Minor

This minor is sponsored by the faculty in Mathematics and Physics. It may be combined with majors in either of the two departments, or any other department. Students majoring in both physics and mathematics cannot take the minor.

Prerequisites: PHYS 13, PHYS 14, PHYS 19 (or PHYS 15 and PHYS 16), and PHYS 40, MATH 3, MATH 8, MATH 13, and MATH 22 or MATH 24.

Requirements: A total of four additional courses are required. These must include MATH 23 and MATH 46. Mathematics majors must choose two elective physics courses from the following list; physics majors must choose two elective mathematics courses; students majoring in a department other than mathematics or physics must choose one mathematics and one physics course.

PHYS 30, PHYS 31, PHYS 41, PHYS 43, PHYS 44, PHYS 47, PHYS 50, PHYS 66, PHYS 72, PHYS 75, PHYS 77, PHYS 90.

MATH 31 or MATH 71, MATH 42, MATH 43, MATH 53, MATH 54, MATH 63, MATH 66, MATH 73, MATH 76.

An advanced undergraduate or graduate level physics or mathematics course may be substituted, with permission from the physics or mathematics department undergraduate advisor. No course may count towards both the major and minor.

Off Campus Study

The Department of Physics and Astronomy sponsors a foreign study program (FSP) in South Africa during alternate winter terms, first offered in 15W. Twelve to sixteen students will be selected for the program; MATH 3 and an introductory physics course (Physics 3, or 13 or 15) are the only prerequisite courses. Students on the FSP get credit for three courses: ASTR 15, ASTR 61, and ASTR 81 (all of which count towards the astronomy or physics major). The FSP consists of five weeks of intensive course work on the campus of the University of Cape Town, followed by one week spent at the South African Astronomical Observatory (SAAO), which will include data taking, followed by independent research study on the Cape Town campus using the data collected, under close supervision of a faculty member. Dartmouth owns approximately a ten percent stake in the Southern African Large Telescope, which is at SAAO and is the largest optical telescope in the Southern Hemisphere. For further information, see Professors Chaboyer or Thorstensen.

Honors Program in Physics Or Astronomy

An honors student carries out a program of independent work in physics or astronomy under the supervision of a member of the faculty. This independent work may be done in the student's senior year, but often begins earlier. It may be experimental, theoretical, or observational. A written report on the completed work is required.

Any major meeting the college requirements (as described in the Regulations section of this catalog) is eligible for admission to the departmental Honors Program. To enter the program eligible students should obtain the permission of the Department and of the faculty member who is to

supervise the work. Seniors will receive information on the application process and subsequent deadlines early Fall term. Early consultation with the Department is encouraged.

All departmental Honors are considered individually and awarded by a vote of the faculty. To be considered for *High Honors* the student must defend an Honors Thesis based upon the independent work before a faculty committee. Students with an average in the major of 3.75 or higher who do not complete an honors thesis may be considered for *Honors*, as distinct from High Honors, provided they have completed three courses beyond the minimum number required for the major from among the list of courses numbered 60 or higher. One of the courses must be PHYS 76, PHYS 82, ASTR 81 or PHYS 87.

All Honors students must meet the minimum requirements of the regular major, and, ordinarily, should take physics, astronomy, and mathematics courses beyond those requirements. Special programs may be worked out for eligible students who wish to include extensive work in a field related to physics or astronomy.

Courses for Graduate Credit

Physics and astronomy courses offered for graduate credit are those numbered 61 or higher. The Department of Physics and Astronomy will allow graduate credit for any course offered by the Departments of Biochemistry, Biological Sciences, Chemistry, Earth Sciences, Engineering Sciences, or Mathematics that receives graduate credit from that department.

ASTR - Astronomy - Undergraduate Courses

To view *Physics Undergraduate courses*, [click here](#). (p. 423)

To view *Astronomy Undergraduate requirements*, [click here](#). (p. 417)

To view *Physics and Astronomy Graduate requirements*, [click here](#). (p. 599)

To view *Astronomy Graduate courses*, [click here](#). (p. 600)

To view *Physics Graduate courses*, [click here](#). (p. 601)

ASTR 1 - Exploration of the Solar System

Instructor: DiPompeo (spring), Staff (summer)

An introduction to the study of the nine major planets and their natural satellites, together with asteroids and comets. Topics to be discussed include formation and evolution of the early solar system, Terrestrial and Jovian planetary surfaces and atmospheres, comparative planetology, and the collision of planetary bodies. Course material will include results from recent planetary spacecraft missions. Labs include making observations with telescopes. No prerequisite. Supplemental course fee required.

Distributive: Dist:SLA

Offered: 16S: 11, 16X: 10, 17S: 11

ASTR 2 - Exploring the Universe

Instructor: Hickox (fall), Staff (summer)

A survey of contemporary knowledge of the nature and the evolution of stars, galaxies and the universe. Topics include stellar evolution, the origin of the elements, the deaths of stars, black holes, the structure of our Galaxy, other galaxies, dark matter, the expanding universe and the big bang. Physical processes underlying these phenomena are discussed. No student may receive credit for both ASTR 2 and ASTR 3. Identical to ASTR 3, but without the observing laboratory.

Distributive: Dist:SCI

Offered: 15F, 16X, 16F: 11

ASTR 3 - Exploring the Universe, with Laboratory

Instructor: Hickox (fall), Staff (summer)

A survey of contemporary knowledge of the nature and the evolution of stars, galaxies and the universe. Topics include stellar evolution, the origin of the elements, the deaths of stars, black holes, the structure of our Galaxy, other galaxies, dark matter, the expanding universe and the big bang. Physical processes underlying these phenomena are discussed. Students will make observations with radio and optical telescopes. Supplemental course fee required. No student may receive credit for both ASTR 2 and ASTR 3. Identical to ASTR 2, but with an observing laboratory.

Distributive: Dist:SLA

Offered: 15F, 16X, 16F: 11

ASTR 4 - The Development of Astronomical Thought

Distributive: SCI

Offered: Not offered in the period from 15F through 17S

ASTR 7 - First-year Seminars in Astronomy

Offered: Consult special listings

ASTR 15 - Stars and the Milky Way

Instructor: Hickox (spring), Staff (winter/DFSP)

An introduction to astronomy and astrophysics for science majors and others with some background in physics, providing an observational and theoretical background for more advanced topics in astrophysics. Topics include basic properties of stars as derived from observations, stellar evolution, black holes, transfer of energy by electromagnetic radiation, the interstellar gas and the Milky Way galaxy. Students will make observations with the telescope.

Prerequisite: An introductory physics course (or permission of instructor) and MATH 3.

Distributive: Dist:SCI

Offered: 16S: 10A 17W: D.F.S.P. 17S: 10A

ASTR 25 - Galaxies and Cosmology

Instructor: Chaboyer

This is a course in physical cosmology. The first half builds the Universe from the bottom up, focusing on galaxies. Topics include galaxy classification dynamics, clustering, dark matter, and evidence for the large scale homogeneity. The second half builds the Universe from the top down, developing the Big Bang cosmology. Topics include FRW equation classical cosmological tests, nucleosynthesis, and cosmic microwave background.

Prerequisite: PHYS 14 or permission of the instructor.

Distributive: Dist:SCI

Offered: 16W: 10A

ASTR 61 - Observational Techniques in Astronomy

Instructor: Staff (DFSP)

The fundamental techniques of observational astronomy. Topics include detectors, photometry, spectroscopy, data acquisition and analysis.

Prerequisite: ASTR 2, ASTR 3 or ASTR 15.

Distributive: Dist:SLA

Offered: 17W: D.F.S.P.

ASTR 74 - Astrophysics

Instructor: Chaboyer

A survey of the processes which generate radiation detected by astronomers, and how astronomers interpret observations to understand the Universe. Topics include radiative transfer, blackbody radiation, bremsstrahlung, synchrotron radiation, inverse Compton scattering, atomic and molecular spectra. Applications will include emission from neutron stars, accretion disks surrounding black holes, stellar atmospheres, intergalactic gas and the cosmic microwave background.

Prerequisite: PHYS 14 or PHYS 16; and PHYS 19 or PHYS 24 or PHYS 40; and ASTR 2 or ASTR 3 or ASTR 15, or permission of instructor.

Distributive: Dist:SCI

Offered: 15F, 16F: 12

ASTR 75 - High Energy Astrophysics

The physics and observations of black holes, neutron stars, white dwarfs, supernova remnants, and extragalactic objects through x-ray, gamma-ray, and cosmic rays.

Prerequisite: PHYS 19 and ASTR 25 or the equivalent, or permission of the instructor.

Distributive: Dist:SCI

Offered: Not offered in the period from 15F through 17S

ASTR 81 - Special Topics in Astronomy

Advanced study of a topic in observational astronomy, culminating in a one- to two-week observing session at a major research observatory, such as the MDM Observatory [Michigan-Dartmouth-MIT, operated with University of Michigan, Ohio State University, Columbia University and Ohio University] in Arizona, or the SAAO [South African Astronomical Observatory] in South Africa.

Offered: All Terms: Arrange

ASTR 87 - Undergraduate Research in Astronomy

Intensive individual work on an observational or theoretical problem in astronomy or cosmology under the guidance of a staff member.

Prerequisite: permission of the Chair.

Offered: All terms: Arrange

PHYS - Physics - Undergraduate Courses

To view Astronomy Undergraduate courses, click here. (p. 421)

To view Physics Undergraduate requirements, click here. (p. 417)

To view Physics and Astronomy Graduate requirements, click here. (p. 599)

To view Astronomy Graduate courses, click here. (p. 600)

To view Physics Graduate courses, click here. (p. 601)

PHYS 1 - Understanding the Universe: From Atoms to the Big Bang, with Laboratory

Instructor: Kremer

An introduction to the evolution of physical theories and models of natural phenomena from ancient Greece to modern times. Topics include Pre-Socratic and Aristotelian natural philosophy; the scientific revolutions of Copernicus, Kepler, Galileo, and Newton, and the birth of mechanics; electromagnetism, thermodynamics, and the physics of light in the nineteenth century; the emergence of quantum mechanics and relativity theory; modern particle physics and the search for unification; the interface of particle physics and cosmology; and physics and its contexts (other sciences, worldviews, technologies, the Cold War). Students will carry out five biweekly laboratory experiments illustrating major discoveries. No student may receive credit for both Physics 1 and Physics 2. Identical to Physics 2, but with the laboratory.

Distributive: Dist:SLA

Offered: 16S, 17S: 12

PHYS 2 - Understanding the Universe: From Atoms to the Big Bang

Instructor: Kremer

No student may receive credit for both Physics 1 and Physics 2. Identical to PHYS 1, but without the laboratory.

Distributive: Dist:SCI

Offered: 16S, 17S: 12

PHYS 3 - General Physics I

Instructor: Brown (fall), Staff (summer)

The fundamental laws and phenomena of mechanics, heat, wave motion, and sound, including relativistic concepts. The sequence Physics 3-4 is designed primarily for students who do not intend to take PHYS 19. One laboratory period per week.

Prerequisite: MATH 3.

Distributive: Dist:SLA

Offered: 15F, 16X, 16F: 12; Laboratory: Arrange

PHYS 4 - General Physics II

Instructor: Brown (winter), Lynch (spring)

The fundamental laws and phenomena of electricity, magnetism, and light, including quantum mechanical concepts; atomic and nuclear physics. One laboratory period per week.

Prerequisite: PHYS 3.

Distributive: Dist:SLA

Offered: 16W, 16S, 17W, 17S: 12; Laboratory: Arrange

PHYS 5 - Physics for Future Leaders

Instructor: Smith

This class is an introduction to modern physics, the resulting technologies and social ramifications. Physics topics include radiation, energy, atomic and nuclear structures, relativity, waves and quantum mechanics. These in turn have led to modern technologies such as microwaves, radar, GPS, lasers, nuclear power and weapons. We may also examine MRIs, X-rays, digital cameras, quantum cryptography, semiconductors including computer chips and photovoltaics. This course aims to take some of the mystery out of these technologies so that a student can be an informed citizen as society debates the uses of these machines and devices. Finally, we look at potential future developments such as quantum computing and new energy technologies. No prior physics is required.

Distributive: Dist:TAS

Offered: 16W: Arrange

PHYS 7 - First-year Seminars in Physics

Offered: Consult special listings

PHYS 13 - Introductory Physics I

Instructor: Caldwell, Rimberg (fall), LaBelle (winter)

The fundamental laws of mechanics. Reference frames. Harmonic and gravitational motion. Thermodynamics and kinetic theory. PHYS 13, PHYS 14, and PHYS 19 are designed as a three-term sequence for students majoring in a physical science. One laboratory period per week.

Prerequisite: MATH 3 and MATH 8 (at least concurrently).

Distributive: Dist:SLA

Offered: 15F, 16W, 16F, 17W: 10, 11; Laboratory: Arrange

PHYS 14 - Introductory Physics II

Instructor: Wright (winter), Thorstensen (spring)

The fundamental laws of electricity and magnetism. Maxwell's equations. Waves. Electrical and magnetic properties of bulk matter. Circuit theory. Optics. One laboratory period per week.

Prerequisite: PHYS 13 and MATH 8, or permission of the instructor.

Distributive: Dist:SLA

Offered: 16W: 10, 16S: 10, 11, 17W: 10, 17S: 10, 11; Laboratory: Arrange

PHYS 15 - Introductory Physics I, Honors Section

Instructor: Millan

PHYS 15 and PHYS 16 is an alternative sequence to PHYS 13, PHYS 14 and 19 for students whose substantial background in physics and mathematics enables them to study the material at a faster pace than is possible in regular sections, and who are willing to devote correspondingly more work to the course. Admission criteria are described in the First Year, available from the Office of the Dean of Undergraduate Students. Classical dynamics of particles and rigid bodies. Special Relativity. Introduction to Quantum Mechanics including the wave-particle duality of radiation and matter, the Uncertainty Principle and the Schrödinger equation in one and three spatial dimensions. One laboratory period per week.

Prerequisite: MATH 8 or MATH 9 concurrently, and permission of the instructor.

Distributive: Dist:SLA

Offered: 15F, 16F: 10; Laboratory: Arrange

PHYS 16 - Introductory Physics II, Honors Section

Instructor: Millan

Electric and magnetic fields of charges and currents. Electromagnetic induction. Dielectric and magnetic materials. Circuit theory. Maxwell's equations, electromagnetic waves and optics. Special relativity. One laboratory period per week.

Prerequisite: PHYS 15 or permission of the instructor.

Distributive: Dist:SLA

Offered: 16W, 17W: 10; Laboratory: Arrange

PHYS 19 - Introductory Physics III (fall); Relativistic and Quantum Physics

Instructor: Mueller (fall, spring)

The general theme of this course is the wave-particle duality of radiation and matter, with an introduction to special relativity. Classical wave phenomena in mechanical and electromagnetic systems including beats, interference, and diffraction. Quantum aspects of electromagnetic radiation include the photoelectric effect, Compton scattering and pair production and annihilation. Quantum aspects of matter include DeBroglie waves, electron diffraction, and the spectrum of the hydrogen atom. The Schrödinger equation is discussed in one and three spatial dimensions.

Prerequisite: PHYS 14 and MATH 13, or permission of the instructor.

Distributive: Dist:SCI

Offered: 15F, 16S, 16F, 17S: 9; Laboratory: Arrange

PHYS 30 - Biological Physics

Instructor: Hill

Introduction to the principles of physics and engineering applied to biological problems. Topics include the architecture of biological cells, molecular motion, entropic forces, enzymes and molecular machines, and nerve impulses.

Prerequisite: CHEM 5, PHYS 13 and PHYS 14 (or equivalent). PHYS 14 (or equivalent) may be taken concurrently. Students with strong quantitative skills who have taken PHYS 3 and PHYS 4 can enroll with permission of the instructor.

Cross-Listed as: ENGS 30

Distributive: Dist:SCI

Offered: 16S, 17S: 11

PHYS 31 - Explore Physics!

Instructor: Rimberg

This course introduces students to exciting discoveries and current topics. Students have an opportunity to apply many physics concepts learned in their introductory courses to topics on the cutting edge. Themes may include the Birth of the Universe, Quantum Computers, Space Exploration, and the Physics of Alternative Energy.

Prerequisite: PHYS 13, PHYS 14 or PHYS 15, PHYS 16

Distributive: SCI

Offered: 16S: 10A

PHYS 40 - Quantum Physics of Matter

Instructor: Onofrio

An introduction to the quantum physics of matter on different scales, from a phenomenological perspective. Schrödinger equation in three spatial dimensions, angular momentum and hydrogenic wavefunctions. Spin and the Pauli exclusion principle, application to multi-electron atoms, the periodic table. Molecular bonds and spectra. Basic properties of solids, survey of nuclear models and reactions.

Prerequisite: PHYS 15 or PHYS 19; and PHYS 14 or PHYS 16, or permission of the instructor.

Distributive: Dist:SCI

Offered: 16S, 17S: 10

PHYS 41 - Electricity and Magnetism

Instructor: Alexander

The differential and integral laws of electric and magnetic fields in vector form. Potential theory and boundary value problems. Maxwell's equations, the wave equation and plane waves.

Prerequisite: PHYS 15 or 19; and PHYS 14 or PHYS 16; or permission of the instructor.

Distributive: Dist:SCI

Offered: 16W, 17W: 10

PHYS 42 - Introductory Quantum Mechanics

Instructor: Onofrio

Detailed solutions of the Schrödinger equation for a variety of systems including bound states and scattering states in one and three dimensions. Matrix representations of spin and orbital angular momenta. Applications to atomic, molecular and nuclear problems are emphasized.

Prerequisite: PHYS 24 and MATH 23, or permission of the instructor.

Distributive: Dist:SCI

Offered: 16W: Arrange

PHYS 43 - Statistical Physics

Instructor: Thorstensen

Kinetic theory of gases. Boltzmann's Principle. Boltzmann, Bose-Einstein and Fermi-Dirac statistics. The statistical approach to thermodynamics. Applications to radiation, atoms, molecules, and condensed matter.

Prerequisite: PHYS 15 or 19; and PHYS 14 or PHYS 16; or permission of the instructor.

Distributive: Dist:SCI

Offered: 15F, 16F: 9

PHYS 44 - Mechanics

The fundamental principles of mechanics. Lagrangian form of the equations of motion. Central force motion, collisions and scattering, dynamics of rigid bodies, vibrations, normal modes, and waves. Nonlinear dynamics and chaos.

Prerequisite: PHYS 16 or PHYS 19; MATH 23, or permission of the instructor.

Distributive: Dist:SCI

Offered: 16X: 11

PHYS 47 - Optics

Instructor: Wright

This course covers geometrical, physical, and modern optics topics including the propagation, reflection, dispersion, and refraction of radiant energy; polarization, interference, and diffraction in optical systems; the basics of coherence theory, lasers, quantum optics, and holography. Applications of optical and laser science will be discussed. Lectures and laboratory work.

Prerequisite: PHYS 14 or PHYS 16 and MATH 13, or permission.

Distributive: Dist:SLA

Offered: 15F, 16F: 11

PHYS 48 - Electronics: Introduction to Linear and Digital Circuits

Instructor: Odame

Principles of operation of semiconductor diodes, bipolar and field-effect transistors, and their application in rectifier, amplifier, waveshaping, and logic circuits. Basic active-circuit theory. Introduction to integrated circuits: the operational amplifier and comparator, to include practical considerations for designing circuits with off-the shelf components. Emphasis on breadth of coverage of low-frequency linear and digital networks, as well as on high order passive and active filter design. Laboratory exercises permit "hands-on" experience in the analysis and design of simple electronic circuits. The course is designed for two populations: a) those desiring a single course in basic

electronics, and b) those that need the fundamentals necessary for further study of active circuits and systems.

Prerequisite: ENGS 22, or equivalent background in basic circuit theory.

Cross-Listed as: ENGS 32

Distributive: Dist:TLA

Offered: 16W, 17W: 11; Laboratory

PHYS 50 - Introductory Quantum Mechanics

An introduction to the basic concepts and formalism of quantum mechanics. Time-dependent and time-independent Schrödinger equation for a variety of systems in one and three spatial dimensions, bound and unbound states, quantum tunneling. Basics of Dirac notation and matrix formalism. Orbital and spin angular momentum, addition rules. Approximation methods: WKB and variational approach, time-independent perturbation theory.

Prerequisite: PHYS 40 and MATH 23, or permission of the instructor.

Distributive: Dist:SCI

Offered: 16F: 10A

PHYS 66 - Relativistic Electrodynamics

Instructor: Brown

Classical electromagnetic radiation and relativistic electrodynamics. Topics include: electromagnetism and relativity; Maxwell stress-tensor; electromagnetic wave propagation in free space and media; radiation by charged particles; scattering; diffraction.

Prerequisite: PHYS 41 or permission of instructor.

Distributive: Dist:SCI

Offered: 16S: 10 Offered in alternate years

PHYS 68 - Introductory Plasma Physics

Instructor: Hudson

The physics of ionized gases with emphasis on the theory of waves and instabilities. Includes introduction to magnetohydrodynamics and kinetic theory of plasmas.

Prerequisite: PHYS 41 or permission of instructor.

Distributive: Dist:SCI

Offered: 15F, 16F: 10

PHYS 70 - Fourier Transforms and Complex Variables

Instructor: Testorf

Survey of a number of mathematical methods of importance in Engineering and Physics with particular emphasis on the Fourier transform as a tool for modeling

and analysis. Orthogonal function expansions, Fourier series, discrete and continuous Fourier transforms, generalized functions and sampling theory, complex functions and complex integration, Laplace, Z, and Hilbert transforms. Computational Fourier analysis. Applications to linear systems, waves, and signal processing.

Prerequisite: MATH 46 or ENGS 22, ENGS 23, or the equivalent.

Cross-Listed as: ENGS 92

Distributive: Dist:QDS

Offered: 15F, 16F: 2

PHYS 72 - Introductory Particle Physics

Characterization of elementary particles and their interactions according to the standard model; leptons, quarks, gauge bosons, and the Higgs mechanism. Composite particles and their interactions. Methods of production and measurement of particles. Particle lifetimes and cross sections.

Prerequisite: PHYS 50

Distributive: Dist:SCI

Offered: 17S: 10 Offered in alternate years

PHYS 73 - Introductory Condensed Matter Physics

Instructor: Ramanathan

The physics of condensed matter, primarily solids with periodic order. Theory and measurement of electronic, optical, magnetic, and thermal properties of solids. Lattice structures, symmetries, and bonding energies. The reciprocal lattice and the Brillouin Zone. Bloch's Theorem. Electron energy band structure and the Fermi surface, phonon mode dispersion, and other elementary excitations.

Prerequisite: PHYS 43 and PHYS 50; PHYS 43 may be taken concurrently.

Distributive: Dist:SCI

Offered: 15F, 16F: 12

PHYS 74 - Space Plasma Physics

Instructor: Hudson

Plasma processes in the solar system. The solar cycle, solar flares, solar wind outflow and interaction with distinct types of planetary magnetospheres. Plasma waves, particle acceleration and generation of escaping electromagnetic radiation. Magnetosphere-ionosphere coupling, and ionospheric interaction with the neutral atmosphere.

Prerequisite: PHYS 66 or PHYS 68, or permission of the instructor.

Distributive: Dist:SCI

Offered: 16S: Arrange Offered in alternate years

PHYS 75 - Quantum Computation and Information

Overview of basic ideas in classical and quantum computation. Concepts and physical realizations of quantum bits (qubits). Topics in quantum computation may include the Deutsch-Jozsa, quantum Fourier transform, Shor factorization and Grover search algorithms. Topics in quantum communication include quantum key distribution schemes and quantum teleportation. Issues relating to the foundations and interpretations of quantum mechanics will be revisited throughout the course.

Prerequisite: PHYS 15 or PHYS 19; or MATH 22; or permission of instructor.

Distributive: Dist:QDS

Offered: 17S: Arrange Offered in alternate years

PHYS 76 - Methods of Experimental Physics

Instructor: Wright

Experiments emphasizing modern techniques and topics in physical measurements. Experiments will cover areas including condensed matter, particle and plasma physics, and such practical laboratory techniques as noise suppression, digital data acquisition, and operation of standard laboratory equipment.

Prerequisite: PHYS 40

Distributive: Dist:SLA

Offered: 16S, 17S: 2A

PHYS 77 - Introduction to General Relativity and Gravitation

Instructor: Caldwell

An introduction to Einstein's General Theory of Relativity. Topics: review of special relativity and spacetime diagrams; equivalence principle; coordinates and four vectors; the spacetime metric; particle motion from a variational principle, the geodesic equation; spacetime physics; redshift and time dilation in the solar system, gravitational lenses, black holes, the expanding universe, gravitational waves, time machines (closed timelike curves); the field equations of General Relativity, connecting spacetime curvature to energy and momentum.

Prerequisite: PHYS 44 and PHYS 41.

Distributive: Dist:SCI

Offered: 15F: 2A Offered in alternate years

PHYS 82 - Special Topics Seminar

Advanced study in physics or astrophysics. Students will read and report orally on significant journal articles and write a paper summarizing their library research.

Offered: All terms: Arrange

PHYS 85.01 - Reading Course

Offered: All terms: Arrange

PHYS 87 - Undergraduate Research

Intensive individual work on an experimental or theoretical problem in physics or astronomy under the guidance of a staff member.

PHYS 87.01 - Undergraduate Research

Intensive individual work on an experimental or theoretical problem in physics or astronomy under the guidance of a staff member.

Prerequisite: permission of the Chair.

Offered: All terms: Arrange

PHYS 90 - Intermediate Quantum Mechanics

Instructor: Alexander

An in-depth study of the formal apparatus and postulates of non-relativistic quantum mechanics. Dirac formalism for pure quantum states and operators, quantum measurements and uncertainty relations. Mixed quantum states and density operators. Quantum dynamics in Schrödinger and Heisenberg picture. Symmetries and conservation laws, angular momentum theory. Approximation methods: time-independent and time-dependent perturbation theory.

Prerequisite: PHYS 50

Distributive: Dist:SCI

Offered: 16W, 17W: 12

PHYS 92 - Physics of the Early Universe

An introduction to the study of the early universe, focusing on the interaction of nuclear and particle physics and cosmology, the so-called inner-space outer-space connection. After an investigation of the Robertson-Walker metric and its application to the Big Bang model, the course will address the following topics; thermodynamics in an expanding universe; nucleosynthesis (synthesis of light nuclei) and baryogenesis (origin of excess matter over antimatter); inflationary models of cosmology; primordial phase transitions; introduction to quantum cosmology.

Prerequisite: PHYS 41, PHYS 43, PHYS 44, PHYS 50 and ASTR 25 (recommended).

Distributive: Dist:SCI

Offered: 17W: 2A Offered in alternate years

Psychological and Brain Sciences - Undergraduate

Chair: David J. Bucci

Professor Emeritus G. Wolford; Professor D. J. Bucci, A. S. Clark, R. H. Granger, J. V. Haxby, T. F. Heatherton, H.

C. Hughes, J. G. Hull, W. M. Kelley, J. S. Taube, P. U. Tse, P. J. Whalen; Associate Professors, C. P. Cramer, B. C. Duchaine, M. I. Gobbini, T. P. Wheatley; Assistant Professor L. Chang, J. Manning, M. Meng, W. M. Shim, K. S. Smith, A. Soltani, M. van der Meer; Senior Lecturer J. F. Pfister; Lecturer R. Clark, A. Connolly; Visiting Associate Professor J. L. Scheiner, J. White; Adjunct Professor R. A. Maue, J. D. Sargent; Adjunct Associate Professor M. G. Funnell; Adjunct Assistant Professor M. J. Detzer, W. L. Hudenko; Research Professor P. Cavanagh, Research Associate Professor V. A. Reed, Research Assistant Research Professor E. Cooper. All requirements or options that need approval of the Chair of the Departmental Undergraduate Committee must be filed in the Departmental office with a completed Checklist. Appropriate Checklists may be downloaded from the Departmental web site described below.

To view Psychological and Brain Sciences Undergraduate courses, click here. (p. 429)

To view Psychological and Brain Sciences Graduate requirements, click here. (p. 604)

To view Psychological and Brain Sciences Graduate courses, click here. (p. 605)

Requirements for the Psychology Major

Prerequisites: PSYC 1 and PSYC 10. Students must obtain a grade no lower than C in PSYC 1. Students who fail to obtain a C or better in PSYC 1 may still complete a major in Psychology in the event that they earn C or better in their next two Psychology courses. PSYC 10 may be taken concurrently with PSYC 1. As a course prerequisite to the major, PSYC 10 should be taken at or before the time of declaring the major; otherwise it must be taken in the first offering following sign-up for the major. Though we recommend against substituting, some other statistics courses are permitted as alternatives to PSYC 10 with permission, specifically: ECON 10, GOVT 10, MATH 10 and SOCY 10 (p. 472). AP statistics (MATH 10) may only be substituted if the departmental statistics placement test is also passed.

Requirements: The major requirements are as follows: The minimum major consists of one required course (PSYC 11) and seven electives. At least two of these seven electives must be numbered in the 20s, one 50 or higher, and another 60 or higher; the 60 or higher requirement constitutes the Culminating Experience requirement in Psychology. Of the two courses in the 20s, one must come from the set PSYC 23, PSYC 24, or PSYC 25 and the other must come from the set PSYC 21, PSYC 22, PSYC 26, PSYC 27 or PSYC 28 (p. 431). Neither PSYC 88 nor PSYC 89 may be used to satisfy the 60 or above requirement. With prior approval, credit for up to two electives may be transferred from

another institution, but credit for courses numbered 50 and above must be obtained at Dartmouth. Transfer of credits must be approved by the Chair of the Departmental Undergraduate Committee and by the Registrar prior to taking the course(s). Certain graduate courses may be taken by qualified and advanced undergraduates if permission is obtained from the course instructor. Majors must be approved by the Chair of the Departmental Undergraduate Committee.

The course numbers have meaning. Courses numbered 10 and below do not carry major credit. Courses numbered in the 20s are introductions to particular sub-areas in psychology. Courses in the 40s and 50s are more advanced than 20s level courses and generally have a narrower focus. Courses in the 60s are advanced laboratory courses. Courses in the 80s are upper level seminars.

The Department recommends that majors take more upper level (50, 60 and 80 level) courses than the minimum requirement.

The Modified Major

The Psychology major cannot be modified. Students who wish to have Psychology as the secondary part of a Modified Major may do so, if the major forms a unified and coherent whole, as approved by the Chair of the Departmental Undergraduate Committee.

Requirements for the Minor

The Minor will consist of 6 courses: PSYC 1 (prerequisite) plus five additional courses numbered 11 or above. Two of the five must be numbered in the 50s or above. While two of the six may be transfers, transfers cannot count toward the 50 or above requirement. Minors must be approved by the Chair of the Departmental Undergraduate Committee.

Requirements for the Major and Minor in Neuroscience

See section 'Neuroscience' in this catalog for information regarding these interdepartmental major and minor programs.

Honors Program

Qualified students majoring in Psychological and Brain Sciences have the opportunity to participate in an Honors Program that provides individualized advanced instruction and research experience in psychology.

Individuals may apply for honors work as early as the spring term of their junior year, but not later than the end of the second week of fall term of their senior year. Eligibility for honors is a 3.30 average in the major and a 3.0 average overall. Students interested in doing honors work should consult the Department web page.

To be awarded Honors at graduation, a student must fulfill the following requirements:

1. Satisfactorily fulfill all course requirements of the major and maintain at least a 3.30 major GPA.

2. By the last class day of the fifth week of the Winter term preceding the completion of the thesis, the student must submit a prospectus of their thesis work to the Departmental Undergraduate Committee. The prospectus shall include a brief description of the rationale for the research, methods used, analyses to be employed and implications of the expected results.

3. An acceptable thesis, based upon at least two terms of laboratory or field research that is carried out under the auspices of PSYC 89 and is under the supervision of a department faculty member must be written. The Honors Thesis will entail an independent and individual project. Furthermore, the thesis must be read and approved by the Thesis Committee.

4. Honors students will present their research to departmental faculty and interested others during the latter part of the Spring term of their senior year.

Psychological and Brain Sciences Department Website

Please check the Departmental website at <http://www.dartmouth.edu/~psych/> for further information, including updated course offerings, Departmental Colloquia, and PDF versions of all checklists.

PSYC - Psychological and Brain Sciences - Undergraduate Courses

To view Psychological and Brain Sciences Undergraduate requirements, click here. (p. 427)

To view Psychological and Brain Sciences Graduate requirements, click here. (p. 604)

To view Psychological and Brain Sciences Graduate courses, click here. (p. 605)

PSYC 1 - Introductory Psychology

Instructor: The staff

A course designed to serve as a general introduction to the science of human behavior. Emphasis will be placed upon the basic psychological processes of perception, learning, and motivation as they relate to personality, individual differences, social behavior, and the behavior disorders.

Distributive: Dist:SOC

Offered: 15F, 15W, 15S, 16F, 16W, 16S, 17F: 10

PSYC 6 - Introduction to Neuroscience

Instructor: Cramer, Bucci

This course provides students with an introduction to the fundamental principles of neuroscience. The course will include sections on cellular and molecular neuroscience, neurophysiology, neuroanatomy, and cognitive neuroscience. Neuroscience is a broad field that is intrinsically interdisciplinary. As a consequence, the

course draws on a variety of disciplines, including biochemistry, biology, physiology, pharmacology, (neuro)anatomy and psychology. The course will begin with in-depth analysis of basic functions of single nerve cells. We will then consider increasingly more complex neural circuits, which by the end of the course will lead to an analysis of the brain mechanisms that underlie complex goal-oriented behavior.

Distributive: Dist:SCI

Offered: 15F, 16W, 2

PSYC 7 - First-Year Seminars in Psychology

Offered: Consult special listings. This course does not carry major credit.

PSYC 10 - Experimental Design, Methodology, and Data Analysis Procedures

Instructor: Soltani, Pfister

This course is concerned with the various ways whereby empirical information is obtained and analyzed in psychology. Coverage will include the design of experiments and surveys, their execution, and the statistical tasks required to make sense of the data obtained using these techniques. There will be both lecture and discussion sections; independent projects will be required. The discussions and projects will include everyday applied problems as well as more traditional psychological problems.

Prerequisite: PSYC 1 or PSYC 6 (may be taken concurrently). Because of the large overlap in material covered, no student may receive credit for more than one of the courses ECON 10, GOV 10, MATH 10, MSS 15 or MSS 45, PSYC 10, or SOCY 10 except by special petition. Cannot be taken concurrently with PSYC 11.

Distributive: Dist:QDS

Offered: 15X: 10, 15F, 16S: 9L

PSYC 11 - Laboratory in Psychological Science.

Instructor: K. R. Clark, Duchaine, Manning

This laboratory course will provide a general introduction to the experimental methods of psychological science. Lectures will provide an overview of experimental techniques in four content areas (behavioral neuroscience, sensation/perception, cognitive/cognitive neuroscience, and social/applied psychology). The focus will be on how psychological scientists pursue research questions using diverse techniques, such as functional brain imaging, reaction time, psychopharmacology, self-reports, and survey methods. Laboratory exercises will complement the lecture material. Ethical issues as they pertain to psychological research will also be addressed.

Prerequisite: PSYC 1 or PSYC 6 and PSYC 10. Cannot be taken concurrently with PSYC 10.

Distributive: Dist:SLA

Offered: 15X: 2, 15F,16S: 12, Laboratory

PSYC 21 - Perception

Instructor: Hughes, Tse

Our senses are our windows to the world, and the scientific study of the senses is one of the oldest sub-disciplines in experimental psychology. This course introduces students to the fundamental workings of our senses of vision, hearing, touch, taste and smell. The course includes careful consideration of experimental methodology as well as content.

Prerequisite: PSYC 1 or PSYC 6.

Distributive: Dist:SCI

Offered: 15F: 12, 16S: 11

PSYC 22 - Learning

Instructor: Bucci

Learning is a fundamental process that is essential for survival. This course will approach the study of learning from three perspectives: conditioning, cognition, and neurobiology. By studying conditioning, we will explore the basic processes that underlie an animal's ability to learn. Cognitive aspects of learning will include discussions of human learning styles and techniques. Consideration of neural substrates will demonstrate the brain mechanisms that underlie the ability to learn and remember information. Throughout the course there will also be an emphasis on the methods and experiments that have lead to our current understanding of the behavioral and biological substrates of learning.

Prerequisite: PSYC 1 or PSYC 6.

Distributive: Dist:SOC

Offered: 15S: 2

PSYC 23 - Social Psychology

Instructor: Wheatley

This course is an introduction to contemporary psychological theory and research on social behavior. Specific topics include self-presentation, nonverbal behavior, interpersonal relations, conformity, persuasion, aggression, altruism, and group dynamics. Within these contexts, emphasis is placed on the importance of both personality and situational factors as determinants of social behavior.

Prerequisite: PSYC 1.

Distributive: Dist:SOC

Offered: 16W, 17W: 11

PSYC 24 - Abnormal Psychology

Instructor: Hudenko

This course explores various types of psychopathology, with a focus on characteristics, diagnosis, etiology, and treatment. We will examine psychopathology from a variety of perspectives and will discuss current research on specific disorders. We illustrate the experience of psychology using case histories and video footage to better understand the realities and challenges for those diagnosed with psychopathology.

Prerequisite: PSYC 1.

Distributive: Dist:SOC

Offered: 15F, 16F: 9L

PSYC 25 - Developmental Psychology

Instructor: Scheiner

We will examine the social and cognitive development of children from infancy to adolescence. We will also consider the implications of psychological research and theory for parenting, and for social and legal policies that affect young children. Film and videotape materials will be used to illustrate examples of infant and child behavior.

Prerequisite: PSYC 1

Distributive: Dist:SOC

Offered: 15X: 2A

PSYC 26 - Physiological Psychology

The course, designed for Psychology majors, provides an introduction to the biological processes underlying behavior. Basic neuroanatomy, cellular physiology, and endocrinology will first be outlined. Such psychological concepts as sensation, learning, and motivation will then be related to neural function and to a variety of physiological correlates. Because of the overlap in material covered, no student may receive credit for both PSYC 26 and PSYC 45.

Distributive: Dist:SCI

PSYC 27 - Cognitive Neuroscience

Instructor: Meng

Cognitive neuroscience is a multidisciplinary academic field that involves psychology, neuroscience, computer science, biomedical engineering, and philosophy. Methods employed in cognitive neuroscience include experimental paradigms from psychophysics, functional neuroimaging, electrophysiology, cognitive genomics and behavioral genetics. Theoretical approaches include computational neuroscience and cognitive modeling. This course will discuss about neural underpinnings of various mental phenomena including perception, attention, memory, language, the control of action, emotion, intelligence, and

consciousness. It aims to provide necessary background knowledge in cognitive neuroscience to students who are interested in related scientific frontiers.

Prerequisite: PSYC 1 or PSYC 6

Distributive: Dist:SCI

Offered: 16W: 2

PSYC 28 - Cognition

Instructor: Kelley

An introduction to the study of thought, memory, language, and attention from the point of view of information processing. In surveying research in cognitive psychology, substantial contact is made with related cognitive sciences, such as artificial intelligence, linguistics, neuroscience, and contemporary philosophy. In the course of examining general principles of cognition, the following topics are discussed: mental imagery; concepts; reasoning; discourse, monetary and courtroom decision making; eye-witness testimony; social attribution and stereotyping; language in chimpanzees; expert systems; the relationship between information processing and conscious experience; and the philosophical foundations of cognitive science.

Prerequisite: PSYC 1 or PSYC 6 or COSC 1

Cross-Listed as: COGS 2

Distributive: Dist:SOC

Offered: 16S: 2

PSYC 40 - Introduction to Computational Neuroscience

Instructor: Granger

Your brain is composed of low-precision, slow, sparsely-connected computing elements, yet it outperforms any extant computer on tasks ranging from perception to planning. Computational Neuroscience has as its twin goals the scientific understanding of how brains compute thought, and the engineering capability to reconstruct the identified computations. Topics in the class included anatomical circuit design, physiological operating rules, evolutionary derivation, mathematical analyses, and emergent behavior, as well as development of applications from robotics to medicine.

Prerequisite: One of : PSYC 1, PSYC 6, BIOL 34, COSC 1 or ENGS 20.

Cross-Listed as: COSC 16

Distributive: Dist:SCI

Offered: 15F, 16F: 2A

PSYC 43 - Emotion

Instructor: Whalen

Long before the field of Psychology existed, there was an appreciation that our emotions exert a profound influence over our behavior. Psychology must struggle with the more tangible question of how to study emotions and thereby interpret their influence on behavior. In this course, we will examine how psychologists (past and present) have attempted to study emotion. We will augment this information by learning how the brain supports emotional processing. We will then consider human disorders where emotional processing has gone wrong, as this will inform us about how things were supposed to work in the first place. And, then, we will be in a better position to answer the really big questions. What is an emotion? Who has emotions? Do you? Does your neighbor? Do German Shepherds? How do you know?

Prerequisite: PSYC 1 or PSYC 6.

Distributive: Dist:SOC

Offered: 16W: 2A

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Prerequisite: PSYC 1 or PSYC 6.

Distributive: Dist:SOC

Offered: 16W: 2A

PSYC 44 - Psychology and Organizations

Instructor: White

Leadership and teamwork are among the most highly prized skills in today's businesses. This course will explore the psychological underpinnings of these and other organizational behaviors, including decision-making, communication, and conflict resolution. How do we understand leadership? How do power and status affect communication in a hierarchy? How can conflict lead to creativity? We will delve into the answers with a combination of reading and discussion, in-class role-plays and exercises, and project-based learning. Our goal is to

advance an understanding of why people behave the way they do in workgroups and in organizations.

Prerequisite: PSYC 1

Distributive: Dist:SOC

Offered: 16S: 9L

PSYC 45 - Behavioral Neuroscience

Instructor: Clark, A.S.

We are complex organisms that perform complex behaviors. In this course we will explore the neurological underpinnings of behavior. Some topics we will cover include the neural control of life-sustaining behaviors such as eating and drinking. In addition, we will explore how the brain contributes to the display of other complex behaviors such as sexual behavior and responding to stress. We will use the text, primary research articles and case studies to examine the relationship between brain and behavior. Because of the overlap in material covered, no student may receive credit for both PSYC 26 and PSYC 45.

Prerequisite: PSYC 6 or BIOL 34.

Distributive: Dist:SCI

Offered: 15F, 16W, 16F, 17W: 10A

PSYC 46 - Cellular and Molecular Neuroscience

Instructor: Maue

This course focuses on cellular and molecular mechanisms that underlie the development and function of the nervous system. This includes aspects of gene expression (transcription, mRNA metabolism) and cell biology (cellular transport and cytoskeleton, cell cycle, signal transduction, and signaling pathways) as they pertain to neurons and glia. Lectures supplemented by in-class discussion of primary research articles will also serve as an introduction to microscopic, electrophysiological, molecular biological, and genetic techniques and animal models used to study the nervous system and neurological disorders.

Prerequisite: PSYC 6 or BIOL 34.

Distributive: Dist:SCI

Offered: 16S, 17S: 11

PSYC 50 - Issues in Neuroscience

Courses with this number consider topics that bring to bear knowledge in the fields of psychology, neurology, and physiology. Topics are treated at an intermediate level and the focus will be on topics not covered in detail in Psychology 26, 45, and 65. The selection of issues is at the discretion of the instructor. Enrollment limited to 35 students.

Distributive: Dist:SCI

PSYC 50.01 - Neuroscience of Mental Illness

Instructor: Funnell

The goal of this course is to explore the neurological correlates of psychopathology. For each mental illness covered in the class, we will first review the characteristics and diagnostic criteria of the disorder and will then explore the neurological correlates in terms of etiology, manifestation, and treatment. We will examine evidence from a variety of sources, including neuroanatomical studies, neuroimaging experiments, and neurodevelopmental studies, with a focus on current research findings. Case histories and video footage will be used to illustrate the experience of psychopathology with the goal of elucidating the links between the brain and behavior.

Prerequisite: PSYC 6 and one of the following: PSYC 24, PSYC 26, PSYC 27, PSYC 45, PSYC 46, PSYC 50 (any), PSYC 65, BIOL 34

Distributive: Dist:SCI

Offered: 15F: 12

PSYC 50.02 - Decision Making

Instructor: Soltani

In this course we examine decision making from both behavioral and neurobiological points of view. Specifically, we learn about different methods used in psychology and neuroscience (e.g. operant conditioning, signal detection theory, reinforcement learning) to study decision making at various levels, from cognitive processes to underpinning neural activity. We also learn about the notion of rationality and heuristics in decision making (e.g. why do we show risk aversion?). Overall, this course introduces students to specific topics in behavioral psychology, neurobiology, system and computational neuroscience, and economics.

Prerequisite: PSYC 1 or PSYC 6

Distributive: Dist:SCI

Offered: 16W: 10A

PSYC 50.04 - Sleep and Sleep Disorders

Instructor: Sateia

This course will explore the basic biological mechanisms of sleep and circadian rhythms, including neuroanatomical and neurophysiological aspects of sleep/wake, as well as the behavioral and social aspects of normal sleep. The course will then build upon this basic understanding of normal sleep and circadian rhythm to develop an overview of major sleep and circadian rhythm disorders. The importance of sleep to adequate daytime neuropsychological functioning and the social, public policy and economic issues pertinent to sleep and circadian rhythms will be addressed.

Prerequisite: PSYC 1 or PSYC 6

Distributive: Dist:SCI

Offered: 14F: 2A

PSYC 50.07 - Exotic Sensory Systems

Instructor: Hughes

Humans have 5 special senses (vision, hearing, touch, taste and smell) and a variety of 'internal senses' that provide information about the state of our body and internal organs. However, some animals possess senses that are unlike anything that humans can experience. Examples include echolocation, celestial and geomagnetic navigational systems, and bioelectricity. This course explores the discovery and operation of these 'exotic' senses, highlighting both the similarities and differences with our own more familiar sensory modalities.

Prerequisite: PSYC 1 or PSYC 6 and PSYC 21, or instructor's permission

Distributive: Dist:SCI

Offered: 16S: 12

PSYC 50.08 - Neurobiology of Learning and Memory

Instructor: Taube

This course will discuss the neurobiology of learning and memory from cognitive, behavioral, and cellular neuroscience perspectives. The goal of the course is to better understand the neurobiological mechanisms and brain systems that underlie learning and memory processes. A fundamental understanding of membrane and synaptic potentials is strongly recommended

Prerequisite: PSYC 6 OR instructor permission

Distributive: Dist:SCI

Offered: 16W: 10A

PSYC 50.09 - Motivation, Drugs, and Addiction

Instructor: Smith

This course will explore how the brain controls our motivation to pursue goals and how drugs of abuse hijack those systems. We will learn about some historical perspectives of motivation as well as modern neuroscience work showing how areas of the brain might contribute to motivations. In the process, we will explore in detail how narcotic drugs (opioids, stimulants, alcohol, cannabis) act in the brain and the mechanisms underlying the transition from drug use to addiction

Prerequisite: PSYC 6 and one of: PSYC 26, PSYC 45, PSYC 46, BIOL 34

Distributive: Dist:SCI

Offered: 16W:2A

PSYC 50.10 - The Rhythmic Brain

Instructor: van der Meer

This course explores the physiological basis and functional relevance of oscillations, which are ubiquitous in the brain. Rhythmic pattern generators in specific neurons and circuits are essential for generating repeating movements such as breathing and walking yet, oscillations are equally prominent in neural systems for sensation, cognition, and memory. Could it be that these rhythms are a fundamental building block of information processing in neural circuits? This course provides an introduction to the detection, analysis and interpretation of oscillations in the brain. Using these tools, we will survey the origin and functional role of oscillations in a variety of neural systems across animal and human species, and ask what general principles emerge.

Prerequisite: Psyc21, Psyc26, Psyc27 or Psyc28

Distributive: Dist:SCI

Offered: 15S: 10A

PSYC 51 - Issues in Information Processing

Courses with this number consider topics from the areas of perception, memory, cognition, and quantitative models from the point of view of information processing. Material is treated at an intermediate level on a set of issues not covered in Psychology 21 and 28. Selection of issues is left to the discretion of the instructor, but specific emphasis is given to methodology. Enrollment limited to 35 students.

Distributive: Dist:SOC

PSYC 51.01 - The Neuroscience of the mind-body problem

Instructor: Tse

Neuroscience has learned a great deal about how neurons function, and Psychologists have learned a lot about the contents and processes of the mind. But we lack a deep understanding of the bridge that must link these two sides of the "mind-body" problem. We do not yet fully understand (1) how information is processed, transformed and communicated by neurons, (2) how consciousness can be realized in physical neuronal activity, or (3) how mental events realized in physical brain events can be causal of subsequent mental and physical events. This course will focus on what is known about the neural code and the neural bases of consciousness, mental causation and free will and what is not yet understood. We will focus on reading original research articles and chapters from books that attempt to get at these deep and challenging conceptual and empirical issues. A particular focus will be the relationship of attentional processing to consciousness, and its neural bases. Students will be expected to write up

critiques of readings, and present on topics of common interest.

Prerequisite: PSYC 6 or one of the following: PSYC 21, PSYC 26, PSYC 28

Distributive: Dist:SOC

Offered: 15F: 2A

PSYC 51.02 - Face Perception

Instructor: Gobbini

This course will focus on person perception and the mental processes we use to make sense of other people, including their thoughts, attitudes, personal traits, social connections, and personal history. The course will examine the role that person perception plays in face and voice recognition and social interactions. Particular relevance will be put on the neural systems for representation of person knowledge and the mental states of others focusing also on what happens when these systems are impaired. At the end of the course, the students will have a written exam

Prerequisite: PSYC 1 or PSYC 6

Distributive: Dist:SOC

Offered: 15F: 11

PSYC 51.03 - Mind and Brain

Instructor: Meng

It is believed that the mind is a manifestation of the brain. Think of computers. The brain is hardware, the mind is software. Is it possible to understand algorithms of the software by investigating physical activity of the hardware? This course will take the mind and brain problem as a theme to guide discussions about neural underpinnings of various mental phenomena. Cutting-edge research across Psychology, Neuroscience, Artificial Intelligence and Philosophy of Mind will be covered.

Prerequisite: PSYC 1 or PSYC 6

Distributive: Dist:SOC

Offered: 16S: 10

PSYC 51.04 - Attention

Instructor: Shim

In our everyday environment, a massive amount of information pours into our sensory organs, but only a small subset of it is processed in more detail. What enables us to select some information for more focused and intensive processing while ignoring the rest? How do we selectively focus on a certain task without being distracted? Or conversely, how do we simultaneously monitor multiple streams of information or tasks? This course will explore the cognitive and neural mechanisms of attentional processes underlying these functions. We will also consider the interactions between attention and other

mental processes, such as memory, emotion, and social cognition. We will examine evidence from a variety of sources, including behavioral studies, neuroimaging studies, neurophysiological research, and neuropsychological studies.

Prerequisite: PSYC 1 or PSYC 6

Offered: 16S: 2

PSYC 51.05 - History of Psychology

Instructor: Hughes

Harvard Philosopher George Santayana said "those that cannot remember the past are condemned to repeat it" (Life of Reason, 1905). Is that happening right now in Psychology? The goal of this course is to enrich our understanding of current psychological theory by understanding its intellectual origins. We will trace the origins of the current influential schools of thought in psychology to determine what is really new, and what was anticipated by earlier generations. We will see that early psychologists, without the aid of modern technologies, came up with some incredibly clever ways to solve experimental problems, many supplying answers that have held up to this day.

Prerequisite: PSYC 1 or PSYC 6

Distributive: Dist:SOC

Offered: 14F: 11

PSYC 51.06 - Representation and Brain

Instructor: Haxby, Roskies

Neuroimaging, and with it cognitive neuroscience, is undergoing a conceptual revolution. This course uses philosophical and neuroscientific approaches to explore the changes in our conceptions of mental and neural representation that are prompted by recent advances in brain imaging that use multivariate approaches to analyzing brain imaging data. These new methods radically change the way we conceive of the nature of mental representation. Using a combination of philosophical texts, scientific review papers, and primary research papers, we try to re-conceptualize how the brain represents the world.

Prerequisite: Open to majors in neuroscience or cognitive science, or by permission of instructors.

Cross-Listed as: COCO 5.02, COGS 11.02

Offered: 14F: 2A

PSYC 51.07 - Understanding the Frontal Lobes

Instructor: Kelley

This course will explore the role of the frontal lobes in high-level cognitive abilities such as self regulation, emotion regulation, executive function, decision making,

the representation of self, and memory. Using the tools of cognitive neuroscience, we will examine how differences in the organization and function of the frontal lobes give rise to individual differences in personality and behavior and how frontal lobe damage or disease can give rise to mental health disorders.

Distributive: Dist:SOC

Offered: 15F: 12

PSYC 51.09 - Human Memory

Instructor: Manning

Knowing how our brains organize and spontaneously retrieve memories is at the heart of understanding the basis of the ongoing internal dialog of our conscious thoughts. Put simply, our memories make us who we are. The field of human memory also has a practical side. For example, should you cram for your exam, or is it better to get a good night's sleep instead? Or, what's the fastest way to memorize a large amount of new information or learn to play a new song on the piano? In this course, we will systematically explore the field of modern human memory by examining the classic and cutting-edge experimental paradigms and formal (mathematical) models that form the foundation of our current understanding of human memory. The mathematical concepts required for this course will be covered in class.

Distributive: Dist:SOC

Offered: 16W: 2

PSYC 52 - Issues in Learning and Development

Courses with this number consider several important sub-fields of learning and psychological development. Material is treated at an intermediate level on a set of issues not covered in Psychology 22 and 25. Selection of issues is left to the discretion of the instructor, but they will be selected with emphasis upon the psychological principles emerging from the study of humans and animals in the context of learning, early experience, and maturations. Enrollment limited to 35 students.

Distributive: Dist:SOC

PSYC 52.01 - Developmental Psychopathology

Instructor: Scheiner

This course will provide an Introduction to childhood Psychopathology using a developmental perspective. Written materials and lectures will focus on the diagnosis, etiology and treatment of a variety of childhood problems, including autism, anxiety disorders, learning disabilities, depression, attachment disorders, conduct disorders, and neurodevelopmental disorders.

Prerequisite: PSYC 1 and one of the following PSYC 24, PSYC 25, or PSYC 59.01

Distributive: Dist:SOC

Offered: 15F: 9L

PSYC 53.03 - Adolescent Risk Behaviors

Instructor: Sargent

Heart disease, cancers, diabetes and chronic lung disease are chronic health conditions that kill the vast majority of people in developed countries today. Those diseases are a result of behaviors—smoking, unhealthy eating, alcohol consumption and unsafe sexual practices—adopted during childhood and adolescence. This course begins with an overview of these behaviors and their relationship with disease. Then we examine individual, family, and community risk factors (e.g., marketing), as well as psychological and cognitive mediators of these exposures.

Prerequisite: PSYC 1

Distributive: Dist:SOC

Offered: 16S: 10A

PSYC 54.01 - Issues in Applied Psychology

Courses in this number consider several important sub-fields of applied psychology, such as environmental psychology and consumer behavior. Material is treated at an intermediate level. Selection of issues is left to the discretion of the instructor, but they will be selected with emphasis upon the extension of established psychological principles to problems of contemporary society. Enrollment to 35 students.

Distributive: Dist:SOC

PSYC 54.02 - Health Psychology

Instructor: Detzer

This course will explore the role of psychology and health. We will review both empirical/research and clinical psychology contributions to: 1) chronic physical illness; and 2) health promotion. This course utilizes a multi-modal learning approach and will include lectures, readings, large and small group class discussions, videos, guest speakers, and outside of the classroom/DHMC learning opportunities. Through in-depth study of medical conditions such as diabetes, cystic fibrosis, cancer and chronic physical pain, we will explore the impact of illnesses on the individual/family, the role of development/cognitive factors in illness, adherence/self-management issues, and "medical treatment" issues including doctor/patient communication and medical system aspects of care. We will also review health promotion/behavior change strategies.

Prerequisite: PSYC 1 or PSYC 6

Distributive: Dist:SOC

Offered: 16W: 3B

PSYC 54.03 - Forms of Therapy

Instructor: Hudenko

Each year, millions of people vow to make a change. Some may wish to end their habit of procrastination, others to improve a significant relationship, or still others may commit to combat a mental illness. Whatever their goal, people often discover how challenging personal change can be. At its core, clinical psychology facilitates such change through the scientific application of psychological principles. The purpose of this course is to introduce you to various scientifically-validated modalities of individual psychotherapy, with an emphasis on how psychotherapies utilize psychological principles to produce change. Over the course of the semester we also will explore special topics in the field of clinical psychology such as: human connection, empathy, emotion, ethics, psychological assessment, pharmacological treatments, and treatment evaluation.

Prerequisite: PSYC 24

Distributive: Dist:SOC

Offered: 16S: 10A

PSYC 59 - An Introduction to Psychological Assessment

This course is an overview of current approaches to the psychological assessment of individual differences in development, intelligence, personality and special abilities. It will consider the strengths, weaknesses, and issues associated with each approach and will cover the basic principles of test construction, evaluation, and interpretation. The course will also include a history of psychological testing, and a consideration of the important theoretical, ethical and social issues which psychological assessment has raised. Prerequisite: Psychology 1 and 10. Scheiner

Distributive: Dist:SOC

PSYC 60.01 - Principles of Human Brain Mapping with fMRI

Instructor: Shim, Kelley

This course is designed to introduce students to the theoretical and practical issues involved in conducting functional magnetic resonance imaging (fMRI) experiments of cognitive and behaviorally-related brain activity. Participants will gain an understanding of the physiological principles underlying the fMRI signal change, as well as the considerations for experimental design. The course will include firsthand exposure to the scanning environment and data collection procedures. Participants will be provided conceptual and hands-on experience with image processing and statistical analysis.

At the completion of this course, it is expected that participants will be prepared to critique, design, and conduct fMRI studies; appreciate limitations and potentials of current fMRI methods and techniques; and better understand the broad range of expertise required in an fMRI research program. The course is designed to provide the participant with intensive, hands-on instruction. As a result, enrollment in the course will be limited to 15 students. Knowledge of MR physics, signal processing, or the UNIX/Linux operating system is not a prerequisite.

Prerequisite: Permission through the department website.

Distributive: Dist:TLA

Offered: 15F: 2A, 16W: 2A

PSYC 65 - Systems Neuroscience with Laboratory

Instructor: Taube/van der Meer, Taube/Smith

The primary focus of this course is the physiological basis of behavior from a systems perspective. Such topics as localization of function, neural models, and the physiological bases of sensory/motor systems, learning/memory, and spatial cognition are considered. The laboratory introduces the student to the anatomy and physiology of the mammalian central nervous system and to some of the principal techniques used in systems and behavioral neuroscience. Laboratory sections will be assigned during the first week of class.

Prerequisite: One of the following three: (PSYC 6, PSYC 26, BIOL 34)

Distributive: Dist:SLA

Offered: 15F (2 sections), 16S (2 sections): 10

PSYC 80.01 - Neuroscience of Reward

Instructor: Kyle Smith

Much of the life of humans and other animals revolves around reward, whether engaging in basic pleasures like food and sex or enjoying more complex things like music. This course will introduce conceptual frameworks to understand reward as a phenomenon that is distinct from other features of goal-directed behavior. We will then discuss recent advances in neuroscience research that are helping us to understand the basic brain mechanisms that make things pleasurable, including anatomical pathways, neurotransmitter systems, and dynamics of neural activity. Prerequisite: Psyc 6, and Psyc 26 or Psyc 45 or Bio 34.

Prerequisite: Prerequisite: Psyc 6, and one of the following: Psyc 26 or Psyc 45 or Bio 34

Offered: 15F: 2A

PSYC 80.02 - Neuroeconomics

Instructor: Soltani

Neuroeconomics is a new emerging field where a combination of methods from neuroscience, psychology, and economics is used to better understand how we make decisions. In this seminar, we learn about economic and psychological theories that are used to investigate and interpret neural activity and processes which underlie decision making. We also examine how recent neurobiological discoveries are used to refine decision theories and models developed in psychology and economics. During this course, not only will students read and discuss the most current research findings in neuroeconomics, but also gain hands-on experience with experimental paradigms used in that research.

Prerequisite: Permission through the department website.

Offered: 16S: 10A

PSYC 83 - Seminar Courses

PSYC 83.03 - The Self

Instructor: Heatherton

A unitary sense of self that exists across time and place is a central feature of human experience. Understanding the nature of self-what it is and what it does-has challenged scholars for many centuries. Although most people intuitively understand what is meant by the term self, definitions have tended toward the philosophical and metaphysical. Efforts at creating more formal definitions have largely been unsuccessful as many features of self are empirically murky, difficult to identify and assess using objective methods. Yet the phenomenological experience of self is highly familiar to everyone. So, at issue is not whether the self exists, but how best to study it. This course will survey contemporary approaches to understanding the self, with a strong emphasis on approaches from social psychology. We will consider self's development, its cognitive and affective components, motives related to it, and how it is regulated. We will consider its functional basis, examining both its adaptive and maladaptive consequences. We will also examine its neurological basis, including case studies of people with disorders of self.

Prerequisite: PSYC 1, PSYC 23 and permission through the department website.

Offered: 16W: 2A

PSYC 84.03 - Leadership

Instructor: White

This course will survey the theory and research of leadership from a social psychological perspective. Students will be expected to do a substantial amount of reading and writing each week, and actively participate in discussion each class session. At the completion of the course, students should be able to communicate their

informed views of what good leadership is and what good leaders do, who makes a good leader and why, and when good leadership is critical for organizational success

Prerequisite: PSYC 1 and PSYC 23

Offered: 16W: 10A

PSYC 84.04 - Clinical Science Practicum

Instructor: Hudenko

This course is designed to provide students with an experiential learning opportunity by applying knowledge and skills gained in the classroom to actual work settings while under both site and academic supervision. Students who have an interest in clinical psychology will learn about the different facets of working in a social service, mental health, or other community setting while assessing their own skills and suitability for this kind of graduate work or employment experience. Students will spend up to 10 hours/wk at their practicum site and will be mentored onsite. Additional supervision will be provided by a clinical science faculty member during regularly scheduled class times and didactic instruction will be offered to complement and enhance work that is completed at practicum sites.

Prerequisites:

Psyc 24 A completed practicum form Signed permission form from the course instructor Signed permission form from the practicum mentor

Offered: 15F: 2A

PSYC 85.03 - Top-Down Processing and Plasticity in the Brain

Instructor: Shim

This course will explore current issues and findings in the field of cognitive neuroscience. Information in the brain has been traditionally viewed as hard-coded. However, research has shown that activity in many of the brain areas is not fixed but changes with experience, and does not hold raw sensory data but is often modulated by top-down influences, such as attention and interpretation. In this course, we will consider how the organization of the human brain changes with experience. We will also explore the variety of high-level information that can be found in the brain. Topics include attention, memory, imagery, consciousness, cross-modal interactions, plasticity in the brain, and brain-machine interface. Students will read and discuss the current research findings in the field and develop research ideas of their own.

Prerequisite: Permission through the department website.

Offered: 16W: 2A

PSYC 85.04 - Cognitive Neuroscience Seminar: Development, Learning and Disorders

Instructor: Meng

Understanding how the human brain develops and learns to process and organize information is one of the fundamental challenges in cognitive neuroscience. This seminar will cover topics of infants' development as well as neural plasticity in adolescents and adults. We will focus on visual and auditory development, including visual acuity, color vision, depth perception, object and face perception, auditory sensitivity, and speech perception. Case studies of atypical development and developmental disorders will also be discussed, with emphasis on how these studies can help us to understand the normal developmental process. No textbook will be assigned for this course. Students are expected to review current trends in cognitive neuroscience literature. Throughout the course students will also develop critical thinking skills needed to effectively evaluate research.

Offered: 16S: 10A

PSYC 86.03 - Understanding Others Through Social Cues

Instructor: Maria Gobbini

"I don't know how my face expressed that information, or which type of mechanism inside my grandma's head allowed her to have that amazing skill: to condense fact from the vapor of nuance." (Neal Stephenson, *Snow Crash*, 1992).

How do we make sense of others' people mind? Is direction of eye gaze, body posture, the tone of voice sufficient to reveal information about people?

This course will focus on the *neurophysiological basis* of person perception from the mechanisms that regulate first impressions to the neural mechanisms that help us to make sense of other people's emotions, intentions, attitudes, and behavior. In addition to weekly reading and student-led discussions, the students are required to write a mid-term and a paper at the end of the course.

Offered: 15F: 10A

PSYC 87.01 - Nature and Nurture

Instructor: Cramer

One of the continuing discussions of our era is whether differences between individuals can be attributed to inherent characteristics or to environmental influences, in other words, the nature-nurture debate. We will examine writings representing the spectrum of arguments, particularly those taking modern combinatorial or interactionist positions. Analyses of both animal and human behaviors will be included. Students will select a particular behavioral domain of interest to them and review current information about the sources of variation in that

behavior. Prereqs: Psyc 1 and 11. Permission through the department website. Cramer.

Prerequisite: PSYC 1 and PSYC 11 and permission through the department website.

Distributive: Dist:SOC

Offered: 15S: 12

PSYC 88 - Independent Research

Instructor: The staff

This course is designed to enable qualified students to engage in independent laboratory or field research under the direction of a PBS faculty member. Students may take one to three terms of Independent Research. No more than two terms of 88, 89, or a combination of 88s and 89s may count toward the eight required courses for the major. This course may not be used to fulfill the upper-level (60 or above) major requirement.

Prerequisite: PSYC 1, PSYC 10 and PSYC 11. Submission of the Checklist for enrolling in Independent Research, which includes written permission from the advisor, and then written permission from the Chair of the Undergraduate Committee is required

Offered: All terms: Arrange

PSYC 89 - Honors Research

This course is designed to enable especially qualified Psychology majors, usually seniors, to engage in independent laboratory or field research under the direction of a faculty member. Students may take two or three terms of Honors Research, but no more than two terms of 88, 89, or a combination of 88s and 89s may count toward the eight required courses for the major. This course may not be used to fulfill the upper-level (60 or above) major requirement. A student must have a minimum grade point average of 3.30 in the major and 3.00 overall to enroll and must enroll before the end of the second week of the fall term of their senior year. Honors theses will be evaluated by a two-person Thesis Committee approved by the Undergraduate Committee. Thesis Committee members must be identified prior to the student signing up for Psychology 89. The Thesis Committee must include a regular member of the Department of Psychological and Brain Sciences faculty. The other individual, if not a regular member of PBS, must have an active academic appointment (e.g., Research Associate, Research Assistant Professor, Medical School Faculty, Faculty in other departments of the College, for instance). Either Committee member may serve as the primary advisor. The two members of the Thesis Committee may not be in the same laboratory. The Thesis Committee will read and evaluate the thesis and make recommendations to the Undergraduate Committee regarding the awarding of Honors or High Honors. In addition, all Honors students will present their work in a departmental symposium at the

conclusion of the spring term. The Thesis Committee will also recommend in writing meritorious students to the Undergraduate Committee for consideration for the various departmental prizes. Two terms of this course are required of those who seek to graduate with Honors in Psychology. Under unusual circumstances students may petition to take Psychology 11 concurrently with the first term of Psychology 89. Students should check well in advance with their faculty advisor for additional prerequisites. The staff.

Prerequisite: PSYC 1, PSYC 10 and PSYC 11. A 60 level course is strongly recommended. Submission of the Checklist for enrolling in Honors Research, which includes written permission from the advisor, and then written permission for the Chair of the Undergraduate Committee is required.

Offered: All terms: Arrange

PSYC 90 - Independent Neuroscience Research

This course is designed to enable students to engage in independent laboratory research under the direction of a neuroscience faculty member. Students may take up to two terms of independent research (Note: if one term is to serve as the Culminating Experience, the other term cannot be used as an elective). Students are required to write a final report of their research. Prerequisite: PSYC 6 or BIOL 34 and PSYC 10 or BIOL 29. Enrollment is via the PBS Department website along with written permission of the advisor and then written permission of the Chair of the Neuroscience Steering Committee. The staff.

Offered: All terms: Arrange

PSYC 91 - Honors Neuroscience Research

Instructor: The Staff

This course is designed to enable qualified students, usually seniors, who wish to pursue honors in neuroscience to engage in independent laboratory research under the direction of a neuroscience faculty member. Additional requirements, procedures, and eligibility for pursuing honors in the major can be found in the Neuroscience section of the ORC and on the Psychological and Brain Sciences Department website. To enroll in PSYC 91, students must have a minimum grade point average of 3.30 in the major and 3.00 overall and must enroll by the end of the second week of the fall term of their senior year. Prerequisites: Enrollment is via the PBS Department website along with written permission of the advisor and then written permission of the Chair of the Neuroscience Steering Committee.

Prerequisite: PSYC 6 or BIOL 34 and PSYC 10 or BIOL 29.

Offered: All terms: Arrange

PSYC 61 - Computational neuroscience: from synapses to networks

Instructor: Soltani

The human brain consists of about 10^{11} neurons and 5×10^{14} synapses and uses these elements to perform computations that give rise to our cognitive abilities such as attention and decision making.

In this course students will learn about computational methods used to understand how various computations are performed by the neural elements in the brain. We will cover computational models of single synapse and neuron as well as models for networks of neurons capable of various cognitive functions.

The course includes both lectures and labs through which students will gain hands-on experience with computational modeling using provided computer codes.

Prerequisite: One of: PSYC 1, PSYC 6, BIOL 34, COSC 1 or ENGS 20. Permission through the department website.

Offered: 15S: 10A

Quantitative Social Science

Chair: Michael C. Herron

Professors D. L. Anthony (Sociology), J. M. Carey (Government), M. C. Herron (Government), J. H. Levine (Quantitative Social Science), S. D. Pauls (Mathematics), D. Rockmore (Mathematics, Computer Science), A. A. Samwick (Economics), R. A. Shumsky (Operations at Tuck Business School); Associate Professor Y. Horiuchi (Government); Adjunct Assistant Professor J. Chipman (Geography and Earth Sciences).

The Program in Quantitative Social Science (QSS) brings together Dartmouth faculty and students who are interested in applying statistical, computational, and mathematical tools to social science questions. QSS offers undergraduates a minor and an honors major, both of which combine mathematical training with one or more of the social sciences. Through QSS, Dartmouth undergraduates can integrate the power of modern quantitative and computational methods with the substance of a social science discipline.

To view Quantitative Social Science courses, click here. (p. 440)

The Major in Quantitative Social Science

Prerequisite: Honors standing (described in the Regulations section of this catalog) and MATH 13 (or, with permission, MATH 3 or equivalent), plus introductory work in several social sciences; or permission.

Minimum Requirements: 1) Four (non-introductory) courses in Mathematics or Computer Science, including MATH 36; 2) Four (non-introductory) courses in one social science area. The four courses should form a coherent whole, although they need not fall within the same social science department; 3) Two additional courses, including one or more of the courses offered by the Program, to be approved by the Program committee; 4) Completion of a senior thesis, which may be done under the course Topics in Quantitative Social Science, QSS 88.

Where needed topics are not available in the existing curriculum, students may petition for special study under QSS 88. QSS 88 may be taken for credit more than once.

For further details, consult the Program Chair.

The Minor in Quantitative Social Science

The QSS minor was designed based on the belief that quantitatively- and computationally-oriented students who have interests in social science should be taught a core set of skills. Such students need to know the basics of computer programming; they need a foundation in calculus; they need to know the basics of statistical inference; they need exposure to mathematical modeling; they need to be familiar with research design; and, they need hands-on exposure to the rewards and difficulties of research. The QSS minor embodies these objectives and empowers students to answer important empirical questions about the world.

The minor consists of courses to be selected from the following areas:

Five prerequisites:

- Programming: either COSC 1 or ENGS 20.
- Intermediate calculus: MATH 8.
- Mathematical modeling: either GOV 18, MATH 36, or ECON 21.
- Introductory statistics: either ECON 10, ENVS 10, GOV 10, MATH 10, QSS 15, PSYC 10, or SOCY 10.
- Intermediate statistics: either ECON 20, GOV 19, MATH 40, or QSS 45.

AND *Three courses from the following:*

COSC 74, Machine Learning and Statistical Data Analysis
GEOG 50, Geographical Information Systems
GEOG 54, Geovisualization
GOV 83.21, Experiments in Politics

QSS 17, Data Visualization
QSS 30, Special Topics in QSS
QSS 41, Analysis of Social Networks

The special topics course, QSS 30, may be taken more than once. Moreover, with permission of the QSS chair students may substitute other courses offered at Dartmouth for any of the three required courses listed above.

AND *One research seminar:* QSS 80

QSS - Quantitative Social Science Courses

To view *Quantitative Social Science requirements*, click [here](#) (p. 439).

QSS 15 - Introduction to Data Analysis

Instructor: Levine; Herron (15F: 10)

Methods for transforming raw facts into useful information. Directed toward students with an aptitude for mathematics. Emphasis is placed on the understanding, use, and both oral and written interpretation of exploratory data analysis within the rules of scientific method. With permission from the responsible department, MSS 015 may be used to satisfy some pre-medical, natural science, and social science departmental requirements in mathematics, statistics, and methodology. Limited enrollment.

Prerequisite: MATH 3 or higher, or permission.

Distributive: QDS

Offered: 15F, 16S, 16F, 17S: 9L 15F: 10

QSS 17 - Data Visualization

Instructor: Horiuchi

Big data are everywhere -- in government, academic research, media, business, and everyday life. To tell the stories hidden behind blizzards of data, effective visualization -- using maps, text clouds, networks, and other tools -- is critical. This course teaches the principles of data visualization using publicly available tools -- most importantly, the R statistical computing environment. Students completing the course will know how to work with and visualize data critical to their scientific endeavors.

Cross-Listed as: GOVT 16

Distributive: Dist:QDS

Offered: 15F, 16F: 2A

QSS 18 - Introduction to Game Theory

Instructor: Herron

Game theory is used to study how individuals and organizations interact strategically, and this course introduces game theory with a focus on political science applications. Game theory is a standard tool in the social sciences, and insights from game theory are essential to understanding many facets of politics, such as political party competition, legislative politics, international relations, and the provision of public goods. Among other topics, the course will cover normal and extensive form games, Nash equilibria, imperfect information, mixed strategies, and, if time permits, the basics of games with incomplete information. A course in game theory will change the way that one views the world.

Cross-Listed as: GOVT 18

Distributive: Dist:QDS

Offered: 16S: 11

QSS 30 - Special Topics in Quantitative Social Science

This course focuses on a particular topic of interest to students pursuing coursework in quantitative social science. The topics covered by QSS 30 will span economics, political science, sociology, and other fields. The specific topic of the course will change with each offering, and students may therefore take this course more than once.

QSS 30.01 - Sports Analytics

Instructor: Hanlon and Herron

Sports organizations are becoming increasingly aware that analytics are an important component of team success. This course will introduce students to various statistical techniques used in modern sports analysis and in particular will teach participants how statistical methods can be used to analyze game outcomes and evaluate players and strategies. The course will include lectures, in-class exercises using the R statistical computing environment, and guest speakers from the sports industry.

Offered: 15F: 9L

QSS 30.02 - Machine Readings: Text Analysis in the Information Age

Instructor: Riddell

Library digitization has made millions of books, newspapers, and other printed materials accessible to the public. In this course we will learn how to draw on computational resources to analyze a range of materials, including poetry, novels, science fiction short stories, and personal diaries. We will explore debates about the representation of literary texts as "data" and consider the challenges "machine reading" poses for research in the humanities and how we think about what it means to "read" a text. Through case studies we will reflect critically on the history of the digital humanities (formerly known as

humanities computing) and will gain practical experience in text analysis.

Distributive: Dist:LIT

Offered: 16W: TBA

QSS 36 - Mathematical Models in the Social Science

Instructor: Pauls

Disciplines such as anthropology, economics, sociology, psychology, and linguistics all now make extensive use of mathematical models, using the tools of calculus, probability, game theory, network theory, often mixed with a healthy dose of computing. This course introduces students to a range of techniques using current and relevant examples. Students interested in further study of these and related topics are referred to the courses listed in the Mathematics and Social Sciences program.

Prerequisite: MATH 13, MATH 20

Cross-Listed as: MATH 36

Distributive: TAS

Offered: 15F: 10

QSS 41 - Analysis of Social Networks

Instructor: Levine

Students will gather and analyze data on a variety of networks (institutions, communities, elites, friendship systems, kinship systems, trade networks, and the like). Techniques of analysis may include graph theory, text analysis, multidimensional scaling and cluster analysis, and a variety of special models. Not limited to students in the major. Levine.

Distributive: QDS

Offered: 15F, 16F: Arrange

QSS 43 - Mathematical Psychology

Prerequisite: PSYC 1 and MATH 3. Permission required.

Offered: Not offered in the period from 14F through 16S

QSS 45 - Data Analysis

Instructor: Levine

Examination of the assumptions and interpretation of basic quantitative methods in the social sciences. Methods examined may include linear models, tabular analysis, and Tukey-Mosteller exploratory data analysis. Applications will be wide-ranging and customized to student research. Prior knowledge of elementary data analysis or elementary statistics is assumed. Levine.

Distributive: QDS

Offered: 16S, 17S: Arrange

QSS 46 - Models of Voting and Decision Making

Offered: Not offered in the period from 14F to 16S

QSS 80 - Seminars in Mathematics and Social Science

Offered: All terms: Arrange

QSS 88 - Topics in Mathematics and the Social Sciences

Offered: All terms: Arrange

The Nelson A Rockefeller Center for Public Policy

The Rockefeller Center at Dartmouth College was founded in 1983 to commemorate the contributions of Nelson A. Rockefeller '30 to the life of the nation. The Rockefeller Center seeks to educate, train, and inspire the next generation of public policy leaders in all fields of endeavor through multidisciplinary education, public lectures by visiting scholars and dignitaries, skills training, and public policy-oriented research across the social sciences. The Center seeks to connect experiences in and out of the classroom, on and off campus to reach this goal.

The curricular offerings of the Rockefeller Center provide a wide variety of opportunities for students to engage with public policy in their area of interest. In addition to enrolling in one of the more than a dozen public policy courses offered each year, students have the ability to complete a public policy minor for in-depth exploration of the public policy process, policy research and analysis, and a targeted focus on a substantive policy area (e.g., health care, environment, education, social welfare). The Center sponsors the Policy Research Shop, a student-staffed, faculty-mentored research enterprise in which students conduct research at the request of New Hampshire and Vermont state, county, and local government officials, often with the opportunity to testify on their findings. The Center also offers an exchange program with Keble College at Oxford University, a fellowship through the Center for the Study of the Presidency and Congress, and grants to students working on honors theses in the social sciences.

Outside the classroom, the Center provides students with robust co-curricular programs designed to build on their leadership skills and capacities. Programs help students to reflect upon, develop, and assess their strengths and their capacity to work in teams to achieve common good. These programs include student-led Discussion Groups (VoxMasters, RBEL, PoliTalk), the First-Year Fellows Program in Washington, DC, funding for off-campus internships, the Management and Leadership Development Program, a Mini-Grant program for supporting special student-initiated initiatives, Career Advising, Create Your Path, Rockefeller Global Leadership Program, and the Rockefeller Leadership Fellows Program. The Center's Public Programs provide students with the opportunity to

meet and engage with speakers who are scholars or practitioners related to a current public policy or leadership issue.

Public Policy Minor

Coordinator: Ronald G. Shaiko, Senior Fellow and Associate Director, The Nelson A. Rockefeller Center

Research Associate Professor R. G. Shaiko; Professor A. A. Samwick; Senior Lecturer and Policy Fellow C. J. Wheelan; Visiting Assistant Professors D.A. Epp; and H. S. Nachlis; Adjunct Professor H. G. Welch.

To view Public Policy courses, click here (p. 443).

The Nelson A. Rockefeller Center at Dartmouth coordinates the Minor in Public Policy, which is open to students from all majors who seek a coherent program of study in the field of public policy, broadly defined.

Drawing on faculty in the social sciences and interdisciplinary programs, the minor provides a variety of perspectives on policy questions, such as changes in values, institutions, technology or markets, and it enables students to pursue a focus on either domestic policy or international policy. In addition to fostering a general knowledge of the policy process and policy analysis, it includes a topical specialty that complements students' policy interests. The Public Policy Minor is intended to foster a critical understanding of policy issues and solutions.

Students who wish to pursue the minor must officially sign up for it no later than the third term prior to graduation. The six courses required for the minor may not count toward a student's major or another minor.

Prerequisite: One course conveying quantitative or qualitative research methods. Options include: ECON 10, GOVT 10, MATH 10, PSYC 10, SOCY 10, MSS 15, GEOG 11, GEOG 58, SOCY 11, or EDUC 11.

Requirements: A total of six courses. The courses must include:

PBPL 5: Introduction to Public Policy

Two (2) public policy methods courses. Choices include:

ECON 20: Econometrics

PBPL 40 - PBPL 49

Two (2) courses in a policy track (students may design their own policy track). Possible tracks include:

Domestic economics and public policy

Education and public policy

Environment and public policy

Health and public policy

Identity and public policy

Institutions, organizations and public policy

International relations and public policy

Law and public policy

Leadership and public policy

Urban issues and public policy

One (1) Public Policy Seminar relevant to the chosen policy track. In certain circumstances, a student may petition the faculty advisor to substitute a Social Science seminar requiring a research paper relevant to the chosen policy track for this requirement.

PBPL - Public Policy

To view Public Policy requirements, [click here](#) (p. 442).

PBPL 5 - Introduction to Public Policy

Instructor: Shaiko

This course is designed as the gateway offering for students beginning to pursue a minor in public policy through the Rockefeller Center. The term will be divided into four main components: The Nature of Public Policy, Making Public Policy, The Policy Players, and The Policy Game. In the concluding section of the course, we will pursue specific policy domains-environmental policy, education policy, health care policy, welfare policy, immigration policy, and defense policy.

Distributive: Dist:SOC; WCult:W

Offered: 16W, 17W: 10

PBPL 7 - Leadership in Foreign Policy Decision-making

Do heads of state matter when it comes to making foreign policy decisions? We certainly act as if they do and we vote as if they do. But it's also possible that sometimes, structural conditions render leaders irrelevant—that any leader, when faced with the same constraints, could not help but make the same decision. Any responsible study of foreign policy will pay attention to questions of the conditions under which leaders matter as well as the constraints on foreign policy leadership. Therefore, in this course, we will study the essence of foreign policy decision-making with a special emphasis on the sorts of decisions that leaders can and do make. As we do so we will be introduced to a number of tools and models to help explain the process of foreign policy decision-making. These tools, concepts, and models will broadly include the political psychology of foreign policy decision-making, the dangers of decision-making during times of great crisis,

and the role that various organizations play in foreign policy decisions.

Offered: Not offered in the period from 15F through 17S.

PBPL 10 - Statistical Analysis for Public Policy

Public policy analysis involves quantitative methods and statistical methods in particular. PBPL 10 introduces students to basic statistical techniques and to the statistical software package, STATA, with a heavy emphasis on application, from the initial stages of data exploration to presentation of results. Coursework will involve “real world” policies and problems and will utilize existing datasets from the public policy sphere. The course will also consider research design and the ethics of quantitative policy research. Because of the large overlap in material covered, no student may receive credit for more than one of the courses PBPL 10, ECON 10, GOVT 10, MATH 10, PSYC 10, MSS 15, or SOCY 10 except by special petition.

Distributive: Dist:QDS

Offered: Not offered in the period from 15F through 17S.

PBPL 20 - Contemporary Issues in American Politics and Public Policy

Instructor: Wheelan

This course will explore significant topics in contemporary American politics and public policy. The course will examine issues related to the 2012 presidential election (e.g., fiscal policy, health care, education, etc.). Each week, students will be responsible for doing background reading on the subject to be covered; preparing questions for invited speaker; and writing a succinct memo summarizing and critiquing the content of the week's policy lecture.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S.

PBPL 26 - Health Policy and Clinical Practice

Instructor: Welch

Health care in the United States costs more than in other countries, but is it better? Answering this question requires understanding a wide range of subjects, including the pathophysiology of disease, clinical decision making, epidemiology, and public policy. We will consider additional questions: Is more screening & early diagnosis the best way to stay healthy? Does more treatment always help people feel better? How has the "Dartmouth School" of health policy contributed to the debate?

Distributive: Dist:SOC; WCult:W

Offered: 16S: 10A

PBPL 28 - Courts and Public Policy

Instructor: Laws, Glick

Distributive: Dist: SOC; WCult: W

Offered: Not offered in the period from 14F through 16S

PBPL 40 - Economics of Public Policymaking

Instructor: Wheelan

The course will use the basic tools of economics to analyze the most significant current public policy issues in the United States. Given the time constraints of the course, we will focus on the issues that the current presidential administration is likely to confront. The goal is to understand both the substance and politics of each issue. We will examine the effects of recent policy changes and analyze the likely effects of prospective reforms, particularly those that are likely to be debated in the political arena in the near future.

Distributive: Dist:SOC; WCult:W

Offered: 16X, 17X: 10A

PBPL 41 - Writing and Speaking Public Policy

Instructor: Kalish

This course is designed for students who intend to use their writing and communication skills to effect tangible change. Course materials will draw from various areas of public policy, and students will develop policy arguments through position papers, strategy memos, public talks, multi-media tools, as well as op-ed pieces and "letters to the editor" to be submitted to local newspapers. Students will strengthen their understanding and practice of public persuasion, as well as their capacity to analyze the components of effective argument.

Prerequisite: PBPL 5 or permission from the Instructor

Cross-Listed as: WRIT 41

Distributive: Dist:ART; WCult:W

Offered: 16S, 17S: 2A

PBPL 42 - Ethics and Public Policy

Instructor: Swaine/Rose

The course will use the basic tools of economics to analyze the most significant current public policy issues in the United States. Given the time constraints of the course, we will focus on the issues that the current presidential administration is confronting. The goal is to understand both the substance and politics of each issue. We will examine the effects of recent policy changes and analyze the likely effects of current reforms, particularly those that are being debated in the political arena now.

Cross-Listed as: GOVT 60.04

Distributive: Dist:TMV; WCult:W

Offered: 16S: 10A

PBPL 43 - Social Entrepreneurship

Instructor: Samwick

This course provides an introduction to the theory and practice of social entrepreneurship, defined as the process of finding innovative, sustainable solutions to social problems, particularly those related to poverty. Students will learn about the nature and causes of poverty, both domestically and internationally, and about the role that social entrepreneurs play in addressing poverty. The course culminates with teams of students developing business models for their own social entrepreneurship ventures.

Prerequisite: ECON 1; ECON 10 (or its equivalent)

Cross-Listed as: ECON 77

Distributive: Dist:SOC; WCult:W

Offered: Offered: 17W: 10A

PBPL 44 - Polling, Public Opinion, and Public Policy

Instructor: Deborah Brooks

The results of public opinion polls frequently dominate political news coverage and they often alter the behavior of politicians; moreover, political polls have started becoming news in their own right in recent years. In this course, we will explore the techniques that pollsters use to examine public attitudes and we will consider how that information can, and should, be used to formulate public policy. We will engage questions such as: To what degree can the public form meaningful preferences about complex political issues? What does a political opinion consist of, and how can it be measured? How can potential errors in polls be avoided? How does partisanship influence public opinion, and where do Americans stand on key policy issues? To what extent should politicians try to change public opinion rather than respond to it? How has the nature and role of public opinion shifted in an era of rapidly advancing polling technology and a changing media environment? In addition to examining the pertinent literature on topics such as these, we will conduct and analyze an actual public opinion survey as a class. Through a combination of theoretical and hands-on learning, students will leave the course with a firm understanding of these dynamics.

Cross-Listed as: GOVT 37

Distributive: Dist:SOC; WCult:W

Offered: 17S; 12

PBPL 45 - Introduction to Public Policy Research

Instructor: Shaiko

This course focuses on strategies for, and actual practice of, conducting research relevant to public policy decision-making. Students will be exposed to a variety of research methodologies used in public policy analysis. This course

is designed to be a core element of the Public Policy Minor and will also serve as a training ground for prospective applicants wishing to serve in the Rockefeller Public Policy Research Shop during the winter and spring terms.

Prerequisite: A course employing mathematical reasoning or statistical methods (e.g. ECON 10 or GOVT 10).

Distributive: Dist:SOC; WCult:W

Offered: 15F, 16F, 17F: 10A

PBPL 47 - Foundations of Leadership

This course has two purposes: 1) to investigate some of the most crucial texts of political philosophy, with focus on their assessments of the principles and sources of leadership, and 2) to investigate the political ideologies informing their authors' world views in order to better understand the goals to which we lead and are being led. We will view leadership not as the masterful work of an elite few, but as the collective responsibility of informed citizenship. This course will prepare students "for a lifetime of learning and responsible leadership."

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S.

PBPL 48 - Policy Analysis and Local Governance

This course analyzes the public policy challenges faced by local communities. Particular emphasis will be placed on the problems of urban areas, including education, crime, poverty, economic development, housing, and transportation. Throughout the course, students will use their home towns (or another area of their choosing) as a case study of how specific communities have attempted to address these challenges. The course examines the roles of various actors - citizens, non-profits, and government agencies at all levels - in effecting positive change in local public policy outcomes.

Prerequisite: PBPL 5.

Offered: Not offered in the period from 15F through 17S

PBPL 49 - Environmental Policy Research Workshop

Instructor: Cox

This course is designed to guide students in conducting research on environmental policy-based projects. These projects are based on requests from the Vermont and New Hampshire state legislatures. Students will be taught the basic theory and research methods in environmental social science, and spend the second half the course applying these skills in team-based settings to prepare proposal for research that could address the questions posed in the projects. The course will also prepare prospective applicants wishing to serve in the Rockefeller Public Policy Research Shop during the winter and spring terms.

Prerequisite: ENVS 2 or ENVS 3, or permission of instructor and a 10-level class (e.g., ECON 10, GOVT 10, PSYC 10, SOCY 10, PBPL 10)

Cross-Listed as: ENVS 70

Distributive: DIST: SOC

Offered: Not offered in the period from 15F through 17S.

PBPL 51 - Leadership in Civil Society

Instructor: Shaiko, Post

This course focuses on aspects of leadership dealing with the accumulation and utilization of social capital through societal organizations. The literature cover nonprofit leadership, grassroots mobilization, religious leadership, interest group influence, organizational maintenance and political representation, and leadership problems associated with collective action. Students also discuss the roles of political parties as aggregators of societal interests and as intermediaries between citizens and state. Students also evaluate leadership capacity of the media to create informed citizens.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S

PBPL 52 - Leadership and Political Institutions

Instructor: Fowler

This course explores how political leaders in the U.S. reconcile the constraints of public office with the opportunities to make major changes in society. Drawing from diverse materials on the executive, legislative and judicial branches of government, the course addresses the following questions: How does leadership differ in the public and private spheres? What personal skills and attributes affect the success or failure of leaders of political institutions? What criteria do/should citizens apply to public leaders? How do political context and historical contingency shape institutional leadership?

Cross-Listed as: GOVT 30.02

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10A

PBPL 81.02 - Lawyers and Public Policy

Instructor: Bohmer

Distributive: Dist: SOC; WCult: W

Offered: Not offered in the period from 14F through 16S.

PBPL 81.03 - Urban Politics and Public Policymaking

Instructor: Hachadoon

This course examines how and why cities attempt to address the problems that face them. It investigates who makes public policy in cities and why. The course then

considers how and why these actors make policy. The final part of this class analyzes the effects of these policies. The class focuses upon urban education, housing, public safety, economic development, and other policy areas of significance to urban governments.

Distributive: Dist:SOC

Offered: Not offered in the period from 14F through 16S.

PBPL 81.05 - Poverty and Public Policy in the United States

Instructor: Hollister

Cross-Listed as: SOCY 55

Distributive: Dist: SOC; WCult: W

Offered: Not offered in the period from 14F through 16S.

PBPL 81.07 - Secrecy and Lying in Politics, Law and Society

Instructor: Eickelman

Cross-Listed as: ANTH 16

Distributive: SOC

Offered: Not offered in the period from 14F through 16S.

PBPL 81.08 - Economics of Education Policy

Instructor: Chaudhury

Distributive: Dist: SOC; WCult: W

Offered: Not offered in the period from 14F through 16S

PBPL 81.09 - Politics and Markets

Instructor: Fowler

Someone once said, There is a place for the market, and the market must be kept in its place. In this course, we explore the policy debates in the U.S. over the proper role of government in promoting market efficiency and protecting citizens from the adverse consequences of market competition. We begin with an effort to define the scope of the private and public sectors. We then consider an array of policy instruments to correct market failures and redistribute income. Finally, we examine the use of market-oriented approaches to policy problems, such as cost-benefit analysis, vouchers, and pollution rights.

Cross-Listed as: GOVT 83.02

Distributive: Dist:SOC; WCult:W

Offered: 15F: 3B

PBPL 82.01 - Military Statecraft in International Relations

Instructor: Press

Cross-Listed as: GOVT 85.12

Distributive: SOC or INT

Offered: 16S: 3A

PBPL 82.02 - The Political Power of Ideas

Instructor: Campbell

Politicians fight constantly over ideas. This course explores where these ideas come from and how politicians try to convince us that their ideas are best. It examines how people's values influence which ideas they believe or not. It questions the role of experts in policy making and whether we should trust them. And it analyzes how policy ideas change. Emphasis is largely but not entirely on the political power of ideas in the United States.

Cross-Listed as: SOCY 67

Distributive: Dist:SOC; WCult:W

Offered: Not Offered in the period from 15F through 17S.

PBPL 82.05 - International Law and Transnational Policymaking

Instructor: Hurt

Distributive: Dist: SOC or INT

Offered: Not offered in the period from 14F through 16S

PBPL 82.06 - Law, Rights, and Public Policy in Education

Instructor: Glick

Distributive: SOC; WCult: W

Offered: Not offered in the period from 14F through 16S

PBPL 82.07 - Consumer Debt, Bankruptcy, and Economic Policy

Instructor: Laws

Distributive: SOC; WCult: W

Offered: Not offered in the period from 14F through 16S

PBPL 84.02 - Health Policy Reform

Instructor: Meara

The goal of the course is to analyze likely strengths and weaknesses of U.S. health reform to address three major challenges in the health care: access, cost, and quality of health care. Students will explore how recently enacted health reform legislation extends or differs from prior health policies to address these enduring problems. Course work will introduce students to commonly used sources of health data and basic analytical techniques. Prerequisites - at least one of the following: PBPL 5, PBPL 26, or SOCY 28. GOVT 10, ECON 10 or similar course is helpful.

Prerequisite: Prerequisites - at least one of the following: PBPL 5, PBPL 26, or SOCY 28. GOVT 10, ECON 10 or similar course.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F through 17S.

PBPL 84.04 - Immigration and Security Policy at the U.S.-Mexico Border

Instructor: Ruback

Security and immigration policy along the U.S.-Mexico border has become a political proving ground, encompassing issues of self-identity and global responsibility. This seminar offers students the opportunity to investigate immigration and admissions policy, law enforcement and citizen activism in border societies, and the securitization of the border. In doing so, we will explore the challenges of setting border policies and the repercussions that these policies have both at the border and beyond.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 14F through 16S.

PBPL 85 - Global Policy Leadership: Economic Reform in India

Instructor: Wheelan/Shaiako

This seminar will provide real-world international policy experience for students who will study a policy regime of a specific country during the fall term. The unique aspect of the course is that during the December break, the class will travel to the country of study and will spend two weeks meeting with policy leaders: politicians, academics, journalists, business leaders, diplomats, and other experts “on the ground” who can help to inform their topic of study.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15F, 16F, 17F: 2A

PBPL 91 - Independent Study in Public Policy

Instructor: Shaiko

This course offers an opportunity for a student enrolled in the Public Policy Minor to do advanced, independent work under the direction of a faculty member in the area of public policy. The topic under study may relate to prior coursework in the Public Policy Minor, an off-campus internship, or a co-curricular activity sponsored by the Rockefeller Center. All students enrolled in Public Policy 91 in a given term should expect to meet regularly together for classroom instruction and discussion with Rockefeller Center faculty and staff. To enroll, a student must prepare a brief proposal that describes the topic to be studied, its relationship to the student's prior public policy courses or activities, and the student's goals for undertaking the research.

Prerequisite: PBPL 5 and the Research Methods course prerequisite to the Public Policy Minor

Offered: All terms: Arrange

Religion

Chair: Randall Balmer

Professors S. Ackerman, R. Balmer, S. Heschel; Associate Professors R. Baum, E. Z. Benor, C. H. MacEvitt, R. Ohnuma, G. Raz, A. K. Reinhart; Assistant Professors D. Singh, E. Pérez; Visiting Professor E. Wright; Senior Lecturers W. Elison, C. Randall; Instructor Z. Ayubi.

To view Religion courses, click here (p. 448).

Requirements for the Major

Prerequisite: REL 1.

Requirements: In addition to REL 1, the major consists of nine courses including:

1. At least two courses from the Introductory series on Religion (REL 2 through REL 19).
2. At least one course from the Theories in the Study of Religion series (REL 20.01 (p. 452) through REL 20.05).
3. At least two courses from the Intermediate series on Religion (REL 21 through REL 74.07).
4. One seminar in Religion (REL 80 or REL 81). Students should note that some seminars will have prerequisites. Consult the Chair for more information.
5. As Culminating Experience, either completion of the Honors Program (REL 86 and REL 87), or the Senior Colloquium (REL 85), or an Advanced Independent Study (REL 84). Consult the Chair for more information.
6. The major must include at least one Religion Department course from among those designated as fulfilling the Non-Western requirement.

Major programs are subject to the approval of the Chair.

Requirements for the Modified Major

Prerequisite: REL 1.

Requirements: In addition to REL 1, eleven courses of which seven or more shall be in the Department, including:

1. At least two courses from the Introductory series on Religion.
2. At least one course from the Theories in the Study of Religion series.
3. At least one course from the Intermediate series on Religion.

4. One seminar in Religion. Students should note that some seminars will have prerequisites.
5. As Culminating Experience, either completion of the Honors Program, or the Senior Colloquium (REL 85), or an Advanced Independent Study (REL 84). Consult the Chair for more information.

The remainder may be courses in other departments provided that such courses constitute a coherent program of study in Religion. Approval of the modified major must be obtained from the Chair.

The modified major must include at least one Religion Department course from among those designated as fulfilling the Non-Western requirement.

Requirements for the Minor

Prerequisite: REL 1.

Requirements: In addition to REL 1, the minor consists of five courses to be selected as follows:

1. At least one course from the Introductory series on Religion.
2. At least one course from the Theories in the Study of Religion series.
3. At least one course from the Intermediate series on Religion.
4. Two additional courses in Religion (any level).
5. The minor must include at least one Religion Department course from among those designated as fulfilling the Non-Western requirement.

Non-Recording Option

Religion courses 20-89 are out of bounds for the NRO.

Transfer Credit

No more than three transfer courses, which may include REL 70, REL 71, or REL 72 (on D.F.S.P.), will be accepted for major credit. All transfer courses must be approved *in advance* by the Department.

Foreign Study

Courses taken at the University of Edinburgh on the Department's Foreign Study Program will normally be counted among the intermediate courses required for the major as listed above. The course offered by the Dartmouth faculty leader is REL 74 (p. 461).

Religion Honors Program

Qualified majors may apply for admission to the Honors Program of the Department during the second or third terms of their junior year. Completion of the Honors Program is prerequisite to graduation with Honors or High Honors in the major subject.

The Honors Program of the Department of Religion is designed to encourage and enable a qualified major student

to pursue a long-term independent research project on some topic of interest and importance. Through the project, as guided by a member of the faculty, the student should come to an understanding in depth of the content of the subject and the methodological procedures necessary to enable him or her to reach the desired goal.

In order to qualify for an Honors Program in the Religion Department, the student must have at the time of application an average of 3.0 in all subjects and 3.3 in the major. The interested candidate should, in consultation with a faculty adviser, decide on a course of study, reading, and writing and should then present these proposals in a petition to the Department.

During two terms of the senior year the honors student will pursue the project under the guidance of a selected faculty member by enrolling in REL 86 (Honors I: Research) and REL 87 (Honors II: Writing). The student is expected to produce a substantial thesis as the culmination of the project. A paper of seventy-five to one hundred pages would be considered usual, although the exact nature of the project might dictate a different length. The student will be expected to maintain at least a 'B+' level of performance throughout the two terms. Unless at least a grade of B+ is assigned the thesis and a cumulative average of 3.0 is maintained in the major, he or she will not be considered to have successfully completed the project. If in the judgment of the Department the student has failed to perform at the minimal level, it will have the right to terminate the project at the end of the first or the second term.

Preparation and Submission of Thesis Proposal. After the proposal is approved by the faculty adviser, it will be submitted to the Religion Department for approval. Since the Department may request that the student rewrite the proposal, we recommend that a proposal be submitted to the Department by the seventh week of the spring term of the junior year.

Thesis Writing. A student must write a two-term thesis, for which two course credits may be received. A thesis written during the fall and winter must be submitted by the end of the first week in May. A thesis completed during the spring term must be submitted by the end of the third week in May. An oral defense will be scheduled shortly thereafter.

The Honors Program counts as fulfilling the Culminating Experience requirement. Honors students are normally expected to participate in the Senior Colloquium but are excused from the writing component.

REL - Religion Courses

To view Religion requirements, click here (p. 447).

*Elementary Course***REL 1 - Topics in the Study of Religion**

Instructor: The staff

An introduction to the study of religion through topics from a variety of traditions and perspectives, including Buddhism, Christianity, Hinduism, Islam, and Judaism. Topics may be comparative or focused within a particular tradition and will allow students to understand the distinctive perspective the study of religion brings in both contemporary and historical contexts. Open to all classes.

Distributive: Dist:INT or TMV

Offered: 15F, 16W, 17W: 11 17S:12

REL 1.01 - What Matters

Instructor: Singh

What does it mean to say that something matters and how can we know that it does? This is an introductory course to modern religious thought, examining the quest for meaning, value, and significance as captured in religious, ethical, and philosophical language in Western tradition. The intent is to provide students with a broad exposure to the various ways humans in modernity have attempted to make sense of their condition. What are some of the changes brought about by life in the modern world that prompt new questions about human life and purpose? What new answers have been provided to explain our place in the cosmos and reason for being? We explore questions of belief, value, significance, meaning, suffering, love, and justice.

Distributive: DIST: INT or TMV

Offered: 16W: 11

REL 1.02 - Contemporary Religion

Instructor: Reinhart

This course is designed to give an impressionistic overview of contemporary religion. We'll begin with readings designed to help you think about contemporary religion in general, and then we'll begin a survey of some issues and places where religion is salient in the early 21st century.

Distributive: DIST: INT or TMV

Offered: 17S: 12

*Introductory Courses***REL 2 - Religion in the Modern World**

Instructor: Reinhart

Ecological concerns, gender, economics, warfare, and biogenetics are among the many important issues in the modern world where policy and practice are decisively shaped by religion. In this course we will first try to

understand what we mean by the term "modernity" and what features are characteristic of it. Then we will consider and discuss a series of topics related to modernity and religion. Readings are designed to include both topical cases and classic works in the study of religion and modernity. Open to all classes.

Distributive: Dist:INT or TMV

Offered: 16X: 12

REL 3 - Modern Religious and Anti-Religious Thinkers

Critical examination of some of the most influential modern proponents and opponents of religious faith, with special emphasis on the question: what is involved in belief in God? Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: Not offered for the period of 15F through 17S

REL 4 - Religion of Israel: The Hebrew Bible (Old Testament)

Instructor: Ackerman

An introduction to the religion of ancient Israel through an examination of a number of the books of the Old Testament (Hebrew Bible), including Genesis, Exodus, Joshua, Samuel, the Psalms, Job, and the prophets. Attention will also be given to the religion of Israel's Phoenician and Mesopotamian neighbors. Open to all classes.

Cross-Listed as: JWST 4

Distributive: Dist:TMV; WCult:W

Offered: 17W: 2

REL 5 - Early Christianity: The New Testament

An examination of primitive Christianity as witnessed by the writings of the New Testament. Emphasis will be given to the literary and historical analysis of the Gospels and Epistles and to an understanding of the pre-Christian and non-Christian religions of the Hellenistic world. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

REL 6 - Introduction to Judaism

Instructor: Wright

This course offers an introduction to Judaism by examining three of its central spiritual manifestations: (1) development, observance, and study of the Halaka (religious law); (2) philosophical contemplation; and (3) mystical experience and theosophical speculation. Ancient and modern challenges to the tradition will be studied in some detail, and an attempt will be made to determine

what might constitute a unity of such a diverse tradition.
Open to all classes.

Cross-Listed as: JWST 6

Distributive: Dist:TMV; WCult:W

Offered: 16W: 10 16F: 12

REL 7 - First-Year Seminars in Religion

Offered: Consult special listings

REL 8 - Introduction to Islam

Instructor: Ayubi

This course will provide students with useful tools for reading about, thinking about, or otherwise engaging with Islam and Muslims. It is first a survey of important topics in the study of the religion of Islam, including the Qur'an and the Prophet, the role of Islamic mysticism, Islam and the state, Islamic law, and Islamic theories of family and person. We also discuss Orientalism and the western study of Islam, so that we can understand ourselves as students of the Islamic tradition. Open to all classes.

Cross-Listed as: AMES 8

Distributive: Dist:TMV; WCult:NW

Offered: 15F, 16X: 10

REL 9 - Hinduism

Instructor: Ohnuma

An introductory survey of the Hindu religious tradition of South Asia from 1500 B.C.E. down to the present day. Emphasis will be given to the historical development of elite, Sanskrit Hinduism and its constant interaction with popular and local traditions. Open to all classes.

Cross-Listed as: AMES 9

Distributive: Dist:TMV; WCult:NW

Offered: 17S: 10

REL 10 - The Religions of China

Instructor: Raz

An introduction to China's three major religions—Confucianism, Daoism, and Buddhism—through the reading of classic texts. Also, a look at important elements in Chinese folk religion: ancestor worship, temples, heavens and hells, and forms of divination. Special attention will be paid to the importance of government in Chinese religious thought and to continuity and change in the history of Chinese religion. Open to all classes.

Cross-Listed as: AMES 10

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 2 17S: 10

REL 11 - Religion and Morality

An examination of the process of moral reasoning and its relationship to religious belief. Emphasis will be given to the analysis of issues that have drawn the special attention of religious ethicists; among these are abortion, stem-cell research, the treatment of congenitally impaired newborns, same-sex marriage, and physician-assisted suicide. Open to all classes.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

REL 12 - Religion in Early America

A survey of religion in North America from colonization through the Civil War. We'll examine the religious pluralism that characterized the seventeenth and eighteenth centuries, discuss how the First and Second Great Awakenings reshaped both religion and culture, and examine the reforming impulses that drove an angry South to secession. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

REL 13 - Religion in Modern America

A survey of religion in North America from the Civil War to the present. We'll examine the plight of immigrants in the nineteenth and twentieth centuries, discuss how urbanization and industrialization recast social norms, gender roles, and religious ideology, and chart the emergence of evangelicalism as a political movement late in the twentieth century. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

REL 14 - Introduction to African Religions

This course introduces the study of Indigenous African Religions, their cosmologies, histories, ritual structures, and their relationships to other aspects of African cultures. Of particular importance will be ideas of gendered spiritual power, the spread of African-inspired religions to the Americas, and the nature of orally transmitted religious traditions. Conversion to Islam and Christianity and reconversion from these religions will also be studied. Finally, we examine the role of African religions in post-colonial African societies and the impact of globalization. Open to all.

Cross-Listed as: AAAS 18

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

REL 15 - The Christian Tradition

Instructor: MacEvitt

An introduction to the variety of Christian beliefs, institutions, and practices from the first century to the end of the sixteenth century. Attention will be focused on understanding how Christian communities adapted and developed religious beliefs and practices in the face of changing historical circumstances. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 16F: 12

REL 16 - Modern Islam

Instructor: Reinhart

In all the attention focused on Islam at present, a newspaper reader could be forgiven for supposing that between Muhammad and Usamah bin Laden, there has been no change in Islam. This course surveys developments in Islamic religious history, thought, and practice since 1800, with special emphasis on topics of current controversy, including the status of women, the nature of government, and the place of Islamic law. Readings will be mostly from primary texts written by contemporary Muslims, both modernists and Islamists. Open to all classes.

Cross-Listed as: AMES 15

Distributive: Dist:TMV; WCult:NW

Offered: 17S: 10

REL 17 - African Religions of the Americas

Instructor: Pérez

This class introduces the history and practices of African-derived religious traditions as they have developed in the Caribbean, Latin America, and Black American communities in the United States. These religious systems will be discussed with reference to their mainstream representation (as "voodoo") and analyzed according to the more complex realities of their practitioners' everyday lives. Three themes to be explored in each tradition include 1) gender identity; 2) racial identity and resistance; and 3) aesthetics. Open to all classes.

Cross-Listed as: AAAS 83.05

Distributive: Dist:INT or TMV; WCult:CI

Offered: 15F: 2 16F: 11

REL 18 - Indian Buddhism

Instructor: Ohnuma

An introductory survey of the Buddhism of South Asia from its beginnings in the 6th century B.C.E. to its eventual demise in the 12th century C.E. Emphasis will be given to the major beliefs, practices, and institutions characteristic of Indian Buddhism, the development of its different varieties (Hinayana, Mahayana, and Vajrayana), and its

impact upon South Asian civilization at large. Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 10

REL 19 - Special Topics in Religion-Introductory Level

Instructor: The staff.

The contents of this course will vary from term to term. Open to all classes.

Distributive: Dist:TMV

Offered: 15F, 16S, 16F: 10 16X: 10A 17S: 11 17S: 2

REL 19.06 - Modern Hinduism

Instructor: Elison

The names "Hinduism," a religion, and "India," a nation, come from the same word. What's at stake in mapping one onto the other? We will study the consolidation of Hindu traditions as a modern religion—how the "ism" got in the "Hinduism"—in historical context, examining the writings of thinkers like Gandhi, Radhakrishnan, and Vivekananda. One of the most compelling things about Hinduism's global image is its association with nonviolence. But a major focus will be the development of Hindutva ideology, which recasts the religion in a militant, masculinized mode. Who speaks—within the academy and outside it—for Hinduism?

Cross-Listed as: AMES 42.01

Distributive: Dist:TMV

Offered: 15F: 10

REL 19.13 - Divine Love: Desire, Sex, and Romance in Traditions of India

Instructor: Elison

"You've got the money, but we've got the love." Indians comparing their country with this one often make judgments in these terms. But isn't love a human universal? In this course we will examine how religious texts have helped construct Indian attitudes towards desire, sex, and romance. We will tour various historical genres: erotic how-to, epic, mystical poetry, drama. The ideal bond in many of these texts unites a human subject with a divine lover.

Distributive: Dist:TMV; WCult:NW

Offered: 16F: 10

REL 19.15 - God and Money

Instructor: Singh

This course introduces students to the problems and concerns of the study of religion by examining the interaction between economic and religious discourse and

practice. Money has long been an object of reflection in philosophical, ethical, and religious traditions. We will explore money as a social phenomenon, a way human communities construct meaning and relationships, deal with power and obligation, and communicate what matters to them. We seek to understand what money is, how it interacts with moral categories like guilt and human value, and how it shapes areas of life such as identity, friendship, love, and sex. We also examine perspectives emerging from religious and ethical traditions concerning the presence of money in modern life. In so doing, we grapple with issues of individual and communal meaning, identity, and value judgment, as well as the challenge of defining what counts as religion—concerns that are integral to the discipline of religious studies and central to humanistic inquiry more broadly.

Distributive: Dist:TMV

Offered: 15F: 12

REL 19.16 - Idols And Fetishes: Material Things In Religious Life

Instructor: Elison

If religion is concerned with spiritual matters, what business does it have with the material? Following the “material turn” in religious studies, this course begins by examining discourses surrounding “idolatry” and “fetishism” and unpacking their connotations of error, primitiveness, and danger. Other topics will include saints’ relics, Native American remains, and “secular” practices like museum-going. A curatorial exercise will require students to bring in their own cult objects. What makes a thing a sacred thing? Open to all classes.

Distributive: Dist:TMV

Offered: 17S: 11

REL 19.17 - Religion in World Politics

Instructor: Baum

Modernization theorists confidently predicted that religion would cease to be a matter of public concern and would become limited to individual and private spheres by the end of the twentieth century. The Iranian Revolution put an end to such speculation. This course examines the relationship between religious pluralism and political affairs in European, African, and Asian nations. Case studies will include Northern Ireland, Nigeria, South Africa, the Middle East, and India.

Distributive: Dist:TMV

Offered: 16S: 10

REL 19.18 - From Sacred to Salvation: The Place of Religion in Human Societies

Instructor: Elison

This course examines religions as cultural systems that give shape and meaning to people's lives and provide them a means, in the form of rituals, to affect their worlds and themselves. The emphasis is on understanding non-Western religions, especially local traditions, through the interpretation of myth, ritual, and symbolism. The relationship of religion to political power and ideology is also explored.

Cross-Listed as: Identical to ANTH 48

Distributive: Dist:INT or TMV; WCult:NW

Offered: 16S: 10

Theories in the Study of Religion Courses

REL 20.01 - Classic Works in the Study of Religion

Instructor: Reinhart

In this course we will read the works of a number of the “greats”—Tylor, Durkheim, Freud, Weber, among others—who shaped the modern, scholarly study of religion. We will also read critical literature on their work. The course is designed to give students a grounding in the methods and approaches taken for granted in the field of the study of religion. Open to sophomores, juniors, and seniors.

Distributive: Dist:TMV

Offered: 16W: 12

REL 20.02 - Magic, Science, and Religion

Instructor: Benor

Can significant distinctions be drawn between religious and magical ritual? Do magic and religion thrive in opposition to the science of their time or in congruence with it? The course addresses such theoretical questions in the study of religion from perspectives of history, philosophy of science, anthropology, and cognitive science. The course will suggest a general theory of conditions under which religion tends to be or tends not to be magical. Students will be invited to challenge that theory. Open to sophomores, juniors, and seniors.

Distributive: Dist:SOC

Offered: 17W: 10

REL 20.03 - Reason and Religious Belief

A study of the principal religious and philosophical arguments for and against religious belief. The first part of the course will consider the question of the justifiability of religious belief through an appeal to religious experience and mysticism, to rational theistic arguments, and to faith, showing the difficulties in each case. The second part of the course will cover alternatives to classical theism and the contemporary challenge of conceptual relativism and

religious pluralism. Open to sophomores, juniors, and seniors.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

REL 20.04 - Theoretical Approaches to the Study of Myth: Interpreting Ancient Near Eastern Mythology

This course examines various theoretical approaches to the study of mythology that have been developed by scholars in the past century by considering the ways in which these theoretical models have been used in the interpretation of mythologies of two of the great cultures of the ancient Near East, Mesopotamia and Canaan. Readings will include all the major myths of Mesopotamian and Canaanite tradition; major articles by theoreticians of myth such as Bronislaw Malinowski, Clyde Kluckhohn, and Claude Levi-Strauss; and various essays that attempt to apply these theoretical studies to the ancient Near Eastern mythological materials. Open to sophomores, juniors, and seniors.

Offered: Not offered in the period from 15F through 17S

REL 20.05 - What is Religion?

Instructor: Raz

This course examines basic theoretical and methodological questions about the study of religion. We begin with several definitions and approaches to religion emerging from Sociology, Anthropology, Psychology and Cognitive science, to Comparative Religion. Next we explore the formation of World Religions, the emergence of New Religious Movements, and the problematic definitions of Asian religions. We also explore theoretical issues regarding ritual, mythology, sacred time and sacred space, the body and the cosmos.

Prerequisite: Open to sophomores, juniors, and seniors.

Distributive: Dist:INT or TMV; WCult:NW

Offered: 15F: 10A 16F: 10

Intermediate Courses

REL 21 - Judaism in Late Antiquity: The Rabbinic Revolution

The course begins with a survey of the development of Judaism from a Persian-era temple religion into the religion of the synagogue and the academy in response to Greco-Roman civilization and its eventual Christianization. The course engages the students in careful interrogation of texts from the Mishna and the Talmud to recover the theological and experiential contours and concerns of a religious world in formative transition. Some of these developments are then traced through the Middle Ages to early modernity. Open to all classes.

Cross-Listed as: JWST 60

Offered: Not offered in the period from 15F through 17S

REL 22 - Modern Judaism

This course will concentrate on modern Jewish thought in the period beginning with Spinoza's challenge to the Bible. In turn, a figure of the Enlightenment (Moses Mendelssohn), then founder of neo-Orthodoxy (S. R. Hirsch), then the central figure of Reform (Abraham Geiger), and such later figures as Martin Buber, Ahad H'Am, and Franz Rosenzweig will be read and discussed. Open to all classes. Dist: TMV; WCult: W.

Cross-Listed as: Identical to JWST 61

Distributive: Dist:TMV

Offered: Not offered in the period of 15F through 17S

REL 23 - Jewish Mysticism

Instructor: Benor

The course examines the nature of claims to mystical experience or knowledge that appear in various aspects of the Jewish tradition, with primary focus on the enchanted and demonic worlds of the Kabbala. Forms of ecstasy and magic will be studied, along with their theoretical and social backgrounds and their impact on elitist and popular Jewish practice. Open to all classes.

Cross-Listed as: JWST 62

Distributive: Dist:TMV; WCult:W

Offered: 17W: 2

REL 24 - Jewish Philosophers of Religion

The course is conducted through close reading and discussion of works by Spinoza, Buber, and Levinas that translate insights from the Jewish experience to the idiom of modern European culture and, in so doing, make unique contributions to such subjects of modern religious thought as: God and infinity; religion, morality, and politics; autonomy and transcendence; and the role of Jewish intellectuals in the modern era. Open to all classes.

Cross-Listed as: JWST 63

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period of 15F through 17S

REL 25 - Islamic Mysticism (Sufism)

An introduction to Sufism, using primary texts, films, and recordings. The course will first trace the development of Sufism, including its Christian and Hindu heritage. Then, using a Sufi manual of instruction, students will work their way through one influential approach to Sufi metaphysics. Finally, using films and recordings, the class will consider the rituals, practices, and role of the Sufi orders of Islam in Islamic history. Desirable background: Religion 8 or 16, or

another college-level course on Islam or Islamic culture, or permission of the instructor.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

REL 26 - Islam in America

Instructor: Ayubi

This course will consider North American Islam as a particular instance of Islam. The Islam of slaves, nineteenth-century converts to Islam, varieties of Black Islam, New Age Islam and Sufism, and immigrant Islam—including contemporary social and political developments—will all be topics of this course. Open to all classes.

Prerequisite: Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 15F: 12

REL 27 - The Qur'an and the Prophet

The Qur'an and the Prophet Muhammad are the source and center of Islam. In this course we will consider the form and content of the Qur'an and the form and content of various accounts of the Prophet's life: the *hadith* or anecdotes of the Prophet's life, the *sirah*, or biography of Muhammad, and the *maghazi*, or accounts of the Prophet's battles and campaigns. Topics covered include the aural Qur'an, the dating of the Qur'an and the *hadith*, diverse images of the Prophet, and "what can we know about the life of Muhammad?" Desirable background: REL 8 or REL 16, or another college-level course on Islam or Islamic culture, or permission of the instructor.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

REL 28 - Topics in the Study of Islam

Instructor: Reinhart

This course will focus on a particular topic in Islamic studies, with an emphasis on the most recent research in that field. The topic will vary with each offering, so the course may be taken more than once. Sample topics include: "The Islam of Morocco," "Shi'ism," and "Problems in Popular Islam." Open to all classes.

Cross-Listed as: REL 28.02 identical to AMES 55.02 (FEZ)

Distributive: Dist:TMV; WCult:NW

Offered: 16S: FEZ FSP

REL 28.02 - The Islam of Morocco

AMES Foreign Study Program in Fez, Morocco
The AMES Program offers an interdisciplinary Foreign

Study Program in Fez, Morocco. Classes are taught at the American Language Institute in Fez, with faculty and guest lecturers drawn from the two universities in Fez and elsewhere in Morocco, as well as the Dartmouth faculty director. The Fez program stresses opportunities to integrate homestays and visits to shrines, schools, markets, and workplaces with conventional classroom learning. For an application or further information, visit the Off Campus Programs Office, 44 North College Street, or go to the OCP web site.

This course is designed to introduce you to Islam as it occurs in the Moroccan environment. Each unit will include either visits from Moroccan scholars or practitioners of the aspect of Islam under consideration, or a visit to a scholar/practitioner or a religiously significant site. Topics will include shari'ah and shari'ah-reform, the King as Commander of the Faithful, Dialect Islam in Morocco, Gender and Sex in Moroccan Islam, the History of Islam in Morocco, and other topics as they present themselves.

Distributive: DIST: TMV; WCult: NW

REL 29 - Kierkegaard and Existentialism

A study of the thought, writings, and influence of Søren Kierkegaard, who is widely acknowledged to be the founding figure of existentialism. The course will examine the development of Kierkegaard's philosophical and religious thinking and will follow its influence on both religious and non-religious thinkers, including Martin Buber, Reinhold Niebuhr, Jean Paul Sartre, and Simone de Beauvoir. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

REL 30 - Sacred Cities

This course will explore the ways in which different religious traditions shaped and have been shaped by the sacred cities in which they are established. We will explore the way in which local topography, communities, and tradition shaped the sacred urban landscape and how the local holy places of the city influence the larger religious tradition of which it is a part. Open to all.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

REL 31 - Sex, Celibacy, and the Problem of Purity: Asceticism and the Human Body in Late Antiquity

Instructor: MacEvitt

Late Antiquity (c. 300-500 C.E.) was a time when Christians struggled to understand how gender, family life, and religion could intermesh. Did virgins get to heaven faster than those who marry? Can a chaste man and woman live together without succumbing to lust? Were men holier than women? What about women who behaved like men?

This course examines the changing understanding of the body, marriage, sexuality, and gender within Christianity through reading saints' lives, letters, polemical essays, and legal texts. Open to all classes.

Prerequisite: Open to all classes.

Cross-Listed as: WGSS 43.02

Distributive: Dist:TMV; WCult:W

Offered: 17W: 2A

REL 32 - Topics in the Christian Tradition

In this course we will engage in an in-depth study of a particular issue in Christian history or Christian ideology. The topic will change with each offering, and students may therefore take this course more than once. Sample topics include "Intellectuals and Superstition: The Creation of the Witch in Medieval Europe" and "Heretics and Inquisitors: The Cathar Religion in Medieval Europe." Open to all classes.

Distributive: Dist:TMV; WCult:W

REL 32.01 - Christianity in Korea

This course examines Korean Christians' beliefs and practices, which have shaped and brought tensions to current socio-religious phenomena. Topics include the Korean origins of Christianity, the encounter between Catholicism and Neo-Confucianism in the eighteenth century, Protestant missionaries' role in medicine and education, the rise of nationalism and Christianity under Japanese colonialism, churches in North Korea, Pentecostalism under South Korea's rapid industrialization and democratization, Korean missionaries around the world, and Christian musicians and entertainers in Korea, as well as the interface between gender and Korean Christian culture.

Distributive: Dist:TMV; WCult:NW

REL 32.02 - Dante's "Divine" Comedy

Is there an afterlife? What is it like? Who may describe the hereafter in this world and shape my behavior? These are the ever-present questions that Dante's *Comedy* poses. The course's central themes will be exile and paradise: Exile means both Dante's own banishment and the universal pilgrimage of life; paradise is the unattainable homecoming of true happiness. Students will explore the poem, its sources, and reception, developing a rigorous yet personal response to Dante's *Comedy*. Open to all students. Text, lectures and discussion in English. Students taking the course for major or minor credit in Italian will attend a weekly x-hour and do all written work in Italian.

Cross-Listed as: FRIT 33.01

Distributive: Dist: TMV; WCult:W

Offered: Not offered in the period of 15F through 17S

REL 32.04 - Spiritualities of the Christian Church

The early Christian church was not a monolithic belief system. Neo-Judaism, some pagan persistence, the rupture between Roman Catholic and Eastern Orthodox belief systems, and dissident sects, such as the Cathars, made the time-period variegated and fascinating. And the multifarious character of Christianity continues up to the present day! This class will examine the beliefs and practices of these multiple spiritual perspectives through historical documentation and first-hand sources where possible.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period of 15F through 17S

REL 32.05 - Second Vatican Council and its Theologians

This course introduces the history and the major accomplishments of the Second Vatican Council (1962-1965), and the writings of key theologians that gave shape to it behind the scenes. Fifty years on, this remarkable event still offers instructive insights for how we understand modernity, inter-faith dialogue, human rights, and the ongoing development of the Christian faith.

Distributive: DIST: TMV; WCult: W

Offered: Not offered in the period from 15F through 17S

REL 33 - Christians, Jews, and Muslims in the Age of the Crusades

This course will focus on the interactions of the three major religious communities of the medieval Mediterranean—Christians, Jewish, and Muslim—beginning with the First Crusade in 1096 and ending with the arrival of the Black Death in 1347. By examining topics such as pilgrimage, crusade, and jihad, the status of minority communities, and intellectual life, we will explore how Christians, Jews, and Muslims clashed, cooperated, influenced, and misunderstood each other. Open to all classes.

Cross-Listed as: HIST 4.02 and JWST 36.01

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

REL 34 - Christianity and Conversion in the Northern World: Vikings, Celts, and Anglo-Saxons

This course explores the transformation of Christianity in the early medieval period. The conversion of 'barbarian' peoples in northwest Europe between the years 400 and 1000 meant Christianity had to adapt to a different environment than the Roman and Mediterranean one in which the religion developed. The northern world was without the Roman Empire, without cities, with different languages, cultures and notions of relations between the human and divine worlds. This course explores the impact

the conversion of Germanic, Anglo-Saxon, Celtic, and Nordic communities had on Christianity, as well as why communities of the northern world voluntarily chose to adopt this new religion. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

REL 35 - Religion and Science

The purpose of this course is to provide an overview of current developments in the natural sciences and religious or theological interpretations of them. Emphasis is given to understanding an emerging consonance between religion and science in contrast to models of dissonance and conflict, or independence and dialogue. Particular attention is given to (1) evolutionary biology, (2) relativity physics, (3) cosmology, and (4) process theology and philosophy. Open to sophomores, juniors, and seniors.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

REL 36 - Religion and Literature

Instructor: Randall

This course explores through creative discussion, close reading, and texts that parallel theological perspective with literary exemplification, the fruitful interplay between religion and fiction. Students are encouraged to draw on other—and not necessarily Christian—religious traditions, if they so choose. The format is that of a book club. Lectures will provide significant biographical, contextual, and stylistic information. The professor will also assist students in elucidating the theological elements informing the literary works. The students will be responsible for coming to class with questions, comments, and quotations to support their assertions. Open to all classes.

Distributive: Dist:LIT

Offered: 16S, 17S: 10A

REL 37 - Animal Rights in Religion, Film, and Literature

This interdisciplinary, interfaith course looks at issues of ethics and religion in our environment as they are illustrated through the circumstances of flora and fauna today. Animal rights are discussed; animal advocacy is encouraged as part of the enduring heritage of the great teachings of many religions.

Distributive: Dist:TMV; WCult:W

Offered: Not offered in the period from 15F through 17S

REL 38 - Spiritual Autobiography

Instructor: Randall

This course begins with the first spiritual autobiography in the West, Augustine's *Confessions*, as a standpoint from

which to compare and contrast other spiritual journeys. Topics subsequently to be studied include excerpts of personal accounts about experiential faith; a panoramic overview of conversion narratives, among them African American, Native American and Muslim; and contextual information about the historical development of these various religious perspectives. Students will engage in journaling. Open to all classes.

Distributive: Dist:TMV

Offered: 16W, 17W: 10A

REL 39 - Magic, Madwomen, and Mystics

Instructor: Randall

This course compares and contrasts magical practices and mysticism in (primarily) Western Europe from pre-Christian Judaism to the present day. An alternative voice to institutionalized piety emerges, one that is often (although not always) associated with those culturally marginalized, including women. The focus is interdisciplinary: we examine spiritual literature, poetry, artwork (including the engravings of William Blake), early modern music, and some hymns. Open to all.

Distributive: Dist:TMV; WCult:W

Offered: 15F: 10A

REL 40 - Topics in the Religions of India

Instructor: The staff.

This course will focus in some depth on a particular aspect of religion in India—for example, a particular religion, sect, time period, body of literature, type of religion, or religious movement. The topic will change with each offering, and students may take the course more than once. Sample topics include: Gods, Demons, and Monkeys: The Ramayana Epic of India, Women In Indian Religions, and Modern Hinduism. Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 12 16F, 17S: 2

REL 40.01 - Gods, Demons, and Monkeys: The Ramayana Epic of India

Instructor: Ohnuma

The ancient Indian epic known as the Ramayana is a stirring, martial tale of gods, demons, and monkeys. Beginning with the classical Sanskrit version composed as early as 200 B.C.E., India has produced hundreds of different versions of the Ramayana, in different languages and media, with different agendas and for different audiences. We will examine this epic tradition in all of its complexity, making ample use of different forms of media.

Distributive: Dist:TMV; WCult:NW

Offered: 17S: 2

REL 40.04 - Hindu Hierarchies: Caste in Theory and Practice

Instructor: Elison

This course will investigate two aspects of India's "peculiar institution": caste hierarchy as lived in historical and present-day Hindu communities; and discourses of caste as conceived, justified, and reformed within Hindu thought. We will situate the classical Brahmanical formulation of orthodox caste dharma against alternatives advanced by subaltern voices, exponents of Bhakti devotionalism, and modern critics including Gandhi and Ambedkar. Models of caste influential in the social science literature will also receive critical attention. Open to all classes.

Cross-Listed as: Identical to AMES 36

Distributive: Dist:TMV; WCult:NW

Offered: 16F: 2

REL 40.05 - God's Fools: Saints, Music, And Mysticism In South Asia

Charismatic teachers—Hindu and Sikh gurus and Muslim pirs—were and are prominent interlocutors between South Asian religious traditions. Bhakti, or Hindu devotionalism, and Sufism, Islamic mysticism, offer complementary attitudes, including a mistrust of authorities and an emphasis on ecstasy. We will consider studies of historical saints alongside readings of their words, stressing the relation between medium and message. These ideas traveled not only as teachings but as popular culture—as poetry, powered by song.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

REL 40.06 - Food and Religion in South Asia: The Raw, the Cooked, and the Leftovers

Instructor: Elison

Food—what people consume, share, offer their gods, and cast off—commands intense attention in South Asian religions. It's one way Hindus define themselves in relation to others (including other Hindus). It's coded with values like purity and pollution, subtlety and grossness. And it embodies histories, not only of migration, trade, and colonialism but also of ethicized actions—karmas. In India, "you are what you eat" has been a truism for thousands of years.

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 12

REL 41 - Readings in Buddhist Literature

This course will focus in some depth on a particular body of Buddhist literature from a specific region of the Buddhist world, such as sacred scriptures, philosophical treatises, narrative texts, ritual texts, and sacred biographies. Special attention will be paid to a close and careful reading of the texts, as well as to placing them within their proper historical, social, and cultural contexts. The topic will change with each offering, and students may take the course more than once. Sample topics include: "Indian Buddhist Narratives," "Mahayana Buddhist Texts," "Chan/Zen Tradition," and "Tantra in East Asia." Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

REL 42 - Goddesses of India

This course will use both elite and popular Hindu religious texts in conjunction with contemporary sociological and anthropological accounts, scholarly analyses, visual art, and film to explore the diverse identities and roles of India's many goddesses, both ancient and modern. Special emphasis will also be given to the relationship between goddesses and women. Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

REL 46 - Daoism: Transformations of Tradition

Instructor: Raz

In this course we will explore the historical developments and transformations of Daoism from its ancient roots to present-day practices. We will begin by looking at early traditions of immortality seekers and self-cultivation and at the religious and philosophical ideas in the ancient Chinese texts of the Laozi, Zhuangzi, and Guanzi. We will also examine recent archaeological findings, imperial religious practices, and the complex interaction of Daoism with Buddhism. We will in addition look at contemporary Daoist practices in China and Taiwan. Along the way we will devote special attention to meditation and divination techniques; alchemy and sexual techniques for transcendence; the place of women and the feminine in Daoism. Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: 15F: 2

REL 47 - Buddhism in China

Instructor: Raz

A study of the advent of Buddhism in China, its accommodating yet transforming response to Chinese traditions and values, the emergence of the authentically Chinese schools of T'ien-T'ai, Hua-yen, Ch'an, and Pure

Land Buddhism, and the enduring Buddhist heritage of China. Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: 16F: 2

REL 48 - Body and Sex in Chinese Religions

Instructor: Raz

In this course we will explore how different traditions in China conceptualized the relationship between the human body and the universe and how individuals can attain immortality and transcendence. After examining different conceptions of the human body in traditional China, we will focus on sexual practices advocated by the traditions of immortality seekers, Daoism, and esoteric Buddhism as ways to enlightenment and transcendence. In our explorations we will look at the earliest records of sexual practices found in tombs of the 3rd century B.C.E. and examine Daoist sexual initiation rites and secret rites practiced by emperors. We will consider how notions of cosmic powers and forces are expressed in sexual rituals and how society views such practices. We will also compare Chinese notions of the body and of sexual practices with those found in West. Open to all classes.

Cross-Listed as: WGSS 43.05

Distributive: Dist:TMV; WCult:NW

Offered: 15X: 2A

REL 49 - Topics in East Asian Religions

Instructor: The staff.

In this course students will read and discuss the latest research on one of the religions of East Asia, or a particular sect, movement, or time period in the history of East Asian religions. The topic will change with each offering. Thus, students may take this course more than once. Sample topics include: Literature and Religion in China, Politics and Religion in China, and The Body in Japanese Religion. Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 10

REL 49.01 - Apocalyptic Thought

Instructor: Raz

In this class we will examine ideas about the cataclysmic end of the world, possible ways to survive such calamities, or to bring them forth appear in several religious traditions in East Asia. This course examines a variety of such eschatological and salvific ideas, beginning with Daoist and Buddhist scriptures in medieval China, proceeding through various religious rebel movements to modern cults such as Aum Shinrikyo in Japan and Falun Gong in China.

Distributive: Dist:TMV; WCult:NW

Offered: 16S: 10

REL 50 - LGBT Religious History and Experience: Queering the Spirit

Instructor: Pérez

This course examines religion as experienced by lesbian, gay, bisexual, and transgender/transsexual people. It adopts a comparative historical perspective in considering the multiplicity of LGBT religious identities that have existed and continue to thrive around the world. It also traces the emergence of gender categories and norms in a range of different societies, beginning with our own. Special attention is paid to traditions in which LGBT people have been valued as priests, healers, and leaders.

Distributive: WCult:CI

Offered: 16S: 10A 17S: 2A

REL 51 - The Virgin of Guadalupe: From Tilma to Tattoo

Instructor: Pérez

Beginning with her precursors in the Old and New World, this course approaches Guadalupe as a tool with which to pry open questions central to Mexican and Chicano/a identity. For some, she is a mother-figure with characteristics once attributed to pre-Columbian goddesses; for others, she is a feminist champion of political revolution. This course concentrates on the most compelling contexts in which Guadalupe has been called on to negotiate religious, racial, sexual, and national identity. Open to all classes.

Cross-Listed as: LATS 35

Distributive: Dist:TMV; WCult:NW

Offered: 17S: 10A

REL 52 - Religion and Music in Cuba

Instructor: Pérez

This course tells the story of Cuba's religious formations through their musical genres. Readings draw from several disciplines to illuminate the role that music plays in celebrating deities, ancestors, and community, in such traditions as the all-male secret society Abakuá; French-Haitian Tumba Francesa; the "drums of affliction" Lucumí and Palo Monte; and Havana-based hip-hop. We examine the relationship between dance, spirit possession, and mythology, and how nation, race, and gender have been constructed through music. Open to all classes.

Distributive: Dist:TMV; WCult:CI

Offered: 15F: 10 16F: 2

REL 53 - Religion, Healing, and Medicine

Instructor: Pérez

This class explores a range of religious approaches and traditional therapeutic responses to bodily suffering, with an eye towards examining the way medical cultures reflect and construct religious identity. Most examples of healing practices to be discussed are drawn from religious communities and ethnic groups active in the contemporary United States. While addressing such topical issues as reproduction, sexuality, substance abuse, and dieting, the course also analyzes the taboos, values, and rituals of Western biomedicine. Open to all classes.

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16S: 2A

REL 55 - Ancient Egyptian Religion

The great civilization of ancient Egypt, which spanned a period of almost 3000 years, has left us a wealth of literary, artistic, architectural, and funerary religious remains. This course will focus on three major aspects of Egypt's religious heritage: (1) the pantheon and the myths and stories about Egypt's gods; (2) temple complexes; and (3) tombs, especially the tombs of royalty and other nobles. Open to all classes.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period from 15F through 17S

REL 56 - Women and the Bible

Instructor: Ackerman

As contemporary Jewish and Christian communities of faith face the question of the role of women within their traditions, many turn to the Bible for answers. Yet the biblical materials are multivalent and their position on the role of women unclear. This course intends to take a close look at the biblical tradition, both the Hebrew Bible (Old Testament) and the New Testament, to ask what the Bible does—and does not say—about women. Yet the course is called "Women and the Bible," not "Women in the Bible," and implicit in this title is a second goal of the course: not only to look at the Bible to see what it actually says about women, but also to look at differing ways that modern feminist biblical scholars have engaged in the enterprise of interpreting the biblical text. Open to all classes.

Cross-Listed as: Identical to WGSS 43.03

Distributive: Dist:TMV; WCult:CI

Offered: 16F: 10A

REL 57 - Readings in the Biblical Tradition

Instructor: The staff.

In this course we will engage in an in-depth study of a particular biblical book or of a particular biblical motif. The topic will change with each offering, and students may therefore take this course more than once. Sample topics include "The Exodus Tradition," "Job and the Joban

Tradition," and "Apocalyptic Traditions." Open to all classes.

Distributive: Dist:TMV

Offered: 16W: 12

REL 57.01 - The End of the World

This course will examine expectations of the end of the world with roots in the interpretation of the Hebrew Bible and New Testament. Students will survey ancient near eastern concepts of the cataclysmic end of history, understand the theological and social origins of apocalyptic literature, and examine the primary examples of the genre in early Judaism and Christianity. The course will also investigate modern apocalyptic movements guided by eschatological interpretations of the Bible.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

REL 57.06 - History of Heaven

Instructor: Wright

This course presents an examination of the origins and early evolution of images of the afterlife among the ancient peoples of the Mediterranean basin and Near East. The course will focus on ancient Israelite, biblical, and early Jewish and Christian images. Later developments of these images within Western religious will also be discussed.

Prerequisite: Open to all classes.

Distributive: Dist:TMV

Offered: 16W: 12

REL 58 - Topics in the Bible and Archaeology

In this course we will study the relationship between various biblical texts and archaeological discoveries from the ancient Near East, including ancient Israel, and from the Roman Empire during the period of Christian origins. Particular attention will be paid to the ways in which archaeological data can be used and abused in attempts to understand the Bible better. The specific topic of the course will change with each offering, and students may therefore take this class more than once. Open to all classes.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

REL 60 - Reformations: Protestant and Catholic

Instructor: Randall

This course examines the theological, social, psychological, and cultural motors driving change within the institutional church during the 16th and early 17th centuries, the Protestant challenge to Catholicism, and the

Catholic response. Manifestations of the need for change are found in great literature of the era and also exemplified in art and film. Scope spans Europe and the Colonies. Open to all classes.

Distributive: Dist:TMV; WCult:W

Offered: 16F: 10A

REL 61 - Religion and the Civil Rights Movement

Instructor: Balmer

An examination of the importance of religion in the drive for civil rights during the 1950s and 1960s. The course will look at the role of activists, clergy, sermons, and music in forging the consensus in favor of civil rights. Open to all.

Cross-Listed as: AAAS 82.01

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 10A

REL 62 - Religion, Politics, and the Presidency

Instructor: Balmer

This course examines the intricate relationship between church and state, religion and politics, throughout American history, beginning with the founders and how they have been interpreted—perhaps misinterpreted—throughout history. We'll look at the contentious election of 1800, examine the faith of several presidents, and then explore the rise and the influence of the Religious Right in recent years, concluding with a retrospective on religion and presidential politics over the past half century. Open to all.

Distributive: Dist:SOC; WCult:W

Offered: 15F: 10A

REL 63 - Mormonism

Instructor: Balmer

A survey of the history and theology of Mormonism, one of America's indigenous religions. We'll read selections from the Book of Mormon and chart the history of the movement, including its contentious relationship with the federal government. We'll look, finally, at some of the cultural expressions of Mormonism and examine the ways that Mormonism has transformed itself from what was essentially an outlaw religion in the nineteenth century to the embodiment of American ideals. Open to all.

Distributive: Dist:TMV; WCult:W

Offered: 16F: 2A

REL 64 - Evangelicalism

Instructor: Balmer

A survey of the history and theology of evangelicalism, America's folk religion, from its origins in the confluence

of the "three P's"—Puritanism, Presbyterianism, and Pietism—in the Great Awakening to the construction of the evangelical subculture following the Scopes Trial to the present. We'll examine evangelical millennial ideas as well as attitudes toward women, minorities, society, and politics. Open to all.

Distributive: Dist:TMV; WCult:CI

Offered: 17S: 10A

REL 65 - Sports, Ethics & Religion

Instructor: Balmer

A survey of the origins and development of the culture of athletic competition in America, with roots in the "Muscular Christianity" movement of nineteenth-century England. We'll examine the peculiar (religious?) passion that Americans invest in sports as well as the role that sports has played as an engine for social change. We look, finally, at some of the ethical issues surrounding organized sports. Open to all.

Distributive: Dist:TMV; WCult:W

Offered: 16F: 10A

REL 66 - Women, Religion, and Social Change in Africa

Instructor: Baum

This introductory, multidisciplinary course examines women's religious ideas, beliefs, concerns, actions, rituals and socio-cultural experiences in African societies and cultures from a comparative, historical and gender perspective. We will look at women's experiences of social change in African religions, the encounter with Islam, slavery, Christianity, and colonialism. We will analyze the articulations of economic and political power or lack of power in religious ideas as we ask questions such as: What are the different antecedents and circumstances in which women exercise or are denied agency, leadership, power and happiness in their communities? Texts will include nonfiction, fiction, and film narratives. Open to all students.

Cross-Listed as: AAAS 42 and WGSS 44.03

Distributive: Dist:SOC; WCult:NW

Offered: 16S: 10A

REL 67 - Religion And Imperialism

An examination of the impact of imperial expansion on the religious systems of the conquered. The course will focus primarily on the religious consequences of European expansion in North America and Africa but will also examine Jewish responses to Roman imperialism at the time of Jesus. We shall examine the attempts of traditional religious leaders to explain and control the imperial presence as well as the development of new religious

movements that grew out of spiritual crises of conquest. This course will examine various types of prophetic movements and revitalization movements that developed in response to conquest as people sought to preserve their cultural identities in the face of their forced integration into imperial systems. Issues of conversion to religions associated with the conquerors as well as the challenges of secular culture will be discussed. Open to all.

Distributive: Dist:INT or SOC; WCult:CI

Offered: Not offered in the period from 15F through 17S

REL 70 - Foreign Study in Religion I

Instructor: University of Edinburgh staff.

Credit for this course is awarded to students who have successfully completed a religion course at the University of Edinburgh while a member of the Dartmouth Foreign Study Program in Religion.

Prerequisite: One course in Religion.

Distributive: Dist:TMV

Offered: 15F, 16F: D.F.S.P.

REL 71 - Foreign Study in Religion II

Instructor: University of Edinburgh staff.

Credit for this course is awarded to students who have successfully completed a religion course at the University of Edinburgh while a member of the Dartmouth Foreign Study Program in Religion.

Prerequisite: One course in Religion.

Distributive: Dist:TMV

Offered: 15F, 16F: D.F.S.P.

REL 74 - Special Topics in Religion-Intermediate Level

Instructor: The staff.

The contents of this course will vary from term to term. Dartmouth Foreign Study Program (D.F.S.P.) courses are taught by the Dartmouth Faculty Director of the annual Religion Department Foreign Study Program at the University of Edinburgh, Scotland. See Off Campus Programs for applications and more information.

Prerequisite: One course in Religion

Distributive: Dist:TMV

Offered: 15F, 16F: FSP 16W: 2

REL 74.07 - Ritual in Post-Modern Great Britain

Instructor: Reinhart

This is a course on ritual. It is designed to expose you to the major theories that seek to define, explain and interpret ritual and to apply those theories to actual rituals in situ. This means we will be reading and discussing intensively

in seminar. We will also be taking advantage of the rich multicultural environment of this exciting city to attend various rituals—religious and otherwise. Your papers and presentations will be observations and analyses of two rituals from among the multitude of religious rituals available in Edinburgh and the United Kingdom.

Prerequisite: One course in Religion

Distributive: Dist:TMV

Offered: 15F: FSP

REL 74.08 - Religion and Social Capital

Instructor: Singh

Why are relationships important? Why does reputation matter? Why is community crucial? How does trust emerge? Is there something sacred about social bonds? This class explores the idea of social capital and its significance for analyzing culture and society. We first seek to grasp the idea of “capital” as applied to the social and relational world, examining why social theorists have found this a useful lens of analysis. What does it mean to have social and cultural capital? We then explore how and why human communal bonds are formed and whether such interactions might justifiably be called “sacred” or “religious.” We consider gifts and reciprocity as ways we forge human connection, exploring philosophical and anthropological reflection on these practices. We examine changes in how community bonds are formed in light of globalization and new technology. We review concerns about the loss of community and connection, and about the barriers to access and advancement faced by those with less social capital. We also consider religious and ethical reflection on social capital as applied to human and divine beings. Readings include Bourdieu, Durkheim, Grewal, Mauss, Putnam, Sunstein, and Volf.

Prerequisite: Open to all classes.

Distributive: Dist:TMV

Offered: 16W: 2

Advanced Courses

REL 80 - Seminars

The contents of this course will vary from term to term, see individual topic descriptions.

Distributive: Dist:TMV

REL 80.01 - Prophetism in the Black World

Instructor: Baum

This seminar utilizes interdisciplinary perspectives to examine the relatively widespread phenomena of prophetism in the black world. By utilizing historical, anthropological, and comparative religious perspectives, the seminar will explore the lives and prophetic careers of

people who claimed direct revelation from the supreme being or lesser spirits in indigenous African religions, Islam, and African and African American Christianity. We will examine such movements before the European occupation of most of Africa as well as the colonial and post-colonial eras. We will also examine African American movements from the period of slavery and from the twentieth century. Topics will include women's prophetic movements, religious critiques of underdevelopment, the process of inculturation of Islam and Christianity, and the role of religion in Resistance to foreign or domestic domination.

Cross-Listed as: Identical to AAAS 90.02

Distributive: Dist:TMV; WCult:CI

Offered: 16W: 10A

REL 80.02 - Spirituality and Health

The course explores holistic understanding of healing, medicine, and interactions of mind, body and spirit. This course will focus in some depth on the film by Mike Nichols, "Wit." Special attention will be paid to essays by authors such as Oliver Sacks, Bernie Siegel, Caroline Myss, Bill Moyers, and the Christian Science Church; alternative treatments with a spiritual component such as Planetree or the use of chakras will be evaluated; neuroscience will be explored through literature such as Ron Hansen's *Mariette in Ecstasy*; and invited speakers will include medical practitioners.

Distributive: Dist:TMV

Offered: Not offered in the period from 15F through 17S

REL 80.06 - The Creation of "Buddhism"

Instructor: Ohnuma

This seminar will focus on "Buddhism" not as a living religious tradition, but as an academic object—created, solidified, and defined by and within the Western academy. How was "Buddhism" created in the libraries and academies of the West, and how does this creation continue to define what "Buddhism" is today—both within the Western academy and among Asian Buddhists themselves?

Distributive: Dist:TMV

Offered: 16S: 2A

REL 81 - Dickinson Distinguished Scholar Seminar

The contents of this course will vary from term to term. This course is a unique opportunity for students to focus on the work of a distinguished scholar who has made a significant impact upon the study of religion. The Religion faculty designs the course annually and invites the scholar to visit the Dartmouth campus to engage the students, critique their papers, and present a public lecture to the community.

Distributive: Dist:TMV

REL 81.04 - Buddhho-Daoism: Religious Competition and Interaction in Traditional China

Instructor: Raz

Buddhism and Daoism developed together in traditional China through complex interactions that produced various difficult to define religious phenomena. Daoists and Buddhists appropriated each other's ideas and practices so that many scriptures and rituals are sometimes nearly impossible to differentiate. Local religious communities followed practices that integrated ideas from both traditions. This course examines the various manifestations of Buddhho-Daoist religious traditions in traditional China and their impact on modern Chinese religion.

Distributive: Dist:TMV

Offered: 17S: 10A

REL 82 - Joint Research in Religious Studies

Two or more students may enroll in this course to pursue through independent reading and research a topic mutually agreed upon between themselves and the instructor. This course may be used in satisfaction of the seminar requirement. Permission of the Chair is required.

Offered: All terms: Arrange.

REL 83 - Research in Religious Studies (Independent Study)

Offered: All terms: Arrange.

REL 84 - Advanced Research in Religious Studies (Independent Study)

Serves in fulfillment of the Culminating Experience requirement. Open to senior majors only; by permission only. Majors electing this option must submit a research proposal for Departmental approval no later than the end of the Spring term of the Junior year. Students who choose to enroll in REL 84 as their Culminating Experience are normally expected to participate in the Senior Colloquium but are excused from the writing component of the Colloquium. For more information, consult with the Chair.

Offered: All terms: Arrange.

REL 85 - Senior Colloquium

Instructor: The staff.

As a culminating activity for senior majors, this colloquium serves as a forum for researching and writing the Senior Essay. Two faculty members convene the colloquium and guide the selection of essay topics. Other faculty and guest speakers may visit during the first five weeks of the term for discussion of common readings. The 25-page Senior Essay is expected (1) to display expertise in at least one cultural area, historical period,

methodological approach, or body of literature, (2) to build upon previous course preparation, and (3) to engage with one of several approaches or readings discussed in the colloquium. Students who choose to enroll in REL 84 or REL 86 and REL 87 as their Culminating Experience are normally expected to participate in the Senior Colloquium but are excused from the writing component.

Prerequisite: Open only to senior majors.

Distributive: Dist:TMV

Offered: 16W, 17W: 10A

REL 86 - Honors I (Research)

Open to seniors only; by permission only. Majors electing this option must submit a proposal for Departmental approval no later than the end of the Spring term of the Junior year. Students who choose to enroll in REL 86 and REL 87 as their Culminating Experience are normally expected to participate in the Senior Colloquium but are excused from the writing component of the Colloquium.

Offered: All terms: Arrange

REL 87 - Honors II (Writing)

Open to seniors only; by permission only. Majors electing this option must submit a proposal for Departmental approval no later than the end of the Spring term of the Junior year. Students who choose to enroll in REL 86 and REL 87 as their Culminating Experience are normally expected to participate in the Senior Colloquium but are excused from the writing component of the Colloquium.

Offered: All terms: Arrange

Russian Language and Literature

Chair: John M. Kopper

Professors J. M. Kopper; Associate Professors D. A. Garretson, M. Gronas; Associate Professor V. Somoff; Assistant Professor L. Patyk; Senior Lecturer A. Rakova, Visiting Lecturer: T. Gershkovich.

To view Russian Language and Literature courses, click here (p. 464).

Majors

The major in Russian is designed to provide students with a solid working capability in the language as well as a familiarity with the literature and, more broadly, the culture of Russia. In addition, every major, in consultation with an advisor, will choose a set of electives that will result in a concentration on one of these three areas: language, culture, or literature. Alternatively, those wishing to take courses related to Russia in such disciplines as History, Government, or Economics should consider the Russian Area Studies Major. Both majors require Russian 31, which can be omitted only by vote of the entire Department.

1. The Major in Russian.

Prerequisite: RUSS 28.

Requirements: RUSS 29; one course in the sequence 41–42–43; RUSS 71; two courses in the 30s which must include RUSS 31; and one culture course (numbered 10 though 19). In addition, majors must take four additional courses, for a total of 10. Those concentrating on language would select at least some of these four courses from the forties; those focusing in culture would select additional courses in the teens; and those interested primarily in literature would design a major with an emphasis on courses in the thirties. Two courses from the LSA+ may be counted toward the major and counted as a culture course. The culminating experience requirement must be satisfied by completing RUSS 71 or RUSS 86. In addition, those writing an honors thesis will enroll in RUSS 87, and may also take RUSS 85 as part of their preparation for the thesis.

Note: Students may receive a certificate in Russian Area Studies by (1) completing all the requirements for the major in Russian *and* (2) taking four courses from among those offerings in other departments that may normally be used to satisfy the requirements for the Russian Area Studies Major (see the following paragraph). Such students will have both the major in Russian and the certificate in Russian Area Studies listed on their transcripts.

2. The Major in Russian Area Studies

Prerequisite: RUSS 3.

Requirements: A total of ten courses, which must include RUSS 27, RUSS 28, and RUSS 31. Of the remaining seven courses, at least two must be in Russian and one course must fulfill the culminating experience. The Area Studies Major will include courses both from within the Russian Department and from such departments as History, Government, Economics, and Music, that, together, provide a cogent study of one or more topics with a focus on the region. The major should be planned in consultation with an adviser and the courses outside the department need to be approved by the chair. For the culminating experience, students must write a thesis (RUSS 87), take RUSS 86, or, with the approval of the Department faculty, designate a course in the Russian Department or another department that will serve to satisfy the requirement.

Minors

1. The Minor in Russian

Prerequisite: RUSS 3, or permission of the chair.

Minor courses: a total of six courses including

- a. RUSS 31.
- b. one or two of the following courses: RUSS 10-19.
- c. up to four other Russian courses numbered 23 or higher, for a total of six courses beyond the prerequisite.

- d. Students may count two of the LSA+ courses toward the minor.

2. The Minor in Russian Area studies

Prerequisite: *One* of the following courses: RUSS 10, RUSS 13, RUSS 19, or RUSS 21.

Requirements: a *total of six* courses including RUSS 31; and five courses chosen from the following: RUSS 10, RUSS 11, RUSS 13, RUSS 14, RUSS 18, RUSS 19, RUSS 21, RUSS 22, RUSS 23, RUSS 32, RUSS 35, RUSS 36, RUSS 48, or RUSS 71 of which three should be numbered 32 and higher and exclusive of the course selected as a prerequisite. Not more than *two* LSA+ courses could be counted for fulfillment of the prerequisite and requirements. Up to two Russian area studies courses, including ECON 29 and 49, GOVT 52, and HIST 54, HIST 55, and HIST 56 or offerings of such courses as GOVT 84, HIST 96, and MUS 8, when dealing with relevant topics, may be counted towards completion of this minor. Other courses used to satisfy this requirement must be approved in advance by the Chair of the Department.

Honors Program

Seniors who give evidence of outstanding ability and who wish to pursue serious research on an independent project are invited to apply for honors work. Students must satisfy the minimum College requirement and must also meet two departmental requirements. First, they must have a grade average of 3.3 for all courses taken within the major. Second, they must have received at least an A- in an advanced course that emphasizes research and analysis, such as RUSS 48 or 71.

Area studies majors may satisfy this second requirement with one of these courses, or, if the topic of the thesis is outside the area of language and literature, with a course from the academic area in which they intend to do research. Application is normally made by the third week of the fall term, with RUSS 85 taken in the fall and RUSS 87 in the winter. The thesis must be submitted no later than the third week of spring term. Further information is available from the department office.

Term Abroad

Dartmouth Advanced Language Study Program (LSA+) in St. Petersburg, Russia.

Prerequisite: RUSS 1, RUSS 2, RUSS 3, or the equivalent, with a grade of no lower than B- in RUSS 3.

It is recommended that students take one or more of the following courses: RUSS 10, RUSS 11, RUSS 13, RUSS 19, RUSS 31 or HIST 54.

The Dartmouth Russian LSA+ Program is conducted during the summer at St. Petersburg University in Russia. The program includes regular classes at the university as well as organized trips to areas of cultural and historical interest. Applications for the program are due in January for that summer. Those accepted for the program will sign

up for Russian 21, 22, and 23. Successful completion of the St. Petersburg Program will serve in satisfaction of the Summer Residence Requirement (even when taken in the summer following the first year or third year).

RUSS - Russian Language and Literature Courses

To view Russian Language and Literature requirements, [click here](#) (p. 463).

RUSS 1 - Introductory Russian

Instructor: Garretson, Staff

An introduction to Russian as a spoken and written language. None of these serves in partial satisfaction of the Distributive or World Culture Requirements.

Offered: 15F, 16F: 9L, 12

RUSS 2 - Introductory Russian

Instructor: Rakova, Staff

An introduction to Russian as a spoken and written language. None of these serves in partial satisfaction of the Distributive or World Culture Requirements.

Offered: 16W, 17W: 9L

RUSS 3 - Introductory Russian

Instructor: Garretson, Staff

An introduction to Russian as a spoken and written language. None of these serves in partial satisfaction of the Distributive or World Culture Requirements.

Offered: 16S, 17S: 9L

RUSS 7 - First-Year Seminar in Russian

Offered: Consult special listings

RUSS 10 - Introduction to Russian Civilization

Instructor: Staff

An examination of Russia as a cultural, national, and historical entity part of and yet apart from both Europe and Asia. Russia is a continental power of vast proportions whose traditions, character, national myths, and forms of political organization often seem a mirror-image to those of the United States. After a brief survey of Russian history, the course will examine certain determinants of Russian culture, including Christianity, multinationalism, and the status of Russian civilization on the periphery of Europe. The course will then deal with the art, music, and popular literature of Russia, and conclude by examining certain contemporary issues, including the complex coexistence of Russian and Soviet culture. Open to all classes.

Distributive: Dist:TMV; WCult:CI

Offered: 15F: 2

RUSS 11 - Special Topics in Russian Culture

In 15W, TBD. Chapman.

Distributive: Dist:SOC; WCult:W

RUSS 11.03 - How the Hammer and Sickle Gave Way to McDonalds

We will explore a wide variety of domestic and foreign media including film, music, jokes, detective novels, and streaming online videos across the Soviet period and into the present time. Artistic disciplines during the Soviet period were firmly entrenched within cultural industries that featured union memberships, the means to control production, distribution, and exhibition. Nonetheless, what was popular throughout Russo-Soviet history did not always emanate from state guided channels. How do we account for what we perceive as “anomalies” in Russian popular culture: why did people listen to American jazz music under Stalin? Why were Bollywood films more popular than Soviet comedies? Why were Brazilian and Mexican telenovelas standard viewing in Soviet homes? How did the presence of foreign texts relate to the multi-ethnic makeup on the Soviet Union? How were founding mythologies of the nation encoded/rejected in domestic texts? While popular culture encompasses a multitude of media, special attention will be paid to trends in music and cinema, offering students a comprehensive, historical arc of each medium’s development in Russia. The course will seek to establish a working definition of what we actually mean by “Russian popular culture.” Firstly, how do we differentiate between categorizations of mass culture versus popular culture? Secondly, we will challenge the notion of national culture when referring to the terms “Russian” and “Soviet” culture throughout the semester. Each unit is organized around the construct of “svoi” (“ours”) vs. “chuzhoi” (“theirs”), offering the class a point of comparison for how domestically produced culture often rivaled official foreign imports and blackmarket, unofficial distributed products. We will also explore larger, universal questions that revolve around top-bottom and bottom-up models of how popular culture operates. What does popular culture mean in the capitalist market context, and how might that definition change under socialism?

Distributive: Dist:INT or SOC; WCult:W

RUSS 12 - Ethnicity and Nationalism in Russia and the Neighboring States

Instructor: Kan

Open to all classes.

Cross-Listed as: ANTH 39

Distributive: Dist:LIT; WCult:W

RUSS 13 - Slavic Folklore: Vampires, Witches and Firebirds

Instructor: Somoff

In this course, we will discuss a variety of genres from Russian folklore. As we move from the familiar genre of the riddle to the often mystifying beliefs and rituals of the ancient Slavs and then to the fairy tale, comfortably familiar from childhood, we will learn to not only recognize the richness and density of texts that may initially seem uncomplicated but also to discern the patterns and meanings behind the apparently exotic narratives and behaviors. By thoroughly studying one of the world's richest oral traditions, Slavic folk life and folklore, we will acquire the tools and techniques necessary for collecting, documenting, and interpreting folklore -- which is perhaps the most truly international of all arts. The course is based on materials in Russian and East European cultures, but also draws from other traditions. Open to all classes.

Distributive: Dist:INT or LIT; WCult:W

Offered: 16S: 10

RUSS 14 - The Age of Brainwashing: A History of Russian and Eastern European Film

An interpretive history of Russian, Soviet, Post-Soviet and Central European film. Topics include: tsarist Russia and the psychological school of the silent film (Evgeny Bauer); the Revolution and the Golden Age of Soviet montage (Sergey Eisenstein and Dziga Vertov); Stalinism and film as an instrument of mind control and propaganda; late Soviet symbolist cinema (Andrey Tarkovsky); and contemporary Russian Film Noir. The course also touches upon Eastern/Central European film, including the Czech New Wave (surrealist animator Jan Svankmeyer) and the "post-Yugoslavian wave" (Emir Kusturica and Dusan Makoveev). In addition to regular weekly screenings, all films will be made available online in an experimental format: divided into separate short clips that will be used in class for in-depth analysis and close cinematic readings. The final project (done in groups) will be creative: you will make a video-parody or video-stylization of one of the studied films. Open to all classes.

Distributive: Dist:ART; WCult:W

RUSS 18 - Russian Theater

Instructor: Somoff

This course is devoted to Russian drama and theater from the 19th through the 21st century. We will read eight plays that are central to Russian literary and theatrical tradition and then discuss their most significant interpretations on both the Russian and the world stage. The meetings will be conducted in a non-traditional format. In our examination of the plays, we will attempt to model the process of stage production in accordance with the principles developed by

Konstantin Stanislavsky-a celebrated Russian director whose approach to theater transformed acting in Russia and beyond. The course will culminate in the production of a play by a Russian playwright which students themselves will cast, direct, and design. All readings are in English.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 12

RUSS 19 - Understanding the Russians: The Role of Language and Culture in Communication

Instructor: Garretson

With the arrival of the new millennium and its promise of global communications networks, we are becoming more and more aware of our world as a 'global village' and of the implications this has, both linguistic and cultural, for communication across national and ethnic boundaries. This course will examine those areas in the study of culture and of language pragmatics with relevance to such communication between American and Russians. Readings and class discussions will focus on such phenomena as 'culture' and 'language' shock; the linguistics and cultural evidence for differences in the two countries' views of such phenomena as time and space, as well as for such concepts as public and private 'spheres,' friendship, or of what constitutes a conversation. A variety of sources from literary works, TV documentaries and film, to travel handbooks and the conduct of negotiations will be examined for the cultural and language script they subsume in the two countries. Open to all classes.

Distributive: Dist:INT or SOC; WCult:W

Offered: 15F: 11

RUSS 21 - Russian Civilization: Study Abroad

Instructor: Staff

This course, taught by the faculty member directing the Saint Petersburg program, introduces students to aspects of contemporary Russian culture through a variety of media, including literature and journalism, film, television, and art. The topic will vary from year to year, depending on the specialty of the faculty member. Credit for this course is awarded to students who have successfully completed the Dartmouth Foreign Study Program in Russia.

Prerequisite: membership in the L.S.A. Program.

Distributive: Dist:INT or SOC; WCult:W

Offered: 16X: D.L.S.A.+

RUSS 22 - The Russian Language: Study Abroad

Instructor: Staff

This course represents the course in grammar and the other written work done by the students at the University of St. Petersburg. Credit for this course is awarded to students

who have successfully completed the Dartmouth Foreign Study Program in Russia.

Prerequisite: membership in the Foreign Study Program.

Distributive: WCult:W

Offered: 16X: D.L.S.A.+

RUSS 23 - The Russian Language: Study Abroad

Instructor: Staff

This course represents the work done in the phonetics classes and in the conversation classes at the University of St. Petersburg. Credit for this course is awarded to students who have successfully completed the Dartmouth Foreign Study Program in Russia.

Prerequisite: membership in the L.S.A. Program.

Distributive: WCult:W

Offered: 16X: D.L.S.A.+

RUSS 27 - Intermediate Russian I

Instructor: Rakova, Staff

A continuation of the 1-2-3 cycle, this course is the first of the intermediate language courses offered by the Department. The course prepares the student for further upper-level study of the language. It includes intensive review, introduction to new grammatical topics, as well as reading, composition and conversation.

Prerequisite: RUSS 3 or permission

Offered: 15F, 16F: 12

RUSS 28 - Intermediate Russian II

Instructor: Rakova, Staff

The sequence RUSS28 and RUSS29 completes the cycles of second-year Russian. Special emphasis is placed on such difficult areas as participles, aspects and verbs of motion. The course includes extensive reading, video work and vocabulary building.

Prerequisite: RUSS 27 or permission

Offered: 16W, 17W: 12

RUSS 29 - Intermediate Russian III

Instructor: Rakova, Staff

The sequence RUSS28 and RUSS29 completes the cycles of second-year Russian. Special emphasis is placed on such difficult areas as participles, aspects and verbs of motion. The course includes extensive reading, video work and vocabulary building.

Prerequisite: RUSS 28 or permission

Offered: 16S, 17S: 12

RUSS 31 - Transgressive Novels: Masterpieces of Russian Fiction

Instructor: Somoff

Under a succession of oppressive forms of government, including monarchy, communism, and today's oligarchy, Russians have resisted the norms imposed upon them in ways that raise moral dilemmas. In this course we will read works of 19th century Russian authors that grapple with these questions. Works read in translation. The X-hour will be used for students able to read the Russian texts in the original. Authors are likely to include Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, and Tolstoy. Taught in English. Open to all classes.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10

RUSS 32 - Twentieth Century Russian Literature: Revolution, Terror, and Art

Instructor: Gronas

This course examines the impact which the turbulent history of twentieth- and twenty-first century Russia has had on literature and on writers struggling to defend their integrity. The beginning of the last century witnessed an unprecedented burst of literary and artistic creativity: the late flowering of the great realist tradition coincided with the advent of modernism, a worldview defined by an insatiable hunger for novelty, will to experiment, taste for scandal and provocation, and bohemian lifestyles. The modernist schools and movements-symbolism, futurism, acmeism, imagism, and suprematism-were terminated in the 1930s by Stalin. Since then, despite decades of censorship and material hardship, Russian writers have continued to produce one of the world's greatest literatures. Readings will include Bulgakov's *The Master and Margarita*, Solzhenitsyn's *One Day in the Life of Ivan Denisovich*, works by such authors as Chekhov and Pasternak, and samples from the radical avant-garde. Readings will be supplemented by excursions into Russian cinema, fine arts, photography, cyber-punk and contemporary performance art.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 3A

RUSS 35 - Dostoevsky and the Problem of Evil

Instructor: Patyk

Dostoevsky laid bare the tragedy of human existence and probed the innermost recesses of the human psyche to show the terrifying isolation of a human being separated from God. Revolted by a world in which innocent children suffer, Dostoevsky tested the meaning to be found in Christianity, personal responsibility and human solidarity. This course examines his major novels, with particular emphasis on the artistic expression of his philosophical

views. Those views will be examined in the context of Russian intellectual and literary history. Readings include "Notes from Underground," *Crime and Punishment*, *The Idiot*, *Demons*, and *The Brothers Karamazov*. Taught in English. Open to all classes.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10A

RUSS 36 - "The Seer of the Flesh": Tolstoy's Art and Thought

From childhood to the end of his life, Tolstoy struggled to overcome his fear of death. As he himself put the problem, 'Is there any meaning in my life which the inevitable death awaiting me does not destroy?' In his quest for bulwarks against that fear, he studied the great philosophers and he examined closely the value system of the peasants. He found temporary relief in war and in marriage, but the definitive solution always eluded him. The evolution of this theme, and the formal devices by which Tolstoy expressed it in his prose, will be traced in the major novels, *War and Peace* and *Anna Karenina*. The course will conclude with a brief examination of the prose that Tolstoy produced after his conversion. Taught in English. Open to all classes.

Distributive: Dist:LIT; WCult:W

RUSS 38 - Special Topics in Russian Literature

In this course students will study works of Russian literature, taught in translation. Each offering of the course will be based on a particular theme or period. Students may take the course more than once provided that the topic is not the same as in a previous election.

Distributive: Dist:LIT; WCult:W

RUSS 38.01 - The Sound of Silence: A Chekhov Writing Workshop

Anton Chekhov, one of the key figures in modern drama, once described the challenge for a playwright thusly: "People dine, they simply just dine, while their happiness is made and their lives are smashed." With that thought in mind, we will read Chekhov's major plays in this class to discover, through a series of creative exercises and discussion of the plays themselves (as well as their most prominent productions and film adaptations), just what it is that makes Chekhov's plays distinctive. Course participants will then be asked to script their own one-act plays using the Chekhovian style. Participants will work on their scripts in collaboration with their classmates and with the professors, moving from preliminary to completed drafts. The class will then culminate in the presentation of all the plays in an evening of stage readings.

Cross-Listed as: COCO 4.02

Distributive: Dist:ART; WCult:W

RUSS 38.04 - Madmen, Holy Fools, & Fanatics in Imperial Russia

This is a survey course of Imperial Russia, but a survey of an unusual sort. In this course, we will examine those individuals and phenomena that wink insistently from the margins of the historiography – madmen, holy fools (iurodovy), shriekers (klikushi), sectarians, and fanatics – to discover that they are in fact not so marginal to Russian history after all. Among the questions that our course will ask: how is our determination of what is “mad” dependent on cultural norms? Do different societies generate different types of madness? To what degree are Western psychological theories and models relevant to non-Western cultures? What are the uses of madness from a social, political, and literary point of view? Our course approaches these questions from an interdisciplinary perspective and uses recent historical scholarship, foundational texts in individual psychology and psychoanalytic theory, as well as literary works by Russia’s greatest writers to illuminate the dark heart of madness.

Distributive: Dist:LIT; WCult:W

RUSS 38.05 - Russian Fairy Tales

Instructor: Somoff

In this course we will investigate the reasons why fairy tales are such enduring and powerful forces in our lives. Our special focus will be the incredibly rich body of traditional Russian folk and fairytales as well as their modern adaptations in the visual arts, music, literature, theater, and film.

Distributive: Dist:LIT; WCult:W

Offered: 16W: 12

RUSS 41 - Advanced Conversation and Composition

Instructor: Staff

Advanced Russian Grammar through the study of the Russian short story and a brief synopsis of Russian history. Students will continue to develop their spoken, written and reading proficiency in the Russian language.

Prerequisite: RUSS 29 or higher

Offered: 16F: 10

RUSS 42 - Advanced Russian through History, Press and Film

Instructor: Rakova

Advanced Russian through the study of the Russian society and a brief synopsis of Russian history. Students will continue to develop their spoken, written, and reading proficiency in the Russian language. There will be stories and articles for discussion, one film, and grammar exercises.

Offered: 15F: 10

RUSS 43 - Advanced Grammar II**RUSS 45 - Special Topics in Russian Language**

History of the Russian Language. This course introduces the student to the history of the phonology (sound development) and morphology (development of grammatical categories) of Russian as a Slavic and Indo-European language.

Prerequisite: RUSS 29 or higher

RUSS 48 - Structure of Modern Russian

This course will introduce the student to the necessary methodology for analyzing the linguistic structure of Russian, and will examine the theoretical foundations of such analysis. The course will focus on the structure of the noun, pronoun, and verb, as well as on various aspects of Russian word formation.

Prerequisite: RUSS 29

RUSS 71 - Advanced Seminar in Russian Culture

Instructor: Garretson, Staff

In this seminar, advanced learners and native speakers of Russian have an opportunity to read in the original and to study in depth works that are central to Russian intellectual history and literary tradition. Topics vary from year to year and may concentrate either on individual authors (Pushkin, Chekhov, Gogol), or a period (Middle Ages, The Silver Age, the Post-Soviet era), or a phenomenon (Russian Humor, Popular Culture, Utopianism). The course is conducted in Russian.

Prerequisite: At least one course in the 40s; students who have equivalent preparation may enroll with permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: 16S: 12; 17S: TBD

RUSS 85 - Independent Reading

Russian 85 is available to students in the Honors Program who intend to do preparatory work for a thesis or to students who wish to study a topic not normally covered in a regularly offered course. In the latter case it is necessary to prepare a one-page proposal describing what the student plans to study and to accomplish during the term. The proposal must then be approved by the faculty member who has agreed to direct the course and by the Department as a whole. Final approval must be received before the beginning of the term in which the course is to be taken.

Offered: All terms: Arrange

RUSS 86 - Senior Seminar**RUSS 87 - Thesis**

A program of individual research designed for honors students. Interested students should consult the Chair of the Department.

Offered: All terms: Arrange

Science and Technology Studies

Affiliated faculty: D. L. Anthony, D. T. Bolger, L. E. Conkey, M. R. Dietrich, N. K. Frankenberry, V. Fuechtner, M. Gleiser, A. V. Koop, R. L. Kremer, J. V. Kulvicki, J. H. Moor, A. L. Roskies, S. Suh.

Science and Technology Studies (STS) provides a curricular and extracurricular focus for students and faculty seeking to examine the historical, philosophical, and social traditions that have shaped the construction of science and technology, and the effects of science and technology on other intellectual, social, and political activities.

STS is not a department or a program, and does not offer a major. Rather, it identifies a core of Dartmouth faculty (Arts and Sciences, plus the professional schools) interested in the history, philosophy, or social relations of science and technology, and the interdisciplinary courses they offer in these areas. The faculty may also arrange extracurricular activities related to the content of these courses.

COURSE OFFERINGS**Social Science**

To view Social Science courses, click here (p. 469).

SSOC - Social Science Courses

To view Social Science requirements, click here (p. 469).

SSOC 1 - War and Peace in the Modern Age

Instructor: Valentino

This course is designed to acquaint students with the fundamentals of war and peace; that is, with the political uses of military power and the respective roles of military and civilian leaders in formulating and implementing foreign policy. We will also investigate how war affects civil society's social movements and how the characteristics of states' domestic politics arrangements affect or constrain the ways that leaders choose to execute their most preferred strategies. Finally, we will also try to come to an understanding of what war is actually like for

those, both combatant and non-combatant, that must participate in war on a daily basis.

Cross-Listed as: GOVT 50.04

Distributive: Dist:SOC

Offered: 15W and 16W: 10

Sociology

Chair: John J. Campbell

Professors D. L. Anthony, J. L. Campbell, K. J. Lively, M. Parsa; Associate Professors M. D. Dixon, D. K. King; Assistant Professors J. N. Houle, J. M. McCabe, K. B. Rogers, E. C. Walton; Visiting Professors H. Clark, L. Grinberg; Visiting Associate Professor K. E. Smith; Research Associate J. DiGrazia.

To view Sociology courses, click here (p. 471).

Requirements for the Standard Major

The standard major in Sociology consists of eleven courses to be selected as follows:

1. Prerequisite: one introductory level course, either SOCY 1 or SOCY 2.
2. Two methods courses: SOCY 10 and SOCY 11. With approval of the Chair, a major may substitute one of the statistical analysis courses offered by the other social science departments or programs.
3. One theory course: SOCY 15, or SOCY 16.
4. Students must take four Lower Division courses (numbered 20-49), two Upper Division courses (numbered 50-80), and one culminating experience course (see 5. below). Students may substitute an Upper Division course for one of the Lower Division courses.
5. Standard majors must satisfy the culminating experience requirement by successfully completing any one of the following three options: Senior Independent Study Project (SOCY 90), The Sociological Imagination (SOCY 91) or Honors Thesis (SOCY 98). Brief descriptions of each option may be found under the course listings. Please consult the Department regarding specific procedures for each option. The culminating experience may be counted as *one* of the seven additional courses in Sociology numbered 10 or higher that are required for completion of the major. Note: Senior fellows who elect to complete a sociology major may fulfill this requirement through the successful completion of the senior fellow project.

Standard majors must be approved by a department faculty member.

Requirements for the Modified Major

The modified major in Sociology consists of thirteen courses (twelve for Classes prior to 2016), to be selected as follows:

1. Prerequisite: one introductory level course, either SOCY 1 or SOCY 2.
2. Two methods courses: SOCY 10 and SOCY 11. With approval of the Chair, a major may substitute one of the statistical analysis courses offered by the other social science departments or programs.
3. One theory course: SOCY 15, or SOCY 16.
4. Students must take three Lower Division courses (numbered 20-49), one Upper Division course (numbered 50-80), and one culminating experience course (see 5. below). Students may substitute an Upper Division course for one of the Lower Division courses.
5. Modified majors, must satisfy the culminating experience requirement by successfully completing any one of the following three options: Senior Independent Study Project, The Sociological Imagination or an Honors Thesis. Please consult the Department regarding specific procedures for each option.
6. Four related courses taken in one or more departments or programs.

Students establishing a modified major must submit a written statement of the proposed field or topic, plus a list of all courses to be taken for credit toward the modified major. The proposal should address the intellectual coherence of the proposed course of study. All modified majors must be approved by the Chair of the Sociology Department; and, when modified by a single department or program, by the chair of that department or program. Proposals for modified majors must be submitted to the department no later than the beginning of the third term prior to the student's graduation (for example, the beginning of fall term senior year in most cases). Extensions may be granted on rare occasions with permission of the Sociology Department chair.

Requirements for the Basic Minor

The basic minor in Sociology consists of six courses, to be selected as follows:

1. Prerequisite: one introductory level course, either SOCY 1 or SOCY 2.
2. One theory course, either SOCY 15 or SOCY 16
3. Students must take must take three Lower Division courses (numbered 10 or 11, 20-49), one Upper Division course (numbered 50-80). Students may

substitute an Upper Division course for one of the Lower Division courses.

Requirements for the Minor in Markets, Management and the Economy

The Minor in Markets, Management and the Economy consists of six courses, to be selected as follows:

1. One introductory level course, either SOCY 1 or SOCY 2.
2. One theory course, either SOCY 15 or SOCY 16
3. One of the following: SOCY 26, SOCY 66 or SOCY 69
4. Two of the following courses from the Lower Division
SOCY 21 Political Sociology
SOCY 22 The Sociology of International Development
SOCY 26 Capitalism, Prosperity and Crisis*
SOCY 27 Organizations in Society
SOCY 28 Health Care and Health Care Policy
SOCY 29 Sociology of Work
5. One of the following courses from the Upper Division
SOCY 50 Sociology of Law
SOCY 53 Power, Politics and the State
SOCY 66 Markets and Management*
SOCY 67 The Political Power of Ideas
SOCY 69 The Sociology of Globalization*
SOCY 70 American Labor Relations
SOCY 80 Independent Study (in Markets, Management and the Economy)

One Upper Division course may be substituted for a Lower Division Course.

* For the MME Minor, taking SOCY 26, SOCY 66 or SOCY 69 can be used towards either fulfilling requirement #3, OR requirement #4 or #5, but not both.

Requirements for the Minor in Social Inequalities

The Minor in Social Inequalities consists of six courses, to be selected as follows:

1. One introductory course, either SOCY 1 or SOCY 2.
2. One theory course, either SOCY 15 or SOCY 16
3. Three of the following courses from the Lower Division
SOCY 23 Social Movements
SOCY 25 Democracy and Democratization in Developing Countries
SOCY 31 Youth and Society
SOCY 32 The Social Meanings of Home
SOCY 45 Inequality and Social Justice
SOCY 46 Constructing Black Womanhood
SOCY 47 Race and Ethnicity in the U.S.
SOCY 48 Immigration, Race and Ethnicity

4. One of the following courses from the Upper Division
 SOCY 50 Sociology of Law
 SOCY 55 Poverty and Public Policy in the US
 SOCY 58 Education and Inequality
 SOCY 60 Dangerous Intersections: Race, Class and Gender
 SOCY 80 Independent Study (in Social Inequalities)

One Upper Division course may be substituted for a Lower Division Course.

All minors must be approved by a departmental faculty member.

Off-Campus Study

Off-Campus Program in Copenhagen

Students in any social science major may apply to participate in the Sociology Department's off-campus student exchange program, which is held during the Fall term at the University of Copenhagen in Denmark. The University of Copenhagen offers a variety of social science courses taught in English by Copenhagen faculty. Students may choose courses in sociology, anthropology, government, psychology, and economics, and take the normal course load of a full-time student. Applications are received in early February and selections are made during that term. Students who apply are required to have an overall grade point average of at least 3.0. For further information, see Professor Campbell.

Sociology Honors

The Honors Program in Sociology consists of advanced independent study under the direction of a faculty supervisor, culminating in the completion and presentation to the department of an honors thesis. A major who successfully completes an honors thesis in Sociology will also satisfy the culminating experience in the major. The program is open to any major who satisfies the minimum college honors requirements, including a 3.0 GPA overall, has a 3.3 GPA in the major, and has completed all theory and methods requirements for the major prior to submission of the thesis proposal.

Toward the end of the junior year a prospective honors major should identify a faculty member in the department who is willing to serve as a thesis advisor in order to discuss the proposed thesis. Advisors must confirm that they will be on campus during the two terms in which the student takes SOCY 98 (sociology honors credits) unless other arrangements are made. A written thesis proposal must be submitted to the advisor no later than the end of the third week of the third term prior to graduation (typically fall term, senior year), and preferably earlier. After the proposal has been approved by the advisor and a copy filed with the department the student is accepted into the honors program.

All honors majors must take SOCY 98 twice for thesis credit during the senior year, although exceptions may be

permitted. Because only one term of SOCY 98 counts as one of the seven additional courses numbered 10 or higher that are required for completion of the major, taking a second term of SOCY 98 means that Honors students will typically take at least 12 course credits in Sociology. At the end of the first term of SOCY 98 the student's progress toward the completion of the thesis is evaluated by the advisor in consultation with the department. If satisfactory progress is not being made, then the thesis project may be terminated and a grade given for the first term of thesis credit.

A preliminary draft of the thesis must be turned into the thesis advisor no later than the end of the fifth week of the second term of SOCY 98, and preferably earlier. Once revisions have been made, two (2) copies of the completed thesis draft must be turned into the thesis advisor no later than the end of the eighth week of the second term of SOCY 98. Upon completion of the final revised thesis, the student must provide 3 bound copies to the department: one for the Advisor, one for the Department and one for the Rauner Library. The thesis will be graded by the thesis advisor and a second reader appointed by the department. Students receiving a B+ (3.33) or higher on the thesis will receive honors recognition in the major. High honors may be awarded by faculty vote for truly exceptional work.

Students interested in participating in the program should obtain the handout "The Sociology Honors Program" from the Department Office. Students can also consult the website: <http://sociology.dartmouth.edu/undergraduate/honors-program>.

Transfer Credits

Upon approval by the Chair, a maximum of two course credits for work taken elsewhere may be counted toward the major and a maximum of one course credit for work taken elsewhere may be counted toward the minor. Modified majors must complete at least five *sociology* courses at Dartmouth, beyond the prerequisite. Also, certain courses, such as SOCY 1, SOCY 2, SOCY 10, SOCY 11, SOCY 15 and SOCY 16 are almost always required to be taken at Dartmouth. Typically, transfer credit will only be approved for sociology courses not regularly offered by the Department. Students contemplating taking major, modified major and minor courses elsewhere should thus consult the Chair well in advance, to assure that appropriate transfer credits will be accepted.

SOCY - Sociology Courses

To view Sociology requirements, click here (p. 469).

SOCY 1 - Introductory Sociology

Instructor: Campbell (15F, 16F), Rogers (16S, 17S)

What is Society? How have societies developed historically? How do they distribute wealth, income and other resources? How do they organize political authority and economic power? How do they coordinate work? How do they socialize people to "fit in" with those around them? How do they produce popular culture? This course provides answers to these questions in ways that provide an introduction to the field of sociology. It focuses on a broad range of theory and research showing how sociologists think about and study these questions. In many cases, the topics covered in the course reflect the research interests and course offerings of faculty in the sociology department at Dartmouth. As a result, the course also provides an introduction to some of the curriculum offered in the department. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 15F, 16F: 9L 16S, 17S: 10

SOCY 2 - Social Problems

Instructor: Smith (16W), McCabe (17W)

Daily news reports direct much of our attention to social problems such as crime, poverty, prejudice and political corruption. Yet rarely are such reports accompanied by a discussion of the systematic causes of these problems. More often we become witness to an endless stream of media coverage reporting seemingly isolated incidents. Seldom are we informed of the decision-making process by which some social problems become selected for coverage, while others are ignored. The purpose of this course is to subject the coverage of modern social problems to an in-depth, critical analysis. We will attempt to answer such questions as: "how does a social problem become defined as such?" and "what are the causes or sources of various social problems?" Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 16W, 17W: 10A.

SOCY 7 - First-Year Seminars in Sociology

Offered: Consult special listings

SOCY 10 - Quantitative Analysis of Social Data

Instructor: Houle (15F, 16W, 16F, 17W), DiGrazia (16S)

This course provides an introduction to the methods and statistical techniques of quantitative analysis. The first part of the course deals with the methods of quantitative analysis (research design, conceptualization, operationalization, and measurement). The second part of the course introduces students to parametric and nonparametric statistics (frequency distributions, crosstabulations, measures of association, tests of significance, correlation, and bivariate regression). There is a strong emphasis in this course on applying the methods and techniques learned to actual social science data. No previous statistical or advanced mathematical training is

assumed, but solid arithmetic and basic algebraic skills are necessary. Because of the large overlap in material covered, no student may receive credit for more than one of the following courses: ECON 10, GOVT 10, MATH 10, PSYC 10, MSS 15 or SOCY 10 by special petition.

Distributive: Dist:QDS

Offered: 15F, 16W, 16F, 17W: 10 16S: 11.

SOCY 11 - Research Methods

Instructor: McCabe (16S, 17S), Rogers (16W, 17W)

This course is designed to provide students with the practical tools of doing social science research and the theoretical background for scientific inquiry into social issues. In the first part of the course we will discuss the research process itself, as well as conceptual issues in theory building and hypothesis testing. In the second part, students will devise and carry out group and individual research projects around a substantive topic. Each project will involve a variety of research techniques, the exact use and applicability of which will be the topic of class discussions. In addition, we will discuss ethical issues and the relevance of social science research for policy making and for advocacy.

Distributive: Dist:SOC

Offered: 16W, 16S, 17W, 17S: 10A.

SOCY 15 - Sociological Classics

Instructor: Dixon

This course introduces and criticizes the work of Karl Marx, Emile Durkheim, and Max Weber, three seminal writers whose ideas are still of enormous significance in shaping perspective and framing terms of argument among many major contemporary social and political thinkers. Among specific subjects to be covered are the following: class and class conflict; culture and ideology; forms and symbols of social solidarity; and questions of how shared ideals or divisive interests affect not just the study of human society, but the course of history itself.

Prerequisite: SOCY 1 or SOCY 2, or permission of the instructor.

Distributive: Dist:TMV

Offered: 15F, 16W, 16F, 17W: 9L.

SOCY 16 - Constructing Social Theory

Instructor: TBA

How are societies organized? This course examines how social scientists answer this question by exploring a variety of contemporary theoretical perspectives, including those that focus on how conflict, functional needs, individual self-interest, cognitive perceptions, culture or symbolic interpretations organize society. Students compare, contrast and evaluate these and other theories of social

organization in light of empirical studies that have tried to explain the genesis and dynamics of groups, formal organizations, social classes, nation states and global systems.

Prerequisite: SOCY 1 or SOCY 2, or permission of the instructor

Distributive: Dist:SOC

Offered: Not offered in the period 15F to 17S.

SOCY 21 - Political Sociology

Instructor: Dixon

This course examines the relationship between the social and political order with a view towards identifying and examining how politics is shaped by other events in societies and in turn shapes them. Readings and discussions will focus on the close connection between the political arena and its actors and social institutions. Attention is given to sociological aspects of the family, communities, economic institutions, and political parties. Special emphasis is placed on the dynamics of political power, participation, socialization, communication, and recruitment.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period 15F to 17S.

SOCY 22 - The Sociology of International Development

Instructor: Parsa

This course will introduce students to the major sociological perspectives on economic and political development, with emphasis on developing countries. Among the views to be considered are modernization, which assumes that later developing countries will follow paths once traveled by today's advanced countries; and dependency and world system theories, which view the integration of less developed countries into the world market as problematic and, under certain conditions, even disadvantageous. We will test these theories by applying them to specific cases. A major part of the course will focus on the economic 'miracle' of East Asian countries, as well as cases that have not been so successful. Other important topics to be studied include the influence of states, markets, and multinational corporations in economic development; the relationship between different modes of development and income distribution; and political development and the prospects for democratization. Open to all classes.

Distributive: Dist:INT

Offered: 16X: 10.

SOCY 23 - Social Movements

Instructor: Dixon

Social movements are collective attempts to promote or resist social change, from the way people live their lives, to how governments govern, to how economic systems distribute rewards. This course examines why and when social movements come about, the organizations and strategies they adopt, and the circumstances in which they are most impactful. We explore these issues by researching individual political movements and engaging larger theoretical explanations for their development.

Distributive: Dist:SOC; WCult:W

Offered: 15F, 16F: 12.

SOCY 25 - Democracy and Democratization in Developing Countries

Instructor: Parsa

The road to democratization in most countries in recent years has been marked by large-scale social movements. This course will begin with an examination of various theories of democracy and democratization. It will specifically analyze the role of class, culture, ideology, and religion in the democratization process. Finally, we will apply the theories to the three cases of South Korea, Indonesia, and Iran, three countries with mixed successes.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16X: 2.

SOCY 26 - Capitalism, Prosperity and Crisis

Instructor: Parsa

Capitalism in the last five centuries generated great wealth and prosperity in Western societies. In the last few decades, capitalism assumed a global character affecting social and economic life of the vast majority of the people in the world. Yet, capitalism has also been plagued by economic decline and failures, causing massive human suffering. This course will study the nature of capitalism, sources of prosperity and crisis, inequality in distribution of economic and political power.

Distributive: Dist:SOC; WCult:W

Offered: 16S, 17S: 10.

SOCY 27 - Organizations in Society

Instructor: Anthony

Much of modern life takes place within a wide variety of complex, formal organizations, from multinational corporations, to churches, from social service agencies to volunteer organizations. In this course we will learn about the structure, internal processes, and environments of different forms of organization. Our focus is on sociological theories and empirical research, from a macrosociological perspective. Our objective will be to learn about how organizations work, as well as to gain an

understanding of the impact of organizations on society and in our lives.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period 15F to 17S.

SOCY 28 - Health Care and Health Care Policy

Instructor: Anthony

This course examines the health care system in the United States, focusing on the roles and operations of health care institutions and providers. The objective throughout the course is to develop a comprehensive and critical perspective on current fields and issues in medical sociology. The course consists of five sections, progressing from macro-level to micro-level analyses of the delivery of health care, and returning to the macro-level to discuss recent policy changes and debates in the health care system.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period 15F to 17S.

SOCY 29 - The Sociology of Work

This course examines the sociological dimensions of work, occupations, and employment relations. Specific topics may include: the structure of work, historical and contemporary changes in the organizational context of work, ways in which work both creates and reflects social divisions, occupations and professions, occupational socialization and choice, and the intersection of work and family.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F to 17S.

SOCY 30 - Deviance and Social Control

Instructor: King

Students of society seem always to have been fascinated with explaining why some members deviate from commonly accepted rules. This course examines the major sociological explanations of deviance. We will explore the identification of certain behaviors as deviant, the process of becoming deviant, the management of a deviant identity, and the development of deviant subcultures. The course concludes with an examination of societal reactions to and the treatment of deviance and deviants. Examples of deviant and social control activities that may be considered include prostitution, religious cults, youth gangs, witchcraft, the handicapped, and asylums. Open to sophomores, juniors and seniors only.

Distributive: Dist:SOC; WCult:W

Offered: 16W: 2

SOCY 31 - Youth and Society

Instructor: McCabe

This course explores central features of children's preschool, preadolescent, adolescent, and college peer cultures. We will discuss what it means to study youth from a sociological lens and research methods for doing so. Specific topics may include: historical views of childhood; how gender, socioeconomic class, race, ethnicity, and sexuality shape youth's experiences; what it means to be "popular"; identity development; extended adolescence; the role of culture (through games, books, television, etc.) in youth's lives.

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 10A

SOCY 32 - The Social Meanings of Home

Instructor: King

This course is an exploration of the economic, cultural, social and political dynamics of "home" in contemporary U. S. society. The concept, "home" invariably invokes multiple and sometimes conflicting ideas—a physical dwelling, family, economic property, birthplace, nationality, environment, haven, etc. We speak of "home sweet home," "dream home," "home is where the heart is," "sweet home Alabama" "homeland," "there's no place like home," and "homies." In the course, we will consider the home as a social context that profoundly shapes our personal and collective identities, gender roles and interpersonal relationships, class status and divisions, racial-ethnic memberships and conflicts, plus values and political ideals. The course will emphasize the homestead as economic property and the implications of its location, design, artifacts and domestic lifestyles for the cultivation of model subjects, consumers or citizens. Theoretical, empirical and interpretative materials in the course may touch on subjects as varied as housing and home ownership, shopping and hyperconsumption, food and kitchen culture, family values and the modeling of marriage and family life, the home improvement industry, and home and self makeovers on reality television.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period 15F to 17S.

SOCY 33 - Self and Society

Instructor: Lively

Social Psychology is the study of the relationships between the individual and society. It is an interdisciplinary field to which the work of sociologists, psychologists, and occasionally scholars from other disciplines is relevant. This course introduces students to social psychology primarily, although not exclusively, from a sociological perspective. First, the course will acquaint students with the range of theoretical perspectives that have been used to study social psychology. Second, it will familiarize students with empirical research that has been done to examine these theories. Third, it will permit students to

explore particular social psychological issues in greater depth both within and across particular perspectives within social psychology.

Distributive: Dist:SOC

Offered: 16F: 2A.

SOCY 34 - Health Disparities

Instructor: Walton

Social, economic, and political forces powerfully influence who gets sick, the types of diseases that affect them, the treatments that are available, and the outcomes of those treatments. In this course, we will study how discrimination, marriage, and social ties may contribute to gender, racial and ethnic, and socioeconomic health disparities. We will also examine the ways in which neighborhood and community context shape health and access to health care services.

Distributive: Dist:SOC

Offered: 17S: 2.

SOCY 35 - Sociology of Mental Health

Instructor: Houle

Poor mental health and mental illness are often viewed as biological flaws. Sociologists, however, argue that mental illness is socially constructed, and that population mental health is profoundly shaped by social conditions. In this course, we will explore sociological understandings of mental health and illness. We will focus on a range of topics, including: the social construction of mental illness, how social inequality contributes to mental health, and how society responds to the mentally ill.

Distributive: Dist:SOC

Offered: 15F, 16F: 2.

SOCY 36 - Sociology of Family

Instructor: Walton

The sociological study of the family involves our ability to take a step back to assess structures that pattern our personal experiences and how the private decisions that happen in families matter to society as a whole. We will examine how private affairs in family life interact with important public issues, particularly discussing intersections with gender, social class, race and ethnicity, marriage and cohabitation, divorce, remarriage and stepfamilies, childhood and adolescence, work, and social policy.

Cross-Listed as: WGSS 33.08

Distributive: Dist:SOC; WCult:W

Offered: 17W: 10

SOCY 37 - Introduction to Public Health: An Individual, Community, and Population-Based Approach

Instructor: Pipas

This course will enhance Dartmouth undergraduates' knowledge of public health and foster skills and commitment to improving health, particularly the health of the Upper Valley Community. We will use experiential and collaborative community-based approaches to apply the principles of public health, determinants of health, behavior change, and systems improvement. We will promote a learning environment from which collaborative interventions can occur among Dartmouth undergraduates, graduate school professionals, faculty, physicians and community members, leaders, and organizations.

Distributive: Dist:SOC

Offered: Not offered in the period 15F to 17S.

SOCY 39 - Reproductive Rights and Technologies

SOCY 44 - Complexities of Latino Identity

Instructor: Gomez

The Latino population currently consists of approximately 40 million people in the United States; by the year 2050, the Census estimates that the Latino population will make up at least 25 percent of the total U.S. population. This diverse group traces its origins to a variety of countries. Their experiences and identities in the United States are quite varied. This introductory course examines the experiences of reception, settlement, and transnational lives of various Latino groups - Chicanos, Puerto Ricans, Cubans, Dominicans, Central and South Americans - in the United States. By using interdisciplinary research, this course explores issues of race, class, gender, migration, and representation of group politics.

Cross-Listed as: LATS 5

Distributive: Dist:SOC; WCult:W

Offered: 16X: 10A

SOCY 45 - Inequality and Social Justice

Instructor: Dixon

Social stratification refers to the unequal distribution of socially valued resources such as wealth, prestige, and power, across different groups in society. This course examines sociological research on the extent of these inequalities, how they are generated, and the consequences they bear. With an emphasis on historical and contemporary patterns of inequality in the United States, specific topics may include: wealth and income inequality; poverty; the intersection of class, race/ethnicity, and gender; educational attainment; and social change.

Distributive: Dist:SOC

Offered: 16W, 17W: 10.

SOCY 46 - Constructing Black Womanhood

Instructor: King

This course is a critical examination of the historical and contemporary status of black women in the United States, as presented in fiction, primary accounts, and social science literature. We will explore the nature, extent, and consequences of the multiple discriminations of race, sex, and class, as the context in which these women shaped their social roles and identities within the black community and the larger society. We will consider the themes of family, motherhood, and sexuality; educational, economic and political participation; aesthetics and religious traditions; self and social images.

Cross-Listed as: AAAS 25 and WGSS 33.01

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 2A, 17W: 2

SOCY 47 - Race and Ethnicity in the U.S.

Instructor: Walton

To many eyes, racial distinctions are self-evident, natural, and objectively-defined. In this course, we problematize this practice of defining racial categories based on phenotypic differences, instead taking a sociological approach to understanding the ways in which racial differences are socially constructed. Throughout this course, we will explore how race matters by studying racial identity and experience, immigration and assimilation, diversity, and inequality.

Distributive: Dist:SOC; WCult:W

Offered: 17W: 2

SOCY 48 - Immigration, Race and Ethnicity

Instructor: Wright

This course examines twentieth-century immigration to the United States. This course pays special attention to issues of race and ethnicity. The course begins with a brief history of US immigration and then thematically covers specific topics such as economic impacts and costs, social mobility, citizenship, transnationalism, assimilation, and religious issues and their relationship to the immigrant experience. We feature nativist reactions to immigration and highlight differences within and between Latino, Asian, and European groups throughout the course.

Cross-Listed as: GEOG 28, and LATS 40

Distributive: Dist:SOC; WCult:CI

Offered: 16S, 17W: 10A.

SOCY 49 - Lower Division Special Topics Courses

Cross-Listed as: Varies

Distributive: Varies

Offered: Varies

SOCY 49.08 - Advertising and Consumer Culture

Instructor: Goodman

This class introduces the scholarly analysis of consumer culture and encourages critical inquiry through thinking and writing about the key moral, political and practical questions concerning consumer culture. You should develop the ability to express and defend your own opinions of consumer culture as well as to question some of the cultural assumptions that many regard as natural or inevitable.

Offered: 14F: 10

SOCY 49.12 - Israeli Society—Structure, Institutions, Identities and Dynamics

Instructor: Grinberg

The goal of this course is to study Israeli society from a sociological perspective. The course analyzes the economic, political and social factors that shaped Israeli society from its inception, its historical transformation at the structural and institutional levels, and in the changing relations among different social groups. This course examines the establishment of the state, absorption of immigrants, ethnicity, messianic politics, Palestinian uprisings, peace process, and redefinitions of nationalism.

Cross-Listed as: JWST 68.01

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 10A

SOCY 49.13 - Science and Religion in American Media

Instructor: Evans

The public life of science and religion seems to be characterized by intractable conflict. In this course we examine case studies from current controversies over stem cell research, reproductive genetics, environmental policy, human origins, and sexuality. We will explore who is creating and maintaining these public controversies and why. We will examine “science and religion” as a defining confrontation in the development of American democracy, and consider how the American public sphere shapes possibilities for political participation.

Cross-Listed as: FILM 46.03

Distributive: Dist:SOC; WCult:W

Offered: 15W: 11

SOCY 49.15 - Sociology of the Israeli-Palestinian Conflict

Instructor: Grinberg

The course aims to comprehend Israeli-Palestinian relations from the first moments of Zionist-Palestinian encounter. It presents different approaches to the interpretation of these relations, the beginning of the conflict before the establishment of the Jewish State, and its further developments. The course will enter key debates on military-society relations, Jewish democracy, economic relations, and the failure of the peace process, ending with a discussion of options for the future.

Cross-Listed as: JWST 68.02

Distributive: Dist:SOC

Offered: 15F: 2A

SOCY 49.17 - Religion and Political Economy

Instructor: Clark

What is religion's role in the wealth and poverty of nations? Is there really a "Protestant ethic" and a "spirit of capitalism?" Or is human prosperity completely independent of religious belief, institutions, and "spirit"? How do Western and non-Western societies seeking their place in the modern world reconcile religious traditions with the demands of economic globalization? This course will explore a wide gamut of past and present perspectives on this important, controversial subject.

Distributive: Dist:SOC; WCult:W

Offered: 16S: 11

SOCY 49.19 - Sport and Democratization in the Ancient and Modern Worlds

Instructor: Christesen

The relationship between democratization in society and in sports forms the subject matter of this course. We will begin to explore that relationship by looking at the various ways in which democratization in society and in sports influence each other in the modern world. Then we will turn our attention to the past and examine the relationship between democratization in society and in sports in sixth- and fifth-century BCE Greece, in nineteenth-century CE Britain, and in twentieth-century CE America. The course will end with a consideration of the lessons we have learned about democratization in society and in sports for public policy in the United States and elsewhere.

Cross-Listed as: CLST 11.04

Distributive: Dist:INT or SOC; WCult:W

Offered: 16W: 12

SOCY 50 - Sociology of Law

Instructor: King

This course will consider the relationship between law and society, analyzing law as an expression of cultural values, a reflection of social and political structure, and an instrument of social control and social change. Complimenting this general perspective will be a more detailed examination of selected legal institutions, such as the court system, the police, regulatory agencies, and the legal profession. Readings will include both theoretical works and empirical studies.

Prerequisite: SOCY 1 or SOCY 2, or permission of the instructor

Distributive: Dist:SOC; WCult:W

Offered: 16W: 11.

SOCY 51 - Prisons: The American Way of Punishment

Instructor: King

Prison as a place of confinement, punishment and rehabilitation is the focus of this survey of the history, philosophies, structure and operation of corrections in the United States. The course critically examines the concept of prison as a total institution and its panopticism as a model of social control that extends to other social contexts. The course will explore the world of inmates and their strategies of subcultural adaptations to and resistance against incarceration; as well as the role of the prison staff. Particular attention will be paid to how gender, race, economics and politics structure prison policies and dynamics. Specific topics may include cultural representations of prison life, implications of current sentencing practices, privatization and the prison-industrial complex, incarcerated mothers, capital punishment, juvenile justice, and alternatives to incarceration. Open to all classes.

Distributive: Dist:SOC; WCult:W

Offered: 17S: 12.

SOCY 55 - Poverty and Public Policy in the U.S.

More than one in ten Americans lives in poverty according to official statistics. This course explores the nature and extent of poverty in the United States and the role of the government in addressing poverty issues. How do we measure poverty? Why does poverty persist? Why is there so little political discourse about poverty in America today? How effective are various poverty alleviation programs?

Cross-Listed as: PBPL 81.05

Offered: Not offered in the period from 15F to 17S.

SOCY 56 - Sociology of Gender

Instructor: McCabe

What is gender? This seminar examines multiple sociological perspectives on what it means to be a woman, man, boy, or girl in everyday life - including gender as a social structure, an identity, an ideology, and something people "do." Readings and discussions reflect a belief that diversity (race/ethnicity, class, age, sexuality, etc.) is central to the study of gender. Possible topics include: language, the body, science, the wage gap, education, and masculinity during young adulthood.

Cross-Listed as: WGSS 34.04

Distributive: Dist:SOC

Offered: 16S, 17W: 2A.

SOCY 57 - Identity and Social Interaction of Multiracial Americans

Offered: Not offered in the period from 14F to 16S

SOCY 58 - Education and Inequality

Instructor: McCabe

How are schools organized and how do they organize society? What effects do schools have on individuals and what effects do they have on society? Using sociological theories and methods, we will examine the structure of schools and their effects on individuals and society. We will explore both formal and informal education. This course will focus on inequalities, specifically how social class, race, gender, and sexuality both organize and are organized by educational environments.

Distributive: Dist:SOC; WCult:W

Offered: 16W, 17S: 2A.

SOCY 60 - Dangerous Intersections: Race, Class and Gender

Instructor: King

Race, class or gender have, to varying degrees, traditionally been employed within the academic disciplines as separate variables or distinct categories of analysis. Increasingly, however, there are calls for and attempts at understanding the relationships among systems of race/ethnicity, sex/gender and class differentiation. Through engaging both theoretical and empirical works, this course will examine the ways in which the simultaneous and interdependent dynamics between these systems shape identity formation and life changes, relationships of marginality and privilege, social continuity and social conflict. It will critically explore the challenges and advantages of intersectional analysis in such contexts as play and leisure, economic roles, sexuality, and law.

Distributive: Dist:SOC

Offered: Not offered in the period from 15F to 17S.

SOCY 61 - Gender, Work and Family

Instructor: Smith

This course will explore the nature, extent, and consequences of gender inequality in society. Changing gender roles will be examined in relation to class and race, the socialization process, the experience of women in the family, and the experience of women as paid and unpaid workers under both capitalism and socialism. Finally, we shall analyze work and family conflict, looking at gender inequality, consequences for families and employers, policy, and implications for social structural change.

Cross-Listed as: WGSS 33.05

Distributive: Dist:SOC; WCult:W

Offered: 16S: 10A.

SOCY 62 - Love, Romance, Intimacy and Dating

Instructor: Lively

Why do you connect with some people and not others? What exactly is love? And how do you make smart romantic choices for yourself? In this course we examine the social aspects of love, romance, intimacy, and dating. Using sociological theories and methods, we will investigate how cultural beliefs and structural arrangements affect our most intimate feelings and experiences. Specific topics include virginity loss, adolescent sexual behavior, hooking up, dating, intimacy and polyamory.

Cross-Listed as: WGSS 33.07

Distributive: Dist:SOC

Offered: 17S: 10A.

SOCY 63 - Trust in Society

Instructor: Anthony

Social Science and popular press literature of the past decade suggests that trust is the cause of many "good" things, such as the source of group cooperations, the basis of democracy, the foundation of the market economy, the source of national economic power, the key, even, to morality itself. Given its relation to all things good, it is not surprising that some commentators speak with alarm when they claim that "trust is declining" in society. Is trust declining? What exactly is trust anyway, and why does it matter? In this course we explore the concept of trust by reading and discussing theoretical and empirical research from across the social sciences.

Prerequisite: SOCY 1 or SOCY 2, and one other Sociology course

Distributive: Dist:SOC

Offered: 16F: 2.

SOCY 64 - The Sociology of Emotion

Instructor: Lively

Most people think of emotions as a purely internal experience, composed solely of physiological elements. Recently, however, sociologists have begun to emphasize and explore the social side of emotion—for example, how emotions are shaped socially and culturally, how emotions are socially controlled, and the consequences of emotion for social life. We will examine these and other sociological aspects of emotional experience in this course, including exploring current debates about the social functions of emotions, especially as they pertain to the substantive areas of work and family. Topics include the social causes of emotion; cultural variations in feeling and expression norms (especially in regard to love and anger); changes in American norms over time; the shaping of children's emotions through socialization; individual and social techniques of emotion management; the social distribution of emotional experience; the social functions of emotion; emotional deviance; and the individual and social consequences of emotional display.

Distributive: Dist:SOC

Offered: Not offered in the period from 15F to 17S.

SOCY 66 - Markets and Management

Instructor: Campbell

What is money? How do people find jobs? Are markets competitive or cooperative? This course examines these and other questions about how economic behavior is organized, operates and changes historically. It recognizes that economic activity is socially organized and guided by political, cultural and normative as well as economic principles. It explores how economic activity takes many forms, including groups of small competitive firms, large and powerful corporations, and diffuse networks of companies tied together through inter-firm alliances, business associations and other sorts of cooperative and competitive relations with each other, unions, government agencies and universities. It examines the organization and operation of different kinds of markets, different theories of how economic activity is organized, and the social factors that contribute to economic success or failure. It also investigates how managers, unions, policy makers and governments are coping with recent economic challenges, such as those posed by technological change and the globalization of economic activity. Because this is a course in economic sociology—not economics—no background in economics is required.

Distributive: Dist:SOC; WCult:W

Offered: 16F: 11.

SOCY 67 - The Political Power of Ideas

Instructor: Campbell

Politicians fight constantly over ideas. This course explores where these ideas come from and how politicians try to convince us that their ideas are best. It examines how people's values influence which ideas they believe or not. It questions the role of experts in policy making and whether we should trust them. And it analyzes how policy ideas change. Emphasis is largely but not entirely on the political power of ideas in the United States.

Cross-Listed as: PBPL 82.02

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F to 17S.

SOCY 68 - Global Health Systems

Instructor: Anthony

Health care systems are unique to the culture and history of each nation. However, all face similar challenges. This course examines health systems across developed and developing nations. Comparisons will be made in terms of: (a) population health, (b) health care organization, (c) health care financing, (d) health professionals and their patients, and (e) health system performance and reform strategies. Understanding how health care is delivered around the world will lead to a better understanding of the relative merits and limitations of various systems. The course is structured as a seminar in which students will be expected to discuss course readings in-depth, as well as develop and present their own research on specific countries of interest.

Distributive: Dist:INT; WCult:NW

Offered: Not offered in the period from 15F to 17S.

SOCY 69 - The Sociology of Globalization

Instructor: Campbell

The international scope of political, economic, and cultural activity has increased dramatically during the late twentieth and early twenty-first centuries. But how extensive has the trend toward "globalization" been? Is it really a new phenomenon? Has globalization changed societies? If so, how? If not, why not? Are societies becoming more alike because they experience common globalization pressures or do they retain their unique national characteristics? This course examines these questions and more. Specifically, we will look at how globalization has affected business, states, labor movements, social inequality, social welfare, citizenship rights, the environment, culture, national security, and other aspects of society.

Distributive: Dist:INT or SOC

Offered: 15F: 11.

SOCY 70 - American Labor Relations

Instructor: Dixon

This course examines the political, cultural, and economic sources of solidarity and mobilization among workers in the US from the late 19th century to the present. Readings and discussion will focus on important historical developments among labor unions, from militant beginnings through an accommodationist phase after World War II and a deep decline, to recent attempts at revitalization. Students will consider the impacts of labor movements on social inequality, politics and on a range of cross-cutting issues around gender, immigration and race. We will conclude by examining the prospects for labor in light of the rapid and profound changes in the world of work and economic activity in the contemporary period.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period from 15F to 17S.

SOCY 79 - Upper Division Special Topics Courses

Offered: Not offered in the period from 15F to 16S.

SOCY 80 - Independent Study

This course offers the qualified student an opportunity to pursue a subject of special interest, under the direction of a faculty adviser assigned to the student for periodic (usually weekly) conferences. Ordinarily at least one formal paper embodying the results of the reading or research is required. In special situations students may work as a team on a single project. Occasionally credit may be given in SOCY 80 for a research project done in an off-campus term, provided arrangements are made well in advance and adequate off-campus supervision can be assured. Although every effort will be made to accommodate qualified students desiring to carry an independent study, there is no guarantee that independent study can be arranged for any given student in any given term, and preference is given to senior and junior Sociology majors. Normally no student may take SOCY 80 more than twice during the undergraduate career. By permission of a Sociology faculty member *prior* to registration.

Offered: All terms: Arrange

SOCY 90 - Senior Independent Study Project

Independent work under the direction of a member of the Department and with Departmental approval may satisfy the culminating requirement in the major. Those interested should develop their plans with a prospective faculty adviser and must submit and have approved a written proposal at least one term prior to the term in which the course will be elected. Open only to senior majors. By permission of a Sociology faculty member *prior* to registration.

Offered: All terms: Arrange

SOCY 91 - The Sociological Imagination

Instructor: Lively (16F), King (16S, 17S)

C. Wright Mills described "the sociological imagination" as that quality of mind with the ability to grasp the interplay of biography and history, of self and social structure, of private troubles and public issues. As we venture into the 21st century, various issues of class, race and gender inequalities and conflicts appear to dominate popular discourse and policy debates. This capstone seminar will explore current substantive and theoretical expressions of the sociological imagination for providing critical assistance in understanding some of the major social issues of our time. The seminar is designed to emphasize critical discussion through active participation and class presentations. Each student will complete a significant intellectual project which reflects her or his own sociological analysis about an important social issue. Open to senior sociology majors, and others only by permission of the instructor.

Distributive: Dist:SOC; WCult:W

Offered: 16S, 16F: 10A 17S: 3A.

SOCY 98 - Honors Thesis

Open only to, and required of all, Sociology honors majors, this course involves independent work under the direction of a faculty adviser, culminating in the preparation and presentation of an honors thesis. Sociology honors majors normally elect SOCY 98 twice: once during the last term in residence and once during a preceding term. Exceptions to this pattern are, however, permitted if circumstances warrant. Honors students are normally expected to publicly present their thesis to the Department during the term in which it is completed. By permission of a Sociology faculty member *prior* to registration. See "The Sociology Honors Program" handout in the Main Office (111 Silsby).

Offered: All terms: Arrange

Spanish and Portuguese Languages and Literatures

Chair: R. Bueno

Professors R. E. Biron, R. Bueno, J. M. del Pino, B. Pastor, S. D. Spitta; Associate Professors J. Aguado, N. S. Cirmigliaro, R. A. Franconi, A. Gómez, I. Lozano-Renieblas, A. Martín, I. Reyes; Assistant Professors J. Ariza, S. Díaz-Duhalde, C. Minchillo, S. Muñoz, A. Santana; Senior Lecturers P. Asensio, R. M. Matorras, G. M. Mayo-Prada, D. J. Moody, I. Saucedo, M. E. A. Vélez; Lecturers K. Antigua, C. Bascuñán-Sedlacek, P. Carranza, V. Ingham, N. Monetti.

To view Spanish courses, click here (p. 485).

To view Portuguese courses, click here (p. 491).

Major and Minor

The program in Spanish and Portuguese offers the opportunity to do intellectual work in the Humanities in a foreign language. Students may graduate in one of the following major concentrations: (a) Hispanic Studies, (b) Romance Studies, (c) Modified Major in Hispanic Studies, and (d) Modified Major in Lusophone Studies, and minors in both Hispanic Studies and Lusophone Studies (Literature and Culture of the Portuguese speaking world).

The areas of concentration developed in the Department focus on the languages, literatures, and cultures of the Spanish and Portuguese speaking world and the Hispanic and Lusophone communities in the United States. The curriculum encourages students to explore the cultural, social, political, and economic specificities of these regions. To that end, courses cover a variety of historical periods, regional traditions, modes of artistic expression, and forms of cultural critique. The major provides students with interpretive and writing skills that are key for careers in the arts and humanities, education, government, international relations, international business, law, and social service. It also directly prepares students to succeed in graduate school in such fields as Hispanic and Lusophone Studies, Cultural Studies, History, and Comparative Literature, among others.

In consultation with a faculty advisor, students select their upper-level courses from a wide array of yearly offerings. Students are encouraged to meet with the Major Advisor of the Department of Spanish and Portuguese early in their studies to review course selections, discuss foreign study programs, and plan for an Honors Thesis on a topic of interest. Major programs usually include at least one term of study in a Dartmouth Foreign Study Program (FSP) in Spain or Latin America. All major cards must be signed by the Major Advisor of the Department of Spanish and Portuguese.

A. Major in Hispanic Studies

Prerequisite: SPAN 9 (or equivalent)

The major program in Hispanic Studies consists of at least 9 courses numbered 20 or higher. All courses for this Major are taught in Spanish. In special cases, students may substitute one upper level course offered in English in a related field toward this requirement. Approval for this option will be granted on a case-by-case basis, and only for a course taken after a student has completed Spanish 20. Students must submit a written petition to the Chair during the term preceding the English language course and the petition must be approved by the Department. This option is not available for Majors in Romance Studies or Modified Majors.

Courses must be distributed as follows:

1. SPAN 20

SPAN 20 is required for majors and minors and counts towards the major and minor. It can be taken concurrently with other 30-level courses, but it is a prerequisite for upper-level courses (SPAN 40 and higher).

2. Spanish Survey Courses and Foreign Study Programs

a. Survey Courses: SPAN 30, SPAN 31, SPAN 32

These are introductory courses with a historical or survey approach. All students must take at least one of these courses.

Students not participating on a Foreign Study Program may count up to two of these courses toward the major. Foreign Study Program students may count only one.

b. Foreign Study Courses: SPAN 33, SPAN 34, SPAN 35, SPAN 36

Prerequisites: Students participate in a Foreign Study Program after having successfully completed SPAN 9 (or equivalent) and one course from the 30, 31 and 32 survey sequence.

Students may count up to two Foreign Study Program courses (SPAN 33-36) toward the major. The total number of courses that Foreign Study Program students may count towards their major from the 30 sequence (Spanish 30-36) will never exceed three.

Note: Students studying on two Foreign Study Programs will consult with the Major Advisor and petition the department for individual adjustments.

3. Topics Courses: SPAN 40- 77

In consultation with the Major Advisor, students choose at least four of these upper-level courses from among the offerings of the department. Students who do not participate in a Foreign Study Program must choose at least five.

4. Independent Study: SPAN 83

One Independent Study (SPAN 83) may count as an upper-level course for the major. The Department projects its upper-level offerings up to two years in advance so that students can thoughtfully plan an individualized course of study in consultation with the Major Advisor. Students interested in pursuing an Independent Study must identify their topic, faculty advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

5. Culminating Experience: Senior Seminar (SPAN 80)

The Senior Seminar is required for all seniors. SPAN 80 allows students to explore, debate, and creatively produce written work or other forms of knowledge (plays, short films, photographic essays, etc.) on a topic relevant to Hispanic Studies, a process enhanced by the small group setting of the seminar. SPAN 80 fulfills the Culminating

Experience required for the major and will be offered several times each academic year.

*In special cases, the Culminating Experience may be fulfilled by a different upper-level course. In that case, students will be required to complete additional work as established by the course professor. A petition to the Major Advisor and Chair must be made by the last week of the term prior to registering for this alternate course.

*Upon formal request, juniors may be allowed to take the Senior Seminar when petitioned for approval to the faculty member teaching the course and to the Major Advisor.

B. Major in Romance Studies

Prerequisite: SPAN 9 (or equivalent)

Students wishing to pursue a major in Romance Studies must take courses in two of the Romance Languages offered at Dartmouth College (Spanish, Portuguese, French, or Italian), one serving as their primary language, the other as their secondary. This major option will consist of a minimum of ten courses beyond the prerequisites listed above for the Major in Hispanic Studies or Minor in Lusophone Studies. Six of these courses will be selected among the course offerings of the primary language and four from the secondary. Students will work closely with the Major Advisor in coordinating their course of study.

When Spanish is the primary language, the six courses in this language must be distributed as follows:

Prerequisite: SPAN 9

1. SPAN 20

SPAN 20 is required for majors and minors and counts towards the major and minor. It can be taken concurrently with other 30-level courses, but it is a prerequisite for upper-level courses (SPAN 40 and higher).

2. Survey Courses (SPAN 30-32) and Foreign Study Program Courses (SPAN 33-36)

Students must take at least one of these courses. No more than two may count toward the major (except for students doing a Foreign Study Program, who can count a maximum of three). The prerequisites for Foreign Study Programs also apply to majors in Romance Studies.

3. Upper Level Courses (SPAN 40 – 77) and Independent Study (SPAN 83)*

In consultation with the Major Advisor, students choose the remaining courses from the upper-level course list.

*One Independent Study (SPAN 83) may count as an upper-level course for the Major in Romance Studies. The Department projects its upper-level offerings up to two years in advance so that students can thoughtfully plan an individualized course of study in consultation with the Major Advisor. Students interested in pursuing an Independent Study must identify their topic, faculty

advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

4. Culminating Experience: Senior Seminar (SPAN 80)

Students pursuing a major in Romance Studies whose primary language is Spanish must take the Senior Seminar (Spanish 80) as one of their six upper-level courses. This course also fulfills the Culminating Experience required of all seniors.

The four courses in the secondary language must be selected from among courses that count towards the major or minor in that respective language.

When Portuguese is the primary language, the six courses in this language must be distributed as follows:

Prerequisite: PORT 9

1. Survey Courses PORT 20

2. Upper level courses (PORT 60 – 63) Foreign Study Program (PORT 35 and 36, and Independent Study PORT 83). Students must take four of the courses in this list.

*One Independent Study (PORT 83) counts for the Major in Romance Studies. The Department projects its upper-level offerings two years in advance so that students can thoughtfully plan an individualized course of study in consultation with the Major Advisor. Students interested in pursuing an Independent Study must identify their topic, faculty advisor, and present a proposal to their faculty advisor and to the Department for approval by the last week of the term prior to registration for PORT 83.

3. Culminating Experience: Senior Seminar (PORT 80)

Students pursuing a major in Romance Studies whose primary language is Portuguese must take the Senior Seminar (Portuguese 80) as one of their six upper-level courses. This course fulfills the Culminating Experience required of all seniors.

The four courses in the secondary language must be selected from among courses that count towards the major or minor in that respective language.

C. Modified Major in Hispanic Studies

Prerequisite: SPAN 9 (or equivalent)

The modified major in Hispanic Studies consists of 10 courses, at least six of which must be in Spanish and the remaining four from appropriate major-level courses offered by other departments. The six Spanish courses must be distributed as follows:

Prerequisite: SPAN 9 (or equivalent)

The modified major in Hispanic Studies consists of 10 courses, at least six of which must be in Spanish and the remaining four from appropriate major-level courses

offered by other departments. The six Spanish courses must be distributed as follows:

1. SPAN 20

SPAN 20 is required for majors and minors and counts towards the major and minor. It can be taken concurrently with other 30-level courses, but it is a prerequisite for upper-level courses (SPAN 40 and higher).

2. Survey Courses (SPAN 30-32) and Foreign Study Courses (33-36)

Students must take at least one of these courses. No more than two of these courses may count toward the major (except for students doing a foreign study program, who can count a maximum of three). The prerequisites for Foreign Study Programs also apply to modified majors in Hispanic Studies.

3. Upper Level Courses (SPAN 40 – 77) and Independent Study (SPAN 83)*

In consultation with the Major Advisor, students choose the remaining courses for their Modified major from the upper-level course list.

*One Independent Study (SPAN 83) may count as an upper-level course for the Modified Major in Hispanic Studies. The Department projects its upper-level offerings up to two years in advance so that students can thoughtfully plan an individualized course of study in consultation with the Major Advisor. Students interested in pursuing an Independent Study must identify their topic, faculty advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

4. Culminating Experience: Senior Seminar (SPAN 80)

Students pursuing a Modified Major in Spanish must take the Senior Seminar (Spanish 80) as one of their six upper-level courses. This course also fulfills the Culminating Experience required of all seniors.

D. Modified Major in Lusophone Studies

Prerequisite: PORT 9

The modified major in Lusophone Studies consists of ten courses, at least six of which must be in Portuguese and the remaining four from appropriate major-level courses offered by other departments. The six Portuguese courses must be distributed as follows:

Survey Courses PORT 20

Upper level courses (PORT 60 – 63) PORT 35.01 (offered 16W on campus, in English) and Independent Study (PORT 83). Students must take four of the courses in this list.

*One Independent Study (PORT 83) may also count as an upper level course for the Modified Major. The Department projects its upper-level offerings two years in advance so that students can thoughtfully plan an individualized course of study in consultation with the Major Advisor. Students interested in pursuing an Independent Study must identify their topic, faculty advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

3. Culminating Experience: Senior Seminar (PORT 80)

Students pursuing a Modified Major in Lusophone Studies whose primary language is Portuguese must take the Senior Seminar (PORT 80) as one of their six upper-level courses. This course fulfills the Culminating Experience required of all seniors.

Minor

A. Minor in Hispanic Studies

All minor cards must be signed by the Major/Minor Advisor of the Department of Spanish and Portuguese.

Prerequisite: SPAN 9 (see description of SPAN 9)

The minor in Hispanic Studies consists of at least five additional courses, which must be distributed as follows:

1. SPAN 20

SPAN 20 is required for majors and minors and counts towards the major and minor. It can be taken concurrently with other 30-level courses, but it is a prerequisite for upper-level courses (SPAN 40 and higher).

2. Survey Courses (SPAN 30-32) and FSP Courses (SPAN 33-36)

Students must take at least one of these courses. No more than two may count toward the minor, except for students doing a Foreign Study Program who can count a maximum of three.

3. Upper Level Courses (SPAN 40 - 77) and Independent Study (SPAN 83)*

In consultation with a faculty advisor, students choose the remaining courses from the upper-level offering. The Department projects its course offerings up to two years in advance so that students can thoughtfully plan an individualized course of study in consultation with the Major Advisor.

*One Independent Study (SPAN 83) may also count as an upper-level course for the Minor. Students interested in pursuing an Independent Study must identify their topic, faculty advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

4. Senior Seminar (SPAN 80)

Seniors pursuing a Minor in Spanish are encouraged to register for a Senior Seminar. This course automatically counts as one of the required upper level courses for the Minor.

B. Minor in Lusophone Studies

All minor cards must be signed by the Major/Minor Advisor of the Department of Spanish and Portuguese.

Prerequisite: PORT 9 (see description of PORT 9)

The minor in Lusophone Studies consists of at least five additional courses, which must be distributed as follows:

1. Survey Courses PORT 20

2. Upper level courses (PORT 60 – 63) PORT 35.01 (offered 16W on campus, in English) and Independent Study (PORT 83). Students must take four of the courses in this list.

*One Independent Study (PORT 83) counts for the Minor in Lusophone Studies. The Department projects its upper-level offerings two years in advance so that students can thoughtfully plan an individualized course of study in consultation with the Major Advisor. Students interested in pursuing an Independent Study must identify their topic, faculty advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

Transfer Credit

Only upon its approval will the Department of Spanish and Portuguese allow for a maximum of two transfer credits from comparable institutions. The Department does *not* give transfer credit for SPAN 1, SPAN 2, or SPAN 3 or PORT 1 or PORT 3.

Honors Program

Students who qualify for the Honors Program (described in Regulations section of this catalog) and wish to pursue this Program in any of the major options offered by the Department must identify a topic of interest and a faculty advisor who will serve as the director of the Honors Project. Students will prepare a written proposal and submit it to their advisor and to the department for approval. The proposal must be submitted by the end of the term prior to registering for SPAN 90.

All students pursuing an Honors Program must take the Honors Course (SPAN 90) and complete an Honors Thesis (SPAN 91).

Language Study Abroad

Spanish L.S.A. Winter, Spring: Barcelona, Spain
Winter, Spring: Buenos Aires, Argentina

Prerequisite: Minimum grade of B– in SPAN 2, or equivalent preparation; acceptance into the program.

Students live with families for one term in Spain or Argentina.

A student may choose to satisfy the language requirement through a combination of two preparatory courses at Dartmouth and one term of L.S.A. The preparatory courses must be taken within six months of departure. Students who have not had Spanish at Dartmouth or who have had Spanish 2 more than six months before departure must attend a Special Drill (non-credit) designed to prepare them for the program. Students who have fulfilled the language requirement are not eligible for the L.S.A.

Upon successful completion of the program, credit will be awarded for SPAN 3, SPAN 5, and SPAN 6. Course 3 completes the language requirement.

Students will be accepted on the basis of their application forms and letters of reference; actual participation in the program is contingent upon the maintenance of satisfactory academic standing, satisfactory participation in the Special Drill (for those who must take it), and compliance with orientation procedures.

For application and deadline information, consult the Off-Campus Programs Office in 44 N. College Street.

Language Study Abroad Plus

Spanish L.S.A.+ Summer: Santander, Spain

Prerequisite: Minimum grade of B– in Spanish 9, or equivalent preparation; acceptance into the program.

The L.S.A. Plus is a program designed for students who have satisfied the language requirement and are prepared for a more advanced language study abroad experience. Students who have had Spanish 9 or its equivalent more than six months before departure must attend Special Drill (non-credit) during the term prior to the program.

Upon successful completion of the program, credit will be awarded for SPAN 20, 22 and 32. Spanish 20 and 32 offer credit toward the major in Hispanic Studies or Romance Studies, or the minor in Hispanic Studies. Spanish 32 may also serve as the 30 level prerequisite course for the F.S.P. in Madrid, Spain or Buenos Aires, Argentina.

Students will be accepted on the basis of their application forms, letters of reference, and an interview; actual participation in the program is contingent upon the maintenance of satisfactory academic standing, satisfactory participation in drill (for those who must take it), and compliance with orientation procedures.

For application and deadline information, consult the Off-Campus Programs Office in 44 N. College Street.

Spanish L.S.A.+ Fall: Cuzco, Peru

Prerequisite: Minimum grade of B– in Spanish 9, or equivalent preparation; acceptance into the program.

The L.S.A. Plus is a program designed for students who have satisfied the language requirement and are prepared for a more advanced language study abroad experience. Students who have had Spanish 9 or its equivalent more than six months before departure must attend Special Drill (non-credit) during the term prior to the program.

Upon successful completion of the program, credit will be awarded for SPAN 20, 21 and 32. Spanish 20 and 32 offer credit toward the major in Hispanic Studies or Romance Studies, or the minor in Hispanic Studies. Spanish 32 may also serve as the 30 level prerequisite course for the F.S.P. in Madrid, Spain or Buenos Aires, Argentina.

Students will be accepted on the basis of their application forms, letters of reference, and an interview; actual participation in the program is contingent upon the maintenance of satisfactory academic standing, satisfactory participation in drill (for those who must take it), and compliance with orientation procedures.

For application and deadline information, consult the Off-Campus Programs Office in 44 N. College Street.

Portuguese L.S.A.+ Summer: Salvador, Brazil (not offered 15X)

Prerequisite: Minimum grade of B in Portuguese 3, or equivalent preparation; acceptance into the program.

The L.S.A. Plus is a program designed for students who have satisfied the language requirement and are prepared for a more advanced language study abroad experience. Students who have had Portuguese 3 or its equivalent more than six months before departure must attend Special Drill (non-credit) during the term prior to the program.

Upon successful completion of the program, credit will be awarded for PORT 9, 10 and 12. Portuguese 10 and 12 offer credit toward the minor in Lusophone Studies, the major in Romance Studies with Portuguese as the primary language, and the modified major in Lusophone Studies.

Students will be accepted on the basis of their application forms, letters of reference, and an interview; actual participation in the program is contingent upon the maintenance of satisfactory academic standing, satisfactory participation in drill (for those who must take it), and compliance with orientation procedures.

For application and deadline information, consult the Off-Campus Programs Office in 44 N. College Street.

Foreign Study

Spanish F.S.P. Fall: Madrid, Spain
Spring: Buenos Aires, Argentina

Prerequisite: Acceptance into the program and one course from SPAN 30, SPAN 31 or SPAN 32.

Students live with families for one term in Argentina or Spain. Special Dartmouth courses taught by local faculty and by the accompanying Dartmouth faculty member are offered in advanced grammar and stylistics, literature, art, and civilization. Demonstration of the importance of the program to the student's overall academic program at Dartmouth is an important factor considered for acceptance.

Upon successful completion of the program, credit will be awarded for three courses (Argentina—SPAN 23, SPAN 33, SPAN 35; OR Spain—SPAN 24, SPAN 34, SPAN 36), those at the 30 level may be counted towards the major in Spanish.

Foreign Study may not be taken during a student's last Dartmouth term.

For application and deadline information, consult the Off-Campus Programs Office in 44 N. College Street.

SPAN - Spanish Courses

To view Spanish requirements, click here (p. 480).

SPAN 1 - Spanish I

Instructor: 15F: Asensio, Carranza 16W: Mayo-Prada, Moody 16S: Asensio, Moody

Introduction to spoken and written Spanish. Intensive study of introductory grammar and vocabulary with a focus on culture. Oral class activities, readings and compositions. Weekly practice in the virtual language lab includes viewing TV series and films and weekly drill sessions. Never serves in partial satisfaction of the Distributive or World Culture Requirements.

Offered: 15F: 9S, 10, 11, 12 16W: 9S, 10 16S: 9S, 11 16F: 9S, 10, 11, 12 17W: 9S, 10 17S: 9S, 11

SPAN 2 - Spanish II

Instructor: 15F: Mayo-Prada, Monetti 16W: Carranza, Ingham, Monetti, Saucedo 16S: Matorras, Muñoz, Saucedo

Continuation of SPAN I. Further intensive study of grammar and vocabulary with a focus on culture. Oral class activities, readings and compositions and continued practice in the virtual language laboratory. Weekly drill sessions. Never serves in partial satisfaction of the Distributive or World Culture Requirements. Open to first-year students by qualifying test and to others who have passed SPAN I.

Offered: 15F, 16W, 16S: 9S, 10, 11, 12, 16X: 9S 16F, 17W, 17S: 9S, 10, 11, 12

SPAN 3 - Spanish III

Instructor: 15F: Bascuñán, Cernigliaro, Saucedo 16W: Bascuñán, Matorras 16S: Matorras, Muñoz, Saucedo

Continuation of SPAN II. SPAN III provides additional, intensive study of grammar and vocabulary with a focus on literature and culture. Oral class activities, readings and compositions and continued practice in the virtual language laboratory. Weekly drill sessions. Completion of this course on campus or as part of the LSA constitutes fulfillment of the language requirement. Never serves in partial satisfaction of the Distributive or World Culture Requirements. Open to first-year students by qualifying tests and to others who have passed SPAN II.

Offered: 15F: 9S, 10, 11, 12 16W: 9S, 10, 11, 12, D.L.S.A. 16S: 9S, 10, 11, 12, D.L.S.A. 16X: 10 16F: 9S, 10, 11, 12 17W: 9S, 10, 11, 12, D.L.S.A. 17S: 9S, 10, 11, 12, D.L.S.A.

SPAN 5 - Language Study Abroad

Instructor: 16W: Díaz, Santana 16S: Pastor

Taught in the context of the Language Study Abroad program, this course in Hispanic culture reinforces listening, reading, speaking, and writing skills in Spanish. The thematic focus is on local and regional art history, with special emphasis on the city as a dynamic form of cultural production through time. Attending to political, social, economic, and religious contexts, the course features brief presentations by local personnel as well as relevant field trips. Assignments include conversation, writing projects, oral presentations, and a final course examination.

Prerequisite: acceptance into the Dartmouth Language Study Abroad Program.

Distributive: WCult:W

Offered: 16W, 16S, 17W, 17S: D.L.S.A

SPAN 6 - Language Study Abroad

Instructor: 16W: Díaz, Santana 16S: Pastor

Taught in the context of the Language Study Abroad program, this introductory course in Hispanic literature strengthens listening, reading, speaking and writing skills in Spanish. The reading materials are selected to help students develop their analytical strategies as well as to expose them to relevant cultural issues and major figures of the region in which they are studying. Assigned work may include brief research papers, oral presentations, a mid-term exam and a final course examination.

Prerequisite: acceptance into the Dartmouth Language Study Abroad Program.

Distributive: Dist:LIT

Offered: 16W, 16S, 17W, 17S: D.L.S.A.

SPAN 7 - First-Year Seminars in Spanish and Spanish-American Literature

Instructor: Pastor

Offered: Consult special listings

SPAN 9 - Culture and Conversation: Advanced Spanish Language

Instructor: 15F: Matorras, Reyes 16W: Asensio 16S: Ariza

This course serves as a bridge between SPAN 3 and SPAN 20. Through the intensive study of a variety of aural media (e.g., documentaries, TV and radio programs, films), grammar, vocabulary and speech acts as presented in the course packet, students will actively practice listening and speaking skills with the goal of reaching an Intermediate High Level (on the ACTFL scale). Additional written material may be added according to the professor's particular interests.

Prerequisite: SPAN 3; AP Lang 4 or AP Lit 4; local placement test 600+, or permission of the instructor. SPAN 9 serves as a prerequisite for SPAN 20.

Offered: 15F: 10, 11, 12 16W: 10, 11 16S: 9L, 10 16X: 11 16F: 10, 11, 12 17W: 10, 11 17S: 9L, 10

SPAN 15 - Intensive Writing Workshop for Spanish Speakers

Instructor: Antigua

This course is designed for bilingual and/or bicultural students with a background in Spanish who wish to enhance their skills in writing and composition. Course materials will reflect a multi-media approach to understanding the cultural experiences of U.S. Latino/as and the Spanish-speaking world. The course will focus on structures related to languages and cultures in contact, review key grammatical concepts, and move to advanced stylistics.

Offered: 15F: 10

SPAN 20 - Writing and Reading: A Critical and Cultural Approach

Instructor: 15F: Gómez 16W: Lozano, Bueno 16S: Bueno, Díaz

Spanish 20 is the first course of the Major/Minor, and serves as transition between the skills acquired through the Spanish language courses (Spanish LSA or equivalent preparation) and those needed for all upper-division courses (30 and above). Through the study of critical and theoretical vocabulary, and the reading of short stories, poems, films, theatrical plays and journalistic articles, students will acquire analytic tools to comprehend and analyze several types of texts. This course is also designed to familiarize students with different textual genres and a wide array of literary and interpretative key concepts.

Prerequisite: Participation in one of the Spanish LSA programs; SPAN 9 or SPAN 15; exemption from SPAN 9 based on test scores (see Department web site); or permission of instructor. SPAN 20 may be taken in conjunction with 30-level survey courses. It serves as a prerequisite for all Spanish courses 40 and higher.

Distributive: Dist:LIT

Offered: 15F: 10, 12, D.L.S.A.+ 16W: 10, 11 16S: 11, 12
16X: D.L.S.A.+ 16F: 10, 12, D.L.S.A.+ 17W: 10, 11 17S: 11, 12

SPAN 21 - Traditional and Contemporary Andean Cosmogonies and Cultural Production: A Historical Approach

Instructor: 15F: Spitta

This course will connect course content with cultural activities such as excursions, visits to museums, and lectures. The thematic focus of the course will be Andean Art and Culture from pre-Hispanic times to the present, elements of Andean cosmogony, civilizational clash, and cultural miscegenation included.

Distributive: Dist:SOC; WCult:NW

Offered: 15F: D.L.S.A.+ 16F: D.L.S.A.+

SPAN 22 - Modern and Contemporary Spanish Artistic and Cultural Production

Instructor: 15X: Aguado

This course will make students fluent in some of the main topics relevant to modern and contemporary Spanish cultural production, with a particular emphasis on Northern Spain. The course will not count towards the major or minor.

Distributive: Dist:ART; WCult:W

Offered: 15X: D.L.S.A.+ 16X: D.L.S.A.+

SPAN 23 - Argentine Cultural Heritage

Instructor: 16S: Cirmigliaro

This course deepens the student's knowledge of the Argentine art and cultures through the study and discussion of the visual, architectural and plastic arts, as well as music and performance. The materials will expose the students to the main trends and topics of contemporary Argentine art, cultures and society.

Prerequisite: Acceptance into the Dartmouth Foreign Study Program, Argentina.

Distributive: Dist:ART; WCult:NW

Offered: 16S, 17S: D.F.S.P.

SPAN 24 - Spanish Cultural Heritage

Instructor: 15F: Lozano

This course deepens the student's knowledge of the Spanish art and cultures through the study and discussion of the visual, architectural and plastic arts, as well as music and performance. The materials will expose the students to the main trends and topics of contemporary Spanish art, cultures and society.

Prerequisite: acceptance into the Dartmouth Foreign Study Program, Spain.

Distributive: Dist:ART; WCult:W

Offered: 15F, 16F: D.F.S.P

SPAN 30 - Introduction to Hispanic Studies I: Middle Ages-17th Century

Instructor: 16S:

This course presents an overview of major literary trends and cultural productions from the Middle Ages to the 17th century in both their Spanish and Spanish American contexts. Students will read a representative selection of major literary works from that period, both Peninsular and Spanish-American, and discuss theoretical, aesthetic, and critical issues pertinent to the Renaissance, the Baroque, colonialism, syncretism, etc. Texts and other materials may be cultural and visual.

Prerequisite: SPAN 20

Distributive: Dist:LIT; WCult:W

Offered: 16S, 17S: 12

SPAN 31 - Introduction to Hispanic Studies II: 18th and 19th Centuries

Instructor: 16W: del Pino

This course presents a chronological study of major trans-Atlantic literary trends and cultural productions, corresponding to the cultural and aesthetic movements of the eighteenth and nineteenth centuries. Students will read a representative selection of major literary works, both Peninsular and Spanish-American, from that period and discuss theoretical, aesthetic, and critical issues pertinent to modernity, empire, enlightenment, nationalism, gender, democracy, etc. Texts and other materials may be cultural and visual.

Prerequisite: SPAN 20

Distributive: Dist:LIT; WCult:W

Offered: 16W, 17W: 11, 12

SPAN 32 - Introduction to Hispanic Studies III: 20th-21st Centuries

Instructor: 15F: del Pino

This course presents a chronological study of trans-Atlantic major literary trends and cultural productions, corresponding to the cultural and aesthetic movements

from the 1880s to the present. Students will read a representative selection of major literary works from that period, both Peninsular and Spanish-American, and discuss theoretical, aesthetic, and critical issues pertinent to modernismo, the avant-garde, revolution, post-modernism, etc. Texts and other materials may be cultural and visual.

Prerequisite: SPAN 20

Distributive: Dist:LIT; WCult:W

Offered: 15F: 9L, D.L.S.A.+ 16X: D.L.S.A.+ 16F: 9L, D.L.S.A.+

SPAN 33 - Argentine Civilization: Society, Culture and Politics in Argentina

Instructor: 16S: Ciriagliaro

This course studies socio-political events in the Southern Cone that have shaped the contemporary configuration of society in Argentina. Emphasis will be placed on key political figures, social movements, oppositional tensions, dictatorship and democracy, and their articulation in the cultural field.

Prerequisite: acceptance into the Dartmouth Foreign Study Program.

Distributive: Dist:SOC; WCult:NW

Offered: 16S, 17S: D.F.S.P.

SPAN 34 - Society, Culture and Politics in Spain

Instructor: 15F: Lozano

This course studies socio-political events in the Iberian Peninsula that have shaped the contemporary configuration of society in Spain. Emphasis will be placed on key political figures, social movements, oppositional tensions, dictatorship and democracy, and their articulation in the cultural field.

Prerequisite: acceptance into the Dartmouth Foreign Study Program, Spain.

Distributive: Dist:SOC; WCult:W

Offered: 15F, 16F: D.F.S.P.

SPAN 35 - Studies in Spanish-American Literature and Culture

Instructor: 16S: Ciriagliaro

This course is designed to offer students an opportunity to study a topic of interest in Spanish American literature and culture through the reading of a wide variety of literary and cultural texts. Emphasis will be placed on Argentina and the Southern Cone. Topics may vary.

Prerequisite: acceptance into the Dartmouth Foreign Study Program, Argentina.

Distributive: Dist:LIT; WCult:NW

Offered: 16S, 17S: D.F.S.P.

SPAN 36 - Studies in Modern and Contemporary Spanish Literature

Instructor: 15F: Lozano

This course is designed to offer students an opportunity to study a topic of interest in the literatures and cultures of Spain through the reading of a wide variety of literary and cultural texts. Topics may vary.

Prerequisite: acceptance into the Dartmouth Foreign Study Program, Spain.

Distributive: Dist:LIT; WCult:W

Offered: 15F, 16F: D.F.S.P.

SPAN 40 - Hispanic Literature and Culture by Period

This course will focus on the study of the significant historical periods and cultural movements of the Hispanic world. It is organized according to chronological eras that are marked by distinct cultural and literary movements. Areas covered will be the Middle Ages, the culture of the Renaissance and the Baroque, the Colonial Period, Enlightenment and Modernity, Nineteenth-Century Romanticism and Realism, the Avant-Gardes, Post-modernism, and new developments in the contemporary period. One or more periods will be selected for study.

Distributive: Dist:LIT

SPAN 40.04 - Dali, Lorca and Buñuel: The Secrets of Spanish Surrealism

Instructor: del Pino

This course examines poetry as one of the essential literary genres in Hispanic letters. Students will analyze the fundamentals of the poetic language (prosody or versification, tropes, etc.) while exploring prominent examples of lyrical poetry in the works of poets like Espronceda, Bécquer, de Castro, Darío, Antonio y Manuel Machado, J.R. Jiménez, Neruda or García Lorca, and some contemporary Hispanic poets.

Prerequisite: SPAN 20

Distributive: Dist:LIT

Offered: 15F: 11

SPAN 43 - Hispanic Literature and Culture by Genre

A literary genre is defined as an established category of written work employing a set of recognizable common conventions, such as technique, style, structure or subject matter. This course will focus on the study of Hispanic literature's and cultures and is organized around one or more basic genres like poetry, drama, novel, and essay. Other articulating categories for the course may include epic poetry, tragic drama, short-fiction narrative, the picaresque novel, and melodrama, among others. The

course will provide students with the appropriate critical vocabulary to understand the specificity of the genre or sub-genre examined in the course.

Distributive: Dist:LIT

SPAN 55.04 - Humor and Politics in Latin American Literature, Film and Culture

Instructor: Reyes

Comedy and humor often serve to undermine cultural elitism and denounce social injustice. Many Latin American authors, filmmakers, and artists have used comedy and humor in politically subversive ways, but also as a way to legitimize the cultures and communities of the marginal and disenfranchised. This course will explore several theories of humor as well as Latin American traditions of humor.

Prerequisite: SPAN 20

Distributive: Dist:SOC

Offered: 15W: 11

SPAN 55.05 - Indignant Spain: Crisis and New Social Movements Today

Instructor: Martín

This course exams the notion of "crisis" as a creative paradigm for rethinking traditional experiences of the political, social, and cultural spheres in today's Spain. The course will focus on the deep connections between democracy and alternative ways of thinking about the political participation of citizens confronting the dismantling of their social, family, and individual welfare by global and national neoliberalist economic and social policies. Students will read from a wide array of texts (literature, cultural and political theory) and also watch documentaries and films on the idea of "crisis" as it is currently playing itself out in Spain's 15-m and Indignados movements. Works by: Martín Patino, Alvarez, Thorton, Grueso, Lacuesta, Arce among others.

Prerequisite: SPAN 20

Distributive: Dist:SOC

Offered: 15F: 12

SPAN 60 - Race and Ethnicity in Hispanic Studies

A common misperception about race and ethnicity is that they are uniformly defined and that one region's understanding of these terms is identical to any other. How are race and ethnicity conceptualized and represented in Spain, Latin America, and U.S. Latino communities? This course will examine the particular historical, regional, and cultural factors that give rise to different notions of race and ethnicity in the Hispanic world. Individual offerings of this course may focus on one or more of the following: Moorish Spain and the Reconquista; the Jewish Diaspora

in Spain and Latin America; indigenous societies in Latin America; racial and cultural "mestizaje"; whiteness, racial purity, and "blanqueamiento"; slavery, the African Diaspora, and "afro-latinidades".

Prerequisite: SPAN 20

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in the period 15F through 16S

SPAN 60.02 - Racism in Spanish American Literary Representations

This course will explore racism in five centuries of Spanish American literary representations. It will discuss the aesthetic projects and the ideological suggestions stemming from a long history of representations of race, ethnicity and culture in the Spanish American literature, especially those dealing with the constitution of colonial and neo-colonial projects, decolonization and national identities. Particular attention will be given to intolerant images of the "subaltern" other, from notions of a lesser humanity and condescendence to rationales for marginalization, oppression and open racism. Materials for this class include selections from Columbus, Cortés, Guamán Poma, Las Casas, Garcilaso, Lunarejo, Viscardo, Avellaneda, Villaverde, Albújar, Matto, Sarmiento, Vasconcelos, Guillén, Arguedas, Menchú, Cornejo Polar and Fernández Retamar.

Distributive: Dist:LIT; WCult:CI

SPAN 63 - Hispanic Film Studies

Film and the visual arts in Spain, Latin America, and/or the US will be studied under different approaches in order to: understand the historical evolution of film making within these contexts; examine the different film genres (surrealism, neorealism, melodrama, film noir, Hollywood realism, animation, documentary, etc.) in their Hispanic contexts; study the body of work of renowned Latino, Spanish, and Latin American filmmakers and visual artists; analyze important cultural or historical events through their visual representations (the Mexican Revolution, the Spanish Civil War, the Cuban Revolution, end of Francoism, etc.); etc. Students will become familiar with relevant concepts in film analysis, film theory, and cultural studies and learn how issues of representation in the visual arts are linked to their literary counterparts.

Prerequisite: SPAN 20

Distributive: Dist:ART

SPAN 63.02 - Spain in the Movies. Literary Classics in Adaptation

Instructor: Cirnigliaro

What are the conditions for a literary text from a previous era so different from our own to be adapted in contemporary film? What does it take for a novel or a play

from Golden Age Spain to be "translated" to the language of Spanish, European and North-American cinematography? This course will focus on notions of adaptation and intermediality vis-à-vis the work of Spanish early modern writers and contemporary cinematographers. We will read old texts and we will watch recent movies to ponder on issues such as historical otherness; ideological colonization; literary interpretation; and the notion of intermediality or translation between one medium (the page; the stage) to the other (the set; the screen).

Prerequisite: SPAN 20

Distributive: Dist:ART

Offered: 15F: 2

SPAN 65 - Hispanic Performance, Media, and the Arts

In our increasingly globalized society, what impact have transnationalism and new technologies had on the formation and articulation of local cultures in the Hispanic world? How do subjects remember and represent themselves as embodied actors in the spaces where conflicting and contestatory identities meet? How have television, the visual and graphic arts, and music redefined national space and identity in Spanish, Latin American, and U.S. Latino communities? Individual offerings of this course may focus on one or more of the following: theater, performance, and performativity; comics and the graphic arts; literature and the marketplace; the politics of mass media; sports and national identity; and popular culture's strategies of resistance.

Distributive: Dist:ART; WCult:W

SPAN 65.04 - Night at the Museum: A Cultural and Political History of El Prado

El Prado is considered one of the most important museums of art in the world. This course will explore several issues related to this institution: how and why the museum was founded, its connection to the construction of a national identity, and its transformations in order to become a touristic attraction for millions of visitors. Materials for the course will include maps, photographs, historical documents and official websites. Students will also analyze some of El Prado's better-known paintings and they will also read some literary works (novels and theatre plays) about this museum.

Distributive: Dist:ART; WCult:W

SPAN 70 - Great Works of Hispanic Literature: Don Quixote and One Hundred Years of Solitude

Few novels of the Hispanic world have had greater resonance than Cervantes' *Don Quixote* (published between 1605 and 1615) and Gabriel García Márquez' *Cien años de soledad* (1969). Both have continually fascinated their readers and provoked myriad interpretations and reinterpretations. This course seeks to

understand each text as an autonomous work of literature and as a highly creative response to the literary and cultural forces in which it was forged. Individual offerings of this course will focus on one of these literary masterpieces.

Distributive: Dist:LIT; WCult:W

SPAN 70.01 - Great Works of Hispanic Literature: Don Quixote and One Hundred Years of Solitude

Instructor: Lozano

Few novels of the Hispanic world have had greater resonance than Cervantes' *Don Quijote* (published between 1605 and 1615) and Gabriel García Márquez' *Cien años de soledad* (1969). Both have continually fascinated their readers and provoked myriad interpretations and reinterpretations. This course seeks to understand each text as an autonomous work of literature and as a highly creative response to the literary and cultural forces in which it was forged. Individual offerings of this course will focus on one of these literary masterpieces.

Prerequisite: SPAN 20

Distributive: Dist:LIT; WCult:W

Offered: 16W: 10

SPAN 72 - Latin American and Latina Women: Gender, Culture, Literature

Prerequisite: SPAN 20

Offered: not offered in the period 15F through 16S

SPAN 73 - Special Topics in Hispanic Literary and Cultural Production

This course is offered periodically with varying content so that writers, genres, historical contexts, or theoretical approaches not otherwise provided in the curriculum may be studied. The course can be offered any term and its distinct content, theoretical, or methodological approach will depend on the area of specialization of the instructor. Prerequisite: Spanish 20.

Distributive: Dist:LIT

SPAN 75 - Creative Writing in Spanish

This course offers a workshop in creative writing to be taught by prominent writers in residence in the Department of Spanish and Portuguese. It is designed for native speakers of Spanish, heritage speakers, and Spanish majors in their junior or senior years. Seminar-sized class meets twice or three times a week plus individual conferences when necessary. The class will consist of group workshops on student writing (fiction, poetry, and/or theater) and individual conferences with the instructor. The limit for this class is 14.

Prerequisite: Permission of the instructor.

Distributive: Dist:ART

Offered: Not offered in the period 15F through 16S

SPAN 77 - Texts and Contexts: Topics in Writing

This course is designed to help students develop excellence in writing as they prepare for upper level literature and culture courses in Spanish. Topics will vary according to term and faculty as well as the texts studied in the course (literary, filmic, cultural, and visual). Given that thinking, reading, and writing are interdependent activities, Spanish 77 is designed to offer students an opportunity to study a topic of interest in Hispanic literature or culture while simultaneously emphasizing the advanced writing skills required of a research paper. Frequent exercises in writing and close textual study are basic to this course.

Distributive: Dist:LIT; WCult:W

SPAN 77.03 - Paradigmas Mexicanos: Elena Garro y Octavio Paz

Instructor: Biron

Elena Garro and her ex-husband Octavio Paz (winner of the 1990 Nobel Prize in Literature) were major figures in Mexico's 20th century 'culture wars.' They often took opposite stands on Mexican history, politics, and aesthetics. Between them, they wrote in every major literary genre. We will examine their most famous texts, as well as critical responses to them, to understand Mexican debates about national identity and the power of creative expression.

Prerequisite: SPAN 20

Distributive: Dist:LIT

Offered: 15F: 10

SPAN 78 - Living in the Borderlands: Latino/a Culture and Identity

Offered: not offered in the period 15F through 16S

SPAN 79 - Latino/a Literature: Between Literary Traditions, Languages, and Cultures

Offered: not offered in the period 15F through 16S

SPAN 80 - Senior Seminar in Hispanic Studies

The senior seminar in Hispanic Studies is designed to provide Spanish majors with a small group setting that facilitates in-depth discussion of key concepts of critical theory, literary studies, and the discipline. The seminar will encourage students to research and explore relevant topics related to Hispanic literature and the arts and experiment with the application of the different concepts under discussion in creative ways (essay writing, visual arts projects, performance pieces, etc).

Prerequisite: Permission of Instructor

Distributive: Dist:LIT

SPAN 83 - Independent Study

A program of individual study directed by a member of the Spanish and Portuguese faculty. SPAN 83 will normally consist of a program of reading and research that is not covered in regularly scheduled course offerings. After consultation with the faculty advisor of the project, all Independent Study proposals must be submitted for approval to the Department. Only open to majors in Spanish or Romance Languages. Under normal circumstances, no student may receive credit for this course more than once. Students interested in pursuing an Independent Study must identify their topic and faculty advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

Prerequisite: Permission of the instructor.

Offered: All terms: Arrange

SPAN 90 - Honors Course

Supervised independent research under the direction of a designated advisor. Honors majors will normally elect this course as the first in the required sequence (90 and 91) for completion of the Honors Program. SPAN 90 is intended to prepare the student for writing the Honors thesis, through readings in primary and secondary texts, theory and methodology. The course will include periodic written assignments and culminate in a final paper.

Prerequisite: Admission to the Honors Program.

Offered: All terms: Arrange

SPAN 91 - Honors Seminar

A prearranged program of study and research during any term of the senior year, on a tutorial basis, with individual faculty members (normally the thesis advisor.) A thesis and public presentation are the expected culmination of the course.

Prerequisite: Prior admission to the Department's Honors Program; clear evidence of capability to perform honors level work, normally indicated by completion of SPAN 90 with a grade of B+ or higher.

Offered: All terms: Arrange

PORT - Portuguese Courses

To view Portuguese requirements, click here (p. 480).

PORT 1 - Introductory Intensive Portuguese

Instructor: 16W: Minchillo

An intensive introductory course that teaches fundamental communication skills-understanding, speaking, reading and writing-and introduces students to the cultures of the Portuguese-speaking world through readings, films, music

and videotapes. This course is appropriate for students who may wish to devote only one term to the study of Portuguese.

Offered: 16W, 17W: 10+

PORT 3 - Intermediate Intensive Portuguese

Instructor: Minchillo

More advanced work in the use of the spoken and written language, complemented by lectures, readings, music and films. Portuguese 3 serves as the final course in the required sequence to satisfy the language requirement in Portuguese. Never serves in partial satisfaction of the Distributive or World Culture requirements.

Offered: 16S, 17S: 10+

PORT 7 - First-Year Seminars in Portuguese

Offered: Consult special listings.

PORT 9 - Writing and Speaking: A Cultural Approach

This course serves as a transition between the basic Portuguese language sequence and upper-level courses. Through a selective review of grammar, vocabulary-building exercises, and readings and discussion of contemporary topics affecting the Portuguese-speaking world, students will develop their ability to write and speak clear, correct and idiomatic Portuguese in order to achieve competence in the language. Open to all classes.

Prerequisite: Completion of the foreign language requirement in Portuguese, or permission of the Chair.

Distributive: Dist:LIT

Offered: Not offered in the period F15 through S16

PORT 10 - Studies in Brazilian Culture and Society

A course in Brazilian culture and civilization taught in the context of the Language Study Abroad Plus program. Lectures by local personnel concentrate on contemporary political, social, economic, and religious institutions of the country, with attention paid to their historical background. Visits to sites supplement these lectures when appropriate. Assigned work includes preparation of papers and oral presentations, and a final examination.

Distributive: WCult:NW

Offered: Not offered in the period F15 through S16

PORT 12 - Introduction to Brazilian Literature

An introductory course, offered in the context of the Language Study Abroad program, dealing with major figures, themes, or genres of Brazilian/Portuguese literature. Areas of concern include critical reading and analysis, style, historical and social perspective.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period F15 through S16

PORT 20 - The Portuguese-Speaking World and its Literatures and Cultures: The Definition of an Identity

This course deals with major figures, themes, and issues of the literatures of the modern Portuguese-speaking world, including continental and insular Portugal, Brazil, Lusophone Africa and Asia, and Luso-America. The course will also present different techniques of critical reading and interpretation and their relevance to the study of specific works. Reading selections will be drawn from different genres and periods, and will be supplemented by film, music, and materials from the mass media.

Considerable emphasis will be placed on speaking and writing skills. Topics will be announced in advance of each offering. Open to first-year students by qualifying test and to others who have passed Portuguese 9 or have equivalent preparation. Portuguese 20 is a prerequisite for the Portuguese Foreign Study Program, and also counts towards the minor in Portuguese or the major in Romance Languages and modified majors.

Prerequisite: PORT 9

Distributive: Dist:LIT

Offered: Not offered in the period F15 through S16

PORT 25 - Advanced Portuguese Composition

Intensive essay writing workshop with discussion focusing on Brazilian culture. Advanced grammar, sentence structure and word usage provide a framework for excellence in writing. Exercises are based on readings of materials from diverse sources in contemporary Brazilian culture, history, politics and current events. Credit for this course is awarded to students who have successfully completed the Dartmouth Foreign Study Program in Salvador, Brazil.

Offered: Not offered in the period F15 through S16

PORT 35 - Advanced Studies in Brazilian Culture and Society

A course in Brazilian culture and society taught in the context of the Foreign Studies Program. Lectures by local personnel concentrate on contemporary political, social, economic and religious institutions and issues and their historical background. Visits to sites supplement lectures when appropriate. Assigned work includes preparation of short papers, oral presentations and exams, assessed at the advanced level. Students will also write a research paper based on group visits requiring sessions additional to regular classes.

Prerequisite: PORT 20

Distributive: Dist:SOC; WCult:NW

PORT 36 - Studies in Contemporary Brazilian Literature

This course explores trends in Brazilian literature from the 1960s to the present. Genres include novels, plays, short stories and poetry, as well as song lyrics of literary quality from various musical genres. Prominent themes include, but are not limited to, the socio-political experience of the dictatorship, urban and suburban life, and literature by women.

Distributive: Dist:LIT; WCult:NW

Offered: Not offered in the period F15 through S16

PORT 60 - The Portuguese-Speaking World: Literature and Culture by Period

This course focuses on the study of the most important historical periods and cultural movements affecting the Portuguese-speaking world. It is organized according to chronological eras that are marked by distinct cultural and literary movements. Areas covered are the Middle Ages, the culture of the Renaissance and the Baroque, the period of Explorations, Colonial period, Enlightenment and Modernity, Nineteenth-Century, Romanticism and Realism, the Avant-Gardes, Postmodernism, and new developments in the contemporary period. One or more periods may be selected for study.

Prerequisite: PORT 9 or permission of the instructor.

Distributive: Dist:LIT; WCult:W

Offered: not offered in the period 15F through 16S

PORT 61 - The Portuguese-Speaking World: Genre

Prerequisite: PORT 9 or permission of the instructor.

Distributive: Dist: LIT; WCult: NW

Offered: not offered in the period 15F through 16S

PORT 62 - Film Media, Performance, and the Arts in the Portuguese-Speaking World

Film, television, the visual and graphic arts, and music have redefined national space and identity in the Portuguese-speaking world. Individual offerings of this course may focus on one or more of the following: film, television and the politics of mass media; theater, performance and performativity; festivals, popular and folk songs, comics and the graphic arts; sports and national identity. Students will become familiar with relevant concepts in analysis, theory, and cultural studies and learn how issues of representation in those cultural productions are linked to their literary counterparts.

Prerequisite: PORT 9 or permission of the instructor.

Distributive: Dist:ART

PORT 62.02 - The Lusophone World Throughout Its Cinema: From Angola to Timor Leste

Instructor: Franconi

This course is designed as an introduction to Portuguese-language film studies aiming to reach a broader understanding of the diversity of the Lusophone world through its cinema. It will focus on technical and theoretical aspects of film, artistic literacy, and questions of identity - the cultural, social and historical aspects of Lusophone countries, and close reading and analysis of meanings conveyed in Lusophone films. Feature and short films will be selected from the most representative cinematic productions from Angola, Brazil, Cape Verde, East Timor, Guinea-Bissau, Mozambique, Portugal, and São Tomé and Príncipe. Students will watch three to four movies per week and write commentaries to each movie, which will be discussed in class. A final project, developed along the term, complements the work in this course.

Prerequisite: PORT 9 or permission of instructor

Distributive: Dist:ART; WCult:NW

Offered: 15F: 2A

PORT 63 - Special Topics. Literary and Cultural Productions of the Portuguese-Speaking World

This course is offered periodically with varying content so that writers, genres, historical contexts, or theoretical approaches not otherwise provided in the curriculum may be studied. The course can be offered any term and its distinct content, theoretical or methodological approach will depend on the interests of the instructor.

Prerequisite: PORT 9 or permission of the instructor.

Distributive: Dist:LIT; WCult:NW

PORT 80 - Seminar

This seminar is designed to provide students specializing in Portuguese studies with a small group setting that facilitates in-depth exploration of key aspects of the discipline. The seminar will encourage students to research and explore relevant topics related to the literature and arts of the Portuguese-speaking world and experiment with the application of the different concepts under discussion in new and creative ways (essay writing, short story writing, visual arts projects, performance pieces, etc.). This course may serve in satisfaction of the culminating experience requirement for Romance Language and modified majors with a concentration in Portuguese.

Prerequisite: PORT 9 or permission of the instructor.

Distributive: Dist:LIT

Offered: not offered in the period 15F through 16S

PORT 83 - Independent Reading and Research

A program of individual study directed by a member of the Spanish and Portuguese faculty. PORT 83 will normally consist of a program of reading and research that is not covered in regularly scheduled course offerings. After consultation with the faculty advisor of the project, all Independent Study proposals must be submitted for approval to the Department. Under normal circumstances, no student may receive credit for this course more than once. Students interested in pursuing an Independent Study must identify their topic and faculty advisor, and present a proposal to their faculty advisor and to the Department for approval no later than the seventh week of the term preceding the term they wish to undertake the Independent Study.

Offered: All terms: Arrange

PORT 90 - Honors Course

Supervised independent research under the direction of a designated advisor. Honors students will normally elect this course as the first in the required sequence (90 and 91) for completion of the Honors Program. PORT 90 is intended to prepare the student for writing the Honors thesis, through readings in primary and secondary texts, theory and methodology. The course will include periodic written assignments and culminate in a final paper.

Prerequisite: Admission to the Honors Program.

Offered: All terms: Arrange

PORT 91 - Honors Seminar

A prearranged program of study and research during any term of the senior year, on a tutorial basis, with individual faculty members (normally the thesis advisor). A thesis and public presentation are the expected culmination of the course.

Prerequisite: Prior admission to the Department's Honors Program; clear evidence of capability to perform honors level work, normally indicated by completion of PORT 90 with a grade of B+ or higher.

Offered: All terms: Arrange

Student-Initiated Seminars

In 1976 the Executive Committee of the Faculty voted to introduce a system of student-initiated seminars.

Students may propose to the Faculty Committee on Instruction seminars on special topics. Student initiators solicit the sponsorship of one or more faculty members and develop a syllabus and formal structure for the proposed course in consultation with the sponsor(s). In sponsoring a student-initiated seminar, a faculty member commits to regular participation in the seminar and assumes responsibility for assigning grades in the course. After the

course has been approved by the appropriate Divisional Council, the Committee on Instruction may then approve, for a single offering, a student-initiated seminar which will be carried as a regular course. This seminar may serve in partial fulfillment of the Distributive or World Culture Requirements by prior approval of the Divisional Council and the Committee on Instruction, and in potential partial satisfaction of major requirements when previously authorized by the department or program concerned. Preliminary proposals should be directed by the initiators to the Chair of the Committee on Instruction at least two terms in advance of the proposed term of offering.

Before considering approval of a seminar the Committee on Instruction will require a full account of the nature of the requested seminar, justification for offering it, and assurance of active faculty support, availability, and time. The maximum enrollment shall be sixteen and the minimum, six. At the end of a seminar the faculty member assigns grades in normal fashion.

Studio Art

Chair: Soo Sunny Park

Professors B. Garand, L. E. Hamlin, C. M. Randall, P. E. Thompson; Associate Professor E. M. Riley; Adjunct Assistant Professor J. K. Lee; Senior Lecturers G. D. Auten, V. C. Beahan, J. L. Caine, K. Kawiaka, B. D. Miller, J. D. Wilson; Lecturers: S. Amos, E. del Rosario, T. Ferrara, Ariel Freiberg, H. Koh, S. Smith.

The Department of Studio Art offers all undergraduates the opportunity to take courses in studio art. Graduate students may enroll in courses not filled by undergraduates. Requirements for the major and minor are outlined below.

To view Studio Art courses, click here (p. 495).

Artist-In-Residence

Through endowments established in 1962, artists have resided at Dartmouth throughout the year. These professionals are actively involved in the making of their art on campus. They lecture on their work in and outside of the classroom and respond to student work on an individual and group basis.

Visiting Critics

Each term professional artists lecture on their work and critique student work. These visits present a serious model of involvement within the discipline. There can be as many as three visiting critics a term. Attendance at the talks of visiting artists is required of all students enrolled in a Studio Art course.

Enrollment

All courses are limited in size. Pre-enrollment via computer registration is encouraged. Studio Art courses are closed when they reach full enrollment, and remain closed even if students drop. If a course is closed during pre-enrollment, students are put on a bounce/wait list, and given priority when classes begin. Students must contact their course instructor for permission to enroll. If permission is granted, students receive notification via e-mail. They must then go to Banner Student and enroll. Students not enrolled when the term begins are encouraged to attend the first class to see if a space is available.

Studio Art courses are open only to Dartmouth students who are enrolled full-time in the College. This enrollment includes special undergraduates at Dartmouth on the Twelve-College Exchange. Graduate students may enroll, if there is space in the class, and they receive the instructor's permission. No Studio Art course may be audited.

Requirements for the Major

The Studio Art major consists of 10 courses. The Department offers courses in architecture, drawing, painting, photography, printmaking and sculpture. Drawing I is prerequisite to courses in architecture, painting, photography, and printmaking, and to upper level drawing and sculpture courses. *There are no prerequisites for Drawing I, Sculpture I, or Special Topics.*

Since class sizes are limited and enrollments are heavy, Drawing I should be completed as early as possible.

Additional requirements for the major: SART 16, SART 20, SART 25, SART 76, SART 77, one Art History course, and three of the following: SART 17, SART 21, SART 22, SART 23, SART 26, SART 27, SART 28, SART 29, SART 30, SART 31, SART 65, SART 66, SART 68, SART 71, SART 72, SART 73, SART 74, SART 75 or SART 90 (p. 500). Figure Drawing may substitute either for the Drawing II or Drawing III requirement for the major. Figure Sculpture may substitute either for the Sculpture II or III requirement for the major.

SART 76 and SART 77 serve as the culminating experience in the major. Students are strongly encouraged to complete at least 3 course levels in one area of focus before taking senior seminar. The Senior Seminar work will be evaluated by the Studio Art Department faculty and outside examiners. Participation in a senior exhibition is a required part of the major.

Requirements for the Minor

Seven courses in Studio Art, with SART 15, SART 16 and SART 25 required. Four additional courses, two of which must be in any one of the following six areas: architecture, drawing, painting, photography, printmaking, or sculpture.

Honors Program

The Honors Program consists of a two-term course of study, completed during the class context of Senior Seminar I and II. To be eligible for the Honors Program,

students must have achieved the following, by the end of junior year: a 3.4 average in all Studio Art Major courses; Drawing I and Drawing II; and three terms of study in a specific area of architecture, drawing, painting, photography, printmaking, sculpture (e.g., Sculpture I, Sculpture II, and Sculpture III). By the end of senior fall term, students must: have two professors who will advise them on their honors project throughout Senior Seminar; submit a typed proposal outlining their final project, along with 10 images of their work. Studio Art majors will be notified in writing of procedures for Honors. An honors thesis is required by the end of spring term. *Honors, if granted, is bestowed at the end of spring term.*

Transfer Credit

Transfer credit is considered for Studio Art majors with junior standing. Application for prior approval must be made by the first day of the Dartmouth term immediately preceding the first day of the intended transfer term. Prior to enrolling, discussion of the nature, content, and reason for taking the course should occur with the major advisor or Chair of the Department. The Department requires a portfolio review upon completion of the course. No more than two courses can be substituted for those required for the major.

SART - Studio Art Courses

To view Studio Art requirements, click here (p. 494).

SART 15 - Drawing I

Instructor: Auten, Kawiaka, Randall, Hamlin, del Rosario & Associates

In this introductory course, major and non-major students will explore the issues of mark, line, scale, space, light and composition. Students will develop a critical facility to discuss the work presented in class. Although the majority of work will be from the observed form, such as still life and the human figure, non-observational drawing will also be emphasized. Various kinds of media, including charcoal, ink and pencil will be used. Supplemental course fee required. Enrollment limited.

Distributive: Dist:ART

Offered: 15F:10A, 2A; 16W:10A, 2A; 16S:10A, 2A.

SART 16 - Sculpture I

Instructor: Garand, Park, Lee & Associates

This course emphasizes the creation and critique of sculpture. Three-dimensional design concepts and various elements of sculpture such as form, space, surface, and time, will be discussed. Students will develop an understanding of different materials and techniques in conjunction with the aesthetics of each medium. This course focuses on an individual approach to creative

problem solving, with students developing skills and vocabulary to critique their own sculpture and the sculpture of others. Supplemental course fee required. Enrollment limited. No prerequisites.

Distributive: Dist:ART

Offered: 15F,16W:10A, 2A; 16S:10A

SART 17 - Special Topics: Collage

Instructor: Randall, Thompson, Witkowski

An exploration of the design and construction of imagery through the medium of collage. Students will work in mixed media collage materials from a variety of subject matter with a focus on the development of critical abilities and an individual esthetic. Assignments will make use of collage as a connection between two-dimensional and three-dimensional artwork, addressing collage work in relationship to drawing, painting, relief sculpture, photography and architecture.

Distributive: Dist:ART

Offered: F15, 16W, 16S: 10

SART 17.07 - THE PASSIONATE PURSUIT OF COLOR

Students in this course will explore the use of color as a language to construct and find meaning in a fully realized work of art that captures both internal and external realities. A variety of traditional as well as digital drawing media and techniques will be encouraged. Emphasis will be on testing the boundaries between the flat picture plane and the mysterious illusion of pictorial space, between sensuous details and the overall unity of each work of art.

No prerequisites required. Counts towards the major and may be substituted for Drawing II

Distributive: Dist:ART

SART 17.08 - Digital Drawing

Instructor: Kawiaka

This class will explore the connection of hand drawing and digital drawing to create original images. Students will explore the implications, opportunities and technical issues of using the computer as a drawing tool and combine computer-generated drawings with those done by hand. Drawings may combine layering, collaging and converting 3D form to 2D hand drawings using PhotoShop, Illustrator and Rhino software, among others.

Distributive: Dist:ART

Offered: 15W: 10A

SART 17.09 - The Photographer as Activist: Making Art Inspired by the Hood Museum's Collection

Instructor: Beahan

This course examines photography's evolving role as protagonist for raising awareness of important social and political issues of our time, such as war and its aftermath, the politics of gender and family, and the sustainable landscape. Meetings in the Bernstein Study Center will focus on the study of specific photographs and the processes and techniques employed; these explorations will form the basis for individual photographic projects, culminating in a creative portfolio or book. Students will develop a critical framework for the cultivation of visual literacy and the understanding of photography's importance as witness to human experience.

Distributive: Dist:ART

SART 17.10 - The Artist's Book

Instructor: Thompson

In this class students will design and produce their own books. Work will be done in a studio classroom, the Digital Lab in the Visual Arts Center, and the Book Arts Workshop in Baker Library. The course explores new ideas of what book is and techniques for making books and printing images and text. Students from a variety of background and expertise are welcome in this class.

Distributive: Dist:ART

Offered: 15S: 2A

SART 17.11 - Embodied Magic: Drawing into Life

Instructor: Putten

Embodied Magic: Drawing into Life

Starting from close observation, this class will explore possibilities for translating the wide and vibrant world into two-dimensional drawing and painting, and for translating two-dimensional works into sequential and moving images. We will investigate interrelationships between embodied magic, improvisation, disciplined daily practice, and finished work. Athletes, dancers, musicians, graphic designers, complete beginners, animators, fans of sequential art, and other assorted students from a variety of backgrounds and interests are welcome.

Distributive: Dist:ART

Offered: X15

SART 20 - Drawing II

Instructor: Randall, del Rosario & Associates

This course will reinforce drawing techniques and strategies learned in Drawing I with an emphasis on discipline and increased mastery. Personal development, critical thinking and the student's relationship to materials, subjects and techniques will be emphasized. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15.

Distributive: Dist:ART

Offered: 15F: 2A; 16S: 10A

SART 21 - Sculpture II

Instructor: Garand, Park

Sculpture II is an in-depth approach to the conceptual and physical aspects of making sculpture. Techniques such as woodworking and welding, along with the exploration of unconventional materials, will be used. Contemporary ideas involving installation, outdoor and site specific work will be explored in the cultural context of making sculpture today. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15 and SART 16.

Distributive: Dist:ART

Offered: 15F: 2A; 16W: 10A

SART 22 - Figure Drawing

Instructor: Garand

A course based on drawing the human form. Most work will be done from direct observation. Attention will be paid to issues of mark, light, volume, space, and composition. Students will consider the complex relationship of perception, invention, and visual structure in the context of working from the figure. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15.

Distributive: Dist:ART

Offered: 16W: 2A

SART 23 - Figure Sculpture

Instructor: Garand

Sculpture through direct observation, and learning to translate perceived form into sculptural form using the figure as subject is the emphasis of this class. Importance is placed on the fundamental sculptural principles of proportion, volume, and gesture, along with the relationship between the physical and psychological aspects of the human form and its contextual presentation. Modeling directly in clay, as well as plaster casts, and other additive processes and materials will be explored. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15 and SART 16.

Distributive: Dist:ART

Offered: 16S: 2A

SART 25 - Painting I

Instructor: Thompson, Caine

Painting I is an introductory class in oil painting techniques, painting language, and critical thinking. Major topics that will be covered include: basic color theory, color mixing, paint application, and color composition. A variety of subjects such as still life, non-observational invention, and the human figure will be emphasized. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15.

Distributive: Dist:ART

Offered: 15F, 16W, 16S: 2A

SART 26 - Printmaking I: Lithography

Instructor: Amos

Lithography. An introduction to lithographic techniques, using stones and metal plates, b/w and color printing. Class sessions will consist of demonstrations, critiques, individual instruction, and work periods. Students will also see original prints by master artists (past and present) in the outstanding collection of Dartmouth's Hood Museum. This course may be repeated for credit by permission of the Chair. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15.

Distributive: Dist:ART

Offered: 15F: 2A

SART 27 - Printmaking I - Etching

Instructor: Hamlin

Basic techniques of printing images from metal plates, and often from cardboard and plastic plates as well. Once a plate is developed, it can be printed many times and in many different ways. Several plate-making and printing techniques will be taught, enabling students to achieve a wide range of imagery through line dynamics, tonal variety, and color interactions. Printmaking is a unique intersection of Painting, Drawing, Sculpture, and Photography. Students learn from exploring and refining their own ideas, through use of various techniques and materials. Examples will be shown in class, and students will also see original prints by master artists (from Rembrandt to the present) in the Hood Museum's outstanding collection. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15.

Distributive: Dist:ART

Offered: 16W: 10A; 16S: 2A

SART 28 - Printmaking II

Instructor: Hamlin

An intensive studio exploration of intermediate printmaking processes such as Monotype, Etching, Relief,

and Lithography. Color printing and various other techniques will be taught, and combinations of materials and technique encouraged. Students develop individual portfolios of work. Enrollment limited.

Prerequisite: SART 26 or SART 27. Supplemental course fee required. Enrollment limited.

Distributive: Dist:ART

Offered: 16W: 10A; 16S: 2A

SART 29 - Photography I

Instructor: Beahan, Seely

An introductory course concentrating on the fundamentals of operating and understanding a camera: black and white film processing and printmaking techniques, and the use of the camera as a tool of creative expression. Assignments in landscape, portraiture, and still life will be used to introduce a broad range of photographic problems. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15.

Distributive: Dist:ART

Offered: 15F, 16W, 16S: 10A

SART 30 - Photography II

Instructor: Seely

An intermediate course of wide-ranging assignments in black and white, including architecture, portraiture, landscape, and still life as subject matter. Class problems will cover printing papers, negative contrast controls, toning, and other techniques of darkroom work. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 29.

Distributive: Dist:ART

Offered: 15F, 16S: 2A

SART 31 - Painting II

Instructor: Caine, Randall, Riley

This class is a continuation of Painting I. Students will be exposed to more complex ideas about color including color as emotion, impression, and construction. More distinction will be made between indirect and direct painting techniques. Students will also begin to form a personal relationship with the formal choices they wish to address. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 25.

Distributive: Dist:ART

Offered: 15F, 16W: 10A; 16S: 2A

SART 65 - Architecture I

Instructor: Kawiaka, Toloudi, Wilson

A disciplined development of skills needed to communicate architectural ideas. Factors such as climate, site, orientation, program, materials, and structure are studied in the process of designing structures and buildings. The course will concentrate on developing student ability to translate architectural concepts into two-dimensional and three-dimensional representations. Free-hand drawing, the use of architectural drafting tools, and model making will be emphasized. Along with more traditional media, the computer will also be used as a design and communications tool. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 15.

Distributive: Dist:ART

Offered: 15F, 16W: 10A; 16S: 2A

SART 66 - Architecture II

Instructor: Toloudi

Students will continue the study of architectural design by exploring the organization of space, manipulation of light, and the experience of time in the creation of architecture. Experimentation in the language and vocabulary of architecture, as expressed through drawings, models, and the digital media will be emphasized. Contextual, cultural, economic, and technological conditions will be discussed in relationship to designs. Review of student work will take the form of presentations made to the class and guest critics. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 65. Supplemental course fee required.

Distributive: Dist:ART

Offered: 15F, 16S: 10A

SART 68 - Architecture III

Instructor: Toloudi

As an extension of Intermediate Architecture, this course will offer advanced students the opportunity to explore architectural design issues in more depth. Students will use analytical and expressive skills developed in previous coursework to undertake more complex and thorough investigations in architecture. Can be repeated for credit. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 66.

Distributive: Dist:ART

Offered: 15F, 16S: 10A

SART 71 - Drawing III

Instructor: Randall, del Rosario

In this course, students will develop a personal voice through the language of drawing. Commitment and discipline are mandatory and expected, commensurate with

students' increased responsibility in shaping their trajectory of learning. Contemporary issues and materials will take an increased role in informing the students' decisions. Critical thinking and decision-making will be emphasized. Observational drawing, abstraction, figuration and more unconventional techniques are all open to students. Can be repeated for credit. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 20.

Distributive: Dist:ART

Offered: 15F: 2A; 16S: 10A

SART 72 - Painting III

Instructor: Caine, Randall, Riley

In this course, students will develop a cohesive body of work that addresses their aesthetic and subjective concerns. More attention will be given to contemporary artists and contemporary painting strategies and techniques. Commitment and discipline are mandatory and expected, commensurate with students' increased role in shaping their course of study. Critical thinking and decision-making will be stressed, as well as awareness of the contemporary dialogue in painting. Can be repeated for credit. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 31.

Distributive: Dist:ART

Offered: 15F, 16W: 10A; 16S: 2A

SART 73 - Sculpture III

Instructor: Park, Lee

This course focuses on advanced problems in sculpture, with an emphasis on the development of a personal language. Individual growth through self-examination and self-discipline will be encouraged. Contemporary issues, as well as the history of sculpture will be discussed. Students are expected to develop a strong work ethic in the studio. Can be repeated for credit. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 21.

Distributive: Dist:ART

Offered: 15F: 2A; 16W: 10A

SART 74 - Printmaking III

Instructor: Hamlin

This course allows students to explore a particular area of printmaking in depth, with added consideration of scale and presentation. Choosing their own technique(s) and subject(s), each student will develop a portfolio of advanced work in a personal style. New materials and techniques will be introduced on an individual basis, as

appropriate. Can be repeated for credit. Enrollment limited.

Prerequisite: SART 28. Supplemental course fee required.

Distributive: Dist:ART

Offered: 16W: 10A; 16S: 2A

SART 75 - Photography III

Instructor: Seely

A single problem will constitute the term's work. The student will have the opportunity to concentrate on one subject, to investigate new techniques of photographic craft, and to employ the camera as a means toward the making of a personal, creative statement. Can be repeated for credit. Supplemental course fee required. Enrollment limited.

Prerequisite: SART 30.

Distributive: Dist:ART

Offered: 15F, 16S: 2A

SART 76 - Senior Seminar I

Instructor: Kawiaka, Hamlin

The first half of the two-term culminating experience in Studio Art. The seminar is devoted to developing critical skills and a body of work predicated upon a student's ability to conceive, structure, sustain, and resolve an individual course of study in painting, drawing, printmaking, sculpture, photography, or architecture. Work will be reviewed by the faculty and an outside examiner. Supplemental course fee required.

Distributive: Dist:ART

Offered: 16W: 10A, 2A

SART 77 - Senior Seminar II

Instructor: Caine, Toloudi

A continuation of SART 76, with the additional expectation that each student will present at the conclusion of the term the body of work that will be his/her thesis. The thesis must be judged by the Studio Art faculty to be technically and aesthetically sound. From this work a selection will be made for the senior exhibition. Continuous individual and group critiques will be given of student work by the principal instructor, department faculty, and visiting artists. Supplemental course fee required.

Prerequisite: SART 76.

Distributive: Dist:ART

Offered: 16S: 10A, 2A

SART 90 - Independent Study

Instructor: Associates

Students who have completed all levels of instruction within a given area may propose and carry out an independent project in that area. This project must be supported and supervised by a faculty member. The project proposal must be submitted in writing and approved by the Chair. Supplemental course fee required.

Distributive: Dist:ART

Offered: All terms: Arrange

Theater

Chair: Daniel J. Kotlowitz

Professors T. P. Hackett, D. J. Kotlowitz; Associate Professors L. Edmondson, J. M. Horton, L. C. Kohn, M. B. Sabinson; Assistant Professor I. Mayorga; Senior Lecturers C. Dunne, J. G. Rice, J. D. Sutton; Lecturer C. Kohn; Visiting Professors G. Alexi-Meskishvili, W. P. Chin (English); Adjunct Professor T. F. Evans; Adjunct Assistant Professor S. L. Silver; Visiting Lecturers K. Coughlin, K. Cunneen, A. Thomas.

To view Theater courses, click here (p. 505).

The Major

The Theater program at Dartmouth College combines courses in the study of theater as a performing art with courses in theater practice. Due to the wide range of interests encompassed by the study of theater, students' programs for the major include a core of foundation courses in the history, literature and criticism of theater plus a combination of courses individually selected to provide training in several aspects of theater practice, with special emphasis in one such area. Students may concentrate their studies in such areas as acting and directing; dance; theatrical design; technical production; stage management; playwriting; dramaturgy; or theater history, theory, and criticism. Students intending to pursue a Theater major should:

- Submit the online major declaration form on DegreeWorks.
- Meet with the Chair to discuss course plan. The Chair will assign a faculty major advisor to the student.
- Meet with the faculty major advisor to discuss the written rationale for the major. The rationale should be a brief description of the student's goals and intentions in pursuing a Theater major.

- Submit the written rationale (must be signed by the faculty major advisor and the Chair) to the Academic Assistant.

Requirements

Ten major courses, as enumerated within the following categories:

1. Five courses in Theater Studies:

a. The following three courses in Theater Studies are required:

THEA 15: Theater and Society I: Classical and Medieval Performance

THEA 16: Theater and Society II: Early Modern Performance

THEA 17: Theater and Society III: 19th and 20th Century Performance

b. Any two of the following Theater Studies courses:

THEA 1: Introduction to Theater*

THEA 10: Special Topics courses, with approval of the Chair

THEA 10/RUSS 18: Russian Theater

THEA 10/CLST 2: The Tragedy and Comedy of Greece and Rome

THEA 22: Black Theater, U.S.A.

THEA 23: Topics in African Theater and Performance

THEA 24: Asian Performance Traditions

THEA 62: Plays in Performance: Perception and Analysis (FSP)

THEA 80: Independent Study, with approval of the Chair

*THEA 1 satisfies the Theater Studies course fulfillment only if it is completed before THEA 15, 16, and 17.

With prior approval of the Chair, up to one course in Theater Studies from another department may be used to fulfill this category, :

ENGL 15: Shakespeare I

ENGL 34: American Drama

ENGL 39: Modern British Drama

2. Four courses in Theater Practice:

a. The following course in theater production:

THEA 40: Technical Production

b. At least one of the performance courses:

THEA 10: Special Topics courses, with approval of the Chair

THEA 26: Movement Fundamentals I

THEA 27: Movement Fundamentals II

THEA 28: Dance Composition

THEA 29: Dance Theater Performance

THEA 30: Acting I

THEA 31: Acting II

THEA 32: Acting III

THEA 36: The Speaking Voice for the Stage

THEA 50: Playwriting I

THEA 51: Playwriting II

THEA 54: Directing

THEA 60: Classical Performance I

THEA 61: Classical Performance II

THEA 65: Drama in Performance

THEA 80: Independent Study, with approval of the Chair

c. At least one course in theater design/management:

THEA 10: Special Topics courses, with approval of the Chair

THEA 41: Stage Management

THEA 42: Scene Design I

THEA 43: Scene Design II

THEA 44: Lighting Design I

THEA 45: Composition and Design

THEA 48: Costume Design I

THEA 80: Independent Study, with approval of the Chair

3. The Culminating Experience: THEA 90.

In their final year, all majors must complete the following course to satisfy their Culminating Experience in Theater:

THEA 90: Contemporary Practices in U.S. Theater

4. Production Requirement:

Every Theater major is expected to complete four production credits to demonstrate an active and sustained participation in theater production. Sustained participation shall consist of completing four production credits for Department of Theater productions or productions sponsored by the Department of Theater. Production credits should be completed under faculty supervision. Production credits must reflect a variety of theater activity and each production credit must include a minimum of 25 hours of participation.

- One production credit must be fulfilled by serving as a stage manager or assistant stage manager for a mainstage production. Alternatively, the student may complete THEA 41: Stage Management to fulfill this requirement. With prior approval of the Director of Theater, stage management on a student production may fulfill this requirement.
- One production credit must be fulfilled by serving on a production crew or working in the shops.

- Two production credits may be fulfilled with any category of theater production, with the exception of work associated with THEA 40: Technical Production. This includes:

courses with a production component;
acting in productions;
participation in a production crew and/or working in the shops;
stage management;
directing;
designing;
playwriting, when the script is produced under the sponsorship of the Department;
dramaturgy.

In some cases, work-study hours may count toward the fulfillment of the production requirement with Director of Theater approval.

The Modified Major

A student who wishes to combine the study of theater with a related field may apply to the Department for a modified major. Such a program shall contain eight courses from the Theater major and four courses from a second department or program that would count toward the major(s) in the related department(s) or program(s). Students intending to pursue a modified major in Theater should:

- Submit the online major declaration form on DegreeWorks.
- Meet with Chair to discuss course plan. The Chair will assign a faculty major advisor to the student.
- Meet with the faculty major advisor to discuss the written rationale for the major. The rationale should be a brief description of the student's goals and intentions in pursuing a Theater major.
- Submit the written rationale (must be signed by the major advisor and the Chair) to the Academic Assistant.

Requirements

Eight major courses, including those enumerated within the following categories:

1. Two courses in Theater Studies:

a. One course from the theater history sequence:

THEA 15: Theater and Society I: Classical and Medieval Performance

THEA 16: Theater and Society II: Early Modern Performance

THEA 17: Theater and Society III: 19th and 20th Century

Performance

b. One course from among the following:

THEA 1: Introduction to Theater*
 THEA 10: Special Topics courses, with approval of the Chair
 THEA 10/RUSS 18: Russian Theater
 THEA 10/CLST 2: The Tragedy and Comedy of Greece and Rome
 THEA 22: Black Theater, U.S.A.
 THEA 23: Topics in African Theater and Performance
 THEA 24: Asian Performance Traditions
 THEA 62: Plays in Performance: Perception and Analysis (FSP)
 THEA 80: Independent Study, with approval of the Chair
 *THEA 1 satisfies the Theater Studies course fulfillment only if it is completed before THEA 15, 16, and 17.

With prior approval of the Chair, up to one course in Theater Studies from another department may be used to fulfill this category, such as:

ENGL 15: Shakespeare I
 ENGL 34: American Drama
 ENGL 39: Modern British Drama

2. The following course in theater production:

THEA 40: Technical Production

3. At least one of the performance courses:

THEA 10: Special Topics courses, with approval of the Chair
 THEA 26: Movement Fundamentals I
 THEA 27: Movement Fundamentals II
 THEA 28: Dance Composition
 THEA 29: Dance Theater Performance
 THEA 30: Acting I
 THEA 31: Acting II
 THEA 32: Acting III
 THEA 36: The Speaking Voice for the Stage
 THEA 50: Playwriting I
 THEA 51: Playwriting II
 THEA 54: Directing
 THEA 60: Classical Performance I
 THEA 61: Classical Performance II
 THEA 65: Drama in Performance
 THEA 80: Independent Study, with approval of the Chair

4. At least one course in theater design/management:

THEA 10: Special Topics courses, with approval of the Chair
 THEA 41: Stage Management
 THEA 42: Scene Design I
 THEA 43: Scene Design II
 THEA 44: Lighting Design I
 THEA 45: Composition and Design
 THEA 48: Costume Design I
 THEA 80: Independent Study, with approval of the Chair

5. The Culminating Experience: THEA 90.

In their final year, all modified majors must complete the following course to satisfy their Culminating Experience in Theater:

THEA 90: Contemporary Practices in U.S. Theater

6. Two More Courses

The other two courses of the modified major shall include no more than one THEA 80: Independent Study and should be approved by the Chair.

7. Production Requirement:

Every modified Theater major is expected to complete three production credits to demonstrate an active and sustained participation in theater production. Sustained participation shall consist of completing three production credits for Department of Theater productions or productions sponsored by the Department of Theater. Production credits should be completed under faculty supervision. Production credits must reflect a variety of theater activity and each production credit must include a minimum of 25 hours of participation.

- One production credit must be fulfilled by serving as a stage manager or assistant stage manager for a mainstage production. Alternatively, the student may complete THEA 41: Stage Management to fulfill this requirement. With prior approval of the Director of Theater, stage management on a student production may fulfill this requirement.
- One production credit must be fulfilled by serving on a production crew or working in the shops.
- One production credit may be fulfilled with any category of theater production, with the exception of work associated with THEA 40: Technical Production. This includes:

courses with a production component;
 acting in productions;
 participation in a production crew and/or working in the shops;
 stage management;
 directing;
 designing;
 playwriting, when the script is produced under the sponsorship of the Department;
 dramaturgy.

In some cases, work-study hours may count toward the fulfillment of the production requirement with Director of Theater approval.

The Minor

The requirements for a Theater minor are six theater courses. Students intending to pursue a Theater minor should:

- Submit the online minor declaration form on DegreeWorks.
- Meet with the Chair to discuss course plan and the written rationale for the minor. The rationale should be a brief description of the student's goals and intentions in pursuing a Theater minor.
- Submit the written rationale (must be signed by the Chair) to the Academic Assistant.

Requirements

Six minor courses, as enumerated within the following categories:

1. One course from the Theater History sequence:

THEA 15: Theater and Society I: Classical and Medieval Performance

THEA 16: Theater and Society II: Early Modern Performance

THEA 17: Theater and Society III: 19th and 20th Century Performance

2. The following course in theater production:

THEA 40: Technical Production

3. Four More Courses:

The other four courses of the minor shall include no more than one THEA 80: Independent Study and no more than one course outside of the Department that would normally be accepted for the major.

4. Production Requirement:

Every Theater minor is expected to complete two production credits to demonstrate an active and sustained participation in theater production. Sustained participation shall consist of completing two production credits for Department of Theater productions or productions sponsored by the Department of Theater. Production credits should be completed under faculty supervision. Production credits must reflect a variety of theater activity and each production credit must include a minimum of 25 hours of participation.

- Acting may fulfill only one of the production credits for the Theater minor.

- Production credits may be fulfilled by serving as a stage manager or assistant stage manager for a mainstage production. Alternatively, the student may complete THEA 41: Stage Management to fulfill a stage management production credit. With prior approval of the Director of Theater, stage management on a student production may fulfill this kind of production credit.
- Production credits may be fulfilled by serving on a production's crew or working in the shops.
- Production credits may be fulfilled with any category of theater production, with the exception of work associated with THEA 40: Technical Production. This includes:

courses with a production component;
acting in productions;
participation in a production crew and/or working in the shops;
stage management;
directing;
designing;
playwriting, when the script is produced under the sponsorship of the Department;
dramaturgy.

In some cases, work-study hours may count toward the fulfillment of the production requirement with Director of Theater approval.

The Culminating Experience

All Theater majors and modified Theater majors must complete the course THEA 90: Contemporary Practices in U.S. Theater to satisfy their Culminating Experience in Theater during their final year of study. Theater minors and other majors modifying with Theater will complete their Culminating Experience in their primary departments. Double majors must complete Culminating Experiences in both majors.

Transfer Credit

Every course taken for transfer credit in Theater must be approved prior to enrollment by the Chair of the Department, upon review of a detailed course description and syllabus. Three courses taken at other institutions may be substituted in fulfillment of the major requirements, provided that the courses are equivalent to Department courses and the program as a whole is consistent with the intent of the major. Of the three transferred courses, no more than two may be in dramatic literature, history, and criticism (#1 above under "Requirements for the Major");

no more than two courses may be in theater practice (#2 above under "Requirements for the Major").

Honors Program

Students who have completed at least five major courses and who have an average in the major of 3.4 or higher (and a College average of 3.0 or higher) are eligible to apply for the Honors Program. Students with modified as well as standard majors may apply. An Honors project normally extends through two terms and receives two major credits. Possible honors projects include:

- a written thesis or substantial piece of writing for a performance such as a full-length play;
- a realized production and supporting paper
- a design project or portfolio and supporting materials.

Students must submit a preliminary proposal to an advisor and the Chair of the Department by mid-May of their junior-year; the due date for a final proposal will be determined at that time. Final proposals must be approved by the Department. Students who prepare for an Honors project by pursuing approved courses of advanced independent study may, with approval of the Department, be allowed to complete the project (thesis) in one term. Students in the Honors Program must complete the ten courses required for the standard or modified major; the honors credits are in addition to the ten-course major. Students may complete the ten-course major simultaneously with the Honors thesis: the ten-course major does not necessarily have to be completed before the honors work has begun. For additional information, students should consult with Chair of the Department of Theater.

Foreign Study Program

England: London. Summer term.

The Theater Foreign Study Program offers students the opportunity to combine Theater Studies and professional practice in theater at the London Academy of Music and Dramatic Art, one of the world's great conservatories. The program is a unique chance for students to develop their craft while taking advantage of London's incomparable theatrical tradition and vibrant cultural scene.

Prior to participating in the Theater Foreign Study Program, the following prerequisites must be completed:

1. One course from the Theater History sequence:

THEA 15: Theater and Society I: Classical and Medieval Performance

THEA 16: Theater and Society II: Early Modern Performance

THEA 17: Theater and Society III: 19th and 20th Century

Performance

2. One course in Theater Practice in either performance or design, from among the following courses:

Performance

THEA 10: Special Topics courses, with approval of the Chair
 THEA 26: Movement Fundamentals I
 THEA 27: Movement Fundamentals II
 THEA 28: Dance Composition
 THEA 29: Dance Theater Performance
 THEA 30: Acting I
 THEA 31: Acting II
 THEA 32: Acting III
 THEA 36: The Speaking Voice for the Stage
 THEA 50: Playwriting I
 THEA 51: Playwriting II
 THEA 54: Directing
 THEA 60: Classical Performance I
 THEA 61: Classical Performance II
 THEA 65: Drama in Performance
 THEA 80: Independent Study, with approval of the Chair

Design

THEA 10: Special Topics courses, with approval of the Chair
 THEA 41: Stage Management
 THEA 42: Scene Design I
 THEA 43: Scene Design II
 THEA 44: Lighting Design I
 THEA 45: Composition and Design
 THEA 48: Costume Design I
 THEA 80: Independent Study, with approval of the Chair

The typical British conservatory experience is designed for students interested in acting, directing, playwriting, design, stage management, dramaturgy, or criticism.

All FSP students will be enrolled in three courses:

THEA 60 : Classical Performance I
 THEA 61 : Classical Performance II
 THEA 62 : Plays in Performance: Perception and Analysis

THEA 60 and THEA 61 will be taught by instructors from the London Academy of Music and Dramatic Art. THEA 62: Plays in Performance: Perception and Analysis will be taught by the Dartmouth instructor and involves attending an average of two to three productions per week and participating in a weekly seminar. In addition to the many London theaters, including the Royal Shakespeare Company and National Theatre, students will have full access to London's cultural resources in music, dance, film, and museums. When practical, field trips to historical sites of theatrical interest and backstage tours of theater facilities will be scheduled.

For additional information regarding enrollment and prerequisites, please consult the Off-Campus Academic Programs booklet.

THEA - Theater Courses

To view Theater requirements, click here (p. 500).

THEA 1 - Introduction to Theater

Instructor: Mayorga

As a set of staged practices rich with social context, theater has sought to document, engage, and affect communities. This course introduces and explores theater from page to stage as a live performing art. Topics include the relationship between theater and society (historical and contemporary), dramatic structure, theatrical representation, and the crafts of theater artists such as directors, designers, playwrights, and actors. We will also engage with live performances and video archives of past performances.

Distributive: Dist:ART

Offered: 16S:11

THEA 7 - First-Year Seminars in Theater

Instructor: Kinyon, Sabinson

Consult special listings.

Offered: Consult special listings

THEA 10.04 - Acting for Musical Theater

Instructor: Dunne

This course will introduce students to the techniques used by actors/singers to play musical theater scenes believably, honestly and dynamically. Basic acting techniques will be taught as well as work in singing, text analysis, movement and speech. Students will begin with individual songs, then prepare, rehearse and present two-person musical scenes from *Company*, *West Side Story*, *Side Show*, *Jane Eyre*, *Into the Woods*, *Passion*, *She Loves Me*, *The Secret Garden*, *Follies* and others. Permission of the instructor is required.

Distributive: Dist:ART

Offered: 16S:10A

THEA 10.08 - Creativity and Collaboration

Instructor: Evans and Kotlowitz

Creativity and collaboration are concepts found in all disciplines and regularly requested, although rarely taught. In this course, students will have the opportunity to develop creative abilities through experiences in performance-based arts, and apply these in a collaborative project. Faculty artists active in movement and theater will teach the course, which is open to students with no performance experience, as well as those looking for a new approach to existing skills.

Distributive: Dist:ART

Offered: 16W:10A

THEA 10.11 - Unveiling the Harem Dancer

Images of subjugated veiled women and seductive harem dancers are arguably the pivotal figures of Western Orientalism. Stereotypes of Arab and Muslim women continue to proliferate today's media, U.S. film industry, and even the visual and performing arts. Studying the genealogy of such images becomes ever more crucial, especially as the Middle Eastern woman and representations of her body take center stage in contemporary debate and conflict between religions, cultures, and values. Therefore, this course will focus on unpacking the histories, cultures, politics, and ideologies performed through and around the Orient, the Oriental woman and her dancing body. Through mapping the larger political economy of Oriental dance, its appropriation and circulation from the east to the west and the reverse, we will pay particular attention on the histories of race, sexuality, identity, class, nation, and gender formations that the dance tells. We will also focus on the ways in which Islam and Arab Eastern cultures have fostered their own responses and stereotypes towards female performers with a take on their rationalizations of morality, gender roles and sexuality. Topics such as self-exoticism and self-Orientalism in relation to identity and nation building politics will be discussed. Lastly, we will be asking whether and how dance, arts, and the humanities can shape, alter, and deconstruct such perceptions. Through examining and analyzing a number of theoretical texts, travelers' accounts, and cultural productions—such as photography, theater, concert dance, and cinema—this course will explore how and why archetypal representations of the Orient have been created and continue to shape western understandings of the Middle East and its women.

Distributive: Dist:INT; WCult:NW

THEA 10.13 - Dramatic Storytelling - Plays and Screenplays!

Why choose just one? In "Dramatic Storytelling," beginning and advanced students explore the two forms, discovering which form better suits a given story. Along the way, students study film adaptations of such playwrights as William Shakespeare, Marsha Norman, Arthur Miller and Edward Albee. In doing so, they develop

an appreciation of the history and traditions of both forms, along with an understanding of the issues involved with adaptation. By the end of the term, students have developed the ability to access and adapt the vast reservoir of dramatic stories to the times, issues, and forms that lie ahead. The course ends with an evening of public readings, showcasing the work developed in the class. No experience necessary.

Distributive: Dist:ART

THEA 15 - Theatre and Society I: Classical and Medieval Performance

Instructor: Edmondson, Mayorga

This course explores selected examples of world performance during the classical and medieval periods in Western Europe and eastern Asia. Plays to be discussed might include those by Aeschylus, Sophocles, Euripides, Aristophanes, Seneca, Plautus, Terence, and Zeami. Through the reading and discussion of primary and secondary texts, we seek to situate selected performance texts within their sociopolitical and artistic contexts. Open to all classes.

Distributive: Dist:INT or ART; WCult:W

Offered: 15F:2; 16F:TBD

THEA 16 - Theatre and Society II: Early Modern Performance

Instructor: Edmondson, Mayorga

This course explores selected examples of world performance during the early modern period (fourteenth through the eighteenth centuries). Plays to be discussed might include those by Shakespeare, Calderón, Sor Juana de la Cruz, Molière, Racine, Marivaux, and Carlo Gozzi. Through the reading and discussion of primary and secondary texts, we seek to situate selected performance texts within their sociopolitical and artistic contexts. This course will be taught by L. Edmondson in 15W.

Distributive: Dist:INT or ART; WCult:W

Offered: 16W, 17W:TBD

THEA 17 - Theatre and Society III: 19th and 20th Century Performance

Instructor: Edmondson, Mayorga

This course explores selected examples of world performance in the 19th and 20th century. Plays to be discussed might include those by Ibsen, Strindberg, Chekhov, Lorca, Ionesco, Beckett, Williams, Miller, and Brecht, as well as contemporary U.S. playwrights such as Suzan-Lori Parks and Charles Mee. Through the reading and discussion of primary and secondary texts, we seek to situate selected performance texts within their sociopolitical and artistic contexts.

Distributive: Dist:INT or ART; WCult:W

Offered: 16S:2; 17S:TBD

THEA 19 - Human Rights and Performance

Instructor: Edmondson

What can theatre do for human rights, and human rights for theatre? How do playwrights translate violations of human rights to the stage? Through class discussion and creative exercises, we will explore selected plays from around the world that address human rights through various genres and dramatic forms, including theatre of testimony, documentary theatre, realism, allegory, and surrealism. Open to all classes.

Distributive: Dist:INT or ART

Offered: 15F:11

THEA 21 - Race, Gender, and Performance

Students will explore the perspectives of contemporary Latina/o, Asian American, Black, and Native American theater artists/performers. Our examination will also consider the socio-historical and political contexts engaged through these artists' works. We will also consider the relationship between the construction of identity and strategies of performance used by playwrights/performers to describe race, gender, sexuality, class, subjectivity, and ideas of belonging. Texts examined will include works by Moraga, Highway, Wilson, Parks, Gotanda, and Cho.

Distributive: Dist:ART; WCult:CI

Offered: This course will not be offered during the 2015-2016 academic year.

THEA 22 - Black Theater, U.S.A.

Instructor: Kinyon

This course will examine African American playwrights, drama, and theater from 1959 to the present. Further exploration will focus on the impact of civil rights, the Black Arts movement, and cultural aesthetics on the form, style, and content of African American plays. Readings will include plays of Hansberry, Baldwin, Baraka, Kennedy, Childress, Shange, Wolfe, Wilson, Parks and others. Open to all classes.

Cross-Listed as: AAAS 31

Distributive: Dist:ART; WCult:CI

Offered: 16S:11

THEA 23 - Postcolonial African Drama

Instructor: Edmondson

This course explores selected theatre and performance traditions of sub-Saharan Africa. How do African playwrights negotiate and transform the colonial legacy of Western drama, and how do they use theater to challenge

neocolonial regimes and to advance ideas of democracy, human rights, and gender equality? Plays from Nigeria, South Africa, Kenya, and Uganda receive special emphasis. No prior knowledge of African studies or theater is necessary, just a willingness to expand critical and creative horizons.

Cross-Listed as: AAAS 54

Distributive: Dist:ART; WCult:NW

Offered: 16S:TBD

THEA 24 - Asian Performance Traditions

Instructor: Chin

This course studies the performance traditions of Asia, focusing on China, Japan, Indonesia and India. Classical forms studied include Noh, Bunraku, Beijing opera, Sanskrit drama, Balinese dance and Japanese puppet theater. Attention is paid to social, religious and aesthetic influences on these traditions, theories on which they are based, the history behind the theatrical practices, and training and dramatic techniques. Students gain an appreciation of the rich variety and scope of theatrical conventions of Asia.

Cross-Listed as: AMES 24

Distributive: Dist:ART; WCult:NW

Offered: 16S, 17S:2A

THEA 25 - Solo Performance

Instructor: Mayorga

This course will introduce and engage the history, texts, topics, theoretical guideposts, and landmark figures/performances central to the genre of solo performance. Working between critical examination and practice, participants will analyze the form and content of leading solo performers while also composing a series of short exercises that activate solo performance strategies and methods. The course will culminate in the creation of a participant's self-authored, short solo performance piece.

Distributive: Dist:ART

Offered: This course will not be offered during the 2015-2016 academic year.

THEA 26 - Movement Fundamentals I

Instructor: Coughlin

An introduction to movement for the stage, this course will animate the interplay between anatomy, movement theories and performance. Through exploration of physical techniques, improvisation and movement composition, students will experience a fundamental approach to using the body as a responsive and expressive instrument. Assignments will include readings, written work, class presentations, mid-term exam and final paper.

Distributive: Dist:ART

Offered: 15F:2A; 16F:TBD

THEA 27 - Movement Fundamentals II

Instructor: Coughlin

A continuation of THEA 26, this class will explore further the relationship between efficient and expressive movement and body connectivity. Contact improvisation, conditioning, kinesiology and movement repertoire form the foundation from which the class will explore individual performance. Assignments include readings, written work, class presentations and a final paper.

Prerequisite: THEA 26

Distributive: Dist:ART

Offered: 16S, 17W: TBD

THEA 28 - Dance Composition

An in-depth study of the principles of dance composition leading to choreographic projects. Students will receive training in both dance composition and criticism, developing the requisite tools for choreography while acquiring the vocabulary for sophisticated choreographic analysis. Reading and writing assignments on contemporary issues in dance will be the departure for students' theoretical and creative exploration. To this end the class will concentrate on individual student choreography. Students' class work will be performed in an informal showing at the conclusion of the term.

Prerequisite: THEA 26 and THEA 27 or permission of the instructor.

Distributive: Dist:ART

Offered: This course will not be offered during the 2015-2016 academic year.

THEA 29 - Dance Theater Performance

Instructor: Coughlin

Students will examine movement theories and techniques, utilizing these elements to create physical language while developing enhanced ensemble skills. Emphasis will be placed on the creation of a dance theater ensemble piece, which culminates the term in a final performance. The creative process, collaboration, and individual performance are key components of the experience. Readings in Dance Studies and critical reviews of performances are included to contextualize the course's creative work. Open to all classes, with instructor's permission. This course will be taught by K. Coughlin in 15S.

Distributive: Dist:ART

Offered: This course will not be offered during the 2015-2016 academic year.

THEA 30 - Acting I

Instructor: Rice, Hackett, Horton, Kohn

This course is a basic introduction to acting technique for the stage. It is designed to develop the ability to play dramatic action honestly and believably, using realistic/naturalistic material as well as self-scripted autobiographical writing. Course work includes exercises and improvisations exploring awareness, relaxation, observation, the senses, voice, and physical and emotional life. Work in preparation of the monologue will be introduced. Scene work, in the second half of the term, will focus on breaking down the play, analysis, identity, motivation and action. Out-of-class assignments include required readings from acting texts and plays. Attendance at, as well as responses to, a number of stage productions scheduled during the term is required. A commitment to regular journal writing in the form of an Observation Notebook will be expected. Open to all classes, with instructor's permission. Do not pre-register for this course: registration is invalid without permission from the instructor. To enroll in this course you must first interview with the instructor. Interviews are conducted on the first day of classes. A sign-up sheet for interviews will be posted in Shakespeare Alley the day before classes begin.

Distributive: Dist:ART

Offered: 15F, 16W:10A, 2A; 16S, 16F, 17W, 17S:TBD

THEA 31 - Acting II

Instructor: Kohn, Rice

Further study of acting technique for the stage. Course work includes continued exercises, improvisations, and naturalistic/realistic scene study. Out-of-class assignments include the reading of plays and theoretical works on acting technique; required attendance at area stage productions; analytic and critical writing assignments; scene preparation, investigations, and rehearsal; and an extensive acting journal of work done in and out of class.

Prerequisite: THEA 30 and permission of the instructor.

Distributive: Dist:ART

Offered: 16W, 16S, 17W, 17S: TBD

THEA 32 - Acting III

Instructor: Hackett

An advanced scene study class that focuses on developing a process for performing non-realistic acting texts. Students will encounter plays that present unique challenges for actors in terms of language, physicality, characterization, style, content, and text analysis.

Prerequisite: THEA 30, THEA 31 and permission of the instructor. The department recommends that Acting III be taken in the term immediately following Acting II.

Distributive: Dist:ART

Offered: 16S, 17S:TBD

THEA 34 - Acting for the Camera

Open to all classes, with instructor's permission. Permission to enroll will be given based on an interview with the instructor.

Distributive: Dist:ART

Offered: This course will not be offered during the 2015-2016 academic year.

THEA 36 - The Speaking Voice for the Stage

Instructor: Rice

This course is an examination of the principles and practice of freeing the natural voice. It proceeds from the notion that "voice" and "acting" are inseparable. Although it is an introduction to the use of voice in the theater, it is in no way limited to the actor. A specific progression of exercises will be presented to facilitate freeing the body of tensions, discovering the natural breath, releasing vibrations of sound from the body, and opening the channel for sound (throat, jaw, tongue). Resonance, vocal freedom, and articulation will also be explored. Techniques for accessing emotional and psychological truth will be practiced as fundamental to the actor's creative process. A groundwork will be laid for physical and vocal presence. Each student will be responsible for the development and practice of a vocal warm-up. A variety of speaking assignments will be made to develop confidence, presence and emotional expressivity. Text materials utilized will emerge from self-scripted autobiographical storytelling. A strong commitment to the work is necessary to explore what it means to find one's voice. Do not pre-register for this course: registration is invalid without permission from the instructor. To enroll in this course you must first interview with the instructor. Interviews are conducted on the first day of classes. A sign-up sheet for interviews will be posted in Shakespeare Alley the day before classes begin. Open to all classes, with instructor's permission.

Distributive: Dist:ART

Offered: 16W, 17S:TBD

THEA 40 - Technical Production

Instructor: Silver

An introduction to the technical aspects of scenic and property production, exploring traditional and modern approaches. Topics include drafting, materials and construction, stage equipment, rigging, and health and safety. Lectures and production projects. Open to all classes, with instructor's permission.

Distributive: Dist:ART

Offered: 15F, 16W, 16F, 17W:11

THEA 41 - Stage Management

Instructor: Cunneen

An introductory course in the theories, techniques, and practices of stage managing a production from its initial stages to the conclusion of the run. Plays, musicals, opera, dance, and touring productions will be examined from the perspective of the stage manager. Working with directors, choreographers, and other members of the production team will be discussed as well as calling shows. Students will acquire practical experience through assignments on Department of Theater productions. When practical, field trips to such places as Yale Repertory Theatre, Long Wharf Theatre, or American Repertory Theatre will be arranged and will include discussions by their production stage managers. Open to all classes.

Distributive: Dist:ART

Offered: 16F:TBD

THEA 42 - Scene Design I

An introduction to the basics of scenic design through weekly projects in scale models, drawings, research, lighting and storyboards. Students will also study the collaborative process among scene designers, directors, costume and lighting designers. Suitable for students interested in theater, visual and video art, installation, film, architecture, and sculpture. Students will have the opportunity to assist student and faculty scene designers on Department of Theater productions. Open to all classes.

Distributive: Dist:ART

Offered: 16W, 17W:TBD

THEA 43 - Scene Design II

Further study of the design process and the creation of visual expressions of dramatic text. Emphasis will be placed on the differences among theater, opera and ballet. Students will work with scale color models and have opportunities to design student-directed Department of Theater productions.

Prerequisite: THEA 42, or permission of the instructor.

Distributive: Dist:ART

Offered: 16S, 17S:TBD

THEA 44 - Lighting Design I

Instructor: Kotlowitz

An introduction to the practical and artistic elements of theatrical lighting design. The course will include topics in color theory, form, movement, composition, and the creative process. Through analyzing the script and studying light in nature, film, and art, students will prepare projects that explore the possibilities of light in the theater. Students will have the opportunity to work on Department of Theater productions with faculty and student lighting

designers. Lectures, discussions, design projects, and critiques. Open to all classes.

Distributive: Dist:ART

Offered: 16W, 17W:11

THEA 45 - Composition and Design

Instructor: Kotlowitz

Open to all classes.

Distributive: Dist:ART

Offered: This course will not be offered during the 2015-2016 academic year.

THEA 46 - Costume Production

Open to all classes, with instructor's permission.

Distributive: Dist:ART

Offered: This course will not be offered during the 2015-2016 academic year.

THEA 48 - Costume Design I

Instructor: Churba

An introductory course in the appreciation of the costume design process as part of the dramatic production. Through weekly projects, students will study the principles of line, texture, and color as well as the history of costume from the Renaissance through the eighteenth century. Lectures, design projects, and critiques. Open to all classes, with instructor's permission.

Distributive: Dist:ART; WCult:W

Offered: 16S, 17S: TBD

THEA 50 - Playwriting I

Instructor: Sutton

The aim of this course is for each student to write the best one-act play he or she is capable of writing. It is open to students both with a theater background and those without. This course will involve a number of preliminary exercises, the preparation of a scenario, the development of the material through individual conferences, and finally the reading and discussion of the student's work in seminar sessions. Open to all classes. Limited enrollment.

Distributive: Dist:ART

Offered: 15F, 16S: 3A

THEA 51 - Playwriting II

Instructor: Sutton

Permission of the instructor is required.

Distributive: Dist:ART

Offered: 16S: ARR

THEA 54 - Directing

Instructor: Hackett

An introductory course in directing for the stage. Topics include the role and function of the director in the contemporary theater; the basic tools of proscenium blocking and staging, such as composition, picturization, movement, and gesture; structural script analysis; and basic actor coaching techniques. Open to sophomores, juniors, and seniors.

Prerequisite: THEA 30 and permission of the instructor.

Distributive: Dist:ART

Offered: 16S, 17S: TBD

THEA 60 - Classical Performance I

Instructor: The staff

This course is taught by the LAMDA faculty. THEA 60 is an intensive course in classical theater training focused on acting (including improvisation), movement (including movement theater, clown and historic dance), and voice (including singing). Texts include Shakespeare and either Jacobean or Restoration plays. This typical British conservatoire experience is designed for students interested in acting, directing, playwriting, design, stage management, dramaturgy or criticism. Offered only as a part of the Theater Foreign Study Program in London. This course is graded as credit/no credit.

Prerequisite: One theater history course - either THEA 15, THEA 16, or THEA 17 - is required. In addition, one theater practice course is required - either THEA 10 (with Chair's approval), THEA 26, THEA 30, THEA 36, THEA 41, THEA 42, THEA 44, THEA 48, or THEA 50.

Distributive: Dist:ART

Offered: 16X, 17X: D.F.S.P.

THEA 61 - Classical Performance II

Instructor: The staff

A continuation of Classical Performance I. This course is graded credit/no credit.

Distributive: Dist:ART

Offered: 16X, 17X: D.F.S.P.

THEA 62 - Plays in Performance-Perception and Analysis

Instructor: The staff

Offered only as a part of the Theater Foreign Study Program in London, this seminar integrates the study of theater with the experience of plays in performance. By providing intense, comparative experience of playgoing, the course intends to broaden students' knowledge of the dramatic repertoire, to heighten their awareness of

production approaches and values, and to encourage them to develop considered critical response to theater. Students attend a number of required performances and in addition attend performances of their own choosing - normally a total of three plays per week. Productions will represent a variety of periods and styles of playwriting, and a similarly diverse range of production companies and approaches to performance. Weekly seminar meetings will focus on critical responses to plays and productions, with background provided by guests from the professional theater (directors, writers, performers, designers, critics). Students will maintain journals and provide brief written critiques.

Distributive: Dist:ART; WCult:W

Offered: 16X, 17X: D.F.S.P.

THEA 65 - Drama in Performance

Instructor: Horton and the staff

This class is designed to investigate methods for the development of new work for the theater. Students will participate in all aspects of a mainstage production designed for this course. In addition, students will intern with the New York Theatre Workshop during their August residency at Dartmouth. The class will also include field trips, visits by guest artists, and independent work in each student's area of concentration. There are mandatory ticket and transportation costs associated with this course. Open to sophomores, juniors, and seniors by permission of the instructor.

Distributive: Dist:ART

Offered: 16X, 17X: 2A

THEA 80 - Independent Study

Instructor: The Faculty/Kotlowitz

This course is designed to enable qualified upperclass students, who have completed the appropriate supporting coursework, to engage in independent study in theater under the direction of a member of the department. A student should consult with the faculty member with whom he or she wishes to work as far in advance as possible, and not later than the term immediately preceding the term in which the independent study is to be pursued. A written proposal and the approval of the faculty member and of the Chair are required.

Offered: All terms:ARR

THEA 90 - Contemporary Practices in U.S. Theater

Instructor: Churba

This course draws upon faculty and guest artists of the Department of Theater to explore what it means to be a theatre artist of the new millennium. What are the plays, theatre artists, and practices that describe our era? What are the relationships among and between designer, actor,

playwright, and scholar? What is the nature of interdisciplinary work? How do you see yourself participating? Course materials include contemporary plays, readings on current practices, and research about contemporary companies. This course is mandatory for senior theater majors. Instructor permission required.

Distributive: Dist:ART

Offered: 15F: 3B

THEA 91 - The Honors Thesis

Instructor: Kotlowitz

An Honors project, which normally extends through two terms and receives two major credits, must include a thesis or thesis project. This course must be elected by all honors candidates. For acceptance into this course, please see the section in the ORC on the Theater Honors Program.

Offered: 15F, 16W, 16S, 16F, 17W, 17S: Arrange

Tuck - Undergraduate

These business courses, developed as a collaboration between the Arts and Sciences and the Tuck School of Business, are aimed at exposing undergraduates to core theories and principles of business behavior within the national and international socioeconomic environment. The courses have no prerequisites, can be taken independently of each other in any order, and are open to all sophomores, juniors, and seniors regardless of major.

TUCK - Tuck Undergraduate Courses

TUCK 1 - Financial Accounting

The purpose of this course is to introduce students to the principles of financial accounting and to teach students to be critical users of financial statements. The course is divided into two parts. The first part introduces students to the concepts and measurements underlying financial statements. The second part focuses on analyzing financial statements and understanding the choices firms make in reporting financial results. Students will be exposed to the decisions firms make relating to their operating, capital investment, and financing activities and how managers use discretion to affect reported financial results. Priority given to seniors, juniors, and then sophomores; first-year students are not eligible.

Offered: 15W, 16W: 10A, 2A

TUCK 2 - Principles of Marketing

Marketing deals with identifying and meeting human and social needs and is an organization function with a set of processes for creating, communicating, and delivering value to customers in ways that benefit the organization (for profit, not for profit, and public sector) and its stakeholders. The overall objective of this course is to

introduce students to the substantive and procedural aspects of marketing strategy and implementation and to sharpen their skills for critical analytical thinking and effective communication. The course will involve case discussions and a group project. Priority given to seniors, juniors, and then sophomores; first-year students are not eligible.

Offered: 14F, 15F: 10A, 2A

TUCK 3 - Business Management and Strategy

This course is intended to introduce students to the basics of the how organizations are managed, with a special focus on the role played by a business firm's strategy. Strategic management is concerned with how a firm set its direction, chooses its business activities, and establishes and defends its position in a competitive market. This course will introduce students to concepts and tools that will help them to develop an understanding of how strategies are formed and managed, and how competitive advantage might be created and sustained. Priority given to seniors then juniors. Sophomores and first-year students are not eligible.

Offered: 15S, 16S: 10A, 2A

University Seminars

Coordinator: Mary-Ella Zietz

Under a grant from the Geisel Fund, the University Seminars program was initiated in early 1975 under the direction of Peter A. Bien, then Third Century Professor in the Humanities. Broadly interdisciplinary, the University Seminars bring together faculty members to study and discuss topics of common interest in depth and on a continuing basis.

Provost Carol Folt will review requests for series within the University Seminars program at the start of the fall term. Proposals should be submitted to Mary-Ella Zietz in the Provost's Office. The listing of approved University Seminars will be available through the Office of the Provost at <http://www.dartmouth.edu/~provost/>

Women's, Gender, and Sexuality Studies Program

Chair: Susan Ackerman

Professors S. Ackerman (Religion, WGSS), L. Baldez (Government, Latin American, Latino, and Caribbean Studies), F. E. Beasley (French and Italian), R. E. Biron (Comparative Literature, Latin American, Latino, and Caribbean Studies, Spanish and Portuguese), C. E. Boggs (English, WGSS), L. E. Boose (English), S. J. Brison (Philosophy), A. Cohen (Art History), M. H. Darrow (History), M. R. Dietrich (Biological Sciences), M. Domosh (Geography), S. Heschel (Jewish Studies),

Religion), L. A. Higgins (Comparative Literature, Film and Media Studies, French and Italian), I. Kacandes (Comparative Literature, German Studies), A. Lawrence (Comparative Literature, Film and Media Studies), A. Orleck (History), G. Parati (Comparative Literature, French and Italian, WGSS), I. T. Schweitzer (English, WGSS), S. D. Spitta (Latin American, Latino, and Caribbean Studies, Spanish and Portuguese, Comparative Literature), M. R. Warren (Comparative Literature), D. Washburn (Asian and Middle Eastern Studies, Comparative Literature, Film and Media Studies), B. E. Will (English); Associate Professors T. Aguado (Spanish and Portuguese), R. M. Baum (African and African-American Studies, Religion), D. J. Brooks (Government), L. A. Butler (History), N. L. Canepa (French and Italian), M. K. Coffey (Art History, Latin American, Latino, and Caribbean Studies), A. A. Coly (African and African-American Studies, Comparative Literature), S. R. Craig (Anthropology), M. Desjardins (Film and Media Studies), L. Edmondson (Theater), V. Fuechtner (German Studies), D. K. King (Sociology), K. J. Lively (Sociology), C. H. MacEvitt (Religion), A. Martín (Comparative Literature, Spanish and Portuguese, WGSS), R. Ohnuma (Religion, WGSS), T. Padilla (History), I. Reyes (Comparative Literature, Latin American, Latino, and Caribbean Studies, Spanish and Portuguese), W. P. Simons (History), R. L. Stewart (Classics), A. Tarnowski (Comparative Literature, French and Italian), S. A. M. Vásquez (English), R. M. Verona (Comparative Literature, French and Italian), M. J. Williams (Film and Media Studies), M. F. Zeiger (English); Assistant Professors Z. Ayubi (Religion), A. S. Bahng (English), M. T. Clarke (Government), T. C. Ellison (Geography, WGSS), R. N. Goldthree (African and African-American Studies, Latin American, Latino, and Caribbean Studies), R. J. Johnson (History), E.B. Lim (WGSS), L. Marcellesi (French and Italian), I. Mayorga (Theater), J. McCabe (Sociology), E. Pérez (Religion), C. K. Quaintance (French and Italian), E. C. Walton (Sociology); Senior Lecturers A. E. Bumpus (Philosophy), M. A. Bronski (Jewish Studies, WGSS), G. J. Munafo (WGSS), K. F. Milich (Comparative Literature, Liberal Studies, WGSS), V. Palmer (Native American Studies); Lecturers F. M. A'Ness (WGSS), J. J. Choi (Comparative Literature, WGSS), A. P. Hernandez (Latin American, Latino, and Caribbean Studies, Liberal Studies, WGSS), J. Rabig (English, Liberal Studies, WGSS); Visiting Professor R. L. Bergland (WGSS); Visiting Assistant Professors C. Gómez (Latin American, Latino, and Caribbean Studies, Sociology), R. C. Kelly (WGSS), K. Smith (Sociology), M. Yessayan (Asian and Middle Eastern Studies, WGSS).

The Women's, Gender, and Sexuality Studies Program offers all students at Dartmouth a course of study that systematically examines the construction of gender and the historical, economic, political, social, and cultural experience of women. As such, it is an interdisciplinary

program drawing on resources in the Social Sciences, the Humanities, and the Sciences.

Women's, Gender, and Sexuality Studies may be undertaken as a program for a major, a minor, or a modified major.

To view Women's, Gender, and Sexuality Studies courses, click here (p. 514).

Women's, Gender, and Sexuality Studies Major

Women's, Gender, and Sexuality Studies offers a range of interdisciplinary courses as well as an extensive list of associated courses, offered by other departments and programs, that have a central focus on gender or women. The major is administered by the Women's, Gender, and Sexuality Studies Steering Committee. Students design their major plans in consultation with the Chair. Only the Chair may sign major cards or approve majors in DegreeWorks. Students interested in becoming majors should consult the Chair well in advance of their intended declaration of a major.

Prerequisite: WGSS 10.

Requirements: (9 additional courses)

1. WGSS 15
2. WGSS 16
3. WGSS 80
4. Three additional Women's, Gender, and Sexuality Studies courses
5. Three additional courses selected from Women's, Gender, and Sexuality Studies offerings or from associated courses
6. Concentration. In consultation with an adviser and the Chair, each student will include within the list of required courses an area of concentration consisting of at least three related courses. Some examples of possible areas of concentrations are Gender in Literature; Women in the Third World; Lesbian, Gay, Bisexual, and Transgender Studies; Women's History; or Sex and Gender in Science.
7. Diversity. Each student's major plan must include at least two courses that are clearly outside the area of concentration to provide diversity to the major.

Requirement 3 constitutes the culminating experience in the major and minor.

WGSS 7 (First-Year Seminar) may *not* count towards the major or minor.

Honors Program in Women's, Gender, and Sexuality Studies

Women's, Gender, and Sexuality Studies majors will be invited to participate in the Women's, Gender, and Sexuality Studies Honors Program if, after completing seven Dartmouth terms, WGSS 10, and four graded courses in the Women's, Gender, and Sexuality Studies major, they have achieved an overall College grade point average of 3.0 and a major average of 3.3.

The Honors Program consists of a two-term thesis project, WGSS 98 and WGSS 99. Students will design their projects in consultation with the adviser who has agreed to direct the thesis. A student must secure an adviser's preliminary endorsement of the senior project by May 1st of the junior year. Having secured the adviser's endorsement, a student must submit a thesis proposal for the approval of the Women's, Gender, and Sexuality Studies Faculty Steering Committee by the second week of the fall term of the senior year. WGSS 98 and WGSS 99 carry two credits toward degree requirements but count as only one credit toward major requirements.

Women's, Gender, and Sexuality Studies Minor

The Women's, Gender, and Sexuality Studies minor consists of six courses: WGSS 10 (prerequisite); WGSS 15 or WGSS 16; WGSS 80; one other Women's, Gender, and Sexuality Studies course; and two additional courses selected from the Women's, Gender, and Sexuality Studies offerings or from associated courses.

Women's, Gender, and Sexuality Studies Modified Major

The modified major in Women's, Gender, and Sexuality Studies combines gender-related interdisciplinary coursework taken under the auspices of the Women's, Gender, and Sexuality Program with courses that are specific to a given discipline. Students will design a coherent program of study as they combine their interest in gender studies with knowledge and skills provided by their secondary interest.

The courses in the secondary discipline should not be WGSS cross-listed or associated courses; they should instead be courses necessary for students to gain proficiency in their chosen secondary discipline, i.e., courses that count for the major or minor in that discipline.

Students wishing to pursue a modified major in WGSS must submit a written proposal that will be reviewed by the WGSS Faculty Steering Committee; approval by the chair or other appropriate faculty member in the secondary discipline is also required.

Requirements for the Modified Major: (11 courses)

Women's, Gender, and Sexuality Studies (7 courses: 4 Core + 3 Electives)

1. WGSS 10: Sex, Gender, and Society
2. WGSS 15: Roots of Feminism

3. WGSS 16: Contemporary Issues in Feminism
4. WGSS 80: Senior Seminar
5. Three additional upper-level courses from the WGSS course offerings. One of these courses may be an associated course.

Secondary Discipline (4 courses from a single discipline)

1. Four upper-level courses that count towards the Major/Minor in that discipline.

Modifying Another Major with Women's, Gender, and Sexuality Studies

When Women's, Gender, and Sexuality Studies becomes the secondary part of a modified major, five courses are required: WGSS 10 (prerequisite) and four additional courses selected from the Women's, Gender, and Sexuality Studies offerings. Only two of these courses can be associated courses. A modified major should be planned to form a coherent program of study with the major. Students must file a written statement with each department and the Registrar explaining the rationale for the courses selected for the modified major.

Women's, Gender, and Sexuality Studies Foreign Study Program

The Women's, Gender, and Sexuality Studies Program, in partnership with the Asian and Middle Eastern Studies Program, offers an interdisciplinary Foreign Study Program in Hyderabad, India during the Winter term. Hyderabad is one of India's largest and most cosmopolitan cities, reflecting the intersection of North and South Indian cultures as well as both Hindu and Muslim influences. It is a center of many important academic institutions, of a dynamic economy increasingly based upon high-technology firms, and of an extensive Telugu film industry. It also possesses a rich tradition of political and social activism that is reflected in a wide range of social movements and non-governmental organizations. Women's, Gender, and Sexuality Studies students also benefit from Anveshi, a research institute and library devoted to Women's Studies with an active, and activist, community of scholars.

The Program is based at the University of Hyderabad. Students take three academic courses: one course taught by the Dartmouth faculty director and two courses taught by local faculty. Students live in an international student dormitory on the University of Hyderabad campus and have a chance to get involved in campus activities and interact with Indian and other foreign students.

Prerequisite: The minimum prerequisite will be two courses, one taken from lists of courses approved by WGSS and the other from a list approved by AMES (some courses appear on both lists), with a grade of B or higher. Applicants should consult with either the WGSS or AMES program offices and/or websites for an up-to-

date list of approved courses. Applications are made online through the Frank J. Guarini Institute for International Education.

For an application or further information, visit the Frank J. Guarini Institute for International Education, 44 North College Street, or go to the Institute's web site.

WGSS - Women's, Gender, and Sexuality Studies Courses

To view Women's, Gender, and Sexuality Studies requirements, click here (p. 511).

Associated Courses

Please note: Courses listed may no longer be offered by the originating department or program, or may have changed titles or numbers. In general, courses that are cross-listed with Women's, Gender, and Sexuality Studies are not listed here.

African and African American Studies

AAAS 26: Toni Morrison

AAAS 80.02: Black Brazilian Women Writers

AAAS 81: The Black Church and Black Bodies

AAAS 81: Slavery, Gender, and Resistance

AAAS 84: Caribbean Women Writers

AAAS 86: Black Women Writers

AAAS 86.02 Race, Class, Gender, and Sexuality in Contemporary Brazilian Film

AAAS 89: Gender and Race in Latin America
Anthropology

ANTH 12.06: Lifting the Veil: Women and the Politics of Kinship in the Middle East

ANTH 33: Crossing Over: Latino Roots and Traditions

ANTH 34: Comparative Perspectives on the US-Mexican Borderlands

ANTH 44: Globalization from Above and Below

ANTH 61: Women and Madness
Art History

ARTH 16.02 Women in Art

ARTH 71: The 'American Century': Modern Art in the United States

ARTH 80: Sex, Gender, and Identity in the Arts of the Ancient World

ARTH 84.02: Ideals of Physical Beauty: Gender and Body

in Ancient Art

ARTH 82: Women and the Art of Japan
Asian and Middle Eastern Studies

AMES 19: Writing Gender in Islamic Space

AMES 27: D.F.S.P. Course I

AMES 28: D.F.S.P. Course II

AMES 29: D.F.S.P. Director's Course (may or may not count for WGSS credit)

AMES 42.08 Divine Love: Desire, Sex, and Romance in Traditions of India

Classics

CLST 11: Did Roman Women Have a History?
Comparative Literature

COLT 39: Mirror, Mirror on the Wall: Gendered Images in the Literary Fairy Tale

COLT 39: Trauma and Prose Fiction

COLT 47: Medea

COLT 52: Beyond Sex, Drugs, and Rock 'n Roll: Radical Latinos in the 60s

COLT 52: Black Brazilian Women Writers

COLT 52: The Borderlands: Latina/o Writers in the United States

COLT 55.01: Divine Love: Desire, Sex, and Romance in the Traditions of India

COLT 67.02: Race, Class, Gender, and Sexuality in Contemporary Brazilian Film

COLT 67.05: The Karma of Love: Japanese Women Authors and the Literary Canon

Education

EDUC 57: Social and Emotional Development

EDUC 62: Adolescent Development and Education
English

(p. 252)ENGL 51.13: Gender and Power in Shakespeare

ENGL 53.06: Women's Literature and Technologies of Transmission

ENGL 53.33 (p. 254): Gender and Sexuality in Asian America

ENGL 55.05: Of Nags, Bitches, and Shrews

ENGL 60.12: Contemporary Women Write Their Lives

ENGL 62: Gender and Memory

ENGL 65: The Poetry and Rhetoric of Love

ENGL 67.02/67.09: Caribbean Women Writers

ENGL 67.04: Woolfenstein

ENGL 73.07: The Poetry of Elizabeth Bishop

ENGL 73.09: The United States of Queer

Film and Media Studies

FILM 41: Men to Boys: Masculinities and Film

FILM 43: Family Matters: Gender Reversals and Community in Almodovar

FILM 43: Women Make Movies: Women and Film Authorship

FILM 46: Television and Histories of Gender

FILM 47: The New Europe: Gender, Immigration, Transnational Film

French

FREN 60: Gender and French Literature

FREN 60: Gender and Genre in the Eighteenth Century

FREN 60: Feminist Theory and the Practice of Writing

FREN 60: Women in the Eighteenth Century

Geography

GEOG 9: Women, Gender, and Science

GEOG 41: Gender, Space, and Islam

GEOG 43: Geographies of Latin America

GEOG 48: Geographies of the Middle East

German Studies

GERM 42: Freud, Psychoanalysis, Jews and Gender

GERM 42: Modern Sex: Weimar Republic Germany 1918-1933

Government

GOVT 30: Gender and American Politics

GOVT 50: Race and Gender in International Relations

GOVT 60: Alternative Political Theory

GOVT 60: Global Feminism

GOVT 68: Gender and the Law

GOVT 83: Women in Public Office

GOVT 84: Gender and American Politics

GOVT 86: Justice, Legitimacy and Power

History

HIST 6: Gender and War in Modern European History

HIST 6: Gender and Sexuality: Asians in America

HIST 48: European Society in the Industrial Age

HIST 63: History of Recent Science and Technology

HIST 96.24: Joan of Arc

Italian

ITAL 10: Love, Marriage and Adultery in Italian Literature

ITAL 10: What About Italian Women

Japanese

JAPN 61: Gender and Nationalism in Japanese Literature and Film

JAPN 63: Karma of Love: Japanese Women Writers and the Classical Canon

Jewish Studies

JWST 15: The Jewish Body

JWST 15: The Middle East Conflict in Film and Literature

JWST 22: From Fanny to the Nanny: Jewish Women and Humor

JWST 24: Hebrew Women Poets

JWST 51: Freud, Psychoanalysis, Jews and Gender

JWST 52: Judaism, Sexuality and Queerness

JWST 53: Gender and Judaism

JWST 56: Women in Islam and Judaism

Latin American and Caribbean Studies

LACS 30.08: Race, Class, Gender, and Sexuality in Contemporary Brazilian Film

LACS 50.05: Sex, Science, and Religion in Latin America

LACS 56: Latin American Women Writers

LACS 64: Black Brazilian Women Writers

LACS 80: Gender and Race in Latin America
Latino Studies

LATS 5: Complexities of Latino Identities

LATS 41: Representations of/from Latinos in the Media
and the Arts

LATS 44: Crossing Over: Latino Roots and Transitions

LATS 51: Beyond Sex, Drugs and Rock and Roll: Radical
Latinos in the 60s
Music

MUS 45.01: Music and Gender
Native American Studies

NAS 30: Native Cultural Production: (Re)Mapping Race,
Gender, and Nation

Philosophy

PHIL 9.01: Reproductive Ethics

PHIL 50.19: Race, Gender, and Sexuality

PHIL 80.13: Love, Respect, and Moral Obligation
Religion

REL 19.01: Women in Islam and Judaism

REL 19.02: Muslim Networks, from Hajj to Hip-Hop

REL 19.02: Women in Islam and Judaism

REL 19.02: Race, Religion, Gender in North and South
Sudan

REL 19.13: Divine Love: Desire, Sex, and Romance in
Traditions of India

REL 39: Magic, Madwomen, and Mystics: An Alternative
Christian Spirituality

REL 40: Gods, Demons and Monkeys: The Ramayana
Epic in India

REL 74.04: The Black Church and Black Bodies
Russian Language and Literature

RUSS 13: Slavic Folklore: Vampires, Witches and
Firebirds

RUSS 38: Contemporary Russian Women Writers
Sociology

SOCY 31: Youth and Society

SOCY 33: Self and Society

SOCY 39: Reproductive Rights and Technologies

SOCY 43: Dangerous Intersections: Race, Class and
Gender

SOCY 44: Complexities of Latino Identities
Spanish

SPAN 50.02: New Sexual and Social Identity in Film and
Literature in Post-Franco Spain

SPAN 72: Latin American and Latina Women: Gender,
Culture, Language

SPAN 78: Living in the Borderlands: Latino/a Culture and
Identity

SPAN 79: Latino/a Literature: Between Literary
Traditions, Languages and Cultures
Theater

THEA 10: Race, Gender, and Performance

THEA 10: Sex and Drama: Sexuality Theories, Theatrical
Representation

THEA 24: Engendering Asian Performance

WGSS 7 - First-Year Seminar in Women's, Gender, and Sexuality Studies

Offered: Consult special listings

WGSS 10 - Sex, Gender, and Society

Instructor: The staff

This course will investigate the roles of women and men in society from an interdisciplinary point of view. We will analyze both the theoretical and practical aspects of gender attribution-how it shapes social roles within diverse cultures, and defines women and men's personal sense of identity. We will discuss the following questions: What are the actual differences between the sexes in the areas of biology, psychology, and moral development? What is the effect of gender on participation in the work force and politics, on language, and on artistic expression? We will also explore the changing patterns of relationships between the sexes and possibilities for the future. Open to all students.

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 9L, 10, 2A; 16W: 2A; 16X: 2A; 16F: 9L, 10,
2A; 17W: 10

WGSS 15 - Roots of Feminisms: Texts and Contexts

Instructor: 16W: Rabig, 17W: TBA

This course will examine pre-twentieth century texts and historical events that set important precedents for the development of contemporary feminist theories and practices. We will survey some of the writings that consolidate legitimated patriarchal/misogynist ideologies in Western worlds (e.g. Plato, Aristotle, the fathers of the Church, the philosophers of the eighteenth-century Enlightenment, Rousseau). We will analyze different ways in which women historically have articulated strategies of

contestation and/or resistance to systems of power based on gender differentiation. Readings may include works by French medieval thinker Christine de Pizan; sixteenth-century Spanish cross-dresser Catalina de Erauso; seventeenth-century Mexican intellectual and nun Sor Juana Ines de la Cruz; Mary Wollstonecraft; Maria Stewart, the first African-American political woman writer; the nineteenth-century American suffragists; and anarchist leader Emma Goldman. Open to all students.

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 11, 17W: TBA

WGSS 16 - Contemporary Issues in Feminism: Theory and Practice

Instructor: 16S: Aguado, 17S: Ellison

This course explores the theoretical underpinnings of some of the most highly contested issues in society today. We will look at a spectrum of positions on such issues as: questions of difference and equality; women's health and reproductive rights; identity and identity politics; morality-pornography-violence; eco-feminism-environmentalism; children, family, and human rights; and the representation/performance of femininity/masculinity. Special emphasis will be placed on the connection between theory and practice. Open to all students.

Distributive: Dist:SOC; WCult:CI

Offered: 16S, 17S: 11

WGSS 18 - Introduction to Lesbian, Gay, Bisexual, and Transgender Studies

Instructor: Lim

This course will examine the ways in which "deviant" sexual and gender behavior and identities, and the political movements that emerge from them, have been conceptualized in U.S. culture. We will cover basic lesbian/gay/bisexual/transgender cultural and political history and the interplay between sexuality, gender, race, class, ethnicity, and economics. Students will be expected to work with primary documents (including novels and film), recent work in queer theory, and historical analysis. Open to all students.

Distributive: Dist: SOC; WCult: CI

Offered: 16S: 10A; 16F: 6B

WGSS 21.02 - Fictions of Sappho

Instructor: Williamson

Goddess of poetry, sexual predator, exotic holiday destination, lovelorn suicide, schoolmistress, parchment scrap: these are among the associations clustering around Sappho. From antiquity to the twenty-first century her poems and the legends about her life and loves have fascinated writers, artists and musicians as different as

Queen Victoria, Willa Cather, Boccaccio, Jeanette Winterson, Ezra Pound, Gounod, and Ovid. We sample some of the twists and turns in this seemingly endless stream of fantasy and creative reappropriation.

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in the period 15F to 16S

WGSS 22.01 - Gender and European Society from Antiquity to the Reformation

Instructor: Simons

This course examines the roles of women and men in Western Europe from late Antiquity to the Reformation period. Emphasis will be placed on the intellectual and social strictures that had a long-term effect on the concept and role of gender in European society. Topics included are biological and mythological foundations of gender concepts; attitudes toward the body and sex in pre-Christian and Christian culture; sin and ecclesiastical legislation on sex and marriage; family life and education; the individual and kinship; heresy and charismatic religious movements; and the impact of social-economic development on gender in professional life. We will discuss the textual and visual sources for our inquiry, as well as the changing contemporary views on gender roles in pre-industrial Europe. *Open to sophomores, juniors and seniors.*

Cross-Listed as: HIST 42

Distributive: Dist:TMV; WCult:CI

Offered: 16W: 10; 16F: 11

WGSS 23.01 - Gender and Power in American History

Instructor: Butler

This course examines the history of men and women from the period of colonial settlement to the achievement of woman's suffrage. We will explore the construction of gender particularly as it relates to social, political, economic, and cultural power. Topics will include: the role of gender in political thought and practice; the intersection of gender with categories of class and race; gender in the debate over slavery and the Civil War; and the rise and evolution of the woman's rights movement. Open to sophomores, juniors and seniors.

Cross-Listed as: HIST 27

Distributive: Dist:SOC; WCult:W

Offered: 17W: 12

WGSS 23.02 - American Women in the Twentieth Century

Instructor: Orleck

This course is a multi-cultural multi-media history of American women from the Civil War to the present. We

will discuss race and class tensions in the woman suffrage movement; women, labor, and radicalism from the 1910s through the 1940s; civil rights, welfare rights, the rebirth of feminism in the 1960s and 70s; and backlash politics from the 1950s to the 1980s.

Prerequisite: Open to sophomores, juniors, and seniors.

Cross-Listed as: HIST 28

Distributive: Dist:SOC; WCult:W

Offered: 15F: 2

WGSS 26.02 - Women and American Radicalism Left and Right

Instructor: Annelise Orleck

This course will trace the involvement of U.S. women in radical political movements from the mid-nineteenth century to the present including: Abolitionism; Anti-lynching; Socialist Trade Unionism; the Ku Klux Klan; the Communist Party; the National Welfare Rights Organization; the Civil Rights Movement; the New Left; the New Right; the direct-action wing of the anti-abortion movement; Earth First; and the neo-Nazi American Front. It will also examine the relationship between feminist ideologies and non-gender-specific radical political ideologies centered on race, class, and other social identifiers.

Cross-Listed as: HIST 29

Distributive: Dist:SOC; WCult:CI

Offered: 16F: 12

WGSS 30.01 - Women, Gender, and Development

This course will examine various aspects of gender and development. We will begin by defining development and identifying the places where economic and social development is orchestrated and experienced. This will lead to discussions and critical inquiries into the spaces and scales of economic development including issues of mobility, migration, global labor, and markets. Gender, development, and conflict will also be addressed with regard to reconstruction and reconciliation in post-conflict spaces.

Cross-Listed as: GEOG 26

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period 15F to 17S

WGSS 31.01 - Sex and the State in Latin America

Instructor: Baldez

This course examines women's movements in Latin America. Women in Latin America are perhaps the most highly mobilized population in the world. Throughout the region women have organized around myriad issues, including the right to vote, human rights, poverty, legal

rights, anticommunism, the workplace, race, ethnicity and war. Women's efforts to challenge fiercely repressive regimes, deeply entrenched norms of machismo and extreme poverty defy conventional stereotypes about women and provide us with inspiring examples of how to sustain hope during difficult times. The seminar will introduce students to recent scholarship on women's movements in Latin America in the 20th century and seek to understand the emergence, evolution and outcomes of women's movements in particular countries and cross-nationally.

Cross-Listed as: GOVT 49.04, LACS 52

Distributive: Dist:SOC; WCult:NW

Offered: 16W: 2

WGSS 31.02 - Power to the People: Black Power, Radical Feminism, Gay Liberation

Instructor: Bronski

An introduction to the radical American social change movements of the 1960's and 70's, we will examine the specific historical conditions that allowed each of these movements to develop, the interconnections and contradictions among them, and why they ultimately lost political power. Along with historical analysis, we will examine primary source materials, manifestos, autobiographies, and media coverage from the period, as well as relevant films, music, and fiction. Open to all students.

Distributive: Dist:SOC; WCult:CI

Offered: 16W: 2A

WGSS 31.04 - Women and Politics

Instructor: D. J. Brooks

This is a general course on women in politics. We will examine the role of women as politicians, activists, and voters. The course will examine a wide range of issue areas, including: female attitudes on war and conflict, the reactions of women to different kinds of campaign tactics and policy positions, the differing barriers women face to attaining elected office in different countries, and how the challenges thought to be faced by female political leaders compare with those faced by female business leaders. One key question we will explore concerns whether female politicians are treated differently than male politicians, and how that might affect their strategies for reelection and governance. Open to all students.

Cross-Listed as: GOVT 20.01

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period 15F to 16S

WGSS 33.01 - Constructing Black Womanhood

Instructor: King

This course is a critical examination of the historical and contemporary status of black women in the United States, as presented in fiction, primary accounts, and social science literature. We will explore the nature, extent, and consequences of the multiple discriminations of race, sex, and class, as the context in which these women shaped their social roles and identities within the black community and the larger society. We will consider the themes of family, motherhood, and sexuality; educational, economic and political participation; aesthetics and religious traditions; and self and social images. *Open to juniors and seniors.*

Cross-Listed as: AAAS 25, SOCY 46

Distributive: Dist:SOC; WCult:CI

Offered: 16S: 2A; 17W: 2

WGSS 33.07 - Love, Romance, Intimacy and Dating

Instructor: Lively

Why do you connect with some people and not others? What exactly is love? And how do you make smart romantic choices for yourself? In this course we examine the social aspects of love, romance, intimacy, and dating. Using sociological theories and methods, we will investigate how cultural beliefs and structural arrangements affect our most intimate feelings and experiences. Specific topics include virginity loss, adolescent sexual behavior, hooking up, dating, intimacy and polyamory.

Cross-Listed as: SOCY 62

Distributive: Dist:SOC

Offered: Not offered in the period 15F to 17S

WGSS 33.08 - Sociology of Family

Instructor: Walton

The sociological study of the family involves our ability to take a step back to assess structures that pattern our personal experiences and how the private decisions that happen in families matter to society as a whole. We will examine how private affairs in family life interact with important public issues, particularly discussing intersections with gender, social class, race and ethnicity, marriage and cohabitation, divorce, remarriage and stepfamilies, childhood and adolescence, work, and social policy.

Cross-Listed as: SOCY 36

Distributive: Dist:SOC; WCult:W

Offered: 17W: 10

WGSS 34.02 - Gender Identities and Politics in Africa

Instructor: Coly

This interdisciplinary course explores the constructions of gender identities in different African socio-cultural contexts. The emphasis is on contemporary Africa, although we will discuss some of the historical framework of these identities. We will read historical accounts of gender in some pre-colonial African societies, investigate the impact of colonialism, and examine gender in some anti-colonial movements. We will also analyze gender in urban and rural contexts, and address such questions as homosexuality and gay rights.

Cross-Listed as: AAAS 40

Distributive: Dist:INT; WCult:CI

Offered: Not offered in the period 15F to 16S

WGSS 34.04 - Sociology of Gender

Instructor: McCabe

What is gender? This seminar examines multiple sociological perspectives on what it means to be a woman, man, boy, or girl in everyday life - including gender as a social structure, an identity, an ideology, and something people "do." Readings and discussions reflect a belief that diversity (race/ethnicity, class, age, sexuality, etc.) is central to the study of gender. Possible topics include: language, the body, science, the wage gap, education, and masculinity during young adulthood.

Cross-Listed as: SOCY 56

Distributive: Dist:SOC

Offered: 16S, 17W: 2A

WGSS 35.01 - What's the T? Gender Variance and Identity Politics in Modernity

Instructor: Kelly

This course will critically investigate the historical, political, social, and cultural conditions and contexts that have enabled gender variant identities, politics, and communities to emerge and transform. Course materials foreground the relationship between identity and power, highlighting the role that race, sexuality, class, and nation play in the stratification within and variation among trans and gender variant identities, communities, and experiences. We will explore topics such as: historical shifts in the medicalization and pathologization of gender and sexual variance; differing and competing constructions of "sex" and "gender" in academia; how race, ethnicity, class, and nation contribute to the construction and maintenance of gender variant communities, homonormative policies, and both interpersonal and systemic inequities; feminist critiques of gender variant identities and body technologies; controversies and challenges surrounding transgender rights; and, the ways in which trans and gender variant people's lives and futures are shaped by a culture of neo-liberal capitalism.

Distributive: Dist:SOC; WCult:CI

Offered: 15X: Mondays 3-6 PM

WGSS 36.01 - Gender in Cross-Cultural Perspective

Instructor: Billings

Sex (biological differences between men and women) and gender (social constructions of those differences) are not straightforward or natural, and it naturally follows that gender inequalities and gender oppression are also not straightforward and natural. Therefore, we will pay close attention to the issue of power - in terms of control and distribution of resources and the enforcement of gender roles and sexuality. We will also look at how Western gender ideals have been imposed on people in other parts of the world. We will talk about concepts, perceptions, images, stories, encounters, games, connections and disconnections. Finally, we will explore questions of practice and resistance.

Cross-Listed as: ANTH 31

Distributive: Dist:INT or SOC; WCult:CI

Offered: 16S: 10A

WGSS 37.02 - Gender, Space and Islam

This course will address various aspects of Feminism, Islam and Space. This course will seek to answer various questions about space, gender and Islam such as: What constitutes a Muslim Space and the "Muslim World"? Who decides and defines these spaces? How are these spaces gendered and influenced by Islam or Islamic practices? How do such gendering of spaces differ by place? Additionally we will explore the readings of several Islamic feminist scholars that address several gender related topics such as women's rights, gender roles, honor and Sharia (Islamic law). Open to all students.

Cross-Listed as: GEOG 41

Distributive: Dist:SOC; WCult:CI

Offered: Not offered during the period 15F to 17S

WGSS 37.05 - Gender and Urban Transformation

Instructor: Rabig

This course examines the effects of urbanization on women and ideas about gender. We'll explore the ways in which growing cities in the 19th century both accommodated and posed challenges to prevailing assumptions about gender, race, and sexuality. We'll examine the changes women experienced as workers, mothers, radicals, reformers, consumers, and intellectuals. We will also assess their roles in the political and cultural movements that defined 20th century urban life. Students will learn critical perspectives on issues in urban history and urban studies, particularly feminist approaches to architecture, city planning, and economic development.

Texts include: Judith Walkowitz, *City of Dreadful Delight*, Theodore Dreiser, *Sister Carrie*, Christine Stansell, *American Moderns*, George Chauncey, *Gay New York*, Rhonda Williams, *The Politics of Public Housing*, and Daphne Spain, *Gendered Spaces*, among others.

Distributive: Dist:SOC; WCult:CI

Offered: 14W: 10A

WGSS 38.02 - Women and Gender in the African Diaspora

Instructor: R. J. Johnson

This course focuses on the lived experiences of—and structural limitations placed upon—women of African descent from the era of the trans-Atlantic slave trade through the early twentieth century. We will examine a number of critical themes, including power, labor, geography and migration, racism, sexuality, spirituality, and a host of other dynamics impacting women. Importantly, however, we will also focus on the many ways in which these women "talked back" to the larger world.

Cross-Listed as: AAAS 88.02

Distributive: Dist:INT or SOC; WCult:CI

Offered: 15X: 12; 17W: 11

WGSS 40.01 - Gender Issues in Native American Life

Instructor: Palmer

This course will address a range of topics concerning gender that are of particular significance to indigenous communities. These topics will be considered from historical, political, cultural and social perspectives. In the context of this class, the term "indigenous" is a category that includes tribal nations of the United States including Hawaii, the First Nations of Canada, and the indigenous people of Australia and New Zealand. The material is presented with particular concern for the diversity of indigenous groups and the variety of their own experiences and autochthony. We will explore their responses to misconceptions of tribal gender roles and identities projected upon Native people by the agents and institutions of settler colonialism. This approach opens a broader discussion about the many actions of indigenous communities to deconstruct and decolonize gender categories that are alien to the continuity, integrity, and vitality of their own traditions. The interdisciplinary approach of this course will engage texts from philosophy, literature, semiotics, history, and policy, as well as gender studies from various socio-cultural perspectives.

Cross-Listed as: NAS 42

Distributive: Dist:SOC; WCult:CI

Offered: 15F: 2

WGSS 41.04 - Transnational Muslim Feminisms: History, Religion, Praxis

Instructor: Ayubi

This course introduces students to the diversity of feminist approaches on a transnational scale, by examining the movements, activism, media, literature, and Islamic debates produced in predominantly Muslim countries and beyond. We will interrogate concepts of transnationalism, feminism and modernity in terms of historical developments, theoretical usage, the context of colonialism, Islamic theologies, and the modern Muslim nation states. We will explore similarities and differences in women's experiences and feminist methodologies across global Muslim contexts. Course materials will be made up of several primary sources in translation that deal with intersectional issues such as religious and cultural practices, educational systems, politics, race and racism, socioeconomic class, legal rights for men and women, and marriage and the family.

Distributive: Dist:INT or SOC; WCult:NW

Offered: 15X: 10A

WGSS 43.02 - Sex, Celibacy, and the Problem of Purity

Instructor: MacEvitt

This course examines a crucial period in the history of Christianity—Late Antiquity. Between the years 300 and 500, Christianity became the official religion of the Roman Empire, established standards of doctrine and ecclesiastical organization, and developed the attitudes towards the body, sexuality and gender which informed Christian teaching for centuries to come. In this class we will ask: why did virginity become such an important aspect of Christian religiosity? What effect did Roman concepts of gender and sexuality have on Christian understanding of the relationship between men and women? What did martyrs, gladiators and monks have in common. Open to all students.

Cross-Listed as: REL 31, CLST 11.2

Distributive: Dist:TMV; WCult:W

Offered: 17W: 2A

WGSS 43.03 - Women and the Bible

Instructor: Ackerman

As contemporary Jewish and Christian communities of faith face the question of the role of women within their traditions, many turn to the Bible for answers. Yet the biblical materials are multivalent, and their position on the role of women unclear. This course intends to take a close look at the biblical tradition, both the Hebrew Bible (Old Testament) and the New Testament, to ask what the Bible does—and does not—say about women. Yet the course is called "Women and the Bible," not "Women in the Bible,"

and implicit in this title is a second goal of the course: not only to look at the Bible to see what it actually says about women but also to look at differing ways that modern feminist biblical scholars have engaged in the enterprise of interpreting the biblical text.

Cross-Listed as: REL 56

Distributive: Dist:TMV; WCult:CI

Offered: 16F: 10A

WGSS 43.04 - Goddesses of India

Instructor: Ohnuma

This course will use both elite and popular Hindu religious texts in conjunction with contemporary sociological and anthropological accounts, scholarly analyses, visual art, and film to explore the diverse identities and roles of India's many goddesses, both ancient and modern. Special emphasis will also be given to the relationship between goddesses and women. Open to all classes.

Cross-Listed as: REL 42

Distributive: Dist:TMV; WCult:NW

Offered: Not offered 15F to 17S

WGSS 43.05 - Body and Sex in Chinese Religions

Instructor: Raz

In this course we will explore how different traditions in China conceptualized the relationship between the human body and the universe, and how individuals can attain immortality and transcendence. After examining different conceptions of the human body in traditional China, we will focus on sexual practices advocated by the traditions of immortality seekers, Daoism, and esoteric Buddhism as ways to enlightenment and transcendence. In our explorations we will look at the earliest records of sexual practices found in tombs of the 3rd century B.C.E. and examine Daoist sexual initiation rites and secret rites practiced by emperors. We will consider how notions of cosmic powers and forces are expressed in sexual rituals and how society views such practices. We will also compare Chinese notions of the body and of sexual practices with those found in West. Open to all classes.

Cross-Listed as: REL 48

Distributive: Dist:TMV; WCult:NW

Offered: 15X: 2A

WGSS 43.06 - Gender in Islamic Texts and Muslim Thought

Instructor: Ayubi

The status of Muslim women around the world and the notion of gender equality in Islam are highly debated topics with high stakes and real life consequences. This course is about issues of gender in Islamic and Muslim

texts and their historical relevance. We will make critical study of the constructions of gender, femininity, masculinity, sexuality, gender relations, marriage and divorce in classical Islamic texts and the roles these texts have played in Muslim life. We will examine Muslim thought on gender relations in their historical contexts and in relation to one another. Through in-class discussions, readings and the final essay, students will strengthen their global literacy on issues of gender, demonstrate global historical trends in ideas on gender, recognize theoretical and historical similarities and differences, analyze the role of texts in society, and recognize, critique, and assess key themes related to marriage, divorce, sexuality, and gender relations across genres of Islamic texts.

Distributive: Dist:TMV; WCult:NW

Offered: Not offered in the period 15F to 16S

WGSS 44.03 - Women, Religion and Social Change in Africa

Instructor: Baum

This introductory, multidisciplinary course examines women's religious ideas, beliefs, concerns, actions, rituals and socio-cultural experiences in African societies and cultures from a comparative, historical and gender perspective. We will look at women's experiences of social change in African religions, the encounter with Islam, slavery, Christianity, and colonialism. We will analyze the articulations of economic and political power or lack of power in religious ideas as we ask questions such as: What are the different antecedents and circumstances in which women exercise or are denied agency, leadership, power and happiness in their communities? Texts will include nonfiction, fiction, and film narratives. Open to all students.

Cross-Listed as: AAAS 42, REL 66

Distributive: WCult:NW

Offered: 16S: 10A

WGSS 44.5 - The Virgin of Guadalupe: From Tilma to Tattoo

Instructor: Pérez

Beginning with her precursors in the Old and New World, this course approaches Guadalupe as a tool with which to pry open questions central to Mexican and Chicano/a identity. For some, she is a mother figure with characteristics once attributed to pre-Columbian goddesses; for others, she is a feminist champion of political revolution. This course concentrates on the most compelling contexts in which Guadalupe has been called on to negotiate religious, racial, sexual, and national identity. Open to all classes.

Cross-Listed as: REL 51, LATS 35

Distributive: Dist: TMV; WCult: CI

Offered: 16S, 17S: 10A

WGSS 46.01 - Philosophy and Gender

This course will focus primarily on the following questions: What is feminism? What is sexism? What is oppression? What is gender? Is knowledge gendered? Is value gendered? What is a (gendered) self? What would liberation be? In exploring these issues, we will examine the ways feminist theorists have rethought basic concepts in core areas of philosophy such as ethics, social and political philosophy, metaphysics, epistemology, philosophy of law, and philosophy of mind. Open to all classes

Cross-Listed as: PHIL 4

Distributive: Dist:TMV; WCult:CI

Offered: Not offered in the period 15F to 17S

WGSS 47.03 - Modern American Women Poets

Instructor: Zeiger

This course focuses on the emerging counter-tradition, within American modernism and within the larger tradition of poetry in English, of American women poets in the twentieth century. Taking our cue from Adrienne Rich, who ambiguously titles one book of essays *On Lies, Secrets and Silences* (is she for or against?), we will follow debates about what makes it possible to break previous silences--and to what degree and in what ways it is useful or satisfying to do so. Topics within this discussion will include sexuality, race, illness, literary modes, female literary succession, and relations with the literary tradition. We will read in the work of eight or nine poets and recent critical and theoretical writings, with some attention in the first weeks to important female and male precursors. The syllabus will include such writers as Edna St. Vincent Millay, HD, Gertrude Stein, Elizabeth Bishop, Gwendolyn Brooks, Sylvia Plath, Anne Sexton, Audre Lorde, Adrienne Rich, Marilyn Hacker, Louise Gluck, Rita Dove.

Cross-Listed as: ENGL 55.01

Distributive: Dist:LIT; WCult:W

Offered: 16S: 10

WGSS 48.07 - Sex and Gender in the Italian Renaissance

Instructor: Quaintance

This interdisciplinary course explores conceptions of sex and gender in Italian Renaissance literature and visual art. We will trace a social history of love and sex in Renaissance Italy, examine how sex and sexual bodies were represented in literature and in images, and look at how governments and the Church attempted to manage and punish sexual transgression. Themes we will investigate

include representations of male and female bodies, gender roles for both men and women, sexual violence, same-sex desire, and cross-dressing.

Cross-Listed as: FRIT 34.01

Distributive: Dist:LIT; WCult:W

Offered: 16X: 10

WGSS 49.05 - Sexing Korea: Gender and Sexuality in Korean Popular Culture and Literature

Instructor: Choi

What can Psy's "Gangnam Style" and Girls Generation's "The Boys" teach about gender roles in contemporary Korea? What roles do writers, musicians, and filmmakers play in shaping our thinking about gender? And, how do competing ideas about sex shape the current system of literary, cinematic, television, and popular music genres? These questions will be explored through case studies of Korean literature and popular media, while the course will simultaneously provide a broad introduction to the field of gender studies. Topics will include love, marriage, family, work, class, sex, intimacy, and body politics in Korean popular culture and literature.

Distributive: Dist:INT or ART; WCult:NW

Offered: 15F: 3B

WGSS 52.01 - Colonial and Postcolonial Masculinities

Instructor: Coly

In this course, we will develop an understanding of masculinity as a construct which varies in time and space, and is constantly (re)shaped by such factors as race, class, and sexuality. The contexts of the colonial encounter and its postcolonial aftermath will set the stage for our examination of the ways in which social, political, economic, and cultural factors foster the production of specific masculinities. Texts include Achebe's *Things Fall Apart*, Conrad's *Heart of Darkness*, Lafferiere's *How to Make Love to a Negro*, and additional writings by Irish, Indian, and Australian authors. Our study will be organized around the questions of the production of hegemonic and subaltern masculinities, the representation of the colonial and postcolonial male body, the militarization of masculinity, and the relation between masculinity and nationalism. Theoretical material on masculinities will frame our readings.

Cross-Listed as: AAAS 67

Distributive: Dist:LIT

Offered: Not offered during the period 15F to 16S

WGSS 52.03 - Feminism, Islam, and Modernity in Postcolonial and Global Contexts

Instructor: Yessayan

This course examines the relationship between feminism in relation to Islam and state modernizing projects in modern nation-states of the Middle East and North Africa. We will identify problems and promises in theoretical paradigms and methodologies of writing about MENA women in feminist scholarship. We will study how the condition of MENA women have been shaped by the gendered nature of nationalist, Islamic, and imperialist discourses and how women have responded and participated in national debates, pious movements, social struggles, global impacts, and with feminism to voice their rights, narrate their selfhood, and articulate their own desires. Topics include: the family, veil, ritual, dance, education, citizenship, law, marriage, women's work, and activism. Case studies are from a variety of different modern Arab or Muslim states with a strong focus on Egypt, including Algeria, Iran, Jordan, Turkey, Lebanon, and Sudan.

Cross-Listed as: AMES 41.01

Distributive: Dist:INT or SOC; WCult:NW

Offered: 16W: 10

WGSS 53.02 - Hand to Mouth: Writing, Eating, and the Construction of Gender

Instructor: Reyes

Our perceptions of food are often limited to familiarity with its preparation and consumption, but do we consider food as an extension of the self or as a marker of class, gender and sexuality? This course will look at food as an intersection of production, consumption and signification, and at how different cultural traditions regulate gender by infusing food with socially determined codes. Readings include Margaret Atwood, Isak Dinesen, Marguerite Duras, Laura Esquivel, among others.

Distributive: Dist:LIT

Offered: 17W: 11

WGSS 56.04 - Women and Journalism in the U.S.

Instructor: Jetter

Women reporters, editors and columnists have changed the field of journalism, from newspapers and magazines to radio and television. This course will examine the historic influence of women on the field of journalism, from Nellie Bly's turn-of-the-century undercover exposes to today's newsroom professionals. How has the growing number of women journalists affected the coverage of women's issues such as welfare, abortion, and health crises such as breast cancer? How do women deal with "objectivity" in covering these issues? We will look at new styles in literary journalism pioneered by women, notably Frances Fitzgerald on Vietnam, Joan Didion on cultural issues in 60s and 70s, Oriana Fallaci on world leaders, and Sheryl WuDunn on China. We will analyze the work of women columnists who have changed the face of political

discourse in the U.S., and examine the historical contributions of muckrakers like Ida Tarbell and anti-lynching crusader Ida B. Wells Barnett. This course will involve critical reading, original reporting, and several article-length papers. Students will be expected to produce a publishable, magazine-length article at the end of the term.

Distributive: Dist:SOC; WCult:W

Offered: Not offered in the period 15F to 17S

WGSS 56.07 - From Fanny to the Nanny: Jewish Women and Humor

Offered: Not offered in the period 15F to 17S

WGSS 59.03 - Unveiling the Harem Dancer

Instructor: Yessayan

The historical legacy of Orientalism continues to perpetuate a stereotypical image of the exotic female dancing body. We will consider the Oriental dancer as an entry point to examine contexts of the colonial encounter, global circulation, and postcolonial conditions. We will also explore issues of gender and sexuality in Arab Islamic culture and address questions about the social agency of the female dancer. Materials include theoretical texts, travel accounts, films, and performances.

Cross-Listed as: AMES 25

Distributive: Dist:INT WCult: NW

Offered: 16W: 12

WGSS 59.04 - Race, Gender, and Performance

Instructor: Mayorga

Students will explore the perspectives of contemporary Latina/o, Asian American, Black, and Native American theater artists/performers. Our examination will also consider the socio-historical and political contexts engaged through these artists' works. We will also consider the relationship between the construction of identity and strategies of performance used by playwrights/performers to describe race, gender, sexuality, class, subjectivity, and ideas of belonging. Texts examined will include works by Moraga, Highway, Wilson, Parks, Gotanda, and Cho.

Distributive: Dist: ART. WCult: CI.

Offered: Not offered in the period 15F to 17S

WGSS 59.05 - Sex and Drama: Sexuality Theory, Theatrical Representation

Sex & Drama examines the representation of sexuality onstage. Topics will include Mae West and 1920s New York, the gay and lesbian theater movement of the 1960s, Oscar Wilde and the Victorian era, and the lesbian performance scene of the 1980s with Split Britches and Holly Hughes. The course will also examine queer

performances from the end of the twentieth and beginning of the twenty-first centuries, including Denise Uyehara, Sharon Bridgforth, and Doug Wright.

Distributive: Dist:LIT; WCult:CI

Offered: Not offered in the period 15F to 17S

WGSS 59.06 - I Will Survive: Women's Political Resistance Through Popular Song

Instructor: Bronski

There is a large body of work on women's political resistance to oppressions based on gender, sex, class, race, and economic disparity. Much of this work focuses on women's literature (especially novels, poetry, and plays) and political organizing. This course will examine how women, through the medium of popular music, have articulated clear political commentary and analysis that has reached large audiences, and has become foundational, to American popular culture. Beginning with artists at the advent of the popularization of African-American blues in the early 20th century, and moving through the genres of regional folk (especially Appalachian traditions), jazz, torch singing, contemporary folk, early rock, girl groups, disco, and more contemporary song the course will cover the lives, careers, and political thought of a wide range of writers and performers such as Bessie Smith, Ma Rainey, Libby Holman, Ella Mae Morse, the Boswell Sisters, Billie Holiday, Marian Anderson, Peggy Lee, Mahalia Jackson, Rosalie Sorrels, Lotte Lenya, Joan Baez, Nina Simone, Tammy Wynette, Joni Mitchell, Laura Nyro, Gloria Gaynor, Ani DiFranco, and Amy Winehouse. The course will be structured around the music as well as biographical, historical, cultural, and critical readings that will place each of these women in their artistic and political contexts.

Distributive: Dist:ART; WCult:CI

Offered: Not offered in the period 15F to 17S

WGSS 61.02 - Plagues and Politics: The Impact of AIDS on U. S. Society

Instructor: Bronski

This course will survey the AIDS epidemic in the United States from 1981 to the present. We will examine the history and social impact of the epidemic by exploring its immediate and long lasting effects on issues such as health care, anti-discrimination law, immigration, education strategies, government drug policies, welfare services, as well as LGBT culture. We will also be examining its effects on popular thinking on sex, gender, and sexual culture through mainstream and independent film and media. Open to all students.

Distributive: SOC; WCult: CI

Offered: Not offered in the period 15F to 17S

WGSS 61.04 - Women and Madness

In this course, we will examine the multiple meanings of women's mental illness. Course readings will draw on a broad range of writings on mental illness, incorporating perspectives from practitioners, social scientists, historians, journalists, and patients. We will seriously consider theories that posit mental illness as biological in origin, although the primary aim of this course is to complicate our understandings of mental health and illness using a constructivist approach. We will endeavor to unpack how women's experiences of mental illness emerge within specific gendered social and historical contexts. Through this examination, we will grapple with crucial issues that feminists face in conceptualizing mental health and illness and the political nature of psychiatric knowledge.

Cross-Listed as: ANTH 61

Distributive: Dist:SOC; WCult:CI

Offered: Not offered in the period 2015-17

WGSS 61.05 - Gender and Global Health

This course will examine the intersection of gender and health. Readings will be from medicine, history, journalism, and the social sciences. We will interrogate the relationship between biology, science, and culture, focusing our attention on the cultural construction of healing and embodied experience of illness. We will examine how cultural institutions, ideologies, and practices contribute to health disparities along lines of race, class, and gender, paying attention to medicine's role in gendering the body.

Cross-Listed as: ANTH 26

Distributive: Dist:INT or SOC; WCult:CI

Offered: Not offered in the period 2015-17

WGSS 65.06 - Radical Sexuality: Of Color, Wildness, and Fabulosity

Instructor: Lim

This course examines how issues of race and sexuality are elemental to radical formulations of queer theory. We will begin with a deep study of U.S. feminist and queer of color critiques to understand how social formations are embroiled in nationalist, colonial as well as free market ideals and practices. Our focus on the quotidian and staged experiences of those who identify or are identified as an outsider, misfit, or the Other is an invitation to intensively analyze and perform what it means to be at once queer and gendered, queer of color, and queer and wild. From accents and affects to styling and production, we will read a range of manifestos, performances, literature, and art that conform to and yet also deviate from what is normal or acceptable in mainstream, U.S.-American society. The key words in the title, "Of Color, Wildness and Fabulosity," are suggestive of alternative queer practices in the U.S. and

around the world that engage, exceed or even explode dominant categories of race, gender and sexuality. It explores, in other words, queer theory and praxis using diasporic perception or minority perspectives.

Distributive: Dist:INT or ART; WCult:NW

Offered: 16S; 2A

WGSS 65.07 - Queer Popular Culture

Instructor: Lim

This course explores queer popular culture in the performing and media arts, from expressive visual and sonic cultures that include film, performance, music and television to museum and fashion shows, and street carnivals. We will look at conceptions of queerness that play with hyperbolic genders, sexualities and racializations, and interrogate their value, significance and meaning as cultural and/or political expressions. Is queer popular culture a way to sell LGBT life styles as metrosexual taste, or is it a way to challenge the heteronormative mandates set by the market, the state, and their regulatory institutions?

Distributive: Dist:INT or SOC; WCult:CI

Offered: 15X, 16X; 3B

WGSS 66.05 - Telling Stories for Social Change

Instructor: Hernandez and Schweitzer

Our social structure is full of unseen, unspoken, and unheard dynamics that create visible and invisible social walls. Students in this course have the unique opportunity to collaborate with a group of people from behind those social walls from two different perspectives: theoretical and practical. Students study the causes of this invisibility and social isolation (mainly pertaining to incarceration and addiction) by participating in an interdisciplinary arts program with local community members from these invisible populations while at the same time attending discussion-based seminars. This combination of practice and theory asks for students to go beyond a critical reflection on our society by contributing to constructive social actions towards change.

Cross-Listed as: In Spring 2016, cross-listed with ENGL 53.04 and MALS 364

Distributive: Dist:ART; WCult:CI

Offered: 15F, 16S, 16F; 2A

WGSS 67.03 - Sex, Violence and the Internet

Lauded as an extraordinary and unprecedented international free speech forum, the Internet, with its protection of anonymity, lack of systematic oversight, and instantaneous global reach, can be a powerful tool for positive social change. At the same time, increasing incidents of hate crimes in cyberspace serve to harass,

intimidate, threaten, and silence those in already marginalized groups and activists fighting for social justice. This course will explore questions such as: How is Internet speech (including images, videos, and music) structured by racial, sexual, gendered, national, global, and colonial inequalities in different contexts? How do new media technologies and social networking sites change the possibilities for community organizing, public protests, social movements, access to censored material, and coalition building? How, if at all, should the Internet be regulated in order to promote free speech values? What are these values? Are they universal or do they differ depending on time, place, and culture?

Distributive: Dist:TMV; WCult:CI

Offered: Not offered in the period 15F to 17S

WGSS 80 - Seminar in Women's, Gender, and Sexuality Studies

Instructor: 15F: Martin; 16F: Lim

The seminar in Women's, Gender, and Sexuality Studies is designed as a culminating experience for Women's, Gender, and Sexuality Studies students and preparation for future work such as independent research, honors thesis, graduate studies and advanced scholarship.

Distributive: Dist:SOC

Offered: 15F, 16F: Mondays 3-6

WGSS 85 - Independent Study

This will involve an independent project carried out under the direction of one or more of the Women's, Gender, and Sexuality Studies faculty. Permission of the instructor and the WGSS Chair and Steering Committee is required.

Prerequisite: Permission of the instructor and approval of the WGSS Chair and Steering Committee.

Offered: All terms: Arrange

WGSS 90 - Foreign Study in Women's, Gender, and Sexuality Studies I

Instructor: 16W: Vandewalle; 17W: Fuechtner

Credit for this course, taught by the FSP Director, a member of the Dartmouth faculty, is awarded to students who have successfully completed a Women's, Gender, and Sexuality Studies course at the University of Hyderabad while a member of the Dartmouth Foreign Study Program in Women's, Gender, and Sexuality Studies. Note: Because this course will vary depending on the director, this course will not automatically be cross-listed with AMES.

Cross-Listed as: AMES 29

Offered: 16W, 17W: D.F.S.P.

WGSS 91 - Foreign Study in Women's, Gender, and Sexuality Studies II

Instructor: University of Hyderabad Faculty

Credit for this course is awarded to students who have successfully completed a Women's, Gender, and Sexuality Studies course at the University of Hyderabad while a member of the Dartmouth Foreign Study Program in Women's, Gender, and Sexuality Studies.

Cross-Listed as: AMES 27

Distributive: WCult:NW

Offered: 16W, 17W: D.F.S.P

WGSS 92 - Foreign Study in Women's, Gender, and Sexuality Studies III

Instructor: University of Hyderabad Faculty

Credit for this course is awarded to students who have successfully completed a Women's, Gender, and Sexuality Studies course at the University of Hyderabad while a member of the Dartmouth Foreign Study Program in Women's, Gender, and Sexuality Studies.

Cross-Listed as: AMES 28

Distributive: WCult:NW

Offered: 16W, 17W: D.F.S.P

WGSS 96 - Advanced Research in Gender Studies

Instructor: 16S: To be announced

This course is WGSS's curricular connection with the Gender Research Institute's annual spring research seminar. Each offering of WGSS 96 will center on texts written or created by GRID's guest speakers and complemented with other relevant theoretical, critical, or artistic material. Students matriculated in WGSS 96 will automatically be considered GRID Fellows and will have the opportunity of meeting and directly engaging in conversation with the authors and artists studied in the course. In addition to regular class sessions, students will also attend the GRID seminar meetings and public lectures. Students will be expected to produce a publishable paper on a topic of their choice as it relates to the theme of the seminar. Final projects may be co-authored with any GRID Fellow. Prerequisites: Major and Minors in WGSS; or Permission by Instructor

Offered: 16S: Mondays 3-6 PM

WGSS 98 - Honors Thesis I

This two-course sequence involves an extensive investigation of a topic in a student's area of concentration and submission of an undergraduate thesis. Only students accepted into the Honors Program may take this sequence. Permission of the instructor and the Steering Committee is required.

Offered: All terms: Arrange

WGSS 99 - Honors Thesis II

This two-course sequence involves an extensive investigation of a topic in a student's area of concentration and submission of an undergraduate thesis. Only students accepted into the Honors Program may take this sequence. Permission of the instructor and the Steering Committee is required.

Offered: All terms: Arrange

Institute for Writing and Rhetoric

Director: Christiane K. Donahue

Associate Professor C. K. Donahue; Assistant Professors J. A. Compton, D. K. Drummond; Senior Lecturers A. E. Bumpus, M. E. Heck, D. J. Moody; Lecturers F. N. A'Ness, K. M. Bauer, P. Baum, W. B. Boyer, S. B. Chaney, J. E. Dobson, J. Donaghy, D. Harper, M. R. Herman, J. L. Kalish, M. D. Koch, A. Kremer, C. Lannon, G. A. Lenhart, J. Mackin, M. M. McIntyre, P. Merton, W. A. Piper, D. A. Rezvani, E. B. Rockmore, S. B. Smith, A.C. Taylor, N. B. Van Kley; Visiting Professor W. M. Craig; Visiting Associate Professors N. J. Crumbine, J. B. Sargent; Visiting Assistant Professor S. Grushina; Adjunct Assistant Professor C. P. Thum.

The Institute for Writing and Rhetoric courses include the first-year writing courses (WRIT 2 - WRIT 3, WRIT 5, and the First-year Seminars), courses in Speech, and advanced courses in writing. The Institute for Writing and Rhetoric also includes peer-tutorial programs that support students in their writing, research, and new media activities.

To view Speech courses, click here (p. 527).

To view Writing courses, click here (p. 529).

First-year Writing Requirement

The first-year writing requirement for the undergraduate degree at Dartmouth consists of WRIT 5: Expository Writing (or its two-term equivalent WRIT 2 - WRIT 3 : Composition and Research I and II) and also a First-year Seminar. Since Fall 2012, another way of fulfilling the first-year writing requirement is to take Humanities 1-2 (HUM 1 (p. 350) - HUM 2 (p. 350)), a special interdisciplinary two-term course for first-year students offered only in fall and winter terms. Students interested in taking Humanities 1-2 must contact the Humanities 1-2 program during the summer for information on deadlines and procedures to apply. For contact information, see: <http://www.dartmouth.edu/~hums1-2/>

Individual section descriptions for WRIT 5 and course descriptions for First-year Seminars are posted prior to registration for a given term. Links to these descriptions can be found on the registrar's website at the bottom of this page: <http://www.dartmouth.edu/~reg/registration/>

First-year Seminars

First-year Seminars offer every first-year student the opportunity to participate in a course structured around independent research, small group discussion, and intensive writing. By vote of the Faculty and Trustees, successful completion of one seminar has long been a requirement for the undergraduate degree. First-year Seminars are administered by the Institute for Writing and Rhetoric.

The function of the First-year Seminar program is threefold. First, by means of a uniform writing requirement, it emphasizes the importance of written expression in all disciplines. Second, it provides an attractive and exciting supplement to the usual introductory survey course in many disciplines. In the seminar chosen a student may explore, both alone and with a small group, a topic of special interest to the individual student, to classmates, and to the instructor. Third, in its emphasis on inquiry and writing, the program enables each first-year student to have an early experience of the kind of scholarship that fuels Dartmouth's upper-level courses.

A First-year Seminar may serve in satisfaction of specific General Education requirements, provided that the individual seminar has been approved for this purpose, and for the specific year and term, by the Committee on Instruction. First-year Seminars are taken in the term immediately following completion of WRIT 5 (or its equivalent WRIT 2 - WRIT 3). Students are not eligible to participate in Off-Campus Programs until they have satisfied the First-year Seminar requirement.

These seminars are open only to first-year students. First-year students are permitted to enroll in a second seminar within the limit of sixteen students per course after all students who have not yet met the requirement have had a chance to elect a seminar.

SPEE - Speech Courses

To view Speech requirements, click here (p. 527).

SPEE 20 - Public Speaking

Instructor: Compton, Drummond, Grushina.

This course covers the theory and practice of public speaking. Building on ancient rhetorical canons while recognizing unique challenges of contemporary public speaking, the course guides students through topic

selection, organization, language, and delivery. Working independently and with peer groups, students will be actively involved in every step of the process of public speaking preparation and execution. Assignments include formal speeches (e.g. to inform, to persuade, and to pay tribute), brief extemporaneous speeches, speech analyses, and evaluations. Limited enrollment. No prior speaking experience is necessary.

Distributive: Dist:ART

Offered: 15F: 11, 2A; 16W: Arrange; 16S: 2A; 16F,17W,17S: Arrange

SPEE 20.03 - Public Speaking

Instructor: Drummond

This course covers the theory and practice of public speaking. Building on ancient rhetorical canons while recognizing unique challenges of contemporary public speaking, the course guides students through topic selection, organization, language, and delivery. Working independently and with peer groups, students will be actively involved in every step of the process of public speaking preparation and execution. Assignments include formal speeches (e.g. to inform, to persuade, and to pay tribute), brief extemporaneous speeches, speech analyses, and evaluations. Limited enrollment. No prior speaking experience is necessary.

Distributive: Dist:ART

SPEE 25 - Persuasive Public Speaking

Instructor: Compton.

This course explores persuasive public speaking and helps students learn to craft messages of influence. Approaching persuasive public speaking as transactional, students will engage in audience analysis during speech invention, organization, language choices, and delivery. Assignments include formal speeches (to convince and to actuate), brief extemporaneous speeches, speech and argument analyses, and peer speech evaluations. Peer group work will facilitate speech preparation and provide a forum to audition arguments and ideas. Limited enrollment. No prior speaking experience is necessary.

Distributive: Dist:ART

Offered: 16S: 10A

SPEE 27 - Intercultural Communication

In our increasingly diverse world, cultural and intercultural literacy is an urgent necessity, not an option. To help fulfill this exigency, the goal of this class is for students to explore how diverse underlying cultural orientations and patterns influence communication behaviors within and between cultures. Theoretical and practical aspects of intercultural communication will be addressed with a focus on how students can apply alternative communication

strategies that result in deliberate and fruitful intercultural outcomes. No prerequisites. Limited enrollment.

Distributive: Dist:SOC; WCult:CI

SPEE 30 - Speechwriting

Instructor: Compton.

This course explores speechwriting as a process. Students will work independently and in peer groups to write speeches for themselves and for others. Students will also deliver speeches. Throughout the course, students will compare speechwriting with other types of writing, celebrating the unique challenges of writing for the ear. Limited enrollment. No prior speaking experience is necessary.

Distributive: Dist:ART

SPEE 31 - Rhetoric of Social Justice: Public Advocacy and U.S. Social Justice Movements

Contemporary social movements in the U.S. bear strong resemblance to those in the past in that social protests have, and continue to be, definitively rhetorical. This course focuses on theorizing the relationship between rhetoric and social movements from a historical and contemporary perspective. Our focal point will be rights-based campaigns of movements seeking socio-political legitimacy and equality. The course will also explore the pivotal role strategic communication plays in effective advocacy. No prerequisites. Limited enrollment.

Distributive: Dist:ART; WCult:CI

SPEE 32 - Legal Rhetoric

In this course, we will consider multiple forms of legal rhetoric—from Greek apologias through contemporary American jury trials—to explore the unique challenges of legal argumentation, the style and structure of judicial written opinions, and the types of legal/political speech that characterize lawmaking. A study of classical rhetoric will feature prominently in the course. Students will engage in theory-informed practice of both oral and written legal rhetoric: as trial counsel to Dr. Seuss characters accused, or accusing others, of wrongdoing; as appellate counsel or judges on the appeal of a medical malpractice verdict, and as legislators debating an environmental protection law. No prerequisites. Limited enrollment.

Distributive: Dist:ART

Offered: 16W:Arrange

SPEE 33 - Political Humor Rhetoric: Contemporary Television

Instructor: Compton.

It is tempting to dismiss late night television comedy as inconsequential. And yet, empirical research reveals that political humor affects knowledge, attitudes, and

behaviors. In this class, we will survey extant research findings to evaluate late night political humor's content and effects, using social scientific and rhetorical theories to better understand how, and in what ways, late night television political comedy matters. Speaking and writing projects will be used to achieve course objectives. No prerequisites.

Distributive: Dist:SOC

SPEE 34 - Image Rhetoric: Image Attack, Image Repair, and Image Promotion

Instructor: Compton.

Image is an important and complicated part of communication. Rhetoric can build image, and rhetoric can tear down image. Rhetoric can attack image, and rhetoric can defend image. Each focus of this course (image attack, image repair, image promotion) builds on classic and modern work in *apologia* and persuasion, including studies of politics, entertainment, and commerce. Speaking and writing activities will broaden our ideas about image. No prerequisites.

Distributive: Dist:SOC

Offered: Not offered in the period from 15F through 17S.

SPEE 35 - Rhetorics of Race

There are many ways to study race, however, rhetorical studies of race and racism offer important opportunities for examining its symbolic and social dimensions. This course will examine the relationship between rhetoric and race, exploring various themes and dimensions for understanding race as a discursive concept that so profoundly impacts our society, culture, and public discourse. Throughout the course we will theorize, critique, and apply ways of communicating about race and racialization. No prerequisites. Limited enrollment.

Distributive: Dist:SOC

SPEE 36 - Sustainability Rhetoric: Communication Design and Global Discourse of Social Responsibility

This course examines Corporate Social Responsibility and sustainability reporting discourse through the lenses of communication design, rhetorical theory, and modern social theory. Discussions will focus on theory and analysis of relevant concepts of globalization, civil regulation, organizational discourse, and influential documents that shape global rhetoric of sustainability. Students will read, write, think, and talk through these unifying questions: "What is the role of business in society? How do we shape this role? How *could* we?"

No prerequisites. Enrollment limited to 18 students.

Distributive: Dist:SOC

SPEE 40 - Resistance To Influence: Inoculation Theory-Based Persuasion

Instructor: Compton.

This course revisits a classic theory of resistance to influence: inoculation. Inoculation theory is unique. Instead of offering ways to enhance persuasion, inoculation offers resistance to persuasion. We will trace inoculation's development; reconsider some of its assumptions; explore its application in contexts of health, politics, and marketing; and discuss ethics of resistance-based message strategies. Writing and speaking projects will guide our consideration and analysis of this underexplored dimension of rhetoric. Limited enrollment. No prior speaking experience is necessary.

Distributive: Dist:SOC

Offered: Not offered in the period from 15F through 17S.

WRIT - Writing Courses

To view Writing requirements, click here (p. 527).

WRIT 3 - Composition and Research: II

Instructor: The staff.

This two-term course in first-year composition works on the assumption that excellence in writing arises from serious intellectual engagement. To achieve this excellence, WRIT 2 - WRIT 3 enrolls students into intensive, seminar-style classes in which literary and other works (including the students' own) are read closely, with attention to substance, structure, and style. The primary goal of WRIT 2 is for students to learn to write clearly and with authority. By submitting themselves to the rigorous process of writing, discussing, and rewriting their papers, students come to identify and then to master the essential properties of the academic argument. In WRIT 3, students engage in the more sustained discourse of the research paper. These papers are not restricted to literary criticism but might employ the research protocol of other academic disciplines. Throughout the reading, writing, and research processes, students meet regularly with their teaching assistants and professors, who provide them with individualized assistance. Note: Writing 2-3 is taken in place of Writing 5. Students must complete both terms of Writing 2-3 and a First-year Seminar to fulfill the first-year writing requirement. Students who take the WRIT 2 - WRIT 3 sequence defer their First-year Seminar until the spring term. Writing 2-3 does not serve in partial satisfaction of the Distributive Requirement.

Offered: 16W, 17W: 9L, 11, 12

WRIT 5 - Expository Writing

Instructor: The staff.

Founded upon the principle that thinking, reading, and writing are interdependent activities, WRIT 5 is a writing-

intensive course that uses texts from various disciplines to afford students the opportunity to develop and hone their skills in expository argument. Instruction focuses on strategies for reading and analysis and on all stages of the writing process. Students actively participate in discussion of both the assigned readings and the writing produced in and by the class. Note: Enrollment limited to 16. WRIT 5 (or its two-term equivalent WRIT 2 - WRIT 3 or HUM 1) is required for all first-year students. It never serves in partial satisfaction of the Distributive Requirement. Individual section descriptions for WRIT 5 are posted prior to registration for a given term. Links to these descriptions can be found on the registrar's website at the bottom of this page: <http://www.dartmouth.edu/~reg/registration/>

Offered: 15F, 16W, 17F, 17W: 9L, 10, 10A, 11, 12, 2, 2A, 3B

WRIT 7 - First-year Seminar in Writing

Instructor: The staff.

Consult special listings per term on the registrar's website.

Prerequisite: WRIT 5 or its equivalent (WRIT 2-WRIT 3 or HUM 1).

Offered: 16S, 17S: Arrange

WRIT 8 - Writing with Media

Instructor: McIntyre

New media calls for new rhetorical practices. This course introduces students to the principles and practices of writing with media, offering instruction in how to read and to write multi-media compositions. Assignments include creating visual arguments; "re-mediating" texts to the Web and/or to PowerPoint; envisioning quantitative information; and composing a video documentary. Students will also produce written analyses of multimedia compositions in order to demonstrate their visual literacy.

Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1).

Distributive: Dist:ART

Offered: 16S:2A

WRIT 9 - Composition: Theory and Practice

Instructor: S. Chaney

This course explores the complex relationship between writing and knowledge as it is theorized and practiced, focusing on the important pedagogical shifts in Composition and Rhetoric over the last fifty years. Special topics may include how writing is taught (and knowledge constructed) within the disciplines; the intersection of rhetoric, power, and culture; debates concerning collaborative learning and intellectual property; the

challenges of multi-media composition; conversations between composition and critical theory.

Note: This course is strongly recommended for those pursuing Secondary Teaching Certification through the Education Department's Teacher Education Program. This course does not carry major credit.

Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1).

Distributive: DIST: ART

Offered: 16S:2A

WRIT 10 - Writing In The Workplace

Instructor: The staff

This course approaches professional writing as a rhetorical craft. Students will learn to analyze workplace cultures and communicate effectively within them. Course readings and activities focus on professional writing, with an emphasis on written, oral, and multimedia composition. Students will learn to create effective professional documents for a variety of purposes, and to adjust their rhetorical approaches to fit their professional goals. The course uses workplace simulations to teach professional writing in context.

Prerequisite: WRIT 5 or its equivalent (WRIT 2-WRIT 3 or HUM 1).

Distributive: Dist:ART

Offered: 17S: Arrange

WRIT 41 - Writing and Speaking Public Policy

Instructor: Kalish.

this course is designed for students who intend to use their writing and communication skills to effect tangible change. Course materials will draw from various areas of public policy, and students will develop policy arguments through position papers, strategy memos, public talks, multi-media tools, as well as op-ed pieces and "letters to the editor" to be submitted to local newspapers. Students will strengthen their understanding and practice of public persuasion, as well as their capacity to analyze the components of effective argument.

Prerequisite: PBPL 5 or permission of instructor.

Cross-Listed as: PBPL 41

Distributive: Dist:ART; WCult:W

Offered: 16S: 2A

WRIT 42 - The Art of Science Writing

This course is designed to introduce students to the art of effective science writing. Students will learn to interpret and analyze complex scientific research findings and translate them into engaging prose with special attention given to the intended audience. The main focus of the

course will be on learning to write about science for scientists. Students will learn how to craft scientific research articles; they will learn to write effective abstracts, introductions, methods, results and discussions. Students will also learn how to create effective visual representations of their data. In the second portion of the course, students will focus on science writing for the non-scientific audience. Students will learn how to accurately communicate their scientific findings and the findings of other scientists to the general public in the format of review articles and newspaper or magazine features.

Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1), and permission of the instructor is required.

Distributive: Dist:ART

Offered: Not offered in the period from 15F through 17S.

WRIT 43 - The Written Judicial Opinion

Instructor: Sargent

This course studies the structure, content, format, and organization of the written legal opinion, along with an introduction to judicial procedure and process. Students will analyze several historically and socially significant United States Supreme Court opinions in order to understand how and why they constitute "the law." Additional readings will contextualize the assigned written opinions. Other topics include how judges write their legal opinions, which factors judges consider when they write judicial opinions, and how the political and social norms and trends affect and influence judicial opinions. Students will learn the technical skills of judicial opinion writing and comprehend the structure and purpose of the American judicial system. This class is recommended for those interested in writing, law, and the American judicial system, and is especially appropriate for those students considering a career in law.

Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1).

Distributive: Dist:SOC

Offered: 16S: 12

WRIT WRIT 44 - Writing and Science

WRIT 44.01 - Life Sciences Writing and Communication

Instructor: Smith

This writing-intensive course examines selected topics in scientific communication. The topics include writing and speaking science, poster presentations, grants writing, and other forms of scientific communication for scientific and non-scientific audiences. Students will read and analyze scientific literature, study the theory of science and communication, work with existing data, develop strong advanced writing processes, analyze and employ effective

rhetorical decisions for different audiences, analyze the relationship between form and content, and produce different kinds of scientific documents and presentations.

Distributive: Dist:ART

Offered: 15F: 10A

WRIT 44.02 - Science and Technology Writing and Presentation

Instructor: Harper

This course presents academic, technical, and professional research writing as an integral theoretical tool applicable within the science, technology, engineering, art, and mathematics (STEAM) disciplines. Drawing on the critical iterative creation process for ideating, formulating, writing, revising, and presenting data and information, a trans-disciplinary foundation is established through individual research work on literature reviews, papers, grant proposals within the discipline, and creative collaborative research through design posters and new media presentations across the disciplines.

Distributive: Dist:ART

Offered: 16S: Arrange

WRIT 80 - Independent Research

A tutorial course focused on an independent research project to be designed by the student with the assistance of a member of the Institute for Writing and Rhetoric faculty, who will serve as the project's supervisor. Appropriate foci include topics associated with rhetoric, writing studies, composition, speech, communication, digital or multi-media composition. A student wishing to enroll in Writing 80 must submit a proposal and plan of study, approved by the supervising faculty member, to Christiane Donahue, Director of the Institute for Writing and Rhetoric, during the term prior to taking the course.

Offered: All terms: Arrange

DEPARTMENTS/PROGRAMS AND COURSES - GRADUATE

Clinical Translational Science

Director: Surachai Supattapone, M.D., Ph.D., D.Phil

Program Manager: Cindy Stewart. Professors S. Bartels, K. Dragnev, A. Eastman, M. Karagas, L. Lewis, W. North, R. Powell, W. Rigby, B. Roebuck, D. Roberts, J. Rosen, P. Wright. Associate Professors R. Barth, A. Das, J. DiRenzo, P. Holtzheimer, B. Jobst, J. Lurie, C. Marsit, G. Schwartz, M. Spinella, R. Stan, E. Usherwood, M. Whitfield, R. Zuckerman. Assistant Professors A. Andrew, J. Doherty, J. Gui, A. Gullede, A. Kono

Master's Degree Program in Clinical and Translational Science

Dartmouth SYNERGY offers a Master's degree program for individuals interested in clinical and translational science. The objective of the Master's Program in Clinical and Translational Science (CTS) is to train investigators to properly design, conduct, coordinate, analyze and report on research studies involving human subjects. The emphasis of the program is on developing the skills to design rigorous bi-directional (bench to bedside and back) translational research projects. Students will be trained to formulate a testable hypothesis, choose the most appropriate and ethical study design, and recognize its inherent limitations and, to develop strategies to avoid common mistakes. Students will be taught how to effectively use informatics to acquire, manage, and analyze research data. Students will learn the principles of both questionnaire and tissue-based assessment. They will gain experience critically evaluating, interpreting and presenting research ideas and findings to interdisciplinary research teams, to scientific collaborators, to reviewers, and to the public.

In addition to the new Master's degree program in CTS, for students who have a strong background in clinical translational science and wish to augment their knowledge, you may enroll in courses through Dartmouth Graduate Studies as a graduate special (non-degree) student. Students may choose up to 3 required courses from the CTS Master's Program curriculum.

All candidates must possess a doctoral level degree in a field related to biomedicine—i.e., MD, PhD, or DVM candidates. This program is geared towards post-doctoral-level basic and clinician scientists with an interest in bi-directional translational research. These prospective students may include laboratory-based post-doctoral PhD investigators with prior experience in basic research using cell culture and animal models, nurse-scientists with doctoral degrees, and PharmD graduates. MDs interested

in initiating or collaborating on human studies are particularly encouraged to apply.

Students in the CTS Master's Program must successfully complete 11.5 units of course work. The timing of the program is designed to typically be completed part-time over a period of 3 years, with the flexibility to accommodate the busy schedules and on-going projects and clinical duties of post-doctoral and clinician-investigators. The program will consist of didactic coursework, workshops, computer labs, and a longitudinal capstone project, in which students will be longitudinally mentored by a project-specific, DHMC-based clinical researcher as well as the CTS capstone course director through the preparation of an original NIH formatted human subjects research grant proposal that could be carried out at DHMC.

CTSC - Courses

To view Clinical and Translational Science Requirements, click here (p. 532).

CTS 100 - SYNERGY Introduction to Translational Research

Instructor: Bartels

Certificate Program participants will learn about core areas and methodological areas in translational research; establish new collaborations and potential mentoring relationships; learn about SYNERGY resources and programs that are designed to support early career research development; receive individualized feedback on a developing pilot study proposal, early career investigator proposal, or other research project plan; and receive guidance on strategies and local resources for early career research development.

Offered: Spring Term

CTS 110 - Pharmacology of Drug Development

Instructor: Spinella

This course will provide a solid foundation in the principles of pharmacology including pharmacodynamics, pharmacokinetics, drug metabolism and biotransformation, bioavailability and receptor pharmacology. Emphasis is on how drugs are developed and the challenges and pitfalls that are involved in the drug development process using real-life examples. The class will be a combination of lecture format and student projects and presentations.

Offered: Fall Term

CTS 120 - Responsible Conduct of Research in Human Subjects

Instructor: Gulledge, North

Ethical and Responsible Conduct of Research topics include mentoring, data collection, academic integrity, ethical use of human subjects, authorship, sponsored research and intellectual property. Includes regulatory issues in clinical research (FDA, IDE)

Offered: Winter Term

CTS 130 - Foundations of Epidemiology

Instructor: Gilbert-Diamond

This graduate level course in epidemiology is designed to teach the underlying theory of epidemiologic study designs and analysis and prepare students for conduct of epidemiology research. Design of investigations seeking to understand the cause of human disease, disease progression, treatment and screening methods include clinical trials, cohort studies, case-cohort, nested case-control and case-control designs. Concepts of incidence rates, attributable rate and relative rate, induction and latent periods of disease occurrence along with confounding, effect modification, misclassification and classification, and statistical power will be covered in depth. The course will meet for 3 hours per week.

Offered: Winter Term

CTS 140 - Current Approaches in Experimental Therapeutics

Instructor: DiRenzo

This course will present a survey of current methods and approaches in pharmacologic, molecular and experimental therapeutic research. Topics will include pharmacogenomics, pharmacokinetics, functional genomics, in vivo imaging, global gene expression, proteomics, gene targeting, gene therapy and drug screening and delivery. The class will be in lecture format with student discussion and participation. The class will meet for 3 hours each week.

Offered: Spring Term

CTS 150 - Clinical Trials Part 1: Advanced Study Design and Implementation

Instructor: Lurie

This course focuses on the advanced aspects of design and conduct of randomized clinical trials, with a particular focus on drug trials, including ethics and regulations, research questions, equipoise, patient populations and recruitment, trial designs, medicare coverage analyses, randomization, blinding, placebos and sham controls, outcome measures, data collection procedures, patient follow-up, data quality and data management, data safety

monitoring boards, adverse events, reporting results, treatment heterogeneity, and sub-group analyses.

Offered: Fall Term

CTS 151 - Clinical Trials Part 2: Molecular and Biologic Markers

Instructor: Andrew

This course covers the use of human tissue samples in the context of translational research, including observational epidemiology studies and clinical trials. Lectures focus on study design, bio-specimen collection, biomarker types, kinetics and validation. Discussion will focus on examples of biomarker utilization including identifying susceptible populations, exposure assessment, molecular-genetic characterization of disease phenotype, evaluating drug compliance, monitoring dose response, testing molecularly targeted therapy efficacy, and predicting prognosis.

Offered: Spring Term

CTS 178 - Statistics for Clinical and Translational Research

Instructor: Tosteson T.

This course is a survey of concepts and methods for statistics in clinical and translational research. Initial topics will include an overview of distributions and probability along with concepts in statistical inference. Basic statistical methodologies for pre-clinical studies will be covered with common experimental designs and methods of analysis, including genomics data and animal studies. Statistical methods for clinical trials will be a major focus, covering randomization methodologies, early and late phase designs and analyses, censored survival data, longitudinal data, cross-over designs, and sequential and adaptive designs. Translational methods for population research will be discussed for prospective, retrospective, and clustered designs; data base research and small area variation; patient reported outcomes and preference trials; and population modeling and cost effectiveness analysis.

Offered: Fall Term

CTS 180 - Introduction to Clinical Research Informatics

Instructor: Das

Understanding how to effectively use informatics to acquire, manage, and analyze research data is critical to study design, as clinical and translational science becomes increasingly information intensive. In this course, students will be exposed to the key informatics models, methods and technologies designed for clinical and translational research. The course will cover three broad areas: (1) electronic collection of data for clinical and translational studies; (2) extraction and integration of existing clinical and biological data for secondary use in research; and (3) exploration and visualization of research data for

hypothesis generation. Students will gain an understanding of what existing software tools are used locally and nationally for clinical research, as well as the limitations of these technologies. The course will also cover security, regulatory, and ethical issues related to informatics approaches for clinical research.

Offered: Winter Term

CTS 190 - Clinical Investigators Training Institute Course

Online tutorial and exam on best practices for conducting clinical trials.

Offered: Any Term

CTS 310 - Mentored Research

Students may participate in a Mentored Research program through arrangements with an approved faculty member. Mentored Research involves execution of the student's Research Tutorial research proposal, and is subject to approval by the Associate Director for Education and the Director of the Clinical Trials Office. Prerequisites: Completion of Research Tutorial and the Clinical Investigators Training Institute online course.

ENGS 005 - Healthcare and Biotechnology in the 21st Century

Instructor: Rosen

Technologies that will impact healthcare in the 21st century are explored, including biology, robotics, and information. Biotechnologies are explored that will be used for the treatment of diseases and the regeneration of missing organs and limbs. Robotics will be explored that will replace parts. This will include artificial organs, robots as replacement for human parts, the human genome project, gene therapy, biomaterials, genetic engineering, cloning, transplantation (auto, allo and xeno), limb regeneration, man-machine interfaces, robotics, prosthetic limbs, artificial organs and joints. This section will also cover ethical issues related to the above topics and issues regarding the FDA and the approval of new medical treatments. We will discuss going beyond normal with respect to the senses, muscles and creating wings.

GENE 146 - Molecular and Computational Genomics

Instructor: Whitfield

The sequencing of the complete genomes of many organisms is transforming biology into an information science. This means the modern biologist must possess both molecular and computational skills to adequately mine this data for biological insights. Taught mainly from the primary literature, topics will include genome sequencing and annotation, genome variation, gene mapping, genetic association studies, gene expression and

functional genomics, proteomics and systems biology. The course will meet for 3 hours per week.

MICR 146 - Immunotherapy

Instructor: Usherwood

This course will consider both basic scientific and therapeutic aspects of three important areas of immunology: vaccination, tumor immunology and autoimmunity. The vaccination module will consider current vaccination strategies and new advances in vaccinology. The tumor immunology module will consider the challenges of tumor antigen identification and mechanism of delivery to the immune system to combat malignancies. Autoimmunity will be discussed to describe basic mechanisms behind the disease and what can be done to modulate the immune response to prevent or treat such diseases. Sessions will consist of a faculty-led discussion of the primary literature relating to each topic interspersed with student-led presentations on selected areas.

PEMM 123 - Graduate Toxicology

Instructor: Roebuck

This course provides an introduction to toxicology as a discipline, with a focus on the molecular basis for toxicity of chemicals in biological systems. Major topics include: principles of cell and molecular toxicology, xenobiotic metabolism, molecular targets of cellular toxicity, genetic toxicology, chemical carcinogenesis, immunotoxicology, neurotoxicology, clinical toxicology, and quantitative risk assessment. Faculty lectures and discussion.

PEMM 126 - Cancer Biology

Instructor: Eastman

This course will present a comprehensive survey of the biology, biochemistry, pharmacology, and genetics of cancer. Students will become familiar with such areas as cancer terminology, epidemiology, carcinogenesis, tumor promotion, metastasis, oncogenes, tumor suppressor genes, tumor viruses, growth factors, hormones, immunology, and therapy. Where possible, emphasis will be placed on the most recent cell and molecular aspects of cancer. The class will be in lecture format and meet for 3 hours each week.

PEMM 275 - Translational Vascular Biology

Instructor: Stan

The principles of development, organization and function of the cardiovascular tree in health and disease will be discussed in lecture format. Topics will include the physiology and regulation of vasculature as an organ system, the molecular and cellular biology of endothelial cell function, and the molecular basis of the disorders of the vascular system. Emphasis will be placed on molecular aspects of cardiovascular disease such as atherosclerosis, diabetes, inflammation and neovascularization. The course

will meet 4 hours per week. Course materials will include current literature reviews and research articles.

UNSG 100 - Responsible Conduct of Research

General ethics class required for all Dartmouth graduate students

Offered: Fall Term

Health Care Delivery Science

Faculty Directors: Robert G. Hansen, Faculty Co-Director, MHCDS; Norman W. Martin 1925 Professor of Business Administration, Faculty Director, Center for Business and Society, Tuck School of Business; Katherine J. Milligan, Program Director, MHCDS; Lecturer, Tuck School of Business; Eric B. Wadsworth, Faculty Co-Director, MHCDS; Assistant Professor and Senior Associate, Office of Professional Education and Outreach, The Dartmouth Institute for Health Policy and Clinical Practice

Faculty: Alice Andrews, Academic Director, The Dartmouth Institute for Health Policy and Clinical Practice; Paul Argenti, Professor of Corporate Communication, Tuck School of Business; Pino Audia, Professor of Management and Organizations, Tuck School of Business; Ethan Berke, Associate Professor of Community and Family Medicine, Geisel School of Medicine; Associate Professor, The Dartmouth Institute; Adjunct Associate Professor of Geography, Dartmouth College; Jeffrey Brenner, Adjunct Assistant Professor of the Dartmouth Institute; Elliott S. Fisher, James W. Squires, MD, Professor, Professor of Medicine and Community and Family Medicine, Geisel School of Medicine; Tina C. Foster, Associate Professor of Obstetrics and Gynecology, of Community and Family Medicine and of the Dartmouth Institute, Dartmouth College; Vijay Govindarajan, Coxie Distinguished Professor of Management, Earl C. Daum 1924 Professor of International Business, Tuck School of Business; Robert G. Hansen, Faculty Co-Director, MHCDS; Norman W. Martin 1925 Professor of Business Administration, Tuck School of Business; Alexander H. Jordan, Adjunct Assistant Professor of Business Administration, Tuck School of Business; William F. Joyce, Professor of Strategy and Organizational Theory, Tuck School of Business; Punam Anand Keller, Associate Dean for Innovation and Growth, Charles Henry Jones Third Century Professor of Management, Tuck School of Business; Carolyn Kerrigan, Professor of Surgery, Geisel School of Medicine; Professor, The Dartmouth Institute; Dartmouth-Hitchcock Medical Center; Julie Lang, Lecturer, Tuck School of Business; Ellen Meara, Associate Professor, The Dartmouth Institute for Health Policy and Clinical Practice; Adjunct Associate Professor of Public Policy, Rockefeller Center; Katherine J. Milligan, Program Director, MHCDS; Lecturer, Tuck School of Business; William A. Nelson, Associate Professor, The Dartmouth

Institute for Health Policy and Clinical Practice; Associate Professor, Community and Family Medicine, Geisel School of Medicine; Greg Ogrinc, Senior Associate Dean of Medical Education, Geisel School of Medicine; Associate Professor of Community and Family Medicine, Geisel School of Medicine; Robert A. Shumsky, Professor of Operations Management, Tuck School of Business; Jonathan S. Skinner, James O. Freedman Presidential Professorship Professor Department of Economics, Dartmouth College; Professor of Family and Community Medicine, Geisel School of Medicine; Anant K. Sundaram, Visiting Professor of Business Administration, Tuck School of Business; Elizabeth Teisberg, Professor, Community and Family Medicine, Geisel School of Medicine; Chris R. Trimble, Adjunct Professor of Business Administration, Tuck School of Business; Dale Collins Vidal, Chief, Plastic Surgery Section and Director, Center for Shared Decision Making, Dartmouth-Hitchcock Medical Center; Professor of Plastic-Reconstructive Surgery and of Community and Family Medicine, Geisel School of Medicine; Eric B. Wadsworth, Faculty Co-Director, MHCDS; Assistant Professor, The Dartmouth Institute for Health Policy and Clinical Practice; Scott Wallace, Visiting Professor of Community and Family Medicine, Geisel School of Medicine; William B. Weeks, Professor of Psychiatry and of Community and Family Medicine, Geisel School of Medicine; H. Gilbert Welch, Professor of Community and Family Medicine, Geisel School of Medicine; Michael Zubkoff, Professor of Health Economics and Management, Tuck School of Business and The Dartmouth Institute; Professor and Chair, Department of Community and Family Medicine, Geisel School of Medicine

To View Health Care Delivery Science courses, click here (p. 536).

MHCDS Program

Undergraduates interested in health care delivery science should refer to the health policy track of the Rockefeller Center Public Policy Minor. Graduate students enrolled in the Master of Health Care Delivery Science (MHCDS) program take a prescribed sequence of courses as a cohort; there are no electives.

The MHCDS program is administered by the faculties of the Tuck School of Business and the Dartmouth Institute for Health Policy and Clinical Practice. The courses listed below are designed for graduate students and do not conform to the undergraduate course calendar.

Requirements for the Master's Degree (M.S.)

To qualify for award of the M.S. degree, a student must fulfill the following requirements:

1. Satisfactory completion of an eighteen-month, graduate-level core curriculum in health care delivery science.
2. Attendance at four residential periods at Dartmouth College in conjunction with the core curriculum.

HCDS - Courses

To view Health Care Delivery Science requirements, click here. (p. 535)

HCDS 100 - Science of Health Care Delivery

Instructor: Robert Hansen, William Nelson, Eric Wadsworth, and H. Gilbert Welch

This course lays the groundwork for making decision makers capable of undertaking systemic redesign of health care delivery. The class has the opportunity to hear from renowned health care reform authorities, as well as experts in competitive strategy from the Tuck School of Business. Through use of cases, students will be introduced to new ways to think about health care delivery, including understanding variation, shared decision making, clinical microsystems, and other ways to bend the value curve in health care and to produce ethically founded, competitive, new models for care delivery.

Offered: Term 1 (UG Summer/Fall)

HCDS 110 - Leveraging Data

Instructor: William Weeks

Data are derived from a number of sources, including variable study hypotheses, designs, and analyses. This course will provide leaders with the tools to evaluate these data. Students will attain skills in developing and analyzing the findings from structured clinical studies and learn to use those findings to aid in decision-making. Finally, students will gain skills in identifying appropriate study designs and methods of analysis for addressing questions in their organizations and markets.

Offered: Term 2 (UG Winter/Spring)

HCDS 120 - Finance Essentials for Leaders in Health Care Delivery

Instructor: Anant Sundaram and Eric Wadsworth

This foundational course develops a framework with tools and models to enable participants to make value-enhancing financial decisions in health care delivery by developing the relevant ideas in three stages. The first stage (financial accounting) will build participants' skills in interpreting, analyzing, and forecasting financial statements (the income statement, the balance sheet, and the statement of cash flows). The second stage (corporate finance) will advance and synthesize the ideas from the first by building skills to

make investment and financing decisions, as well as to value businesses. Topics include free cash flow and capital budgeting, different sources of financing to fund investments, cost of capital/ hurdle rates, and tools to value businesses using cases/examples of strategic partnerships and acquisitions in the health care delivery sector. The third stage (managerial accounting) will develop skills in the use of financial information to measure, evaluate, control, and plan future management decisions. Key topics include understanding the relation between volumes, costs and profits, financial planning, budgeting and control systems, standard costs and variances, cost allocation, and activity-based costing systems.

Offered: Term 1 (UG Summer/Fall)

HCDS 130 - Clinical Microsystems

Instructor: Tina Foster and Greg Ogrinc

This course will give participants the knowledge, skills, and attitudes necessary to design, lead, and improve microsystems of care in order to continuously improve the quality and value of the care delivered. In particular, the course will explore different methods of quality improvement in health care, such as traditional continuous quality improvement, implementation of JCAHO, NCQA and NQF metrics along with methods put forward by Juran, Deming, and Shewhart, and improvement techniques borrowed from other industries, such as six sigma and the Toyota production system. Participants will develop a good understanding of the different methodologies of continuous quality improvement, the ability to match the right methodology to the appropriate situation, and the ability to employ measurement methods that signal true improvement. In addition students will gain the insights and skills necessary to effectively use statistical process control charting techniques in order to measure the effectiveness of their improvement efforts.

Offered: Term 1 (UG Summer/Fall)

HCDS 200 - Health Care Operations Management

Instructor: Robert Shumsky

Two themes will run throughout this course: 1) aligning the design and management of processes with the goals of the health care system and 2) managing variability. In health care, the first theme is crucial but complex, for the system's goals may be multidimensional. The second theme is also particularly challenging, for health care systems are faced with variability generated by fluctuations in customer demands, treatment times, patient expectations and preferences, and patient willingness or ability to participate in treatment. Specific concepts and tools in the course include process flow analysis, the theory of constraints, queueing/congestion analysis, quality improvement, and capacity management.

Offered: Term 2 (UG Winter/Spring)

HCDS 210 - Health Economics and Policy

Instructor: Robert Hansen, Ellen Meara, and Jonathan Skinner

While the economics of the health care industry appear different from other industries, the behaviors and outcomes are often the result of no more than the incentives faced by individuals and organizations, in combination with some form of competition. This course will equip participants with knowledge of health economics that enables them to understand the current state of affairs and to incorporate sound economic analysis in their role as managers. Topics to be covered include: economics of risk pooling and insurance markets, especially adverse selection and moral hazard; cost analysis; incentive effects of different payor and financing systems; supply of medical and physician services; supplier induced demand; and the economics of nonprofit organizations.

Offered: Term 1 (UG Summer/Fall)

HCDS 220 - Management and Leadership of Health Care Organizations

Instructor: Paul Argenti

Students take the vantage point of a high-level manager in a health care system and understand how divisions, departments, and microsystems currently interact, and how they might. This course will explore all aspects of a health care organization that are necessary for success, from human resources to credentialing, from finance to supply management, and from union management to physician management in a voluntary staff model. In anticipation of health care reform, students will learn how team leadership, performance measurement, and incentive structures will have an impact on care delivery. The course draws heavily on the general management literature and uses cases to apply those ideas to health care organizations.

Offered: Term 2 (UG Winter/Spring)

HCDS 230 - Shared Decision Making

Instructor: Alice Andrews and Dale Collins Vidal

In the domain of patient decision-making discussion will focus on the role and appraisal of patient literacy and numeracy; risk communication (including such concepts as relative versus absolute risk, survival versus mortality, and balanced framing); shared decision-making; decision quality (including requisite knowledge and concordance of choice with personal values); effective care (recommended) versus preference-sensitive decisions (dependent on personal values) where there is no wrong answer. Additionally, the course will demonstrate how to design more effective health communications by using patient insights on decision-making and will assess the impact of these improvements at the institutional level. At the population level, students will explore legislative and other efforts nationally and internationally to move from a

doctrine of informed consent to informed choice, and the impact of this change on both patients and health policy.

Offered: Term 1 (UG Summer/Fall)

HCDS 240 - Strategic Marketing

Instructor: Punam Anand Keller

Marketing philosophy is necessary to create, communicate, and deliver value to satisfy the needs of customers (patients, suppliers, and community) while meeting the goals of physicians, practitioners, and organizations. Marketing tools are needed to guide decisions on positioning (what do and don't we offer?), products and services (features, benefits, packaging, branding), price (list price, rebates, discounts), distribution (where and when it will be available), and communication (advertising, public relations, personal selling, social media, and direct marketing). Application of the marketing philosophy and tools will be based on in-depth knowledge of marketing research and health decision-making.

Offered: Term 3 (UG Summer/Fall)

HCDS 300 - Population Health and Preventative Care

Instructor: Ethan Berke

In this course, students will learn about the multiple determinants of health, how to measure health status, how health behaviors can be modified through social marketing, and how health disparities and socioeconomic status influence population health status. Students will come to understand the social mission of health care organizations and how they might work through social and behavioral determinants of health to improve overall health status, particularly as health care organizations adopt medical home models and begin to work with bundled and capitated payment systems.

Offered: Term 3 (UG Summer/Fall)

HCDS 310 - Management of Organizational Change

Instructor: William Joyce

Today, many organizations confront situations that require them to manage change on a continuous basis. This critical skill has become a core component of every manager's job and a substantial body of management knowledge has developed. In this course we will draw on the large body of relevant research and theory, and then complement and integrate this theory with experience from practice. Students focus in particular on the process of change and on the sequencing of change activities. Recommended actions are matched with concrete, tested, and specific tools for their application. Proceeding from concepts to actions to tools provides a range and depth of practical understanding that is unusual in this important area of management activity. The focus will be on the specifics of health care organizations, but much can be learned from

studying other firms and industries that have seen substantial change.

Offered: Term 3 (UG Summer/Fall)

HCDS 320 - Effective Information Technology for Health Care Organizations

Instructor: Scott Wallace

This course provides an overview of critical topic areas with greater depth provided in the arena of electronic medical record (EMR) evaluation, selection, and implementation. Additional topic areas will include: patient engagement through personal health records (PHR) and portals; patient-reported health status; the role of HIT in population health; HIPAA and security requirements; computerized order entry (CPOE); clinical documentation requirements and recommendations; the use of administrative and registry data for standard reports, scorecards, and dashboards; and the use of electronic patient information collected at the point of care and for ongoing comparative effectiveness evaluations.

Offered: Term 3 (UG Summer/Fall)

HCDS 330 - Strategy for Health Care Organizations

Instructor: Elizabeth Teisberg

This course will focus on strategic innovation, strategy implementation, and combining strategic thinking with leadership skills to create successful change. All the previous course work will be brought to bear on strategic redesign of the health care delivery system. The course will re-examine best-in-class examples of system design to understand the strategic implications of systemic change. In addition, the course will use complex cases to examine the delivery system from the viewpoint of a CEO, a board member, or a senior public official, requiring learners to use all their skill sets to think through design options that create value and optimize measures including institutional accountability, patient outcomes, quality, cost, and employee satisfaction.

Offered: Term 1, 2, and 3

HCDS 340 - Leading Innovation in Health Care Delivery

Instructor: Chris Trimble

Health care may be a mammoth industry, but clinical operations are local and narrowly focused. As such, fixing health care will require thousands of leaders on the front lines to transform the way care is delivered within their geography and practice area. Students will examine what it takes for innovation leaders to succeed, building on more than a decade of research into the best practices for managing innovation within established organizations. Students will study the process of forming new kinds of clinical teams and methods for proving that the new care model improves outcomes and reduces costs. Students will

discuss a wide range of initiatives, including those focused on prevention, standardization, coordination, and improved clinical decisions.

Offered: Term 3 (UG Summer/Fall)

HCDS 400 - Personal Leadership

Instructor: Pino Audia and Alexander Jordan

The focus of this course is concrete — building an understanding of one's strengths and opportunities for improvement as leaders, and using that knowledge to identify actions that advance leadership potential. The centerpiece of this course is a comprehensive, 360-degree assessment of each participant's leadership skills, based on confidential evaluations completed by bosses, co-workers, peers, and clients. During the course, students will write their own Leadership Development Plan, a specific and measurable plan for strengthening their leadership skills.

Offered: Term 1, 2, and 3

HCDS 410 - Action-Learning Project

Instructor: Carolyn Kerrigan and Katherine Milligan

As the culmination of their learning experience, students collaborate in teams on an Action-Learning Project. Applying classroom concepts to real organizational challenges provides an immediate return on the learning experience. These hands-on projects provide students with the opportunity to: 1) integrate their core academic knowledge and apply it to a real-world problem, 2) gain practical experience in planning and executing a project, and 3) tailor the curriculum to their individual goals and those of their organizations. Students work in teams to design and complete a project. Projects have an external client, often a sponsoring organization, who provides motivation for the project and access to data and people in the client organization. Each team works with a faculty advisor who approves the project and coaches the team on its planning and execution. Learning to manage a project effectively is an additional major focus of this course. Students will learn how to scope a project, develop a work plan, conduct primary and secondary research, implement the project, measure its results, and create and deliver an effective presentation. Teams present their findings to faculty, peers, and management from the sponsoring institutions.

Offered: Term 1, 2, and 3

Biochemistry - Graduate

Chair: Charles K. Barlowe

Professors C. K. Barlowe (Biochemistry), C. E. Brinckerhoff (Medicine and Biochemistry), T. Y. Chang (Biochemistry), C. N. Cole (Biochemistry and Genetics), D. A. Compton (Biochemistry), J. C. Dunlap (Genetics and Biochemistry), L. P. Henderson (Physiology and

Biochemistry), H. N. Higgs (Biochemistry), F. J. Kull (Chemistry), G. E. Lienhard (Biochemistry), J. J. Loros (Biochemistry and Genetics), D. R. Madden (Biochemistry), R. A. Maue (Physiology and Biochemistry), D. F. Mierke (Chemistry), S. Supattapone (Biochemistry and Medicine), W. T. Wickner (Biochemistry), L. A. Witters (Medicine and Biochemistry); Professor Emeritus O. A. Scornik; Associate Professors S. A. Gerber (Genetics and Biochemistry), L. C. Myers (Biochemistry); Assistant Professors A. N. Kettenbach (Biochemistry), J. S. McLellan (Biochemistry), J. B. Moseley (Biochemistry), E. V. Pletneva (Chemistry), M. J. Ragusa (Chemistry); Associate Professors Emeriti in the Research Line J. A. Sinclair, P. R. Sinclair.

Undergraduate students interested in a major program involving biochemistry should refer to the major in Biology (Biochemistry area of concentration) offered by the Department of Biological Sciences and to the major in Biophysical Chemistry offered by the Department of Chemistry.

The Ph.D. in Biochemistry is administered by the Biochemistry Department of the Geisel School of Medicine at Dartmouth. The courses listed below are primarily designed for graduate students. The student should decide, in consultation with his/her committee and course instructors, whether his/her background is appropriate for the content of the course.

To view Biochemistry courses, click here (p. 539).

Requirements for the Doctor's Degree (Ph.D.)

To qualify for award of the Ph.D. degree, a student must fulfill the following requirements:

1. Satisfactory completion of a year-long graduate-level sequence in biochemistry, cellular and molecular biology; a one-term teaching assignment; and a three-term course in laboratory biochemistry. The last will consist of three small research projects, conducted in rotation with different faculty members for periods of about three months each.
2. Satisfactory completion of three other graduate-level courses in biochemistry or related disciplines.
3. Satisfactory completion of an approved ethics course.
4. Attendance at the weekly seminar series of the Program.
5. Participation in a journal club during fall, winter and spring terms every year and in the weekly Research in Progress series.
6. Satisfactory completion of a written and oral qualifying examination.
7. Satisfactory completion of a significant research project and preparation of a thesis acceptable to the thesis advisory committee.
8. Successful defense of the thesis in an oral examination and presentation of the work in a lecture.

BIOC - Biochemistry Courses

To view Biochemistry requirements, click here (p. 538).

BIOC 101 - Molecular Information in Biological Systems

Instructor: Madden and associates

Together with Genetics 102, this course constitutes the first term of a year-long graduate-level sequence in biochemistry, cellular and molecular biology. The central theme of the course is the storage, retrieval, modification, and inheritance of biological information, as encoded in the molecular organization of proteins and nucleic acids. Topics include the principles of macromolecular interactions; the structure and function of proteins and nucleic acids; the machineries of transcription, translation, and replication; principles of genetics, genomics, and proteomics; and the control and evolution of biological systems. Note that this course is cross-listed with Genetics 102 and that students should enroll in Biochemistry 101 to complete the Molecular and Cellular Biology Graduate Program requirements for fall term. Non-MCB graduate students require permission of the instructor. Not open to undergraduate students. Please note that this course begins one week earlier than official first day of fall term classes. Madden and associates.

Offered: 15F, 16F: M, W, F 8:30-9:50 a.m., X-hour Th, 8:30-9:50 a.m.

BIOC 106 - Spring MCB Course Module

Instructor: Wickner and Moseley

The final term of a year-long graduate-level course in biochemistry, cell and molecular biology, a continuation of BIOC 101, GENE 102, BIOL 103 and MICR 104. These special-topics mini-courses provide more in-depth information about specific areas in biochemistry, cell and molecular biology. Each first-year MCB student must enroll in three sequential modules. Module topics offered each year will vary. Students should contact Janet Cheney for current list of spring-term modules and descriptions.

Prerequisite: Prerequisites: BIOC 101, GENE 102, BIOL 103, MICR 104

Offered: 16S, 17S: M, W, F 8:30-9:50 a.m with x-hour Th 8:30-9:50 a.m.

BIOC 110 - Biochemical and Genetic Basis of Medicine (DMS1)

Instructor: Myers and associates

Cellular and molecular biology: Proteins, DNA and recombinant DNA, gene expression, translation, membranes and the cell cycle. 48 hours of lecture and discussion largely coincident with fall term, but note that this course begins in mid-August.

Prerequisite: Permission of course director

Offered: 15F, 16F: 8

BIOC 111 - Spring MCB Course Module

The final term of a year-long graduate-level course in biochemistry, cell and molecular biology, a continuation of BIOC 101, GENE 102, BIOL 103 and MICR 104. These special-topics mini-courses provide more in-depth information about specific areas in biochemistry, cell and molecular biology. Each first-year MCB student must enroll in three sequential modules. Module topics offered each year will vary. Students should contact Janet Cheney for current list of spring-term modules and descriptions.

Prerequisite: Prerequisites: BIOC 101, GENE 102, BIOL 103, MICR 104

Offered: Not offered 16S-17S.

BIOC 112 - Metabolic Basis of Disease (DMS1)

Instructor: Barlowe and associates

Course objectives are to help students understand the principles of biochemistry and metabolism in the context of human biology and to understand the molecular basis of specific human diseases. This course is designed to fit with and complement the first and second year curriculum. Emphasis is placed on integration of biochemical, physiological and medical aspects of metabolic diseases. To develop critical evaluation skills, small-group literature discussion sessions focus on current primary literature. The course is presented in eight sections: (1) Cellular Utilization of Glucose; (2) Fuel Metabolism Towards an Understanding of Starvation and Diabetes Mellitus; (3) Lipoproteins and Atherogenesis; (4) Amino Acids, Nucleotides and Nitrogen Metabolism; (5) Vitamins and Porphyrin; (6) Biochemistry of Digestion and Hepatic Function; (7) Integration of Metabolism in Exercise; (8) Integration of Metabolism in Obesity. Lecture materials combine textbook information, primary literature and clinical case presentations. This course is largely coincident with winter term, but note that it begins in late November. Not open to undergraduates. Graduate students may enroll with permission of the instructor. Barlowe and associates.

Prerequisite: Permission of course director

Offered: 16W, 17W: 8

BIOC 118 - Advanced Topics in Genetics and Molecular Genetics

Instructor: The Staff

Each year BIOC 118 will focus on a different topic in genetics. Emphasis on reading and analyzing material from the primary literature.

Prerequisite: Permission of the instructor

Cross-Listed as: GENE 118

Offered: 16S, 17S: Arrange

BIOC 132 - Inorganic Biochemistry

Instructor: Pletneva

The role of metal ions in biological systems. Topics include metal ion transport, storage and interaction with proteins and nucleic acids, metalloproteins involved in oxygen transport and electron transfer, metalloenzymes involved in activation of oxygen and other sub-strates, and medicinal, toxicity and carcinogenicity aspects of metals, as well as inorganic model chemistry of bioinorganic systems. Several physical methods, including advanced spectroscopic techniques (EXAFS, Raman, ENDOR, NMR), are introduced and their application to current research on the above topics is considered.

Prerequisite: CHEM 41 or BIOL 40, and CHEM 64, or permission of the instructor

Cross-Listed as: CHEM 92 and CHEM 132

Offered: 16S: Arrange Offered in alternate years

BIOC 150 - Neurosciences I: Molecular and Cellular Neuroscience

This course is designed for students with a solid fundamental background in Neuroscience. Students should have completed Medical Neuroscience or the equivalent as a prerequisite. Students without this background who wish to take this course may do so with permission of the instructor. Lectures will cover both classical papers relevant to cellular and molecular neuroscience as well as recent studies that highlight controversial and important findings in this field. Students will be required to read and critique original research papers. Discussion of these papers is an integral part of this course. Physiology graduate students registering for advanced elective credit should register for Physiology 118.

Cross-Listed as: Physiology 150

Offered: 17S: Arrange. Offered as requested in alternate years

BIOC 197 - Graduate Research in Biochemistry, Pre-Qual I

An original individual experimental or theoretical investigation beyond the undergraduate level in

biochemistry. This course is open only to graduate students prior to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing departmental colloquia and one or more other courses. Barlowe and the staff of the Program.

Offered: All terms: Arrange

BIOC 198 - Graduate Research in Biochemistry, Pre-Qual II

An original individual experimental or theoretical investigation beyond the undergraduate level in biochemistry. This course is open only to graduate students prior to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research. Barlowe and the staff of the Program.

Offered: All terms: Arrange

BIOC 199 - Graduate Research in Biochemistry, Pre-Qual III

An original individual experimental or theoretical investigation beyond the undergraduate level in biochemistry. This course is open only to graduate students prior to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term. Barlowe and the staff of the Program.

Offered: All terms: Arrange

BIOC 297 - Graduate Research in Biochemistry, Post-Qual I

An original individual experimental or theoretical investigation beyond the undergraduate level in biochemistry. This course is open only to graduate students subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing departmental colloquia and one or more other courses. Barlowe and the staff of the Program.

Offered: All terms: Arrange

BIOC 298 - Graduate Research in Biochemistry, Post-Qual II

An original individual experimental or theoretical investigation beyond the undergraduate level in biochemistry. This course is open only to graduate students subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing

only departmental colloquia in addition to research. Barlowe and the staff of the Program.

Offered: All terms: Arrange

BIOC 299 - Graduate Research in Biochemistry, Post-Qual III

An original individual experimental or theoretical investigation beyond the undergraduate level in biochemistry. This course is open only to graduate students subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term. Barlowe and the staff of the Program.

Offered: All terms: Arrange

Biochemistry - Graduate Research Colloquium

This course is required of all students during each term of residence, except summer. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Evaluation will be based on quality of the work described, quality of critical analysis, and on presentation style, including effective use of audio-visual materials. Although minor variations in format exist among these series, normally these series meet weekly and all students will be required to participate in at least one Journal Club presentation each term that describes work from the current literature and one Research in Progress presentation each academic year that describes their own research. This course is not open to undergraduates. Students may choose from the following topics, enrolling in the course named:

BIOC 259, Actin Cytoskeleton

BIOC 260, Structural Biology (*Identical to CHEM 264—Enroll in CHEM 264*)

BIOC 261, Cancer Biology

BIOC 262, Lipid Biology and Neurodegeneration

Biological Sciences - Graduate

Chair: Kathryn L. Cottingham

Professors M. P. Ayres, K. L. Cottingham, M. R. Dietrich, M. L. Gueriot, T. P. Jack, R.A. Maue, C. R. McClung, M. A. McPeck, D. R. Peart, K. J. Peterson, G. E. Schaller, R. D. Sloboda, E. F. Smith, L. A. Witters; Associate Professors S. E. Bickel, R. G. Calsbeek, P. J. Dolph, A. S. Gladfelter; Assistant Professors E. E. Griffin, M. B. Hoppa, H. M. ter Hofstede, O. Zhaxybayeva; Senior Lecturer N. M. Grotz; Lecturer B. Calsbeek; Professor Emeritus J. J. Gilbert; Research Professor and Professor Emeritus R. T. Holmes; Adjunct Professors D. T. Bolger,

N. J. Dominy, A. J. Friedland, T. U. Gerngross, W.R. Green, A. R. Kapuscinski, D. A. Leib, L. R. Lynd, G. A. O'Toole, G. C. Ruben, P. R. Sundstrom, R. K. Taylor, R. A. Virginia; Adjunct Associate Professors K. E. Griswold, R. E. Irwin; Adjunct Assistant Professors G. Grigoryan, J. H. Matthes, N. J. Reo, B. W. Taylor; Research Professor C. Y. Chen; Research Assistant Professor T. Punshon.

To view Biological Sciences Graduate courses, click here. (p. 542)

To view Biological Sciences Undergraduate requirements, click here. (p. 140)

To view Biological Sciences Undergraduate courses, click here. (p. 142)

Requirements for Advanced Degrees

The general requirements for advanced degrees are given in the Regulations for Graduate Study section. Each graduate student must receive credit for a set of courses chosen in consultation with the advisory committee. All graduate students are expected to participate in departmental colloquia and weekly seminars.

To receive the Ph.D. degree in Biology a candidate must satisfactorily:

1. Complete the course requirement, as described above.
2. Complete the teaching requirement as specified by the advisory committee.
3. Demonstrate mastery of conceptual and factual material in the major area of specialization in an oral examination.
4. Present and satisfactorily defend a thesis proposal before the advisory committee.
5. Satisfy the two-year residence requirement of the College.
6. Complete a doctoral dissertation.
7. Defend the dissertation before a faculty committee appointed for this purpose.

Although the graduate program is designed for students pursuing the Ph.D. degree, a master's degree may be awarded under special circumstances. To receive an M.S. degree in Biology, a candidate 1) must satisfactorily complete course and teaching requirements, as specified by the advisory committee, 2) complete a thesis, 3) defend the thesis in an oral examination before a faculty committee, and 4) satisfy the one-year residence requirement of the College.

BIOL - Biological Sciences - Graduate Courses

To view Biological Sciences Graduate requirements, click here. (p. 541)

To view Biological Sciences Undergraduate requirements, click here. (p. 140)

To view Biological Sciences Undergraduate courses, click here. (p. 142)

BIOL 103 - The Molecular Mechanisms of Cellular Responses

Instructor: Sloboda, Gladfelter, Barlowe, Higgs, Berwin, O'Toole

Together with Microbiology 104, this course constitutes the second term of a year-long graduate-level sequence in biochemistry, cell and molecular biology. The central theme of the course is the molecular mechanisms by which cells respond to stimuli, to their environment and to other cells. Topics include membrane transport, protein targeting, energy conversion, signal transduction cell motility and the cytoskeleton, and the cell cycle. Emphasis will be placed on the experimental basis for understanding cell function. This course culminates with discussion of the fidelity of cellular responses to both 'self' and pathogens. Note that this course must be taken concurrently with Microbiology 104 and that students will need to enroll in both courses to complete the Molecular and Cellular Biology Graduate Program requirements for winter term. Not open to undergraduate students.

Offered: 16W: M, W, F 8:30AM-9:50AM, X-hour Th, 9:00AM-10:00 AM

BIOL 110 - Scientific Integrity and Research Ethics

Instructor: Dietrich

This course is designed to introduce scientific researchers to issues in research ethics. We will emphasize foundational principles underlying scientific integrity and their application to a range of issues including data management, animal and human subjects, collaboration, mentoring, peer review and the ethical implications of different forms of scientific research. Analysis and presentation of case studies will constitute important focal points for discussion in class meetings.

Offered: 15F: Tue 1PM-3PM

BIOL 120 - Advanced Population Ecology

Instructor: McPeck

Described under BIOL 51. Offered in alternate years.

Offered: 15F: 9L

BIOL 123 - Advanced Community Ecology

Instructor: The staff

Described under BIOL 58. Offered in alternate years.

Prerequisite: Graduate standing

Offered: TBD

BIOL 128 - Statistics and Experimental Design I

Instructor: The staff

The course will cover basic descriptive statistics, simple probability theory, the fundamentals of statistical inference, regression and correlation, t-tests, one-way analysis of variance, basic analyses of frequency data and non-parametric statistics, and the general philosophy of experimental design. We will explore these topics from the perspective of biological applications. Examples will be drawn from all subdisciplines of biology (e.g. biochemical kinetics, development, physiology, ecology, evolution).

Prerequisite: Graduate standing

Offered: 16W: 10A and other times to be arranged

BIOL 129 - Statistics and Experimental Design II

Instructor: The staff

Described under BIOL 59. Offered in alternate years.

Prerequisite: Graduate standing and at least one elementary course in statistics

Offered: TBD

BIOL 133 - Foundations of Ecological and Evolutionary Biology

Instructor: Ayres

In this graduate course, students will read and discuss a series of classic and contemporary papers taken from the primary literature on various topics in ecology and evolutionary biology. Each week a series of lectures will be given and a set of 2-4 papers will be discussed covering a different major topic. The papers will be chosen to expose students to the foundations of major ideas and theories in ecology and evolution and to contemporary tests of these major theories. Bio 133 covers topics in ecosystem and community ecology, natural selection and adaptation, and research approaches in ecology and evolution. Offered in alternate (odd) years.

Offered: 15F: Thur 3:00PM-5:00PM

BIOL 134 - Foundations of Ecological and Evolutionary Biology II

Instructor: The staff

In this graduate course, students will read and discuss a series of classic and contemporary papers taken from the primary literature on various topics in ecology and evolutionary biology. Each week a series of lectures will be given and a set of 2-4 papers will be discussed covering a different major topic. The papers will be chosen to

expose students to the foundations of major ideas and theories in ecology and evolution and to contemporary tests of these major theories. Bio 134 covers topics in population biology, population genetics, speciation, and macroevolution. Offered in alternate (even) years.

Offered: TBD

BIOL 138 - Introduction to Polar Systems

Instructor: Virginia

This course will examine current polar science that has relevance to critical environmental issues and policies for the high latitude regions. It will provide a foundation on topics such as ice core interpretation, declining sea ice and changes in ice sheet dynamics, alterations in the terrestrial and marine carbon cycles, and climate change impacts on polar biodiversity. The later portion of the course will focus on the development of a group interdisciplinary research project. This is a core course in the IGERT Polar Environmental Change curriculum. In keeping with the interdisciplinary theme of this course, several faculty will lecture or lead discussions. Professor Virginia is responsible for organizing the course, administration and assigning final grades.

Cross-Listed as: EARS 128

Offered: Will not be offered in 2015-2016.

BIOL 147 - Genomics: Data to Analysis

Instructor: Zhaxybayeva

Described under BIOL 47.

Offered: Not offered in 2016.

BIOL 148 - Science and Policy of Rapid Environmental Change (identical to ENVS 80.01)

Instructor: Culler

This course examines the connections between science and the human dimensions of rapid environmental change. First, ecosystem responses to emerging environmental issues (climate change, resource development) will be introduced from a scientific perspective. In the second part, we will explore how this science is framed in policy documents such as reports from the Intergovernmental Panel on Climate Change. The course will emphasize the importance of science communication in the policy process and will culminate with a collaborative case study that integrates climate change, resource development, and social issues.

Cross-Listed as: ENVS 80.01

Offered: 16W: 2A

BIOL 152 - Student-Organized Seminar in Ecology and Evolution

Instructor: The staff

Graduate students who have advanced to candidacy may organize a seminar course on topics of their choosing. The course will be conceived, organized, and led by students with faculty involvement. Course proposals should contain: (1) title; (2) one-page exposition on the intellectual motivation for the course; (3) syllabus, including reading list and example problem sets, if appropriate; (4) name(s) of faculty advisor(s); (5) names of students and postdoctoral researchers that will participate in the seminar; and if appropriate, (6) a listing of potential products of the seminar, such as joint papers or proposals. Proposals will be evaluated by a faculty committee. Students are encouraged to collaborate with faculty advisors during proposal development.

Offered: 15F, 16W, 16S: Arrange

BIOL 153 - Aquatic Ecology

Instructor: The staff

Described under BIOL 53. Offered in alternate years.

Offered: Will not be offered in 2015-2016.

BIOL 165 - Current Topics in Molecular Genetics

Instructor: The staff

This course will cover in depth one or more specific topics in molecular genetics. Material will be presented in a manner designed to encourage student participation and to demonstrate how modern molecular, biochemical, immunological and genetic techniques are employed to study problems in molecular biology and genetics. Assignments will be based on readings from the current research literature.

BIOL 165.1 Gene Regulation in Eukaryotes.

Each primary literature paper selected in this course will highlight a different aspect of gene regulation. We will focus on the numerous ways in which a gene and/or gene product can be regulated starting with examples of the regulation of transcription and finishing with examples of post-translational control.

BIOL 165.2 Plant Developmental Genetics.

This course will cover a range of topics including the development of embryo, root, trichome, leaf, flower, ovule and seed. This literature-based course focuses on molecular genetic approaches, primarily in *Arabidopsis thaliana*.

Offered: Will not be offered in 2015-2017.

BIOL 166 - Molecular Basis of Cancer

Instructor: Grotz

Described under BIOL 66.

Offered: 16S, 17S: 2A

BIOL 169 - Supervised Teaching in Biology

Instructor: The staff

This course is required for all graduate students, based on the assertion that an essential element of graduate education is the experience gained in teaching other students. Such teaching experience is of particular relevance to students interested in academic careers. Students will conduct laboratory or discussion sessions in undergraduate courses under the supervision of the course faculty. The faculty and student teaching assistant work very closely to develop lab and discussion assignments. In some cases, the students are encouraged to present lectures for which they receive detailed feedback on their teaching style. In all cases students will receive instruction on effective teaching techniques through weekly preparation sessions. Topics for discussion include how to teach the material, how to run a discussion, how to evaluate student responses, and grading. Performance will be monitored throughout the term and appropriate evaluation, coupled with detailed suggestions for improvement, will be provided. This course is not open to undergraduates.

Offered: All terms: Arrange

BIOL 171 - Current Topics in Cell Biology

Instructor: Sloboda

Described under BIOL 71.

Offered: 16W, 17W: 2

BIOL 173 - Cell Signaling

Instructor: Dolph

Described under BIOL 69.

Offered: 16S, 17S: 10A

BIOL 174 - Advanced Neurobiology

Instructor: Hoppa

Described under BIOL 74.

Offered: 15F: 10A

BIOL 176 - Advanced Genetics

Instructor: McClung

Described under BIOL 76.

Offered: 15F, 16F: 11

BIOL 180 - Microscopy Principles and Application

Instructor: Bickel

Research in the life sciences is increasingly driven by the need to use microscopy to examine cellular components and processes. The goal of this course is to provide graduate students with a solid foundation in both the theory and practice of light microscopy, with emphasis on

fluorescence and confocal techniques and approaches. We will focus on practical aspects of microscope use including experimental design, data collection and analysis. In addition, newly emerging imaging techniques relevant to the life sciences will be discussed. There will be considerable "hands on" training on different microscopes within the Biological Sciences Light Microscopy Facility.

Prerequisite: Graduate standing

Offered: 16W: 10A

BIOL 197 - Graduate Research I: Level I

Instructor: The staff

An original individual experimental or theoretical investigation beyond the undergraduate level in one of the fields of biology. This course is open only to graduate students, prior to passing their qualifying examination; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing two or more other graduate or undergraduate courses.

Offered: All terms: Arrange

BIOL 198 - Graduate Research I: Level II

Instructor: The staff

An original individual experimental or theoretical investigation beyond the undergraduate level in one of the fields of biology. This course is open only to graduate students, prior to passing their qualifying examination; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research.

Offered: All terms: Arrange

BIOL 199 - Graduate Research I: Level III

Instructor: The staff

An original individual experimental or theoretical investigation beyond the undergraduate level in one of the fields of biology. This course is open only to graduate students, prior to passing their qualifying examination; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term.

Offered: All terms: Arrange

BIOL 262 - Mechanisms of Evolution and Development

Instructor: The staff

Offered: Will not be offered 2015-2016.

BIOL 263 - Cell Biology

Instructor: Moseley, Griffin, Gladfelter

Offered: 15F, 16W, 16S: Arrange

BIOL 266 - Ecology and Evolution

Instructor: Calsbeek, Peterson, ter Hofstede

Offered: 15F, 16W, 16S

BIOL 268 - Genes and Gene Products

Instructor: Dolph, Bickel, Sloboda

Offered: 15F, 16W, 16S: Arrange

BIOL 269 - Plant Molecular Biology

Instructor: McClung, Jack, Schaller

Offered: 15F, 16W, 16S: Arrange

BIOL 270 - Computational Biology

Instructor: Zhaxybayeva

Offered: Will not be offered 2015-2016.

BIOL 271 - Research in Progress Colloquium

This course is designed to monitor participation of first year MCB graduate students in the Research in Progress Seminars. The Research in Progress Seminars are presentations by MCB students, second year and older. These Research in Progress Seminars meet five times per month for 1-1.5 hours from September through May. The course will be taken by all first year MCB students in the Spring term, and the course will monitor Research in Progress Seminar participation throughout the first year.

Offered: 16S, 17S

BIOL 297 - Graduate Research II: Level I

Instructor: Staff

An original individual experimental or theoretical investigation beyond the undergraduate level in one of the fields of biology. This course is open only to graduate students, subsequent to passing their qualifying examination; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing two or more other graduate or undergraduate courses.

Offered: All terms: Arrange

BIOL 298 - Graduate Research II: Level II

Instructor: The staff

An original individual experimental or theoretical investigation beyond the undergraduate level in one of the fields of biology. This course is open only to graduate students, subsequent to passing their qualifying examination; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research.

Offered: All terms: Arrange

BIOL 299 - Graduate Research II: Level III

Instructor: The staff

An original individual experimental or theoretical investigation beyond the undergraduate level in one of the fields of biology. This course is open only to graduate students, subsequent to passing their qualifying examination; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term.

Offered: All terms: Arrange

Chemistry - Graduate

Chair: Dale F. Mierke

Professors J. J. BelBruno, R. S. Cantor, R. Ditchfield, D. S. Glueck, G. W. Gribble, P. A. Jacobi, F. J. Kull, J. E. G. Lipson, G. C. Micalizio, D. F. Mierke, D. E. Wilcox, J. S. Winn; Associate Professors I. Aprahamian, E. V. Pletneva, J. Wu; Assistant Professors C. Ke, K. A. Mirica, M. Ragusa; Senior Lecturer C. O. Welder; Lecturer W. S. Epps; Adjunct Professors T. U. Gerngross, U. J. Gibson, D. R. Madden, H. M. Swartz; Adjunct Associate Professor M. R. Spaller, Adjunct Research Associate Professor B. P. Jackson; Research Professors R. P. Hughes, D. M. Lemal, T. A. Spencer; Research Associate Professor M. Pellegrini.

To view Chemistry Graduate courses, click here. (p. 548)

To view Chemistry Undergraduate requirements, click here. (p. 155)

To view Chemistry Undergraduate courses, click here. (p. 158)

Integrated 4+1 AB/MS Program in Biophysical Chemistry

Objective and Overview: A 4+1 program to provide Dartmouth undergraduate students an opportunity to acquire a broader and deeper education in modern techniques of biophysical chemistry through a combination of coursework and independent research under the direction of one of the program faculty. With integration of the courses and a substantial effort in the independent research carried out during the senior year, the MS can be obtained in one year directly after completing the AB at Dartmouth.

Participating Faculty: Robert S. Cantor, Computational biophysics of cell membranes, protein-lipid interactions, ion channel kinetics, anesthetic mechanisms; F. Jon Kull,

Protein crystallography, molecular motors, cellular transport mechanisms, enzyme mechanisms; transcription factors; bacterial virulence; cholera; Dale F. Mierke, Biophysical chemistry, high resolution NMR, peptide/compound library screening, structure-based drug-design; Ekaterina Pletneva, Biophysical and bioinorganic chemistry, heme proteins, fluorescence studies of protein conformational dynamics, redox chemistry; Michael J. Ragusa, Protein crystallography, small angle x-ray scattering, autophagy, vesicle biogenesis, protein degradation; Mark R. Spaller, Biophysical chemistry, chemical biology, peptide and protein biochemistry, organic synthesis of cellular probes; Dean Wilcox, Thermodynamics of metal-protein interactions, metalloenzymes, nitric oxide biochemistry.

Prerequisite Courses: Students wishing to enter the program must demonstrate proficiency in each of the following areas: biochemistry, chemistry, calculus and physics. Such proficiency will normally be demonstrated by completing the following Dartmouth College courses with at least a B grade prior to entering the Master's Program: MATH 8 (or equivalent) PHYS 13-14 (or PHYS 15-16, or by permission PHYS 3-4) CHEM 51-52 (or equivalent) CHEM 41 (or by permission BIOL 40) CHEM 40 (preferred) or CHEM 75, and CHEM 76.

Additionally, it is anticipated that the student will begin an independent research project with one of the participating faculty no later than the summer before senior year. An interim evaluation will be made after each term and continuation within the Master's Program will be recommended for those students whose work demonstrates the capacity for satisfactory independent research.

Admission: Students must apply for admission to the program no later than May 1 of their junior year, although interested students are strongly encouraged to contact the Program Director (Mierke) earlier for advice on prerequisites, and on the scheduling of required courses for the degree. Having explored research opportunities with members of the faculty listed above, the applicant is expected to reach an agreement on a specific project with one of the faculty. The program Admissions Committee (Cantor, Kull, Mierke) will be responsible for reviewing applications and making offers of admission, to be completed by June 30.

A complete application includes: i. A current transcript. ii. Anticipated schedule of courses for senior and fifth year. iii. The name of the research advisor and a brief description of the research project, including a timeline of research effort.

Specific Requirements for the Master's in Biophysical Chemistry are as follows:

1. **Course Distribution Requirements:** In addition to the prerequisite courses described above, each student must pass the following courses, either prior to beginning the Master's Program or as part of the coursework required for the program: CHEM 42, CHEM 67, and at least one of the

offerings of CHEM 161 (CHEM 161.1, CHEM 161.2, CHEM 161.3, CHEM 161.4, CHEM 161.5).

2. **Required Course Credits:** During the Master's Program, each student must pass with a grade of P or better at least eight courses from the offerings in biophysical chemistry. Two terms of Graduate Research Colloquium and up to four courses in graduate-level research may count in the eight-course total. Note: Courses taken as an undergraduate can fulfill the "Course Distribution Requirements" described above, but do not count toward the eight courses required for the Master's degree.

3. **Competency Requirement:** The student must demonstrate competency in the fundamentals of a biophysical chemistry methodology, including X-ray crystallography, NMR spectroscopy, fluorescence spectroscopy/FRET, experimental characterization of binding processes, or biomolecular computer simulations. This requirement will be satisfied by successful defense of the topic in an oral examination and must be completed before the end of winter term.

Thesis Requirement: The student must complete a satisfactory thesis based on independent-original research. The thesis must be approved by three program members and successfully defended in an oral examination.

Requirements for the Master's Degree (M.S.)

The general requirements for the Master's degree, together with the specific requirements of the Department of Chemistry normally allow completion of the degree in two years.

The specific requirements are as follows:

1. Each student must pass with a grade of P or better eight courses from the offerings in chemistry and allied areas that have been chosen in consultation with the adviser and approved by the Graduate Student Advisory Committee (GSAC). CHEM 256 and one term of CHEM 257 may count. Up to four courses may be in graduate-level research, but they may not include the Colloquium course CHEM 140 or any course in the CHEM 260 series, nor may courses numbered below 100 count in the eight-course total.
2. The student must complete a satisfactory thesis and pass creditably an oral examination upon this thesis.
3. In the course of this training, the student must gain experience in teaching, including completion of CHEM 256.

Requirements for the Doctor's Degree (Ph.D.) in Chemistry

A student will be admitted to candidacy for the doctorate after satisfying the following requirements:

1. Completion, by the start of the Fall term of the student's second year in the program, through an

appropriate combination of Dartmouth courses or performance on diagnostic entrance examinations, of a breadth requirement in three of the four topical areas of biological, inorganic, organic, and physical chemistry.

2. Passing by the end of the spring term of the second year, a Ph.D. qualifying examination consisting of a written proposal for the student's Ph.D. research and an oral defense of that proposal.
3. Presentation before the Department of a lecture on the thesis topic by the end of the student's third year.
4. Submission and oral defense of an original research proposal in an area removed from the student's own thesis research.

The candidate will receive the doctorate upon:

1. Satisfactory completion of an original thesis project of high quality and substantial significance, and approval of the thesis embodying the results of this research.
2. Successful defense of this thesis in an oral examination.

A candidate for the doctorate will take various courses in chemistry and allied fields that are pertinent to their area of study. He or she will also participate actively in undergraduate teaching, including completion of CHEM 256. It is anticipated that a graduate student will normally complete all of the requirements for the doctorate in approximately five years. It is not necessary to earn a master's degree as a prerequisite to the doctorate.

More complete information can be obtained from the brochure, *Graduate Study in Chemistry at Dartmouth*, obtainable from the Department of Chemistry.

Requirements for the Doctor's Degree (Ph.D.) in Chemistry-Materials

A student will be admitted to candidacy for the doctorate after satisfying the following requirements:

1. Completion, by the start of the Fall term of the student's second year in the program, through an appropriate combination of Dartmouth courses or performance on diagnostic entrance examinations, of a breadth requirement in three of the four topical areas of biological, inorganic, organic, and physical chemistry.
2. Successful completion, by the end of the student's third year in the program, of four core courses satisfying the breadth requirement in Materials Chemistry, and a minimum of three elective courses selected from the Chemistry-Materials elective course list.
3. Annual presentation of a Research in Progress lecture to the Materials Chemistry Group, and submission of an annual research progress report to the student's Research Advisory Committee.

4. Submission and oral defense of an original research proposal in an area removed from the student's own thesis research.

The candidate will receive the doctorate upon:

1. Satisfactory completion of an original thesis project of high quality and substantial significance, and approval of the thesis embodying the results of this research.
2. Successful defense of this thesis in an oral examination.

A candidate for the doctorate will take additional courses in chemistry and allied fields as required for their area of study. He or she will also participate actively in undergraduate teaching, including completion of CHEM 256. Students are required to attend research discussion meetings as well as seminars designated by their research director as Materials Seminars. It is anticipated that a graduate student will normally complete all of the requirements for the doctorate in approximately five years. It is not necessary to earn a master's degree as a prerequisite to the doctorate.

CHEM - Chemistry - Graduate Courses

To view Chemistry Graduate requirements, click here. (p. 546)

To view Chemistry Undergraduate requirements, click here. (p. 155)

To view Chemistry Undergraduate courses, click here. (p. 158)

CHEM 101 - Special Topics in Physical Chemistry

An in-depth exploration of a specific topic in physical chemistry. This course provides an introduction into the areas of current research in the field. The course is offered in most fall and winter terms, but the content changes according to the chosen topic.

CHEM 101.1 (p. 548) Quantum Chemistry

CHEM 101.2 (p. 548) Statistical Thermodynamics

CHEM 101.3 (p. 548) Molecular Spectroscopy

CHEM 101.4 (p. 548) Chemistry of Macromolecules

CHEM 101.7 (p. 548) Introduction to Materials Chemistry

CHEM 101.8 (p. 549) Chemical Kinetics

Cross-Listed as: CHEM 96

Offered: 14F, 15F, 15W, 16W: Arrange

CHEM 101.1 - Quantum Chemistry

Instructor: Ditchfield

An introduction to the quantum mechanics of molecular systems. Approximate methods for calculating the electronic structure of molecules are discussed. Particular emphasis is placed on molecular orbital methods at various ab-initio levels. Methods which include the effects of electron correlation will also be presented. Evaluation of such methods for studies of molecular geometry, conformational problems, thermochemical data, and spectroscopic parameters is presented. Other topics considered may include the electronic structure of hydrogen bonded systems and of excited states.

Prerequisite: MATH 13 and CHEM 76 or equivalent, or permission of the instructor.

Cross-Listed as: CHEM 96.01

CHEM 101.2 - Statistical Thermodynamics

Instructor: Cantor

Elements of equilibrium statistical thermodynamics for classical and quantum mechanical systems, with applications to ideal gases, crystalline solids, imperfect gases and liquids.

Prerequisite: MATH 13 and CHEM 76 or equivalent, or permission of the instructor.

Cross-Listed as: CHEM 96.02

CHEM 101.3 - Molecular Spectroscopy

Instructor: Winn

A study of optical spectroscopy including selected topics from amongst point group theory, vibrational spectra of polyatomic molecules, electronic and vibronic spectra of molecules and rotational spectra. May be offered on tutorial basis.

Prerequisite: CHEM 76 or equivalent, or permission of the instructor.

Cross-Listed as: CHEM 96.03

CHEM 101.4 - Chemistry of Macromolecules

Instructor: Lipson

Light scattering and other characterization techniques; thermodynamic and transport properties of macromolecular solutions. Structure-property correlations in amorphous and crystalline polymers.

Prerequisite: CHEM 75 or permission of the instructor

Cross-Listed as: CHEM 96.04

CHEM 101.7 - Introduction to Materials Chemistry

Instructor: BelBruno

This course begins with a review of fundamental concepts in material science, provides an introduction to some of the more advanced concepts, especially in regard to nanomaterials and, finally, focuses on the chemistry involved both in production of modern materials and their uses. The latter topics include the chemistry of thin films, self-assembled chemical systems, surface chemistry and cluster chemistry.

Prerequisite: Background in Chemistry equivalent to CHEM 76 or Physics equivalent to PHYS 24 or Engineering equivalent to ENGS 24 or permission of instructor.

Cross-Listed as: CHEM 96.07

Offered: 15F: Arrange

CHEM 101.8 - Chemical Kinetics

Instructor: BelBruno

Kinetics of chemical reactions in various media: reaction rate expressions, mechanisms, elementary processes. Elementary theories of rate processes: activated complex theory, elementary collision theory, unimolecular decomposition. Such topics as diffusion control of reactions, catalysis and photochemistry will be treated as time allows.

Prerequisite: MATH 13 and CHEM 76 or equivalent or permission of the instructor.

Cross-Listed as: CHEM 96.08

CHEM 103 - Special Topics in Biophysical Chemistry

Instructor: Staff

A course designed to address topical interests and knowledge areas required of students in the Integrated 4+1 AB/MS Program in Biophysical Chemistry.

Offered: All Terms: Arrange

CHEM 123 - Graduate Toxicology

This course is open to graduate, medical and advanced undergraduate students. It provides an introduction to toxicology as a discipline, with a focus on the molecular basis for toxicity of chemicals in biological systems. Major topics include: principles of cell and molecular toxicology, xenobiotic metabolism, molecular targets of cellular toxicity, genetic toxicology, chemical carcinogenesis, immunotoxicology, neurotoxicology, clinical toxicology, and quantitative risk assessment. Faculty lectures and discussion.

Prerequisite: Undergraduate or graduate biochemistry, or permission of instructor.

Cross-Listed as: PHAR 123

Offered: 17W: Arrange Offered in alternate years

CHEM 124 - Analytical Chemistry and Inorganic Instrumental Analysis

Instructor: Jackson

This course is directed towards graduate students planning to use inorganic chemical analysis in their thesis work. The lectures and seminars focus on the theory and application of modern instrumental analysis and analytical chemistry. The theoretical background for a number of inorganic instrumental analytical methods are given and examples of their application to problems of interest to analytical chemists working in the fields of earth science, chemistry, biology and environmental science are presented. The lectures cover ion chromatography, electrochemistry, atomic absorption, inductively coupled plasma optical emission and inductively coupled plasma mass spectrometry. The theory and concepts of analytical chemistry are provided along with statistical tools, uncertainty calculations and data treatment methods useful in analytical chemistry.

Prerequisite: CHEM 5 and CHEM 6 or equivalents or permission of the instructor.

Cross-Listed as: EARS 124

Offered: 15F: Lectures and Laboratory to be arranged

CHEM 130 - Advanced Inorganic Chemistry: Organometallic Chemistry

A study of the structure, bonding, and chemical properties of organometallic compounds of the main group and transition elements. Applications to organic synthesis and homogeneous catalysis will be discussed, and organometallic compounds of the lanthanide and actinide elements may also be discussed.

Prerequisite: CHEM 64, or permission of the instructor

Cross-Listed as: CHEM 90

Offered: 17S: 10 Offered in alternate years

CHEM 131 - Advanced Inorganic Chemistry: Catalysis

The role of metals in homogeneous and heterogeneous catalysis, with an emphasis on mechanisms of catalytic reactions. Applications to industrial processes, organic synthesis, and asymmetric synthesis will be discussed.

Prerequisite: CHEM 64, and either CHEM 52 or CHEM 58, or permission of the instructor

Cross-Listed as: CHEM 91

Offered: 17F: 10 Offered in alternate years

CHEM 132 - Inorganic Biochemistry

The role of metal ions in biological systems. Topics include metal ion transport, storage, and interaction with proteins and nucleic acids; metalloproteins involved in oxygen transport and electron transfer; metalloenzymes

involved in activation of oxygen and other substrates; and medicinal, toxicity, and carcinogenicity aspects of metals; as well as inorganic model chemistry of bioinorganic systems. Several physical methods are introduced, and their application to current research on the above topics is considered.

Prerequisite: CHEM 64, and CHEM 41 or BIOL 40, or permission of the instructor

Cross-Listed as: CHEM 92 and BIOC 132

Offered: 16S: 10 Offered in alternate years

CHEM 137 - Methods of Materials Characterization

Instructor: I. Baker

This survey course discusses both the physical principles and practical applications of the more common modern methods of materials characterization. It covers techniques of both microstructural analysis (OM, SEM, TEM, electron diffraction, XRD), and microchemical characterization (EDS, XPS, AES, SIMS, NMR, RBS and Raman spectroscopy), together with various scanning probe microscopy techniques (AFM, STM, EFM and MFM). Emphasis is placed on both the information that can be obtained together with the limitations of each technique. The course has a substantial laboratory component, including a project involving written and oral reports, and requires a term paper.

Prerequisite: ENGS 24, or permission of the instructor

Cross-Listed as: PHYS 128 and ENGS 133

Offered: 17S: 2A

CHEM 140 - Chemistry Research Colloquia

Instructor: The Staff

Colloquia presented to the Department of Chemistry by scientists and educators in the chemistry profession on Thursdays, and by graduate students and others conducting research in chemistry and allied fields on Wednesdays as needed. The course is required of all graduate students in chemistry in each term except summer. The course is not open for credit to undergraduates.

Offered: All but summer terms: W 4:00-5:00 p.m., Th 10:30-noon

CHEM 151 - Physical Organic Chemistry

Modern theories of organic reaction mechanisms, particularly the use of physical-chemical principles to predict the effect of changing reaction variables, especially reactant structures, on reactivity. The structure, stability, and reactivity of carbanions and carbocations, as well as SN1 and SN2 reactions, are discussed.

Prerequisite: CHEM 52 or CHEM 58, or permission of the instructor

Cross-Listed as: CHEM 93

Offered: 16F: 9L Offered in alternate years

CHEM 152 - Advanced Organic Synthesis and Mechanisms

Consideration of organic chemical reactions at an advanced level. Current knowledge concerning synthetic methods, reaction mechanisms, reactive intermediates, conformational analysis, and biosynthesis is discussed in the context of modern organic chemistry.

Prerequisite: CHEM 151, or permission of the instructor

CHEM 153 - Chemistry of Natural Products

A survey of the application of modern synthetic methods to the total synthesis of natural products. Coverage will include retrosynthetic analysis and synthetic planning and an overview of the preparation of a wide variety of important natural products. Emphasis will be placed on student problem-solving in the context of the synthesis of complex molecules.

Prerequisite: CHEM 152, or permission of the instructor

Offered: 16S: Arrange

CHEM 157 - Topics in Advanced Organic Chemistry

Treatment at an advanced level of one or more areas of organic chemistry. The subject matter may vary from offering to offering; accordingly, the course may be taken for credit more than once. Offered on a tutorial basis to qualified students.

Offered: 15F, 16W, 16S: Arrange

CHEM 159 - Chemistry of Heterocyclic Compounds

An introduction to the chemical, physical, and spectroscopic properties of heterocyclic compounds. Coverage will include reactions, synthesis, stereochemistry, and unusual rearrangements. Attention will also be given to natural product synthesis and to heterocycles of biological interest.

Prerequisite: Permission of the instructor

CHEM 161 - Topics in Advanced Biophysical Chemistry

Treatment at an advanced level of one or more areas of biophysical chemistry. The subject matter varies from offering to offering; accordingly the course may be taken for credit more than once.

CHEM 161.1 - Membrane Biophysics

Instructor: Cantor, Mierke

The structure and function of cell membranes, with emphasis on the complex behavior of intrinsic membrane proteins and its relation to physical properties of the lipid bilayer.

Prerequisite: CHEM 41 and CHEM 42 or CHEM 67, or permission of the instructor

Distributive: SCI

Offered: 15F: Arrange

CHEM 161.2 - Biomolecular Simulations

Instructor: Cantor and Mierke

An advanced treatment of modern computational approaches to the folding, structure, and dynamics of proteins and nucleic acids and their complexes. Topics include folding, searching algorithms, homology modeling, energy landscape deformation, and multi-dimensional searching.

Prerequisite: CHEM 41 and CHEM 42 or CHEM 67, or permission of the instructor

Distributive: SCI

CHEM 161.3 - Biomolecular NMR

Instructor: Mierke

The theoretical and practical aspects of the modern use of nuclear magnetic resonance in the study of biomolecules including peptides/proteins, synthetic and natural products, and nucleic acids will be developed.

Prerequisite: CHEM 41 and CHEM 42 or CHEM 67, or permission of the instructor

Distributive: SCI

CHEM 161.4 - Structure and Dynamics of Biomolecules

Instructor: Pletneva

The theoretical and practical aspects for the determination of the structure and dynamics of proteins, and nucleic acids will be developed. Particular emphasis will be placed on the utilization of X-ray diffraction, cryo-electron microscopy, and high-resolution NMR and the computational approaches associated with them.

Prerequisite: CHEM 41 and CHEM 42 or CHEM 67, or permission of the instructor

Distributive: SCI

CHEM 161.5 - Protein Crystallography

Instructor: Ragusa

Theoretical aspects for the determination of protein structures using X-ray crystallography. Topics will include a detailed description of crystal symmetry, diffraction

theory, data collection and processing, and methods for solving the crystallographic phase problem.

Prerequisite: CHEM 41 and CHEM 42 or CHEM 67, or permission of the instructor

Distributive: SCI

Offered: 16S: Arrange

CHEM 256 - Graduate Instruction in Teaching

Instructor: Welder

A course in the methodology and practice of chemistry teaching at the undergraduate college level. Topics such as laboratory supervision and safety, grading issues, special needs students, lecturing and tutoring techniques, exam preparation, and the teacher/student relationship will be discussed through readings, class discussions, and student presentations. This course is a prerequisite to the supervised undergraduate teaching requirement for the Ph.D. degree in chemistry. Required of entering graduate students. This course is not open for credit to undergraduates.

Offered: 15F, 16F: Arrange

CHEM 257 - Supervised Undergraduate Teaching in Chemistry

Instructor: Chair and staff of the Department

Teaching in chemistry undergraduate courses under the supervision of a faculty member. Normally students enrolled in this course teach alongside faculty in undergraduate instructional laboratories. This course is open only to graduate students; it may be elected for credit more than once.

Prerequisite: CHEM 256 or previous teaching experience in undergraduate chemistry courses

Offered: All terms: Arrange

CHEM 260 - Graduate Research Colloquium in Organometallic Chemistry

Instructor: The staff

This course is available to graduate students during each term of residence, except for the summer term. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Evaluation will be based on quality of the work, quality of critical analysis, and on presentation style, including effective use of audiovisual materials. All enrolled students will make oral presentations that describe work from the current literature or their own research. Normally these series meet weekly. This course is not open to registration by undergraduates.

Offered: All but summer terms: Arrange

CHEM 261 - Graduate Research Colloquium in Materials Chemistry

Instructor: The staff

This course is available to graduate students during each term of residence, except for the summer term. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Evaluation will be based on quality of the work, quality of critical analysis, and on presentation style, including effective use of audiovisual materials. All enrolled students will make oral presentations that describe work from the current literature or their own research. Normally these series meet weekly. This course is not open to registration by undergraduates.

Offered: All but summer terms: Arrange

CHEM 262 - Graduate Research Colloquium in Synthetic Organic Chemistry

Instructor: The staff

This course is available to graduate students during each term of residence, except for the summer term. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Evaluation will be based on quality of the work, quality of critical analysis, and on presentation style, including effective use of audiovisual materials. All enrolled students will make oral presentations that describe work from the current literature or their own research. Normally these series meet weekly. This course is not open to registration by undergraduates.

Offered: All but summer terms: Arrange

CHEM 263 - Graduate Research Colloquium in Bioinorganic Chemistry

Instructor: The staff

This course is available to graduate students during each term of residence, except for the summer term. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Evaluation will be based on quality of the work, quality of critical analysis, and on presentation style, including effective use of audiovisual materials. All enrolled students will make oral presentations that describe work from the current literature or their own research. Normally these series meet weekly. This course is not open to registration by undergraduates.

Offered: All but summer terms: Arrange

CHEM 264 - Graduate Research Colloquium in Biophysical Chemistry

Instructor: The staff

This course is available to graduate students during each term of residence, except for the summer term. An

essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Evaluation will be based on quality of the work, quality of critical analysis, and on presentation style, including effective use of audiovisual materials. All enrolled students will make oral presentations that describe work from the current literature or their own research. Normally these series meet weekly. This course is not open to registration by undergraduates.

Offered: All but summer terms: Arrange

CHEM 297 - Graduate Investigation in Chemistry A

Instructor: Chair and staff of the Department

An original and individual experimental or theoretical investigation beyond the under-graduate level in one of the fields of chemistry. This course is open only to graduate students; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing two or more other graduate or undergraduate courses.

Offered: All terms: Arrange

CHEM 298 - Graduate Investigation in Chemistry B

Instructor: Chair and staff of the Department

An original and individual experimental or theoretical investigation beyond the under-graduate level in one of the fields of chemistry. This course is open only to graduate students; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research.

Offered: All terms: Arrange

CHEM 299 - Graduate Investigation in Chemistry C

Instructor: Chair and staff of the Department

An original and individual experimental or theoretical investigation beyond the under-graduate level in one of the fields of chemistry. This course is open only to graduate students; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term.

Offered: All terms: Arrange

Comparative Literature - Graduate

Chair: Dennis Washburn

Professors J. V. Crewe (English, Comparative Literature), G. Gemünden (German, Comparative Literature), L. A. Higgins (French and Italian, Comparative Literature), K. Jewell (French and Italian, Comparative Literature), I. Kacandes (German, Comparative Literature), J. M. Kopper (Russian, Comparative Literature), L. D. Kritzman (French and Italian, Comparative Literature), D. P. LaGuardia

(French and Italian, Comparative Literature), A. Lawrence (Film and Media Studies), G. Parati (French and Italian, Comparative Literature), B. Pastor (Spanish and Portuguese, Comparative Literature), S. Spitta (Spanish and Portuguese, Comparative Literature), R. Verona (French and Italian, Comparative Literature), M. R. Warren (Comparative Literature), D. Washburn (AMELL, Comparative Literature, Film and Media Studies); Associate Professors J. Aguado (Spanish and Portuguese), R. E. Biron (Spanish and Portuguese, Comparative Literature), N. Canepa (French and Italian), A. A. Coly (AAAS, Comparative Literature), L. Edmondson (Theater), V. Fuechtner (German), A. Gomez (Spanish and Portuguese), A. Halasz (English), A. Martín (Spanish and Portuguese, Comparative Literature), K. Mladek (German, Comparative Literature), M. Otter (English, Comparative Literature), I. Reyes (Spanish and Portuguese, Comparative Literature), A. Tarnowski (French and Italian, Comparative Literature); Assistant Professors S. Diaz, (Spanish and Portuguese), Y. Komska (German), J. Smolin (AMELL); Senior Lectures K. Milich (Liberal Studies), Lecturers P. Carranza (Spanish and Portuguese), T. Rutler (Comparative Literature), J. C. Smolin (Spanish and Portuguese); Visiting Professor M. Salgueiro; Associate Professor Emerita: M. Williamson.

Courses in Comparative Literature are designed to meet the needs of students whose literary interests are broader than those that can be met by the curriculum of any single department.

To view Comparative Literature Graduate courses, click here. (p. 553)

To view Comparative Literature Undergraduate requirements, click here. (p. 177)

To view Comparative Literature Undergraduate courses, click here. (p. 178)

Requirements for the Master of Arts in Comparative Literature

Each graduate student must receive credit for at least nine courses for the one-year Master of Arts degree and complete a major text presentation and prepare a paper of professional quality.

To receive the Masters degree in Comparative Literature a candidate must satisfactorily:

1. Complete nine courses as described below:
CL 100, Contemporary Literary Criticism and Theory (required)
CL 101, Topics in Literary and Cultural Theory (required)
CL 102, Tutorial (required)
Arrange with advisor.
CL 103, Workshop in Critical Writing (required)

CL 105, Graduate Seminar (required)

Arrange with graduate advisor.

Four elective courses in relevant Dartmouth language and literature departments including one upper level course in the candidate's first foreign language.

2. A major text presentation. In conjunction with the Tutorial (CL 102) and the graduate seminar (CL 105), students will prepare a 20-minute public presentation on a major text (read in its original language) related to their research area.
3. An M.A. essay. During spring term, in conjunction with CL 103 (Workshop in Critical Writing), the candidate will prepare a paper of professional quality which will be reviewed by a subcommittee of the Graduate Committee.

COLT - Comparative Literature - Graduate Courses

To view Comparative Literature Graduate requirements, click here. (p. 552)

To view Comparative Literature Undergraduate requirements, click here. (p. 177)

To view Comparative Literature Undergraduate courses, click here. (p. 178)

Graduate courses

COLT 100 - Contemporary Literary Criticism and Theory

Instructor: Gomez, Biron

Open to M.A. candidates only.

Offered: 15F: Arrange, 16F: 10A

COLT 101 - Topics in Literary Criticism and Theory

Instructor: Kacandes, Warren

Prerequisite: COLT100

Offered: 16W: 2A; 17W: TBD

COLT 102 - Tutorial

Instructor: LaGuardia, Staff

Arrange with advisor. This course is open to M.A. candidates only.

Offered: 15F, 16F: Arrange

COLT 103 - Workshop in Critical Writing

Instructor: Gemunden, Mladek

Critical thinking and concise, persuasive writing are prerequisites for any professional career. In fact, both go

hand in hand. The Workshop in Critical Writing introduces graduate students to advanced research techniques, to the conventions of scholarly discourse, and to the various kinds of writing practiced in literary studies. We will analyze scholarly articles as examples of research methods, argument development, rhetorical technique, and stylistic presentation; we will test a variety of practical approaches to the interpretation of literary texts; and we will explore how we might use theory in critical argument. Students will be asked to prepare and submit a scholarly article using previous written work of their own (senior thesis, independent study project) as a basis. The workshop format of the course will permit students to read and critique each other's work and to sharpen their editorial skills. This course is open to M.A. candidates only.

Offered: 16S, 17S:3A

COLT 105 - Graduate Seminar

Instructor: LaGuardia, Staff

This course is open to M.A. candidates only.

Offered: 16W, 17W: Arrange

COLT 106 - Graduate Research

Offered: Arrange

Computer Science - Graduate

Chair: Hany Farid

Professors C. J. Bailey-Kellogg, A. T. Campbell, M. Casey, A. Chakrabarti, T. H. Cormen, R. L. Drysdale III, H. Farid, P. Jayanti, D. F. Kotz, D. Rockmore, S. W. Smith, P. Winkler; Associate Professors D. Balkcom, L. Torresani; Assistant Professors G. Grigoryan, W. Jarosz, Q. Liu, E. Whiting, X. Yang, X. Zhou; Lecturers P. Hannaway, J. Mahoney; Research Professor L. Loeb; Research Associate Professor S. L. Bratus; Adjunct Professors M. Cohen, A. Gettinger, M. D. McIlroy, W. M. McKeeman, C. E. Palmer; Adjunct Assistant Professors R. Halter, O. Zhaxybayeva.

To view the Computer Science Graduate courses, click here. (p. 558)

To view the Computer Science Undergraduate requirements, click here. (p. 186)

To view the Computer Science Undergraduate courses, click here. (p. 189)

Graduate Study in Computer Science

The Department of Computer Science offers programs leading to the Ph.D. and M.S. degrees in Computer Science. Each is described below.

Requirements for the Doctor's Degree (Ph.D.)

During the first year, students engage in research projects with faculty and start to take a set of core graduate courses and topics courses. In the second year and beyond, students become progressively more engaged in research while completing their course requirements. The requirements for the Ph.D. degree in Computer Science are as follows:

1. Admission to the degree program by an admissions committee of the Computer Science faculty.
2. Students should take a minimum of two terms of research in both their first and second years and be supervised by a tenure-track faculty member.
3. By the beginning of the second year each student should write a high-quality paper that describes in detail his or her research efforts and results to date, including motivation, relation of the student's work to the work of others, and specifics about results or obstacles faced in obtaining results.
4. By the end of spring term of the second year, each student must have a Ph.D. advisor who is a member of the tenure-track faculty in Computer Science. Students may change advisors after this point, but they should not be without an advisor for more than a term.
5. Completion of a course of study that includes the following:
 - a. COSC 170, COSC 231, and COSC 258. These are the *breadth courses*. Note that these courses have prerequisites that are listed with the description of each course.
 - b. All students must pass at least eight courses numbered between 130 and 199 or between 211 and 294, including the breadth courses listed in requirement (a) above. The special topics courses, numbered 149, 169, and 189, may be taken multiple times and will be counted as distinct courses for this purpose. At most one course from outside Computer Science may be substituted, with permission of the departmental advisor to Ph.D. students.
A student's course of study is subject to the approval of the departmental advisor to Ph.D. students. Students normally take the breadth courses specified in requirement (a) above by the end of their second year.
6. Students are expected to pass the Research Presentation Exam by the end of the winter term of their third year. An examining committee consisting of three faculty members, appointed by the departmental advisor to Ph.D. students, will select a paper for the student to

present. The student will have a month to read the paper, and will then present the paper to the committee and will orally answer questions on the paper. The committee will evaluate the student's presentation and performance answering questions, and will determine whether the student passes the examination. A student is allowed two attempts to pass the exam. In a second attempt, the student is assigned a new paper, but not necessarily a new committee. Passing the Research Presentation Exam is a prerequisite to thesis proposal (see requirement 8 below). For more details on this exam, consult the Computer Science department web page.

7. At least one term of participation in undergraduate teaching. That is, the student must pass COSC 296.
8. Each student must display readiness for research in one area by giving a written and a public oral presentation of his or her research plan. This thesis proposal will be judged by a faculty committee which shall be formed for the purpose of guiding the student's research; the rules used for the composition of this committee are the same as for a Ph.D. defense committee; this committee does not require the approval of the Dean of Graduate Studies, but must be approved by the departmental advisor to Ph.D. students. The presentation will be followed by a question period in which the student demonstrates mastery of the relevant area and defends the proposed thesis plan.
9. Six terms in residence at Dartmouth. (This is a College requirement.)
10. Preparation of a thesis acceptable to a faculty committee and a public defense of this thesis. The rules governing the composition of this committee are stated on the department's website. This committee must be approved by department advisor to Ph.D. students and the Dean of Graduate Studies. All members of the committee shall read and sign the thesis in its final form.

Requirements for the Master of Science Degree (M.S.)

We have two tracks in the M.S. program: a coursework track and a thesis track.

1. For the coursework track, the student must satisfactorily complete thirteen Computer Science courses taken for graduate credit. At least five of these courses must be numbered 130 or higher. At least one of these thirteen must be an advanced topics graduate course in Computer Science (listed as COSC 149, COSC 169, and COSC 189). Any courses taken outside of the Computer Science department must be approved by the departmental advisor to Master's students. The student may use up to two research credit courses (e.g., 297–299) to satisfy these requirements, but only if the student earns a P or an HP and the M.S. advisor

approves the substitution. Per department policy, selected upper-level undergraduate courses may count for graduate credit for the M.S. degree.

2. For the thesis track, the student must satisfy these coursework and research requirements:
 - a. The student must satisfactorily complete nine Computer Science courses taken for graduate credit. At least three of these courses must be numbered 130 or higher. At least one of these nine must be an advanced topics graduate course in Computer Science (listed as COSC 149, COSC 169, and COSC 189). Any courses taken outside of the Computer Science department must be approved by the departmental advisor to Master's students. No research credit courses (e.g., 297–299) may be used to satisfy these requirements. Per department policy, selected upper-level undergraduate courses may count for graduate credit for the M.S. degree.
 - b. By the end of the third term of enrollment, the student must petition to and be accepted for the thesis track by the departmental Master's committee.
 - c. The student must successfully complete at least six course equivalents of research from COSC 297, COSC 298, or COSC 299.
 - d. By the end of the fourth term of study, the student must complete a thesis proposal, consisting of a written document and a public presentation. This thesis proposal will be judged by a faculty committee chosen by the student; the rules used for the composition of this committee are the same as for an M.S. defense committee as noted in requirement (e) below.
 - e. The student must prepare a thesis acceptable to a faculty committee and give a public defense of this thesis. The thesis should represent mostly independent work, and be of sufficient quality to merit publication (with suitable revision) in a refereed venue. The committee shall be formed for the purpose of guiding the student's research. The chair of this committee, who is the student's primary research advisor, must be a tenure-track or research-track faculty member in the Computer Science department. In addition to the chair, the committee must include at least one other tenure-track or research-track Computer Science faculty member. The committee must comprise at least three faculty members, one of whom may be from outside the Computer Science department, though an outside member is not required. This committee must be approved by the departmental advisor to M.S. students and by the Dean of Graduate Studies. All members of the committee shall read and sign the thesis in its final form. We expect that the

thesis, including a copy of the signature page, shall be published as a departmental Technical Report.

All students start out in the coursework track. As noted in 2(b) above, students may then apply to move to the thesis track. (Students may also petition to move back to the coursework track, although we expect that will be uncommon.)

Students are expected to complete the M.S. degree in a maximum period of seven consecutive terms, excluding summer terms.

Students who are currently enrolled in a Ph.D. program in a department other than Computer Science at Dartmouth may apply for a tuition scholarship and to be considered for concurrent enrollment.

The Computer Science M.S. degree is not intended to be an outlet for students leaving the Computer Science Ph.D. program (nor is it intended to be a degree concurrent with a Computer Science Ph.D.).

We encourage Dartmouth undergraduates to consider staying on for a Computer Science M.S. degree. Students may transfer up to five courses taken while an undergraduate to the M.S. program, as long as these satisfy the policy established by the Office of Graduate Studies and the department.

M.S. Degree in Computer Science with a Concentration in Digital Arts

Students in this concentration complete a mix of Computer Science courses, Digital Arts courses, and research/thesis. They experience a rigorous and focused computer science education, foundational courses in digital arts, and a deep dive into a research topic within the areas of visual computing and digital arts (e.g., computer graphics, human-computer interaction, digital fabrication, digital art and media, computer vision, virtual reality, and artificial reality). Students in this concentration, by design, will come from a wide variety of backgrounds. All students will have successfully completed an undergraduate degree at a four-year college/university (Dartmouth students are encouraged to apply to the Integrated 4+1 A.B./M.S. Program in Computer Science with a Concentration in Digital Arts). All students must have completed the equivalent of Dartmouth's COSC 1 and COSC 10 courses, with a grade of B+ or better. Students are also expected to have majored or minored in at least one of the areas we consider a foundational area of visual computing and Digital Arts. These areas include, but are not limited to, Computer Science, Digital Arts, Engineering, Studio Art/Design, Computer Animation/Modeling, Computational Photography, Physics, Mathematics, and Architecture.

The M.S. Degree in Computer Science with a Concentration in Digital Arts is divided into three areas: Technical Courses (general graduate-level Computer

Science courses); Digital Art Courses; and Research/Thesis Courses. At the end of the program, all students will write a thesis based on their research and then present and defend their work. Courses required for the degree will depend on the background of each student. All students must take at least nine courses and nine research credits. Of the nine courses, at least six must be graduate-level Computer Science courses.

Specific requirements for the M.S. Degree in Computer Science with a Concentration in Digital Arts are as follows:

1. Technical Courses: The student must satisfactorily complete at least five Computer Science courses taken numbered above 100. The number of courses needed depends on the background of the student (students with a Computer Science major as an undergraduate require fewer courses than those without). At least one must be an advanced topics graduate course in Computer Science (listed as COSC 149, COSC 169, and COSC 189). No research credit courses (e.g., 297–299) may be used to satisfy these requirements. Per department policy, selected undergraduate courses may count for graduate credit for the M.S. degree; a grade of B+ or better is required in Computer Science courses graded on an undergraduate scale.
 - a. Two of the courses must be COSC 165, COSC 177, COSC 183, or COSC 50.
 - b. At least two of the following: COSC 30, COSC 31 (all students must complete COSC 31, or its equivalent), COSC 61, COSC 76, COSC 81, COSC 170, or COSC 189.
 - c. At least one of the following: COSC 129, COSC 56/ENGS 31, ENGS 21, COSC 73, MUS 102, or MUS 103.
 - d. Courses not listed may be substituted for the courses above with the approval of the Program Advisor.
 - e. All Computer Science coursework must be completed by the end of the fifth term.
2. Digital Arts Courses: Students must take at least two courses outside the Computer Science department. These courses will round out the graduate education and provide hands-on arts (Digital Arts, performing arts, visual arts, musical arts, design) experience. The departmental advisor to the Computer Science/Digital Arts Program (in consultation with the student's primary advisor) must approve any courses taken outside the Computer Science department. All Digital Arts coursework must be completed by the end of the fifth term.
3. The student must successfully complete at least nine course equivalents of research from COSC 294, COSC 297, COSC 298, or COSC 299. Two of the courses

must be in the Computer Science/Digital Arts section of COSC 294, which would be taken in the Fall term each year.

4. By the end of the fourth term of study, the student must complete a thesis proposal, consisting of a written document and a public presentation. A faculty committee (chosen by the student) will evaluate the thesis proposal; the rules used for the composition of this committee are the same as for an M.S. defense committee as noted in requirement 5 below.
5. Thesis Requirement: Each student must complete a research project based on independent, original research. Students can work in a team as long as their work is easily identified and with the permission of the graduate advisor. The research project results in a written thesis. The research/thesis must be approved by the graduate advisor and successfully defended in an oral presentation, according to the following guidelines:
 - a. The student must prepare a thesis acceptable to a faculty committee and give a public defense of this thesis.
 - b. The research/thesis should be of sufficient quality to merit publication or exhibition (with suitable revision) in a refereed venue. Projects will be suitable for distribution, use and/or exhibition.
 - c. The committee shall be formed for the purpose of guiding the student's research. The chair of this committee, who is the student's primary research advisor, must be a tenure-track or research-track faculty member in the Computer Science department. In addition to the chair, the committee must include at least one other tenure-track or research-track Computer Science faculty member. The committee must comprise at least three members, one of whom may be from outside the Computer Science department or outside Dartmouth, though an outside member is not required. This committee must be approved by the departmental advisor to M.S. students and by the Dean of Graduate Studies.
 - d. All members of the committee shall read and sign the thesis in its final form. We expect that the thesis, including a copy of the signature page, shall be published as a departmental Technical Report.

Integrated 4+1 A.B./M.S. Program in Computer Science with a Concentration in Digital Arts

We encourage Dartmouth undergraduates to consider staying on for a Computer Science M.S. degree with a concentration in Digital Arts.

Objective and Overview: A 4+1 program to provide Dartmouth undergraduate students an opportunity to

acquire a broader and deeper education in Digital Arts through a combination of coursework and independent research under the direction of one of the program faculty. With integration of the courses and a substantial effort in the independent research carried out during the senior year, the M.S. can be obtained in one year directly after completing the A.B. at Dartmouth.

Prerequisite Courses: Students wishing to enter the program must demonstrate proficiency in each of the following areas: Computer Science and Digital Arts. Such proficiency will normally be demonstrated by completing the following Dartmouth College courses with at least a B grade prior to entering the Master's Program: COSC 1, COSC 10, COSC 22, COSC 24, COSC 27. These five courses are the three that comprise the core of the Digital Arts Minor plus COSC 1 and COSC 10.

An interim evaluation will be made after each term and continuation within the Master's Program will be recommended for those students whose work demonstrates the capacity for satisfactory independent research.

Admission: Students are encouraged to contact the Program Director in the spring term of their junior year for advice on prerequisites, the program requirements, and application process, and they must apply for admission to the program no later than May 1 of their senior year. Having explored research opportunities with members of the faculty, the applicant is expected to reach an agreement on a specific project with one of the faculty. The program Admissions Committee will be responsible for reviewing applications and making offers of admission, to be completed by June 30.

A complete application includes the following: i. A current transcript; ii. Three letters of recommendation; iii. The name of the research advisor and a brief description of the area of interest for a research project. A fuller description of the research project is due by the end of the second term of the M.S. degree program.

Specific Requirements for the Integrated 4+1 A.B./M.S. Program in Computer Science with a Concentration in Digital Arts are as follows:

1. Course Distribution Requirements: This is a four-term program (fall, winter, spring, summer). In addition to the prerequisite courses described above, each student must pass with a grade of P or better six courses in the following distribution:
 - Two of the courses must be COSC 165, COSC 177, or COSC 50.
 - At least two of the following: COSC 183, COSC 31, COSC 61, COSC 76, COSC 81, COSC 170, COSC 30, or COSC 189.
 - At least one of the following: COSC 129, COSC 56/ENGS 31, ENGS 21, COSC 73, MUS 102, or MUS 103.

- Courses not listed may be approved by the program advisor as substitutes for courses above.

It is expected that the six courses be completed as early in the program as possible, with at least two courses per term.

2. Students must complete six research credits by passing a combination of COSC 297, COSC 298, and COSC 299.
3. Thesis Requirement: Each student must complete a research project based on independent, original research. Students can work in a team as long as their work is easily identified and with the permission of the graduate advisor. The research project will result in a written thesis. The research/thesis must be approved by the graduate advisor and successfully defended in an oral presentation, according to the following guidelines:
 - a. The student must prepare a thesis acceptable to a faculty committee and give a public defense of this thesis.
 - b. The research/thesis should be of sufficient quality to merit publication or exhibition (with suitable revision) in a refereed venue. Projects will be suitable for distribution, use and/or exhibition.
 - c. The committee shall be formed for the purpose of guiding the student's research. The chair of this committee, who is the student's primary research advisor, must be a tenure-track or research-track faculty member in the Computer Science department. In addition to the chair, the committee must include at least one other tenure-track or research-track Computer Science faculty member. The committee must comprise at least three members, one of whom may be from outside the Computer Science department or outside Dartmouth, though an outside member is not required. This committee must be approved by the departmental advisor to M.S. students and by the Dean of Graduate Studies.
 - d. All members of the committee shall read and sign the thesis in its final form. We expect that the thesis, including a copy of the signature page, shall be published as a departmental Technical Report.

COSC - Computer Science - Graduate Courses

To view the Computer Science Graduate requirements, click here.

(p. 554)

To view the Computer Science Undergraduate requirements, click here.

(p. 186)

To view the Computer Science Undergraduate courses, click here. (p. 189)

COSC 129 - Topics in Digital Arts

Instructor: Mahoney (fall), Hannaway (spring)

Cross-Listed as: Described under COSC 29.

Offered: 15F: 2A, 3B; 16S: 2A

COSC 135 - Data Stream Algorithms

Instructor: Chakrabarti

Cross-Listed as: Described under COSC 35.

Offered: 15F: 2A

COSC 140 - Computational Complexity

Prerequisite: COSC 39 or equivalent. Students need to be familiar with the formalism of the Turing Machine and with the notion of NP-completeness.

Cross-Listed as: Described under COSC 40.

Offered: Not offered every year

COSC 149 - Topics in Algorithms and Complexity

Instructor: Winkler (fall), Jayanti (winter), Cormen (spring)

Cross-Listed as: Described under COSC 49.

Offered: 15F: 10; 16W, 16S: Arrange

COSC 165 - Smartphone Programming

Instructor: Yang

Cross-Listed as: Described under COSC 65.

Offered: 16S: 9L

COSC 169 - Topics in Computer Systems

Instructor: Zhou

Cross-Listed as: Described under COSC 69.

Offered: 15F: 2A

COSC 170 - Numerical and Computational Tools for Applied Science

Instructor: Farid

Cross-Listed as: Described under COSC 70.

Offered: 16S: 2A

COSC 174 - Machine Learning and Statistical Data Analysis

Instructor: Liu (winter), Bailey-Kellogg (spring)

Cross-Listed as: Described under COSC 74.

Offered: 16W, 16S: 10A

COSC 175 - Introduction to Bioinformatics

Instructor: Bailey-Kellogg

Cross-Listed as: Described under COSC 75.

Offered: 15F: 2A

COSC 177 - Computer Graphics

Instructor: Whiting

Cross-Listed as: Described under COSC 77.

Offered: 15F: 12

COSC 178 - Deep Learning

Instructor: Torresani

Cross-Listed as: Described under COSC 78.

Offered: Not offered in 2015-2016

COSC 183 - Computer Vision

Instructor: Torresani

Cross-Listed as: Described under COSC 83.

Offered: 15F: 10A

COSC 184 - Mathematical Optimization and Modeling

Cross-Listed as: Described under COSC 84.

Offered: Not offered every year

COSC 186 - Computational Structural Biology

Instructor: Grigoryan

Cross-Listed as: Described under COSC 86.

Offered: 16W: 2A

COSC 187 - Rendering Algorithms

Instructor: Jarosz

Cross-Listed as: Described under COSC 87.

Offered: 16S: Arrange

COSC 189 - Topics in Applied Computer Science

Instructor: Grigoryan, Jarosz (fall); Bailey-Kellogg, Torresani, Yang (winter); Liu, Palmer, Whiting (spring)

Cross-Listed as: Described under COSC 89.

Offered: 15F: 2, 2A; 16W: 12, Arrange; 16S: Arrange

COSC 191 - Writing, Presenting, and Evaluating Technical Papers in Computer Science

Instructor: Cormen

Students will learn how to write technical papers in computer science, how to present technical papers in a conference-talk setting, and how program committees and journal editors evaluate technical papers. Writing topics

include the proper use of technical typesetting software, organization of technical papers, and English usage. Students will write technical papers, produce official course notes, and give oral presentations. Enrollment limited.

Prerequisite: Each student must submit a short expository piece to be evaluated by the instructor at the start of the course; only those students meeting a required level of competence will be permitted to take the course for a grade. Students should also have a Computer Science background sufficient to understand research papers.

Offered: Not offered in 2015-2016

COSC 210 - Computer Science Colloquium**COSC 219 - Special Topics****COSC 231 - Advanced Algorithms**

Instructor: Drysdale

This course provides an introduction to algorithms and algorithm design techniques at a level more advanced than a typical undergraduate course in algorithms, yet basic enough to be applicable widely across the many subfields of computer science. There is a strong emphasis on rigorously proving the correctness of and running time bounds on the algorithms studied. Typical techniques covered include, but are not limited to, randomization, amortized analysis, linear programming and approximation. Typical problems include, but are not limited to, splay trees, perfect hashing, skip lists, fast randomized algorithms for minimum cuts and minimum spanning trees, maximum matching, pattern matching, and some simple approximation algorithms: both combinatorial and based on linear programming relaxation.

Prerequisite: A grade of B+ or better in COSC 31, or passing an examination administered by the department to demonstrate competency in the material of COSC 31.

Offered: 16S: 10

COSC 251 - Computer Architecture

Prerequisite: ENGS 31 and COSC 51. COSC 57, COSC 58, or equivalent is recommended.

Cross-Listed as: Described under ENGS 116.

Offered: Not offered every year

COSC 258 - Advanced Operating Systems

Instructor: Bratus

This course covers advanced topics in operating systems, including issues such as the hardware/software interface, operating-system structure, CPU scheduling, concurrency, virtual memory, interprocess communication, file systems, protection, security, fault tolerance, and transaction processing. The course also considers many of these topics in the context of distributed systems.

Prerequisite: A grade of B+ or better in COSC 58, or passing an examination administered by the department to demonstrate competency in the material of COSC 58.

Offered: 16W: 2A

COSC 259 - Programming Languages

This course covers fundamental and advanced topics in the design, implementation and use of imperative, functional, logical and object-oriented programming languages. Topics covered include formal definitions of languages, tools for automatic program translation, parameter passing, scoping, type systems, control structures and automatic memory management. For each language category, implementation issues will be discussed, and program development strategies illustrated through programming exercises.

Prerequisite: COSC 59. An undergraduate course in compilers (COSC 57) is recommended.

Offered: Not offered every year

COSC 271 - Numerical Linear Algebra (Formerly COSC 240)

The course examines in the context of modern computational practice algorithms for solving linear systems $Ax = b$ and $Az = \lambda x$. Matrix decomposition algorithms, matrix inversion, and eigenvector expansions are studied. Algorithms for special matrix classes are featured, including symmetric positive definite matrices, banded matrices, and sparse matrices. Error analysis and complexity analysis of the algorithms are covered. The algorithms are implemented for selected examples chosen from elimination methods (linear systems), least squares (filters), linear programming, incidence matrixes (networks and graphics), diagonalization (convolution), sparse matrices (partial differential equations).

Prerequisite: COSC 71, MATH 26, or ENGS 91. Students are to be familiar with approximation theory, error analysis, direct and iterative techniques for solving linear systems, and discretization of continuous problems to the level normally encountered in an undergraduate course in numerical analysis.

Cross-Listed as: ENGS 106 and MATH 116

Offered: Not offered every year

COSC 276 - Advanced Artificial Intelligence

This course is a graduate-level survey of artificial intelligence. It covers the basic principles underlying artificial intelligence (search methods, knowledge representation and expert systems, planning, learning, etc.) and examples of particular artificial intelligence applications areas (natural language understanding, vision, robotics).

Prerequisite: COSC 76.

Offered: Not offered every year

COSC 294 - Reading Course

Instructor: Loeb (fall)

Offered: All terms: Arrange

COSC 295 - Practical Training

Student participates in off-campus Curricular Practical Training, which is an integral part of the established curriculum. This course does not count toward the number of courses required for any degree. Permission of the departmental advisor to Master's students required.

COSC 296 - Supervised Undergraduate Teaching

May be taken multiple times for credit. One course equivalent.

COSC 297 - Graduate Research

Student participates in research under the supervision of a faculty member. May be taken multiple times for credit. One course equivalent. Permission required.

COSC 298 - Thesis Research

Student participates in research under the supervision of a faculty member. May be taken multiple times for credit. Two course equivalents. Permission required.

COSC 299 - Full-Time Thesis Research

Student participates in research under the supervision of a faculty member. May be taken multiple times for credit. Three course equivalents. Permission required.

Earth Sciences - Graduate

Chair: W. Brian Dade

Professors X. Feng, C. E. Renshaw, M. Sharma; Professor Emeritus R. W. Birnie, Professor Emeritus J. L. Aronson, Professor Emeritus G. D. Johnson; Associate Professors W. B. Dade, R. L. Hawley, M. A. Kelly, L. J. Sonder; Assistant Professors D. J. Renock, E. C. Osterberg, J.V. Strauss; Research Associate Professor B. P. Jackson; Visiting Professor E. S. Posmentier; Visiting Assistant Research Professor E. E. Meyer; Research Instructors V. F. Taylor; Adjunct Professors S. Bonis, A. J. Friedland, F. J. Magilligan, K. Peterson, R. A. Virginia; Adjunct Assistant Professor J. W. Chipman; Adjunct Instructor D. R. Spydell.

To view Earth Sciences Graduate courses, click here. (p. 561)

To view Earth Sciences Undergraduate requirements, click here. (p. 199)

To view Earth Sciences Undergraduate courses, click here. (p. 202)

Requirements for the Masters Degree

General requirements of the Master of Science (MS) degree at Dartmouth College include three terms of residence and seven courses of graduate level, not more than four of which may be replaced by research or special study approved and supervised by the department.

To be considered for admission to the MS program a prospective student must:

1. Complete the equivalent of the following Dartmouth Courses: MATH 3 and MATH 8.
2. Complete the equivalent (or higher) of any two of the following Dartmouth course sequences:
CHEM 5 and CHEM 6;
PHYS 3 and PHYS 4 (or PHYS 13 and PHYS 14);
Any two among BIOL 11 through BIOL 16.

In the case where a student is admitted into the MS program without having completed these prerequisites, the student must fulfill these prerequisites in addition to the specific degree requirements described below.

To fulfill the specific requirements of the Department of Earth Sciences for an MS degree, a student must:

1. Successfully complete seven courses eligible for graduate credit (EARS 100 and above) at the discretion of the thesis committee. These courses must include EARS 201, EARS 202, and EARS 203 and either EARS 117 or EARS 118. Courses not eligible for course credit toward a graduate degree include departmental seminar (EARS 121), thesis research (EARS 141-143), and teaching (EARS 149).
2. Complete the equivalent of three terms of thesis research for registered credit (EARS 141-143).
3. Complete a thesis of professional quality, with a view to scholarly publication, and pass a final oral examination on the topic of the thesis.

Requirements for the Ph.D. Degree

General requirements for the Ph.D. degree are given in the Regulations for Graduate Study section. In fulfillment of the specific requirements of the Department of Earth Sciences, the student must:

1. Satisfy all course requirements for the MS degree
2. Pass the following required courses or their equivalents, if not passed prior to entering the Ph.D. Program.

MATH 23. Differential Equations.

EARS 107. Mathematical Modeling in the Earth Sciences

EARS 118. Advanced Methods for Environmental Data Analysis

One upper level science or engineering course outside the department carrying graduate credit. This may include CHEM 51, ENGG 24 or ENGG 34, or other courses approved by the Department.

3. Pass a minimum of nine courses carrying graduate credit, including those fulfilling the above requirements. Courses not eligible for course credit towards a graduate degree include departmental seminar (EARS 121), special project research (EARS 131), thesis research (EARS 141-143), and teaching (EARS 149).
4. Present and defend a summer research project before the faculty.
5. Pass a general qualifying exam.
6. Present and defend a thesis proposal before the faculty.
7. An essential element of graduate education at Dartmouth is the experience gained in teaching other students. Therefore, at least one term of undergraduate teaching is required of all graduate students. Students may participate in more than one term of teaching. Each student's program will be arranged, according to his/ her individual needs and interests, and the teaching needs of the Department.

A candidate who has satisfied the above requirements will receive a Ph.D. degree after he or she has:

1. Passed any additional graduate-level courses beyond those specified above, as prescribed by the Department.
2. Completed a thesis of professional quality. The thesis may be a series of publishable papers connected by appropriate text. The candidate must pass a final oral examination on the thesis.

EARS - Earth Sciences - Graduate Courses

To view Earth Sciences Graduate requirements, click here. (p. 560)

To view Earth Sciences Undergraduate requirements, click here. (p. 199) (p. 199)

To view Earth Sciences Undergraduate courses, click here. (p. 202) (p. 202)

EARS 107 - Mathematical Modeling of Earth Processes

Instructor: Sonder

Physics and mathematics of processes in the Earth, including chemical and thermal diffusion, mechanics of

lithospheric deformation, and chemical fractionation.
Sonder.

Prerequisite: MATH 13 or equivalent or permission of instructor

Offered: 17W: Lectures and Laboratory to be arranged.
Offered alternate years

EARS 108 - Radiogenic Isotope Geochemistry

Prerequisite: EARS 62 or EARS 73 or equivalent

Offered: Not offered during the period of 14F to 16S

EARS 117 - Analysis of Environmental Data

Instructor: Feng

Topics such as acid deposition, watershed pollution, water quality, acid mine drainage and climatic change are used to introduce the fundamentals of environmental data analysis, including uncertainty and hypothesis testing, error propagation, regression, and experimental design. Students are required to analyze their own research data as part of their final project.

Distributive: QDS

Offered: 17W: 9L; X-hour required. Offered alternate winter terms.

EARS 118 - Advanced Methods for Environmental Data Analysis

Instructor: Feng

Advanced methods of environmental data analysis are introduced with real world examples in environmental science. The course starts with a quick review of the fundamental statistical concepts, such as hypothesis testing, power of statistical tests and experimental design. The advanced methods include time series analysis, spatial data analysis (geostatistics), and multivariate analysis (such as multiple correlation, PCA, factor analysis, etc.).

Prerequisite: EARS 17 or EARS 117 and MATH 3 or the equivalents

Offered: 16W: 9L

EARS 119 - Stable Isotope Geochemistry

Prerequisite: EARS 62 or EARS 73 or equivalent

Offered: Not offered in the period from 15F through 16S

EARS 121 - Graduate Seminar

Offered: Arrange

EARS 124 - Analytical Chemistry and Inorganic Instrumental Analysis (Identical to, and described under, Chemistry 124)

Instructor: B. Jackson

Prerequisite: CHEM 5 and CHEM 6 or equivalents or permission of instructor

Cross-Listed as: CHEM 124

Offered: 15F: Lectures and Laboratory to be arranged

EARS 128 - Introduction to Polar Systems (Identical to BIOL 138)

Instructor: Virginia

This course will examine current polar science that has relevance to critical environmental issues and policies for the high latitude regions. It will provide a foundation on topics such as ice core interpretation, declining sea ice and changes in ice sheet dynamics, alterations in the terrestrial and marine carbon cycles, and climate change impacts on polar biodiversity. The later portion of the course will focus on the development of a group interdisciplinary research project.

Cross-Listed as: BIOL 138

Offered: TBD

EARS 131 - Project Research

Research under the guidance of a staff member on a topic unrelated to the thesis.

Offered: Arrange

EARS 141 - Level I - Thesis Research (one-course equivalent)

Offered: Arrange

EARS 142 - Level II -Thesis Research (two-course equivalent)

Offered: Arrange

EARS 143 - Level III -Thesis Research (three-course equivalent)

Offered: Arrange

EARS 149 - Supervised Teaching in Earth Sciences

Not open to undergraduates.

Offered: All Terms: Arrange

EARS 151 - Mineralogy and Earth Processes

Instructor: Renock

Prerequisite: EARS 40 and CHEM 5 or equivalents

Cross-Listed as: Described under EARS 51

Offered: 16W: 11; X-hour required Offered alternate winter terms

EARS 152 - Structural Geology (described under Earth Sciences 52)

Instructor: Dade

Prerequisite: EARS 40 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 52

Offered: 17S: 9L; Laboratory: Arrange; X-hour required -
Offered alternate spring terms

EARS 158 - Sedimentary Petrology (described under Earth Sciences 58)

Instructor: TBA

Prerequisite: EARS 40 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 58

Offered: 16W: 2A; X-hour required - Offered alternate winter terms

EARS 159 - Igneous and Metamorphic Petrology

Instructor: Sharma

Prerequisite: EARS 40 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 59

Offered: 17S: 11; Laboratory: Arrange; X-hour required -
Offered alternate spring terms

EARS 162 - Geochemistry (described under Earth Sciences 62)

Instructor: Sharma

Prerequisite: CHEM 6 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 52

Offered: 15F, 16F: 10A; X-hour required

EARS 164 - Geophysics (described under Earth Sciences 64)

Instructor: Sonder

Prerequisite: MATH 3 or equivalent or permission of the instructor. MATH 8 or equivalent is advisable, but not required

Cross-Listed as: Described under EARS 64

Offered: 16S: 10; Laboratory: Arrange; X-hour required -
Offered alternate spring terms

EARS 165 - Remote Sensing (described under Earth Sciences 65)

Instructor: Chipman

Cross-Listed as: Described under EARS 65

Offered: 16W: 10A; Laboratory: W 1:00-4:00 or Th 1:00-4:00

EARS 166 - Hydrogeology

Instructor: Renshaw

Prerequisite: MATH 3 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 66

Offered: 16W, 17W: Tuesdays/Thursdays 8:00am-9:50am

EARS 167 - Environmental Geomechanics (described under Earth Sciences 67)

Instructor: Dade

Prerequisite: MATH 23 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 67

Offered: 16W: 10; X-hour required - Offered alternate winter terms

EARS 170 - Glaciology (described under Earth Sciences 70)

Instructor: Hawley

Prerequisite: PHYS 3 and MATH 3 or equivalents. EARS 33 or equivalent is recommended

Cross-Listed as: Described under EARS 70

Offered: 16S: 2A; X-hour required - Offered alternate spring terms

EARS 171 - River Processes and Watershed Science (described under Earth Sciences 71)

Instructor: Magilligan

Prerequisite: EARS 16 or EARS 33 or BIOL 23 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 71

Offered: 15F: 12; Laboratory: W 3-5

EARS 172 - Geobiology (described under Earth Sciences 72)

Instructor: Staff

Prerequisite: CHEM 5 or equivalent or permission of the instructor. EARS 31 or BIOL 16 or equivalent recommended

Cross-Listed as: Described under EARS 72

Offered: TBD

EARS 173 - Environmental Isotope Geochemistry

Instructor: Feng

Prerequisite: CHEM 5 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 73

Offered: 17S: 10A; Laboratory: Arrange. Offered alternate spring terms; X-hour required.

**EARS 174 - Soils and Aqueous Geochemistry
(described under Earth Sciences 74)**

Instructor: Renock

See EARS 74 for course description

Prerequisite: CHEM 5 and EARS 62 or equivalents or permission of instructor

Cross-Listed as: EARS 74

Distributive: SLA

Offered: 16S: 2A; Lab: TH 4:00-6:00. X hour required.

EARS 175 - Quaternary Paleoclimatology

Instructor: Kelly

See EARS 75 for course description

Prerequisite: EARS 15 or ENGS 172 or equivalent or permission of the instructor

Cross-Listed as: Described under EARS 75

Offered: 16W: 2A Offered alternate spring terms. X hour required.

EARS 176 - Advanced Hydrology

Instructor: Renshaw

See EARS 76 for course description

Prerequisite: EARS 66 or equivalents or permission of instructor

Cross-Listed as: Described under EARS 76

Offered: 16S, 18S: 2A; Laboratory: Th 3:50-5:50. Offered alternate spring terms. X hour required.

**EARS 177 - Environmental Applications of GIS
(Identical to, and described under, Geography 59)**

Instructor: Dietrich

Cross-Listed as: GEOG 59

Distributive: TLA

Offered: 16W: 11; Laboratory M or TU: 2-4pm. X-hour required.

EARS 178 - Climate Dynamics

Instructor: Osterberg

This course focuses on the physics that govern the circulation of the atmosphere and ocean, and the dominant patterns of climate variability that we observe today. We explore global-scale atmospheric dynamics that explain

why the atmosphere behaves as observed. We also use scientific literature to investigate the signature and causes of regional ocean-atmosphere variability including the El-Nino Southern Oscillation, monsoons, and North Atlantic Oscillation, and the influence of climate change on these patterns.

Prerequisite: Math 8 or equivalent and EARS 14 or EARS 15 or equivalent, or Instructor Permission

Distributive: SCI

Offered: 15F, 18W: 2A

EARS 179 - Special Topics

Offered: Not offered in the period from 15F through 16S

EARS 201 - Earth Systems

Instructor: Dade

An introductory experience required of all incoming graduate students, offered concurrently with EARS 088. We review the regional geology and geomorphology of the Appalachians in the field, and then review key components of the Earth System, including the origin of our planet and the origin of life, plate tectonics, atmospheric and ocean circulation, Earth surface processes, and environmental change. Format: local field trips, faculty- and student-led presentations, and discussion of selected articles from the peer-reviewed literature. Not open to undergraduates.

Offered: 15F, 16F: Arrange

EARS 202 - Geochemical Tracers

Instructor: Staff

Chemical tracers are widely used for tracing geological processes, present and past. This course introduces basic quantitative methods of tracer applications. Geochemical methods such as analysis of system thermodynamics and kinetics, models for biogeochemical cycles, analysis of isotopic systematics are some sample methodologies to be examined. Students will learn that using tracer techniques requires understanding tracer properties and behavior as well as geological processes. In addition, the basic quantitative methods will allow students to think about earth's processes quantitatively, and address questions about the state of systems and rates and mechanisms of their evolution. Not open to undergraduates.

Offered: 16W, 17W: Arrange

EARS 203 - Earth Surface Processes

Instructor: Staff

The course will explore the processes that shape Earth's surface and the resulting landforms. Tectonics, weathering and erosion, fluvial, aeolian, and glacial processes influence landscape development at various temporal and spatial scales. These processes will be examined as well as their interaction with the atmosphere, biosphere and

climate. The course will highlight ancient and active processes in New England and associated issues for human habitat and environmental conditions. The course will be a combination of faculty lectures and student-led discussions of selected readings from the literature. An oral presentation and a final paper will be used to assess students. The paper will be in the format of a 10-page formal National Science Foundation proposal and will be used to assess the students' ability to formulate testable hypotheses and to collect and integrate published scientific data. At least one mandatory field trip will examine New England geomorphology and environments. Not open to undergraduates.

Offered: 16S, 17S: Arrange

Engineering Sciences - Graduate

Chair: Erland M. Schulson

Professors I. Baker, B. Cushman-Roisin, G. Cybenko, E. Fossum, E. Garmire, T. U. Gerngross, J. J. Helble, W. Lotko, D. R. Lynch, L. R. Lynd, K. D. Paulsen, B. W. Pogue, L. R. Ray, E. Santos Jr., E. M. Schulson, C. R. Sullivan, S. Taylor, J. Zhang; Professors Emeriti A. O. Converse, R. J. Graves, C. E. Hutchinson, F. E. Kennedy, H. J. Richter, B. U. O. Sonnerup, G. B. Wallis; Associate Professors M. E. Borsuk, S. G. Diamond, H. J. Frost, K. E. Griswold, E. W. Hansen, J.E. Hill, K. Odame, M. Q. Phan, B. S. Trembly, U.G.K. Wegst; Assistant Professors M. E. Ackerman, Z. Chen, B.P. Epps, R. J. Halter, W. Li, J. Liu, G.P. Luke, J.T. Stauth, D.W. Van Citters, V. Vaze; Senior Lecturers M. R. Albert, P. Bonfert-Taylor, J. P. Collier, A. Hartov, P. J. Hoopes, M. S. Laser, R. C. Lasky, C. G. Levey, V. V. May, R.W. Obbard, S. O. Peterson, V. F. Petrenko, P. J. Robbie, J. M. Rosen, S. G. Shepherd; Lecturers, D. C. Cullen, J. Elliott, K. Hoyt, A.M. Plagge, A. Scherer, M.E. Testorf, J.D. Wilson.

To view Engineering Sciences Graduate courses, click here. (p. 569)

To view Engineering Graduate courses, click here. (p. 568)

To view Engineering Sciences Undergraduate requirements, click here. (p. 222)

To view Engineering Sciences Undergraduate courses, click here. (p. 230)

The undergraduate Engineering Sciences major leads to an A.B. degree. It provides engineering students with a common core of Science and Engineering Sciences courses. Interest in the various branches of engineering is accommodated through electives and usually through additional study leading to a Bachelor of Engineering or higher degree. For those students considering careers in

such diverse fields as medicine, management, or law, the Engineering Sciences major enables them to better understand our increasingly technological society.

Students interested in a career in Engineering should plan on completing the Bachelor of Engineering or Master's program. The Bachelor of Engineering degree program is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone (410) 347-7700; it is equivalent in technical content to the Bachelor of Science degree in Engineering offered at many other universities but is broader in scope. It requires 10 courses in Natural Science, Mathematics, and Engineering beyond the requirements of the major in Engineering Sciences, and typically requires up to three terms in residence beyond the 12 terms required for the A.B. degree. Students who enter Dartmouth with advanced standing may be able to complete the B.E. at the same time as the A.B. (i.e., in four years).

The graduate degrees are differentiated according to function. For those interested in design, professional practice, and engineering management, the M.E.M. degree is offered; for those interested primarily in research, the M.S. and Ph.D. degrees. Additionally a joint M.D./Ph.D. program is offered in conjunction with the Dartmouth Medical School and a joint M.E.M./M.B.A. program with the Tuck School of Business. *The Thayer School Guide to Programs and Courses should be consulted for detailed information on all graduate programs (B.E. and above).*

Requirements for the Master's Degree (M.S.)

The Faculty of the Thayer School believes that the education of all graduate students should include reasonable breadth in the areas of applied mathematics and engineering.

In addition to the basic requirements for the Master's degree, which include three terms in residence at Dartmouth, the Department requires:

For the M.S. with concentration in Engineering Sciences:

1. The requirement is nine approved graduate-level courses, five of which must be engineering courses. For students whose prior preparation is an accredited B.S. or B.E. in Engineering, or equivalent, the requirement is six graduate-level courses beyond those required for the B.S.
2. Satisfaction of the following distribution requirements:
 - a. One Applied Mathematics Course¹¹
 - b. Minimum of two courses in engineering breadth
 - c. Minimum of three courses in engineering depth. (Courses taken previously, e.g., as an undergraduate, can be used in satisfaction of this

requirement but do not reduce the number of courses required, unless admission is with advanced standing.)

3. A thesis approved by the student's graduate committee and the faculty, demonstrating the ability to do research and contribute to the field.
4. An oral defense of the thesis.

¹¹ENGs 91, ENGs 92, ENGs 93, ENGs 100, ENGs 104, ENGs 105, ENGs 106, ENGs 200, ENGs 202, ENGs 205 (p. 576).

A faculty advisor will be appointed for each candidate to aid in developing his or her program. The individual course of study must be submitted to, and be approved by, the Thayer School Graduate Committee, during the student's first term of residency. The thesis must be approved by a thesis committee. The thesis committee generally consists of three faculty members from the student's department/program of study (including the thesis advisor). One of the three may be from outside the department/program, but this is not a requirement. Copyright to theses will be held by the Trustees of Dartmouth College.

For students recommended for the award of the M.S. degree, the faculty may also recommend the award of the B.E. degree if a substantial portion of the student's undergraduate program was taken at Dartmouth or in one of its official exchange programs and, if in meeting M.S. requirements, the ABET criteria for the award of the B.E. are also satisfied. Students wishing to take advantage of this opportunity should plan their M.S. programs appropriately. At least one term prior to the scheduled M.S. thesis defense, the B.E./M.S. candidate submits a Bachelor of Engineering program plan approved by both their advisor and the Director of the Bachelor of Engineering program to the Registrar.

M.S.-M.D. Program

The M.S./M.D. program is offered by the Thayer School of Engineering and Dartmouth Medical School and is designed for individuals intending to pursue clinical practice but with an interest in developing research skills in a related engineering area. It is also well suited for individuals interested in developing better understanding of imaging and other technologies they will employ as practicing physicians. The program provides M.D. students with a funded research experience in engineering that is expected to lead to research publication as well as provide practical engineering design and analysis experience.

Individuals holding an undergraduate degree in engineering and meeting the entrance requirements of each school are eligible to apply. Application must be made to each school separately.

Candidates are M.D. students who apply to the Thayer School for admission in their first, second or third year of medical school. Studies for the Thayer M.S. will be carried out in the fourth and part of the fifth year.

For specific program requirements, please consult the Thayer Guide to Programs and Courses or the Thayer website at: <http://engineering.dartmouth.edu/>.

Requirements for the Doctor's Degree (Ph.D.)

Students with a master's degree (or outstanding performance on a bachelor's degree) in engineering or the physical sciences are eligible for admission to the Doctor of Philosophy program. Consult the 2015-2016 Thayer School Guide to Programs and Courses for details. The requirements for the Ph.D. are as follows:

1. Students in the Ph.D. program are expected to spend at least nine terms in residence following the Bachelor's degree, three of which will take place after successfully completing the Oral Qualifying Examination. In addition, students are required to have:
 - a. three terms (with three absences allowed) of participation in the weekly Thayer Seminar on Applied Science and Technology, including one-time completion of the special graduate Seminar on Science, Technology and Society, ENGG 195, with students required to attend only five of the nine meetings in a the term, and
 - b. annual participation in the Research-in-Progress Workshop, for which each Candidate in residence presents his or her individual research progress.
2. Technical proficiency in principles and methods of engineering, applied science, and applied mathematics underlying the anticipated thesis research, as evidenced by performance on an oral qualifying examination. The examination covers at least three fundamental areas selected by the Candidate in consultation with his or her special advisory committee and approved by the Graduate Program Committee. (See footnote below.)
3. Technical breadth in engineering or applied science, as demonstrated by either an approved course of study in one or more areas outside or secondary to the Candidate's main area of specialization, defense of a research proposal or completion of a project in an area outside the Candidate's main area of specialization. (See footnote below.)
4. Specialization with mastery at an advanced level of the body of knowledge pertaining to the Candidate's chosen area of research, as demonstrated by the successful oral defense of a thesis proposal, and by completion of a program of study approved by the Graduate Program Committee. The extent and content

of this program are designed to meet the individual interests and needs of the Candidate. (See footnote #12 below.)

5. Professional competence in resource development for a research project or technology startup enterprise, as demonstrated by completion of a competitive research proposal or business plan for a technology startup company. The proposal or business plan may be developed either independently or as part of the Competitive Proposal Workshop.
 - a. Original research making a significant contribution to knowledge, combined with demonstration of professional expertise in the chosen area of study, as demonstrated by at least the following: The oral examination, procedures for demonstrating technical breadth, thesis proposal, and work-shop to facilitate development of a competitive research proposal or business plan are described in more detail in the Thayer School Guide to Programs and Courses.
 - b. presentation of elements of the doctoral research at a professional meeting with the Candidate as first author,
 - c. a dissertation of professional quality certified by the Candidate's thesis committee,
 - d. acceptance of at least one manuscript on the doctoral research for publication with the Candidate as first author, and
 - e. public oral presentation and defense of the dissertation.

¹² *The oral examination, procedures for demonstrating technical breadth, thesis proposal, and work-shop to facilitate development of a competitive research proposal or business plan are described in more detail in the Thayer School Guide to Programs and Courses.*

Ph.D. Program in Innovation

Thayer School offers a Ph.D. Program in Innovation, which supplements the student's engineering research with specific coursework and practice in applying entrepreneurial skills to move research discoveries to market. Students in the Program in Innovation meet all requirements for admission to candidacy and full admission to the Ph.D. program, including passing an oral qualifying examination and defending a Ph.D. thesis proposal. Specific requirements for the candidates in the Program in Innovation can be found in the Thayer School Guide to Programs and Courses.

M.D.-Ph.D. Program in Biomedical Engineering

Thayer School of Engineering and the Dartmouth Medical School offer an M.D./Ph.D. program in biomedical engineering. Students must apply to the Medical School,

indicating their interest in the joint program. The requirements for the Ph.D. portion of the program are modified to permit a more efficient completion of the dual degree program.

A student may begin by first pursuing two years of study in basic science at the Medical School. Enrollment in Thayer School for two years follows, during which the student would take courses, qualify for Ph.D. candidacy, pass the oral examination, and initiate dissertation research. Alternately, some students prefer to satisfy basic Ph.D. requirements before starting medical school. The research would then be continued in concert with years 3 and 4 of the M.D. program (the clinical years), especially during year 4 where dissertation research would be counted as elective courses toward the M.D. Both degrees are awarded simultaneously after typically 6 to 6 1/2 years of study.

Specific requirements of this program are:

M.D. component: Completion of the 4-year M.D. curriculum. Elective time of year 4 can be devoted to Ph.D. dissertation research. (Consult the Dartmouth Medical School Catalog for details.)

Ph.D. component:

1. Students in the M.D./Ph.D. program are expected to spend at least six terms in residence, one which will take place after successfully completing the Oral Qualifying Examination. In addition, students are required to have:
 - a. three terms of participation in the weekly Thayer Seminar on Applied Science and Technology, including one-time completion of the special graduate Seminar on Science, Technology and Society, ENGG 195, with students required to attend only five of the nine meetings in a the term, and
 - b. annual participation in the Research-in-Progress Workshop, for which each Candidate in residence presents his or her individual research progress.
2. Technical proficiency in principles and methods of engineering, applied science, and applied mathematics underlying the anticipated thesis research, as evidenced by performance on an oral qualifying examination. The examination covers at least three fundamental areas selected by the Candidate in consultation with his or her special advisory committee and approved by the graduate program committee.
3. Technical breadth in engineering or applied science, as demonstrated by either an approved course of study in one or more areas outside or secondary to the Candidate's main area of specialization or defense of a research proposal or completion of a project in an area outside the Candidate's main area of specialization¹³.

4. Specialization with mastery at an advanced level of the body of knowledge pertaining to the Candidate's chosen area of research, as demonstrated by the successful oral defense of a thesis proposal, and by completion of a program of study approved by the M.D./Ph.D. Biomedical Engineering Committee. The extent and content of this program are designed to meet the individual interests and needs of the Candidate. ^(See footnote below.)
5. Original research making a significant contribution to knowledge, combined with demonstration of professional expertise in the chosen area of study, as demonstrated by at least the following:
 - a. presentation of elements of the doctoral research at a professional meeting with the Candidate as first author,
 - b. a dissertation of professional quality certified by the Candidate's thesis committee.
 - c. acceptance of at least one manuscript on the doctoral research for publication with the Candidate as first author, and
 - d. public oral presentation and defense of the dissertation.

¹³ *The oral examination, procedures for demonstrating technical breadth, thesis proposal, and work-shop to facilitate development of a competitive research proposal or business plan are described in more detail in the Thayer School Guide to Programs and Courses*

Ph.D. in Computer Science

A Ph.D. in computer science is offered by the graduate program in Computer Science, including some Thayer School faculty. See *Computer Science* for details.

Advanced Graduate Courses

Courses at the 300 level are 'advanced graduate' courses, distinguished from 100 and 200-level courses by the standard of accomplishment that is required. These advanced graduate courses comprise an in-depth study of an area of engineering or engineering sciences up to the point where the student is able effectively to read and evaluate current literature in the field and to the point where the student should be ready to undertake original work in the field.

Most 300-level courses are tutorials. The small size of Thayer School allows students to work closely with professors—a significant feature in courses that are expected to provide in-depth study.

These courses reflect areas of significant faculty professional involvement or areas in which they are engaged in advanced research or development.

Please consult the Thayer School Guide to Programs and Courses for the 300 level courses, Tutorial courses, Engineering Management courses and Project, Research, Independent Study, Seminar and Workshop courses.

ENGG - Engineering - Graduate Courses

To view Engineering Graduate requirements, click [here](#). (p. 565)

To view Engineering Sciences Graduate courses, click [here](#). (p. 569)

To view Engineering Sciences Undergraduate requirements, click [here](#). (p. 222)

To view Engineering Sciences Undergraduate courses, click [here](#). (p. 230)

ENGG 129 - Instrumentation and Measurements

Instructor: Odamé

A very significant part of designing electronic instruments involves selecting the appropriate physical devices to translate quantities to be measured into voltages or currents that can be sensed with electronic circuits. The range of sensors and transducers available will be studied with examples from industry and medical instrumentation. The course will explore in some detail the use of analog to digital (A/D) and digital to analog (D/A) converters and their applications. Students will also learn to use complete A/D-microprocessor-D/A systems since these are part of nearly all instruments now. In this course students will learn to build a complete instrument by combining analog and digital components and using advanced algorithms. We will review the basic concepts from analog electronics and real-time event driven programming one needs to understand in order to construct such instruments and experiment through a series of labs. The course will culminate with group projects to induce the students to go through the design process on a problem of their choice.

Prerequisite: ENGS 31 and ENGS 61 or equivalent

Offered: 16S, 17S: 11; Laboratory

ENGG 138 - Corrosion and Degradation of Materials

Instructor: Frost

Prerequisite: ENGS 024 and CHEM 005

Offered: Not offered for the period 14F through 15S

ENGG 148 - Structural Mechanics

Instructor: Phan

Development and application of approximate and "exact" analytical and computational methods of analysis to a variety of structural systems, including trusses, two- and three-dimensional frames, plates and/or shells. Modeling

of structural systems as one and multi degree of freedom lumped systems permits analysis under a variety of dynamic loads as well as providing an introduction to vibration analysis.

Prerequisite: ENGS 33

Offered: 17W: 10A Offered in alternate years

ENGG 166 - Quantitative Human Physiology

Instructor: Pogue

Introduction to human physiology using the quantitative methods of engineering and physical science. Topical coverage includes cellular membrane ion transport, Hodgkin-Huxley models and action potentials, musculoskeletal system, cardiovascular physiology, respiratory physiology, and nervous system physiology. Laboratory exercises and a final project delve into the measurement of human physiology, data analysis, and model testing.

Prerequisite: ENGS 22 or equivalent; BIOL 12 or BIOL 14 or ENGS 30; ENGS 23 or MATH 23 or BIOL 35 or PEMM 101

Offered: 16S: Arrange

ENGG 210 - Spectral Analysis

Instructor: Hansen

An advanced treatment of digital signal processing for the analysis of time series. A study is made of parametric and nonparametric methods for spectral analysis. The course includes a review of probability theory, statistical inference, and the discrete Fourier Transform. Techniques are presented for the digital processing of random signals for the estimation of power spectra and coherency. Examples are taken from linear system theory and remote sensing using radar. Laboratory exercises will be assigned requiring the use of the computer.

Prerequisite: ENGS 110

Offered: Not offered for the period 14F through 15S

ENGG 212 - Communications Theory

Prerequisite: ENGS 110

Offered: Not offered for the period 14F through 15S

ENGG 230 - Fatigue and Fracture

Prerequisite: Engineering 130 or permission of the instructor.

Offered: Not offered for the period 14F through 15S

ENGG 240 - Kinematics and Dynamics of Machinery

Prerequisite: Engineering 140.

Offered: Not offered for the period 14F through 15S

ENGG 261 - Biomass Energy Conversion

Instructor: Lynd

Biocommodity engineering is concerned with the biological production of large-scale, low unit value commodity products including fuels, chemicals, and organic materials. Intended primarily for advanced graduate students and drawing extensively from the literature, this course considers the emergence of biocommodity engineering as a coherent field of research and practice. Specific topics include feedstock and resource issues, the unit operations of biocommodity engineering - pretreatment, biological processing, catalytic processing, and separations-and the design of processes for biocommodity products.

Prerequisite: ENGS 157 and ENGS 161 and permission

Offered: 16W: Arrange Offered in alternate years

ENGS - Engineering Sciences - Graduate Courses

To view Engineering Sciences Graduate requirements, click here. (p. 565)

To view Engineering Graduate courses, click here. (p. 568)

To view Engineering Sciences Undergraduate requirements, click here. (p. 222)

To view Engineering Sciences Undergraduate courses, click here. (p. 230)

ENGS 104 - Optimization Methods for Engineering Applications

Instructor: Cybenko

An introduction to various methods of optimization and their uses in modern engineering. Students will learn to formulate and analyze optimization problems and apply optimization techniques in addition to learning the basic mathematical principles on which these techniques are based. Topic coverage includes linear programming, nonlinear programming, dynamic programming, combinatorial optimization and Monte Carlo methods.

Prerequisite: MATH 22 and ENGS 27 or equivalents, or permission of instructor

Offered: 15F, 16F: T/Th 4-5:50

ENGS 105 - Computational Methods for Partial Differential Equations

Instructor: Paulsen

This course concentrates on the numerical solution of partial differential equations commonly encountered in Engineering Sciences. Finite difference and finite element methods are used to solve problems in heat flow, wave propagation, vibrations, fluid mechanics, hydrology, and solid mechanics. The course materials emphasize the

systematic generation of numerical methods for elliptic, parabolic, and hyperbolic problems, and the analysis of their stability, accuracy, and convergence properties. Weekly computer exercises will be required to illustrate the concepts discussed in class.

Prerequisite: MATH 23 and ENGS 91 (COSC 71), or equivalents

Offered: 16W: 11 Offered in Alternate Years

ENGS 106 - Numerical Linear Algebra

Prerequisite: COSC 71 or ENGS 91. Students are to be familiar with approximation theory, error analysis, direct and iterative technique for solving linear systems, and discretization of continuous problems to the level normally encountered in an undergraduate course in numerical analysis

Cross-Listed as: COSC 271

Offered: Not Offered Every Year

ENGS 110 - Signal Processing

Instructor: Hansen

Continuous and discrete-time signals and systems. The Discrete Fourier Transform and the Fast Fourier Transform. Linear filtering of signals and noise. Characterization of random signals using correlation functions and power spectral densities. Problems will be assigned that require the use of the computer.

Prerequisite: ENGS 32 and ENGS 92 or equivalents

Offered: 16S, 17S: 10

ENGS 111 - Digital Image Processing

Instructor: Hartov

Digital image processing has come into widespread use in many fields including Medicine, industrial process monitoring, military and security applications, as well as satellite observation of the earth. This course will cover many aspects of image processing which students will find valuable in their research or personal interest. Topics will include: image sources, computer representation of images and formats, operations on images and image analysis. In this course we will stretch the conventional notion of images from 2D pixel arrays to include 3D data sets and we will explore how one can process such stacks of voxels to produce useful information. This course will also touch on some advanced topics in image processing which may vary based on students interests. This course will require the completion of a project selected by the student.

Prerequisite: ENGS 92, ENGS 93 or equivalents

Offered: 16S, 17S: 9

ENGS 112 - Modern Information Technologies

Instructor: Santos

This course covers current and emerging information technologies, focusing on their engineering design, performance and application. General topics such as distributed component and object architectures, wireless networking, web computing and information security will be covered. Specific subjects will include Java, CORBA, JINI public key cryptography, web search engine theory and technology, and communications techniques relevant to wireless networking such as Code Division Multiple Access protocols and cellular technology.

Prerequisite: ENGS 20, ENGS 93 and ENGS 27 or COSC 60. ENGS 93 can be taken concurrently

Offered: 16S, 17S: 11

ENGS 114 - Networked Multi-Agent Systems

Design and analysis of networked systems comprised of interacting dynamic agents will be considered. Inspired by the cohesive behavior of flocks of birds, we design self-organizing engineering systems that mimic a sense of coordinated motion and the capability of collaborative information processing similar to flocks of birds. Examples include multi-robot networks, social networks, sensor networks, and swarms. The course combines concepts in control theory, graph theory, and complex systems in a unified framework.

Prerequisite: ENGS 26, MATH 23, or equivalents plus familiarity with MATLAB

Offered: Not offered in the period from 14F through 15S

ENGS 115 - Parallel Computing

Instructor: Taylor

Parallel computation, especially as applied to large scale problems. The three main topics are: parallel architectures, parallel programming techniques, and case studies from specific scientific fields. A major component of the course is laboratory experience using at least two different types of parallel machines. Case studies will come from such applications areas as seismic processing, fluid mechanics, and molecular dynamics.

Prerequisite: ENGS 91 (or COSC 71 or equivalent)

Offered: Not offered in the period 15F through 16S

ENGS 120 - Electromagnetic Fields and Waves

Instructor: Garmire

Properties of electromagnetic fields and waves in free space and in conducting and dielectric media. Reflection and transmission at boundaries. Transmission lines. Waveguides.

Prerequisite: ENGS 23 or PHYS 41

Offered: 16S, 17S: 9

ENGS 122 - Semiconductor Theory and Devices

Elementary physics (classical and quantum) is applied to create models for the behavior of semiconductor devices. The distribution of electron energy, the gap between energy bands, and the mechanisms of current flow are derived. The pn junction and its variations, bipolar junction transistor, junction field effect transistor, and MOSFET devices are studied. Other devices studied are chosen from among opto-electronic and heterojunction devices.

Prerequisite: ENGS 024, ENGS 032 and ENGS 060 or equivalents

Cross-Listed as: PHYS 126

Offered: Not offered in the period 15F through 16S

ENGS 123 - Optics

Instructor: Garmire

The physical principles and engineering applications of optics, with an emphasis on optical systems. Geometric optics: ray tracing, first-order analysis, imaging, radiometry. Wave optics: polarization, interference, diffraction, Fourier optics. Sources and detectors. Fiber optic systems.

Prerequisite: ENGS 23 or PHYS 41, and ENGS 92 or equivalent

Cross-Listed as: PHYS 123

Offered: 15F: Arrange Offered in alternate years

ENGS 124 - Optical Devices and Systems

Instructor: Garmire

Light has now taken its place beside electricity as a medium for information technology and for engineering and scientific instrumentation. Applications for light include telecommunications and computers, as well as instrumentation for materials science, biomedical, mechanical and chemical engineering. The principles and characteristics of lasers, detectors, lenses, fibers and modulators will be presented, and their application to specific optical systems introduced. The course will be taught in an interdisciplinary way, with applications chosen from each field of engineering. Students will choose design projects in their field of interest.

Prerequisite: ENGS 23

Cross-Listed as: PHYS 124

Offered: 15S: 9 Offered in alternate years

ENGS 125 - Power Electronics and Electromechanical Energy Conversion

Instructor: Sullivan

Controlled use of energy is essential in modern society. As advances in power electronics extend the capability for

precise and efficient control of electrical energy to more applications, economic and environmental considerations provide compelling reasons to do so. In this class, the principles of power processing using semiconductor switching are introduced through study of pulse-width-modulated dc-dc converters. High-frequency techniques such as soft-switching are analyzed. Magnetic circuit modeling serves as the basis for transformer, inductor, and electric machine design. Electromechanical energy conversion is studied in relation to electrostatic and electromagnetic motor and actuator design. Applications to energy efficiency, renewable energy sources, robotics, and micro-electromechanical systems are discussed. Laboratory exercises lead to a project involving switching converters and/or electric machines.

Prerequisite: ENGS 23 and ENGS 32

Offered: 15F, 16F: 11

ENGS 126 - Analog Integrated Circuit Design

Instructor: Odam

Design methodologies of very large scale integration (VLSI) analog circuits as practiced in industry will be discussed. Topics considered will include such practical design considerations as size and cost; technology processes; modeling of CMOS, bipolar, and diode devices; advanced circuit simulation techniques; basic building blocks; amplifiers; and analog systems. A design project is also required in which the student will design, analyze, and optimize a small analog or mixed analog/digital integrated circuit. This design and some homework assignments will require the student to perform analog and digital circuit simulations to verify circuit operation and performance. Lectures will be supplemented by guest lecturers from industry.

Prerequisite: ENGS 32 and ENGS 61, or permission

Offered: 16S, 17S: 2A

ENGS 128 - Advanced Digital Systems Design

Instructor: Hansen

Field-programmable gate arrays (FPGAs) have become a major fabric for implementing digital systems, rivaling application-specific integrated circuits (ASICs) and microprocessors/microcontrollers, particularly in applications requiring special architectures or high data throughput, such as digital signal processing. Hardware description languages (HDLs) have become the dominant method for digital system design. This course will advance the student's understanding of FPGA design flow and ability to perform HDL-based design and implementation on FPGAs. Topics include: FPGA architectures, digital arithmetic, pipelining and parallelism, efficient design using register transfer level coding and IP cores, computer-aided tools for simulation, synthesis, and debugging. The

course is graded on a series of laboratory exercises and a final project.

Prerequisite: ENGS 31 and ENGS 62 or COSC 51

Offered: 17S: 2 Offered in Alternate Years

ENGS 130 - Mechanical Behavior of Materials

Instructor: Schulson

A study of the mechanical properties of engineering materials and the influence of these properties on the design process. Topics include tensorial description of stress and strain, elasticity, plastic yielding under multiaxial loading, flow rules for large plastic strains, microscopic basis for plasticity, viscoelastic deformation of polymers, creep, fatigue, and fracture.

Prerequisite: ENGS 24 and ENGS 33, or equivalent

Offered: 15F, 16F: 10

ENGS 131 - Science of Solid State Materials

Instructor: Liu

This course provides a background in solid state physics and gives students information about modern directions in research and application of solid state science. The course serves as a foundation for more advanced and specialized courses in the engineering of solid state devices and the properties of materials. The main subjects considered are crystal structure, elastic waves-phonons, Fermi-Dirac and Bose-Einstein statistics, lattice heat capacity and thermal conductivity, electrons in crystals, electron gas heat capacity and thermal conductivity, metals, semiconductors, superconductors, dielectric and magnetic properties, and optical properties. Amorphous solids, recombination, photoconductivity, photoluminescence, injection currents, semiconductor lasers, high temperature superconductors, and elements of semiconductor and superconductor microelectronics are considered as examples.

Prerequisite: ENGS 24 or PHYS 24 or CHEM 76 or equivalent

Offered: 15F, 16F: 9

ENGS 132 - Thermodynamics and Kinetics in Condensed Phases

Instructor: Schulson

This course discusses the thermodynamics and kinetics of phase changes and transport in condensed matter, with the objective of understanding the microstructure of both natural and engineered materials. Topics include phase equilibria, atomic diffusion, interfacial effects, nucleation and growth, solidification of one-component and two-component systems, solubility, precipitation of gases and solids from supersaturated solutions, grain growth, and particle coarsening. Both diffusion-assisted and diffusionless or martensitic transformations are addressed.

The emphasis is on fundamentals. Applications span the breadth of engineering, including topics such as polymer transformations, heat treatment of metals, processing of ceramics and semiconductors. Term paper.

Prerequisite: ENGS 24 and ENGS 25, or equivalent

Offered: 16W, 17W: 11

ENGS 133 - Methods of Materials Characterization

Instructor: I. Baker

This survey course discusses both the physical principles and practical applications of the more common modern methods of materials characterization. It covers techniques of both microstructural analysis (OM, SEM, TEM, electron diffraction, XRD), and microchemical characterization (EDS, XPS, AES, SIMS, NMR, RBS and Raman spectroscopy), together with various scanning probe microscopy techniques (AFM, STM, EFM and MFM). Emphasis is placed on both the information that can be obtained together with the limitations of each technique. The course has a substantial laboratory component, including a project involving written and oral reports, and requires a term paper.

Prerequisite: ENGS 24 or permission

Cross-Listed as: PHYS 128 and CHEM 137

Offered: 17S: 2A Offered in alternate years

ENGS 134 - Nanotechnology

Instructor: Liu

Current papers in the field of nanotechnology will be discussed in the context of the course material. In the second half of the term, students will pick a topic of interest and have either individual or small group meetings to discuss literature and research opportunities in this area. The students will prepare a grant proposal in their area of interest. Not open to students who have taken ENGS 74.

Prerequisite: ENGS 24 or PHYS 19 or CHEM 6, or equivalent

Offered: 16W, 17W: 10A

ENGS 135 - Thin Films and Microfabrication Technology

Instructor: Levey

This course covers the processing aspects of semiconductor and thin film devices. Growth methods, metallization, doping, insulator deposition, patterning, and analysis are covered. There are two major projects associated with the course -an experimental investigation performed in an area related to the student's research or interests, and a written and oral report on an area of thin film technology.

Prerequisite: ENGS 24 or equivalent

Offered: 16W: 2 Offered in alternate years

ENGS 142 - Intermediate Solid Mechanics

Instructor: Chen

Exact and approximate solutions of the equations of elasticity are developed and applied to the study of stress and deformation in structural and mechanical elements. The topics will include energy methods, advanced problems in torsion and bending, stress concentrations, elastic waves and vibrations, and rotating bodies. Although most applications will involve elastic deformation, post-yield behavior of elastic-perfectly plastic bodies will also be studied. The course will also include numerous applications of finite element methods in solid mechanics.

Prerequisite: ENGS 71 or ENGS 76 or equivalent

Offered: 16W, 17W: 10

ENGS 145 - Modern Control Theory

Instructor: Phan

A continuation of ENGS 026, with emphasis on digital control, state-space analysis and design, and optimal control of dynamic systems. Topics include review of classical control theory; discrete-time system theory; discrete modeling of continuous-time systems; transform methods for digital control design; the state-space approach to control system design; optimal control; effects of quantization and sampling rate on performance of digital control systems. Laboratory exercises reinforce the major concepts; the ability to program a computer in a high-level language is assumed.

Prerequisite: ENGS 26

Offered: 16S, 17S: 10A

ENGS 146 - Computer-Aided Mechanical Engineering Design

Instructor: Diamond

An investigation of techniques useful in the mechanical design process. Topics include computer graphics, computer-aided design, computer-aided manufacturing, computer-aided (finite element) analysis, and the influence of manufacturing methods on the design process. Project work will be emphasized. Enrollment is limited to 024 students.

Prerequisite: ENGS 76

Offered: 16S, 17S: 2A

ENGS 147 - Mechatronics

Instructor: Ray

Mechatronics is the systems engineering approach to computer-controlled products. This course will integrate digital control theory, real-time computing, software design, sensing, estimation, and actuation through a series

of laboratory assignments, complementary lectures, problem sets, and a final project. Topics covered will include microprocessor based real-time computing, digital control, state estimation, signal conditioning, sensors, autonomous navigation, and control architectures for autonomous systems.

Prerequisite: ENGS 26 or ENGS 145 and two of ENGS 31, ENGS 32, ENGS 33, ENGS 76 or equivalent

Offered: 16S, 17S: 3A

ENGS 150 - Intermediate Fluid Mechanics

Instructor: Epps

Following a review of the basic equations of fluid mechanics, the subjects of potential flow, viscous flows, boundary layer theory, turbulence, compressible flow, and wave propagation are considered at the intermediate level. The course provides a basis for subsequent more specialized studies at an advanced level.

Prerequisite: ENGS 25 and ENGS 34, or permission of the instructor

Offered: 16S, 17S: 12

ENGS 151 - Environmental Fluid Mechanics

Instructor: Roisin

Applications of fluid mechanics to natural flows of water and air in environmentally relevant systems. The course begins with a review of fundamental fluid physics with emphasis on mass, momentum and energy conservation. These concepts are then utilized to study processes that naturally occur in air and water, such as boundary layers, waves, instabilities, turbulence, mixing, convection, plumes and stratification. The knowledge of these processes is then sequentially applied to the following environmental fluid systems: rivers and streams, wetlands, lakes and reservoirs, estuaries, the coastal ocean, smokestack plumes, urban airsheds, the lower atmospheric boundary layer, and the troposphere. Interactions between air and water systems are also studied in context (for example, sea breeze in the context of the lower atmospheric boundary layer).

Prerequisite: ENGS 025, ENGS 034 and ENGS 037, or equivalents

Offered: 17W: Arrange

ENGS 152 - Magnetohydrodynamics

Instructor: Lotko

The fluid description of plasmas and electrically conducting fluids including magnetohydrodynamics and two-fluid fluid theory. Applications to laboratory and space plasmas including magnetostatics, stationary flows, waves, instabilities, and shocks.

Prerequisite: PHYS 68 or equivalent, or permission of the instructor

Cross-Listed as: PHYS 115

Offered: 15W: 2A Offered in alternate years

ENGS 153 - Computational Plasma Dynamics

Instructor: Staff

Theory and computational techniques used in contemporary plasma physics, especially nonlinear plasma dynamics, including fluid, particle and hybrid simulation approaches, also linear dispersion codes and data analysis. This is a “hands-on” numerical course; students will run plasma simulation codes and do a significant amount of new programming (using Matlab).

Prerequisite: PHYS 68 or equivalent with ENGS 91 or equivalent recommended, or permission of the instructor

Cross-Listed as: PHYS 118

Offered: 17W: Arrange Offered in Alternate Years

ENGS 155 - Intermediate Thermodynamics

Instructor: Frost

The concepts of work, heat, and thermodynamic properties are reviewed. Special consideration is given to derivation of entropy through information theory and statistical mechanics. Chemical and phase equilibria are studied and applied to industrial processes. Many thermodynamic processes are analyzed; the concept of exergy (availability) is used to evaluate their performance, and identify ways to improve their efficiency.

Prerequisite: ENGS 25

Offered: 16S, 17S: Arrange

ENGS 156 - Heat, Mass, and Momentum Transfer

Instructor: Hill

Fundamentals of convection, conduction, radiation, mass, and momentum transport. Basic conservation laws and rate equations in laminar and turbulent flows. Exact solutions. Approximate solutions using boundary layer or integral techniques. Empirical methods. Analysis of engineering systems.

Prerequisite: ENGS 25 and ENGS 34

Offered: 16S, 17S: 9L

ENGS 157 - Chemical Process Design

Instructor: Laser

An in-depth exposure to the design of processes featuring chemical and/or biochemical transformations. Topics will feature integration of unit operations, simulation of system performance, sensitivity analysis, and system-level optimization. Process economics and investment return

will be emphasized, with extensive use of the computer for simulation and analysis.

Prerequisite: ENGS 36

Offered: 16W, 17W: 11

ENGS 158 - Chemical Kinetics and Reactors

Instructor: Laser

The use of reaction kinetics, catalyst formulation, and reactor configuration and control to achieve desired chemical transformations. The concepts and methods of analysis are of general applicability. Applications include combustion, fermentations, electrochemistry, and petrochemical reactions.

Prerequisite: ENGS 36

Offered: 16S, 17S: 12

ENGS 160 - Biotechnology and Biochemical Engineering

Instructor: Gerngross

A graduate section of ENGS 35 involving a project and extra class meetings. Not open to students who have taken ENGS 35.

Prerequisite: MATH 3, CHEM 5, BIOL 12 or BIOL 13 and permission of the instructor

Offered: 15F, 16F: 9; Laboratory

ENGS 161 - Microbial Physiology and Metabolic Engineering

Instructor: Lynd

A consideration of cellular metabolism, with an emphasis on microbial metabolism, and its manipulation in order to produce products of interest. Quantitative descriptions of energy generation, cell growth, and biosynthesis will be addressed in the context of both unstructured and structured models. General principles of metabolic engineering, including metabolic control theory, will be presented and illustrated using case studies. Students will complete a substantial course project related to goal-directed analysis and manipulation of metabolism.

Prerequisite: ENGS 160 and a non-introductory course in biochemistry or molecular biology, or permission

Offered: 17W: Arrange Offered in alternate years

ENGS 162 - Methods in Biotechnology

Instructor: Ackerman

This is a laboratory based course designed to provide hands on experience with modern biotechnological research, high throughput screening and production tools. The course provides familiarity with processes commonly used in the biotechnology industry. Examples include fermentation systems controlled by programmable logic controllers, down stream processing equipment such as continuous centrifugation, cross flow ultra-filtration and fluidized bed chromatography. The laboratory also demonstrates the substitution of routine molecular biological and biochemical operations by automated liquid handlers and laboratory robots. Students design and develop a bioassay, which is then implemented by laboratory robots for which they have to write their own implementation program. The course has a significant laboratory component. Enrollment is limited to 12 students.

Prerequisite: one from ENGS 35, ENGS 160, and ENGS 161, or one from BIOL 61, BIOL 64, and BIOL 65

Offered: 16S: Arrange

ENGS 163 - Advanced Protein Engineering

Instructor: Ackerman

This course will build on molecular engineering fundamentals introduced in ENGS58 and equip students to formulate novel engineered molecules by translating methods into practical design proposals. The three components of any protein engineering effort will be surveyed: host strain, library design, and selective pressure. Both gold standard and novel engineering methodologies will be studied, and tradeoffs among different techniques will be examined through detailed case studies. Data presentation and interpretation skills will be developed by examining current literature focused on proteins with practical utility.

Prerequisite: ENGS 58, or ENGS 160, or BIOCHEM 101. Equivalent courses accepted with instructor's permission.

Offered: 16W, 17W: 3B

ENGS 165 - Biomaterials

Instructor: Van Citters

Consideration of material problems is perhaps one of the most important aspects of prosthetic implant design. The effects of the implant material on the biological system as well as the effect of the biological environment on the implant must be considered. In this regard, biomaterial problems and the bioelectrical control systems regulating tissue responses to cardiovascular and orthopedic implants will be discussed. Examples of prosthetic devices currently being used and new developments of materials appropriate

for future use in implantation will be taken from the literature.

Prerequisite: ENGS 24, or equivalent

Offered: 16S, 17S: T/Th 8-9:50

ENGS 167 - Medical Imaging

Instructor: Pogue

A comprehensive introduction to all major aspects of standard medical imaging systems used today. Topics include radiation, dosimetry, x-ray imaging, computed tomography, nuclear medicine, MRI, ultrasound, and imaging applications in therapy. The fundamental mathematics underlying each imaging modality is reviewed and an engineering picture of the hardware needed to implement each system is examined. The course will incorporate a journal club review of research papers, term tests, and a term project to be completed on an imaging system.

Prerequisite: ENGS 92 (may be taken concurrently)

Offered: 16F: 10 Offered in alternate years

ENGS 169 - Intermediate Biomedical Engineering

Instructor: Halter

A graduate section of ENGS 57. Students taking the course for graduate credit will be expected to write a research proposal aimed at developing a specific surgical technology. Groups of 2-3 students will work together. The proposal will require an extensive literature review, a detailed proposal of research activities, alternative methods, and timeline, and a detailed budget and budget justification for meeting the research objectives. Weekly meetings will take place between the groups and Professor Halter to discuss progress. By the end of the term the groups are expected to have a complete proposal drafted. Enrollment is limited to 18 students. Not open to students who have taken ENGS 57.

Prerequisite: ENGS 23 and ENGS 56 or equivalent

Offered: 17S: 10 Offered in Alternate Years

ENGS 170 - Neuroengineering

Instructor: Diamond

This course will introduce students to currently available and emerging technologies for interfacing with the human brain. Students will study the fundamental principles, capabilities and limitations of a range of relevant technologies within the scope of noninvasive brain-computer interfaces, neural implants, neurostimulation, sensory substitution and neuroinformatics. The ethical and societal ramifications of these technologies will also be considered. Applications of neuroengineering technology in medicine will be emphasized such as the diagnosis and

treatment of neurological diseases and neural rehabilitation.

Prerequisite: ENGS 22 and ENGS 56

Offered: 16W, 17W: 2A

ENGS 171 - Industrial Ecology

Instructor: Wegst

By studying the flow of materials and energy through industrial systems, industrial ecology identifies economic ways to lessen negative environmental impacts, chiefly by reducing pollution at the source, minimizing energy consumption, designing for the environment, and promoting sustainability. The objective of this course is to examine to what extent environmental concerns have already affected specific industries, and where additional progress can be made. With the emphasis on technology as a source of both problems and solutions, a broad spectrum of industrial activities is reviewed ranging from low-design high-volume to high-design low-volume products. Students activities include a critical review of current literature, participation in class discussion, and a term project in design for the environment.

Prerequisite: ENGS 21 and ENGS 37

Offered: 16W, 17W: 10

ENGS 172 - Climate Change and Engineering

Instructor: Albert

The current assessment by the Intergovernmental Panel on Climate Change (IPCC) of the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) will be examined. The course will begin by scrutinizing the scientific basis of the assessment. Subsequently, regional and global impact projections will be examined. The technological options will be examined with respect to research and capitalization priorities, both corporate and governmental. Finally, the possibilities for novel governance structures based on a scientific understanding will be examined. Weekly critical presentations of the source material will be required. The course will culminate in the preparation, presentation, and refinement of a term paper of the student's choosing.

Prerequisite: Junior or senior standing in the Science Division; graduate standing in engineering or science; or permission

Offered: 16W, 17W: 2A

ENGS 175 - Energy Systems

Instructor: Lynd, Peterson

A consideration of energy futures and energy service supply chains at a systemic level. Dynamic development of demand and supply of primary energy sources and key energy carriers will be considered first assuming

continuation of current trends, and then with changes to current trends in order to satisfy constraints such as limiting carbon emissions and changing resource availability. Integrated analysis of spatially-distributed time-variable energy systems will also be addressed, with examples including generation, storage, and distribution of electricity and production of energy from biomass.

Prerequisite: ENGS 25, ENGS 51, either ENGS 173 or ENGS 174 or permission of the instructor.

Offered: 16S, 17S: 2A

ENGS 200 - Methods in Applied Mathematics II

Instructor: Staff

Continuation of ENGS 100 with emphasis on variational calculus, integral equations, and asymptotic and perturbation methods for integrals and differential equations. Selected topics include functional differentiation, Hamilton's principle, Rayleigh-Ritz method, Fredholm and Volterra equations, integral transforms, Schmidt-Hilbert theory, asymptotic series, methods of steepest descent and stationary phase, boundary layer theory, WKB methods, and multiple-scale theory.

Prerequisite: ENGS 100, or equivalent

Cross-Listed as: PHYS 110

Offered: 16W: Arrange Offered in Alternate Years

ENGS 202 - Nonlinear Systems

The course provides basic tools for modeling, design, and stability analysis of nonlinear systems that arise in a wide range of engineering and scientific applications including robotics, autonomous vehicles, mechanical and aerospace systems, nonlinear oscillators, chaotic systems, population genetics, learning systems, and networked complex systems. There are fundamental differences between the behavior of linear and nonlinear systems. Lyapunov functions are powerful tools in dealing with design and stability analysis of nonlinear systems. After addressing the basic differences between linear and nonlinear systems, the course will primarily focus on normal forms of nonlinear systems and Lyapunov-based control design methods for a variety of applications with an emphasis on robotics, mechanical control systems, and particle systems in potential fields.

Prerequisite: ENGS 100 and ENGS 145 or equivalents and familiarity with MATLAB

Offered: Not offered in the period from 14F through 15S

ENGS 205 - Computational Methods for Partial Differential Equations II

Instructor: Paulsen

Boundary Element and spectral methods are examined within the numerical analysis framework established in ENGS 105. The boundary element method is introduced in the context of linear elliptic problems arising in heat and mass transfer, solid mechanics, and electricity and magnetism. Coupling with domain integral methods (e.g. finite elements) is achieved through the natural boundary conditions. Extensions to nonlinear and time-dependent problems are explored. Spectral methods are introduced and their distinctive properties explored in the context of orthogonal bases for linear, time-invariant problems. Extension to nonlinear problems is discussed in the context of fluid mechanics applications. Harmonic decomposition of the time-domain is examined for nonlinear Helmholtz-type problems associated with EM and physical oceanography.

Prerequisite: ENGS 105

Offered: 15S: Arrange

ENGS 220 - Electromagnetic Wave Theory

Continuation of ENGS 120, with emphasis on fundamentals of propagation and radiation of electromagnetic waves and their interaction with material boundaries. Propagation in homogeneous and inhomogeneous media, including anisotropic media; reflection, transmission, guidance and resonance, radiation fields and antennas; diffraction theory; scattering.

Prerequisite: ENGS 100 and ENGS 120 or permission of the instructor.

Offered: Not offered in the period from 14F through 15S

ENGS 250 - Turbulence in Fluids

Prerequisite: ENGS 150 or equivalent.

Offered: 15F: Arrange

Genetics - Graduate

Chair: Jay C. Dunlap

Professors C. N. Cole (Biochemistry and Genetics), M. D. Cole (Pharmacology and Genetics), J. C. Dunlap (Genetics and Biochemistry), M. L. Guerinot (Biological Sciences), M. A. Israel (Pediatrics and Genetics), J. J. Loros (Biochemistry and Genetics), C. R. McClung (Biological Sciences), T. K. Mohandas (Pathology and Genetics), J. H. Moore (Genetics), R. K. Taylor (Microbiology and Immunology), W. T. Wickner (Biochemistry); Associate Professors Y. Ahmed (Genetics), B. A. Arrick (Medicine), S. E. Bickel (Biological Sciences), G. Bosco (Genetics), P. J. Dolph (Biological Sciences), P. Ernst (Genetics and Microbiology and Immunology), S. N. Fiering (Microbiology and Immunology and Genetics), S. Gerber (Genetics), R. H. Gross (Biological Sciences), T. P. Jack (Biological Sciences), C. W. Pikielny (Genetics), R. M.

Saito (Genetics), M. L. Whitfield (Genetics); Assistant Professors C. Cheng (Genetics).

Undergraduate students interested in a major program involving genetics should refer to the major in Genetics, Cell, and Developmental Biology offered by the Department of Biological Sciences.

The Ph.D. in Genetics is administered by the Genetics Department of Dartmouth Medical School. The courses listed below are primarily designed for graduate students. The student should decide, in consultation with his/her committee and course instructors, whether his/her background is appropriate for the content of the course.

To view Genetics courses, [click here](#) (p. 577).

Requirements for the Doctor's Degree (Ph.D.)

To qualify for award of the Ph.D. degree, a student must fulfill the following requirements:

1. Satisfactory completion of a year-long graduate-level sequence in biochemistry, cellular and molecular biology; a one-term teaching assignment; and a three-term course in laboratory genetics. The last will consist of three small research projects, conducted in rotation with different faculty members for periods of about three months each.
2. Satisfactory completion of three other graduate-level courses in genetics or related disciplines.
3. Satisfactory completion of an approved ethics course.
4. Attendance at the seminar series of the Program.
5. Participation in a journal club during fall, winter and spring terms every year and in the weekly Research in Progress series.
6. Satisfactory completion of a written and oral qualifying examination.
7. Satisfactory completion of a significant research project and preparation of a thesis acceptable to the thesis advisory committee.
8. Successful defense of the thesis in an oral examination and presentation of the work in a lecture.

For further information, see the *Graduate Study Catalog*.

GENE - Genetics Courses

To view Genetics requirements, [click here](#) (p. 577).

GENE 102 - Molecular Information in Biological Systems

Instructor: Madden and Associates

Together with Biochemistry 101, this course constitutes the first term of a year-long graduate-level sequence in biochemistry, cell and molecular biology. The central

theme of the course is the storage, retrieval, modification, and inheritance of biological information, as encoded in the molecular organization of proteins and nucleic acids. Topics include the principles of macromolecular interactions; the structure and function of proteins and nucleic acids; the machineries of transcription, translation, and replication; principles of genetics, genomics, and proteomics; and the control and evolution of biological systems. Note that this course must be taken concurrently with Biochemistry 101 and that students will need to enroll in both courses to complete the Molecular and Cellular Biology Graduate Program requirements for fall term. Not open to undergraduate students.

Prerequisite: BIOC 101 or permission of the instructor. Not open to undergraduate students. Three lectures per week

Corequisite: BIOC 101 or permission of the instructor. Not open to undergraduate students. Three lectures per week

Offered: 14F, 15F: M, W, F 8:30-9:50 a.m., X-hour Th, 9:00-10:00 a.m.

GENE 107 - Spring MCB Course Module

Instructor: Genetics faculty

The final term of a year-long graduate level course in biochemistry, cell and molecular biology, a continuation of BIOC 101, GENE 102, BIOL 103 and MICRO 104. These special-topics mini-courses provide more in-depth information about specific areas in biochemistry, cell and molecular biology. Each first-year MCB student must enroll in three sequential modules. Module topics offered each year will vary. Students should contact Janet Cheney for current list of spring-term modules and descriptions.

Prerequisite: Biochemistry 101, Genetics 102, Biology 103 and Microbiology 104.

Offered: 15S: M, W, F 8:30-9:50 a.m. with x-hour Th 8:30-9:50 a.m.

GENE 110 - Spring MCB Course Module

Instructor: Genetics faculty

The final term of a year-long graduate level course in biochemistry, cell and molecular biology, a continuation of BIOC 101, GENE 102, BIOL 103 and MICRO 104. These special-topics mini-courses provide more in-depth information about specific areas in biochemistry, cell and molecular biology. Each first-year MCB student must enroll in three sequential modules. Module topics offered each year will vary. Students should contact Janet Cheney for current list of spring-term modules and descriptions.

Prerequisite: Biochemistry 101, Genetics 102, Biology 103 and Microbiology 104.

Offered: 15S: M, W, F 8:30-9:50 a.m. with x-hour Th 8:30-9:50 a.m.

GENE 118 - Advanced Topics in Genetics and Molecular Genetics

Instructor: The staff

Each year, GENE 118 will focus on a different topic. Emphasis is on reading and analyzing material from the primary literature.

Prerequisite: permission of the instructor

Cross-Listed as: BIOC 118

Offered: 15S, 16S: Arrange

GENE 142 - Genetics and Physiology of Behavior

Instructor: The staff

Examination of the genetic, physiological, cellular, and molecular bases of behavior and responses to environmental factors in eukaryotic organisms. Topics to be covered from the current and classic literature will include circadian rhythmicity, learning and memory, and other areas of current research; topics emphasized will vary from year to year. Four hours of lecture and discussion per week.

Prerequisite: Open to undergraduates (with senior standing and permission of an instructor) who should enroll under BIOL 079

Offered: 15W, 16W: Arrange

GENE 144 - Oncogenomics

Instructor: TBA

Cancer is not one disease but hundreds of different diseases caused by hundreds of different genotypes. At the cusp of the era in which it has become possible to classify tumors molecularly and to develop targeted therapeutics, this course will explore the impact of genomics on cancer prevention, detection, classification and treatment. Working with a new textbook and the primary literature, students will present research projects on molecular profiling, model systems, and molecularly targeted drugs and imaging. The course will meet for 3 hours per week.

Prerequisite: permission of the instructor

Offered: 16S: Arrange Offered in alternate years

GENE 145 - Human Genetics

Instructor: Fiering

This course will consider the structure, organization and function of the human genome, with an emphasis on how human genetics will develop now that the genome of humans and many other organisms have been sequenced. The mouse and other model organisms will also be discussed in regard to how they may genetically differ or be similar to humans. The course will meet for two 090 minutes sessions per week. Each session will cover a

specific topic and for most sessions the topic will be presented by one of the students enrolled in the course.

Prerequisite: permission of the instructor

Cross-Listed as: MICR 145

Offered: 15S: Arrange Offered in alternate years

GENE 146 - Molecular and Computational Genomics

Instructor: Whitfield, Moore

The sequencing of the complete genomes of many organisms is transforming biology into an information science. This means the modern biologist must possess both molecular and computational skills to adequately mine this data for biological insights. Taught mainly from the primary literature, topics will include genome sequencing and annotation, genome variation, gene mapping, gene expression and functional genomics, proteomics and systems biology. The course will meet for 3 hours per week.

Prerequisite: permission of an instructor

Cross-Listed as: QBS-146

Offered: 15S: Arrange

GENE 147 - Animal Development and Human Disease

Instructor: Ahmed, Ernst, Saito

Understanding of the molecular basis of human disease results from the exceptional power of genetic research technologies in the model organisms (worms, flies, fish and mice) and the universal nature of major genetic pathways in the animal kingdom. This course will offer integrated examination of the genetic, cellular, and molecular bases of the biology and pathology of development. The topics will be focused on the most interesting and informative human hereditary diseases for which the responsible genes have been identified. The developmental principles and pathways (e.g., Wnt signaling and colorectal cancer, sex determination and sex reversal, left-right asymmetry and human laterality disorders, DNA repair and Li-Fraumeni syndrome) and the model organisms we will use to illustrate them may vary somewhat from year to year. 1 hour of lecture and 3 hours of discussion per week.

Prerequisite: permission of an instructor

Offered: 16S: Arrange Offered in alternate years

GENE 148 - Biological Mass Spectrometry and Proteomics

Instructor: Gerber

Mass spectrometry (MS) has become a cornerstone technology for scientists engaged in a wide array of modern biomedical research, from addressing hypotheses in cell biology and biochemistry to the broadscale analysis

of proteins and proteomes. Proteomics itself, driven largely by the qualitative and quantitative power of mass spectrometry, represents an exciting new field of research with great potential in answering basic and translational questions that challenge the modern scientist today, and for the foreseeable future. This class will be taught through a combination of interactive lectures, journal paper discussion sessions, and a lab in which students get hands-on experience identifying proteins from gel bands by LC-MS/MS.

Prerequisite: permission of the instructor

Offered: 15W, 17W: Arrange

GENE 197 - Graduate Research in Genetics A

An original individual, experimental, or theoretical investigation beyond the undergraduate level in genetics. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing two or more other graduate or undergraduate courses. Dunlap and the staff of the Program.

Offered: All terms: Arrange

GENE 198 - Graduate Research in Genetics B

An original individual, experimental, or theoretical investigation beyond the undergraduate level in genetics. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research. Dunlap and the staff of the Program.

Offered: All terms: Arrange

GENE 199 - Graduate Research in Genetics C

An original individual, experimental, or theoretical investigation beyond the undergraduate level in genetics. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term. Dunlap and the staff of the Program.

Offered: All terms: Arrange

GENE 267 - Graduate Research Colloquium: Developmental Biology

All graduate students are required to enroll in Graduate Research Colloquium during each term of residence, except summer. In the Developmental Biology section, students will read and discuss original research papers that apply genetic, molecular, and/or genomic approaches to problems of metazoan development. All students will have

frequent opportunities to lead discussions. The class ordinarily meets weekly. Not open to undergraduates. Saito.

Offered: F, W, S: Arrange

GENE 271 - Graduate Research Colloquium: Chromatin Structure

All graduate students are required to enroll in Graduate Research Colloquium during each term of residence, except summer. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Evaluation will be based on quality of the work described, quality of critical analysis, and on presentation style, including effective use of audio-visual materials. All students will be required to participate in at least one Journal Club/Research in Progress series. All students will make oral presentations that describe work from the current literature. This course will meet for a 1-hour discussion once per week. Not open to undergraduates. Ernst, Lupien.

Offered: F, W, S: Arrange

GENE 297 - Graduate Research in Genetics A

An original individual, experimental, or theoretical investigation beyond the undergraduate level in genetics. This course is open only to graduate students, subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing two or more other graduate or undergraduate courses. Dunlap and the staff of the Program.

Offered: All terms: Arrange

GENE 298 - Graduate Research in Genetics B

An original individual, experimental, or theoretical investigation beyond the undergraduate level in genetics. This course is open only to graduate students, subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research. Dunlap and the staff of the Program.

Offered: All terms: Arrange

GENE 299 - Graduate Research in Genetics C

An original individual, experimental, or theoretical investigation beyond the undergraduate level in genetics. This course is open only to graduate students, subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term. Dunlap and the staff of the Program.

Offered: All terms: Arrange

Graduate Studies Office Courses

Unspecified Graduate Studies Courses

Graduate Ethics

The Graduate Studies Office, in collaboration with the Ethics Institute at Dartmouth, has developed an institution-wide training program in the basics of professional ethics. This program is a requirement for all first-year Arts and Sciences graduate students. The Graduate Ethics Program has four components: an opening session during orientation, a graduate student ethics survey, and four small group discussions addressing focal topics during the first year of graduate school.

Professional Development and Leadership

Each term the Graduate Studies Office offers a variety of training sessions on teaching, research, and career development that students from many different departments attend. The new program will formalize the process of giving students credit for coming to these workshops and will recognize students' efforts to develop their skills and prepare for their future careers.

Doctoral students participating in the professional development program will earn credit hours toward one course during the time they are working toward their PhD. The credit will appear on students' transcripts under the label *Professional Development*. Workshops will be divided into *core* sessions, such as sessions on ethics, writing, presenting, mentoring, leadership, and time management, and *elective* sessions, divided into sessions on research, teaching, and career exploration.

Sessions that would fall under the elective category of *research* include sessions on lab management, grants and funding opportunities, science proposals, and patents. Elective sessions that would be categorized as *teaching*, could include a teaching series led by the Dartmouth Center for the Advancement of Learning (DCAL), sessions on syllabus design, workshops on being a TA, and sessions on laboratory design. Sessions that focus on *career exploration* would include those on academic and non-academic job searches, sessions on writing CVs and resumes, and sessions in which alumni discuss their career paths.

Communicating Science

Mark A. McPeck, Nancy Serrell, Christopher Kohn, Gifford Wong (Fall 2013)

Sure, you know how to present your research to the experts, but can you talk about it with other audiences - without your slides? The goal of this 10-week, interdisciplinary graduate course is to help current and future scientists speak about their work more

spontaneously, and to connect more directly and responsively with their audiences and each other.

The course, which is eligible for credit through the Graduate Office, is based on a model developed by Alan Alda at Stony Brook University. Using improvisation exercises designed to enhance presence, charisma and confidence students will develop their observation and active listening skills and learn relaxation techniques. Peer feedback is an essential component of this course, and students will participate in exercises to develop their skills in story telling and two-way communication. Special focus will be placed on enhancing clarity and vividness, avoiding jargon and using emotion. The class will meet Monday late afternoon/early evening in the fall term from 4:30-7:00.

Master of Arts in Liberal Studies

Chair: Donald E. Pease

Dartmouth College offers a graduate program leading to the degree of Master of Arts in Liberal Studies (M.A.L.S.). This program places special emphasis on a multidisciplinary approach to advanced study in the liberal arts. The program offers an advanced liberal studies education through both directed and independent study. The M.A.L.S. program is described briefly in the Graduate Study section of this catalog. The program offers courses in General Liberal Studies, Cultural Studies, Globalization Studies and Creative Writing. M.A.L.S. courses are open only to graduate students. See the M.A.L.S. Website for more detail.

To view Master of Arts in Liberal Studies courses, click here (p. 581).

MALS - Master of Arts in Liberal Studies Courses

To view Master of Arts in Liberal Studies requirements, click here (p. 581).

MALS 130 - Research Methods

Instructor: Klaus Milich

Writing a research paper requires the knowledge of the scope, the genesis, and the methods of the discipline one is engaged in. The goal of this workshop is to make students aware of their own approaches to help them develop their own research projects. It will cover methods of practical implementation, skills and strategies to obtain better results in research and class performance. Apart from learning how to apply and integrate different genre such as excerpts, protocols, reports, summaries, or charts that help preparing a presentation, writing a paper, or finishing a thesis, discussions will address the following questions:

1. What distinguishes scholarship from other forms of knowledge production (media, encyclopedias);
2. What research means in the sciences and in the

humanities, and how individual disciplines produce knowledge;

3. What it means to read and write “critically;”

4. How to distinguish “scientific facts,” from “producing meaning;”

5. How to turn individual observations and experiences into viable scholarly projects and why framing the right question might be more important than the answer;

6. How research strategies and different forms of systematic thinking might be helpful at working places outside the university and beyond scholarly projects.

In order to practice how to plan or carry out research and how to build an argument, students will be asked to bring in their own work in progress, be it an initial idea for a final paper, a proposal for an independent study, or a chapter of their thesis.

Offered: 14X

MALS 131 - Social Science Research Methods

Instructor: Kerry Landers

Qualitative and quantitative data provide different kinds of information to the researcher. Quantitative research measures the reactions of large numbers of people and provides generalizable data. Qualitative research produces detailed data on a small number of cases for an increased depth of understanding. Conducting research in the social sciences requires knowledge of both quantitative and qualitative methods. Numerous qualitative methods exist with a great diversity of theoretical models. This workshop will focus on ethnographic research, often used by sociologists, anthropologists, and educators to look at the culture of groups and settings. The primary focus of this workshop will be on qualitative methods with discussion on survey methods. Students will design their own research projects based on their scholarly interests (generated by previous classes) that they would like to further pursue for the basis of their thesis research.

Offered: 15W

132 - Writing Methodologies: Strategies for Creative Writers

Instructor: Anna Minardi

This is a discussion based course focused on the preparation and discipline writers need to develop as they progress in their chosen genres. The text selected as the basis for class conversations offers a discussion of various writing concerns that all writers face as they consider such questions as audience, goal, use of language, placement of oneself. The text will be supplemented by short student pieces that may reflect the issues raised by Todd and Kidder in the book.

The course goal is create a sense of familiarity with the writing process for students who are starting to write. For students with more experience, the goal is to articulate the questions related to the areas they want to develop. The

exchange between beginning and more advanced writers will be valuable in creating an awareness of the questions that propel writers at all levels and in all genres. The class will be enhanced by visits from MALS writing professors and creative writing thesis students.

Offered: 15S

MALS 137 - Thesis Research

MALS students with an approved Thesis Proposal on file may elect to enroll in Thesis Research. Students enrolling in MALS 137 must be "in residence" (within commuting distance of the college), meet regularly with their principle reader and make significant progress toward completing the thesis during the term.

Offered: 14F, 15W, 15S

MALS 191 - Oral History in Theory and Practice

Instructor: Harvey Frommer; Myrna Katz Frommer

This course will explore the theoretical implications, practical applications, and literary dimensions of oral history. Through reading and discussion, students will be exposed to a variety of oral histories and evaluate the uses of individual and/or collective memory as a means of documenting, understanding, and appreciating the past. Oral history will be examined as a literary genre with consideration of how the oral historian becomes a creative writer whose work relies almost wholly on the voices of those interviewed. The special demands of oral biography will be considered as well. Issues to be addressed include: the place of oral history -- by nature personal and subjective -- in the larger historical framework; the changes demanded by a shift in medium as the oral historian transfers taped commentary to print; the role of the oral historian/oral biographer as re-caster and re-arranger of memory; evolving recording technologies and the impact of the medium on the oral history's "message and massage." Selected oral histories will be contrasted with and compared to traditional historical accounts of similar events, as well as to one another as regards purpose, methodology, style, and literary effectiveness. The roles and responsibilities of the practitioner as interviewer, archivist, historian, biographer, and artist will be examined and critiqued. Each student will produce an oral history project with 6-12 voices on a cultural, institutional, local, familial, personal, or event-based topic. On-going guidance will be given by the professors in one-on-one meetings as the student goes through the process of selecting a theme and subjects to interview, preparing for and conducting interviews, transcribing and editing tapes, and fashioning from them the final work. Through discussing their projects in the Workshop component of the course, students will be able to network and benefit from feedback.

Offered: 14F

MALS 206 - The Craft and Culture of Journalism in the 21st Century

Instructor: Christopher Wren

The logic and fundamentals of news gathering as reinvented for the 21st century. What constitutes news today and why it matters. How to make the significant more interesting. Distinguishing between journalism and the media. Issues and opportunities in the changing economics of journalism, the collapse of traditional print outlets and the demise of the twenty-four-hour news cycle. The conflation of reporting, analysis and opinion in the digital transformation of multi-platform news. The rise of social media like Facebook and YouTube as disseminators of breaking news and information. Wikileaks and other ethical dilemmas for journalists. Students should expect to write weekly, experimenting with an expanding variety of media outlets, from legacy newspapers and magazines to digital websites and citizen blogs, and mining numbers, polls and statistics to extract the essentials worth covering. Exploring the injunction of the veteran journalist Gay Talese that the best journalism should be as well-written and compelling as fiction, students will hone skills applicable to drama and arts criticism and narrative non-fiction and fiction. This writing course, taught by a former New York Times foreign correspondent, reporter, editor and author, will also track political, economic and conflict developments in real time via the Internet.

Offered: 14F

MALS 213 - Fiction-Short Story

Instructor: Alan Lechuk

This course is aimed at those with a special interest in creative writing. Writing experience is preferred, but is not a prerequisite, nor is it necessarily essential that the student know exactly what he or she wishes to focus on. What is required is a commitment to the imaginative exploration of experience and a serious desire to devote oneself to the writing process. Emphasis will be placed on student work, but a large number of published stories and essays will be analyzed as well. Classes will be mostly discussions, with periodic lectures. The aim of the course is two-fold: to help the student understand literary writing from the writer's point of view, and to raise student prose to publishable level or nearly so.

MALS 226 - Screenwriting

Instructor: Bill Philips

One should emerge from this course with 1) the first draft of a professional-quality feature length screenplay and 2) the knowledge of how to do subsequent revisions. No previous creative writing experience is necessary. Whether your idea is "commercial," "artistic," or "personal" will not

matter in terms of the focus of this course, but we will be concerned with your producing something that will hold up to professional scrutiny. We will emphasize the following: 1) a comprehensible story with a beginning, middle and end 2) a sympathetic protagonist 3) a worthy antagonist 4) an appropriate "love-interest" (if any), 5) how to keep your story a "page turner," so the reader will want to keep going; 6) proper format and length (100-120 pages) and absence of typos, 7) and originality of premise and dialogue. Since you will be expected to write an entire first draft of a feature script within this course, it behooves you to be somewhat prepared. It would help if you have a story in mind, a protagonist, a worthy antagonist, a love-interest (if appropriate), and at least an idea of your beginning, middle and end. It also really helps to have at least 30-40 situations (scenes) to string together to support a feature-length film. We will go over all of this in class, but if you get a head start on your thinking, it will be a tremendous help to you.

Offered: 15W

MALS 234 - Telling True Stories

Instructor: Tom Powers

The goal of the course will be to expand and refine the understanding of author identity - the answer to the question raised by every piece of writing: who wrote this? Students will be expected to write every week and to read everything that is submitted. Classroom discussion will focus on what makes individual pieces succeed or fail. In addition to the regular short weekly pieces of 3-4 pages, each student will be asked to write one longer piece, 10 to 15 pages, which will be discussed at length in class.

Offered: 15W

MALS 239 - Poetry Workshop

Instructor: Gary Lenhart

This course will follow workshop format, with students submitting substantial weekly assignments that will be distributed to and considered by participants before class hours. There are no length expectations for each submission, as some are prolific, others deliberate. A guiding aim will be to school workshop members with self-critical tools to apply toward future efforts in the art of poetry. To refine these tools and to inspire our own compositions, we will also read and discuss other poems selected and introduced by the instructor and participants. There will be no text for the course, though a list of recommended critical texts and anthologies will be distributed. All approaches and aesthetics are welcome.

Offered: 15S

MALS 240 - Globalization and Its Discontents

Instructor: Ronald Edsforth

The subject of this seminar is the widespread and contentious belief that humanity has recently entered a new stage of integration called "Globalization." The seminar explores the simultaneous lauding of globalization and resistance to globalization in the politics and cultures of rich and poor regions of the world. Our discussions focus on readings and films that present many different views of globalization ranging from celebration to skepticism to outright hostility. Taking care to avoid both teleological presumptions and technological fetishism, we begin with a historical review of the economic processes most often identified as "globalization," and ponder the implications of research that shows globalization has a long history and that it has been reversible. Then we spend the rest of the term critically examining the relationships between global economic integration and changes in international politics and law, as well as the emergence of diverse transnational, national, and sub-national movements opposed to the dominant ideas and practices of economic and political globalization. These critics include human rights and environmental activists, indigenous peoples, socialists, nationalists, and fundamentalists of many different faiths.

Offered: 15S

MALS 245 - Non-Fiction - Personal Essay

Instructor: Barbara Kreiger

This course on the personal essay concentrates, not surprisingly, on a highly individual point of view. The essay may include both narration and reflection, but it is generally limited in scope and focuses on a single impression or idea. Attention will be devoted to the complex, often ambiguous, nature of experience, and the use of reflection in making even the smallest observations memorable. We will emphasize the short form, though length is not built into the definition, and those who want to explore the longer essay will have an opportunity to do so. Class time will be devoted to both student and published work, the latter intended to offer a variety of approaches and goals.

Offered: 15S

MALS 276 - America in the 1970's

Instructor: Julia Rabig

The 1970s witnessed the "oil crisis" that had Americans lined up for gas, the "crisis of spirit" diagnosed by President Jimmy Carter, and the celebration of narcissism evoked by the "Me Decade." While the 1970s has long been ignored by scholars, it was the very decade in which far-reaching changes brought about by the political resistance and cultural upheaval of the 1960s took hold in enduring and unexpected ways. Radical activists of the 1960s sought to translate their movements—feminism, black power, sexual liberation—into institution, myth, and legislation. At the same time, the New Right developed the cultural politics and grassroots strategies that would yield

victory in the 1980s. From the foreign policy of the late Cold War, to growing fears of terrorism, to experiments in financial deregulation, the developments of 1970s are crucial to understanding the late 20th century. Students in this course will critically reappraise this decade of financial deregulation, government devolution, and personal introspection. Assignments include brief response papers, a review essay, a film review, and a major research paper.

Offered: 15W

MALS 277 - Coloring Gender

Instructor: Regine Rosenthal

Taking its point of departure from the different waves of the women's movement, this course will trace multiple feminisms and a wide range of gender issues that have been largely sidelined or ignored by mainstream feminism. It will add "color" to gender by focusing on minority groups in the US, such as African American, Latina, Native American women, and their take on feminism and gender, especially in relation to race, ethnicity, and nation. Conversely, it will also include feminism's work on racism by addressing the issue of women's collaboration in white supremacy discourse, both in the US and racist Nazi Germany. Furthermore, the course will explore other trans/national contemporary debates within feminism, amongst them ecofeminism as well as women and postcolonialism, indigeneity, and religion (e.g. Islam).

Offered: 14F

MALS 287 - Religion & Politics in a Post-Secular World: Rethinking Secularization

Instructor: Michael McGillen

Narratives about the emergence of European modernity often link the rise of the modern nation state and the triumph of Enlightenment rationality with the decline of religion in a process of secularization. With an increasing separation of religion and politics, the story goes, religion is relegated to the private sphere while a civic politics occupies the public sphere. A globalized world characterized by networks of communication and cultural exchange might appear, then, as the epitome of a cosmopolitan capitalism and its secular ethos. In the last two decades, however, this narrative of secularization has been called into question in the midst of a "return of religion" in a "post-secular society." Scholarship on political theology, meanwhile, has shown how modern politics and its concept of sovereign power adopt and appropriate religious forms of thought in their secular institutions. Instead of secularization as the decline of religion, critics are rethinking secularization in terms of a hidden afterlife of religion in a secular modernity that is unable to cast aside its theological roots. The course will examine how the return of religion and political theology are transforming politics in a globalized and post-national European modernity. In what ways might

religion undergird the call for a "radical Enlightenment" that exceeds national boundaries? How might a post-secular society entertain a dialogue of religion and the secular through mutual translation? How might religion provide a basis not only for the theory of sovereign power but for forms of resistance in which the public sphere is contested?

We will tackle these questions through readings of classical texts (Luther, Hobbes, Spinoza, Kant, Schmitt) alongside the work of twentieth-century and contemporary German, French, and Anglo-American critics (de Vries, Casanova, Hardt and Negri, Arendt, Lefort, Foucault, Said, Löwith, Blumenberg, Habermas, Taylor, Asad).

Offered: 14F

MALS 288 - Theorizing Memory

Instructor: Tracy Rutler

In *The Collective Memory*, Maurice Halbwachs writes, "Often we deem ourselves the originators of thoughts and ideas, feelings and passions, actually inspired by some group. Our agreement with those about us is so complete that we vibrate in unison, ignorant of the real sources of the vibrations." However, other scholars such as Jacques Rancière, Nancy Armstrong, and Edward Said have uncovered moments in which the "collective" memory functions as a means of suppressing the voices of the under-represented. As scholars in an increasingly interdisciplinary environment, our work is necessarily shaped by those peers with whom we share our ideas, as well as by current trends in our respective fields. Within the growing field of memory studies, thinkers from such varied disciplines as anthropology, political science, history, literary studies, and psychology continue to analyze the uses and abuses of individual and collective memory formations. In this seminar we will study some of the founding texts of memory studies, alongside the most recent work being performed in this field, asking how our methods of investigation into memory may provide pathways to new, interdisciplinary projects.

Offered: 14F

289 - American Cultural Studies

Instructor: James Dobson

This seminar course offers a broad survey of methodologies and approaches for the study of American culture. We will read both classic and contemporary work in several representative or emergent areas in the study of American culture including science and technology studies, food studies, critical race theory, queer and feminist theory, and the study of material culture. Throughout the term we will think critically about the methodological choices and commitments of the critics and theorists that we encounter by turning to a core text, an

edited volume of keywords for the study of American culture. Additional readings may include Slavoj Žižek, Lauren Berlant, Lee Edelman, Pierre Bourdieu, Eric Lott, Elizabeth Maddock Dillon, and Caleb Smith. Two shorter papers will provide the opportunity to interrogate oppositional positions within American Studies and a final seminar paper will examine an object (film, text, a piece of music, visual or material object, etc.) of your choice.

Offered: 15W

MALS 318 - Cultural Studies

Instructor: Donald Pease; Patricia McKee

Perhaps because of its capacity to cut across social and political interests and transgress disciplinary boundaries, Cultural Studies has provoked highly contradictory descriptions of its politics and academic location. Cultural Studies has been described as the academic location where the politics of difference -- racial, sexual, economic, transnational -- can combine and be articulated in all of their theoretical complexity. It has also been depicted as an academic containment strategy designed to tame cultural otherness through the universalization of the "idea" of culture and the resistance to theory. In this course we shall analyze the work of scholars -- bell hooks, Douglas Crimp, Janice Radway, Paul Gilroy, Stuart Hall, Homi Bhabha, Andrew Ross, Meaghan Morris, Elsbeth Probyn, Michael Warner, Rey Chow, Cornel west, Kobena Mercer, Judith Butler, among others -- who explicitly reflect upon the importance of conceptualizing and defining this diverse and often contentious enterprise. In addition to examining the social and institutional genealogy of the field, we shall deploy disparate methodological practices developed within the field of Cultural Studies to analyze a range of cultural artifices including: film noir, television soap operas, rap music, Hollywood blockbusters, borderlands discourse, whiteness studies and postcolonial theory.

MALS 337 - The New Global Order: Development, Democracy and Revolution

Instructor: Misagh Parsa; Evelyn Lechner

At the beginning of the 21st century, the United States has emerged as the single remaining hegemony in the world. Yet, paradoxically, despite this extraordinary power, its ability to manage the international system has been weakened in several areas. In this seminar we investigate how globalization, with the US as its primary moving economic and military force, affects the fates of countries in the Third World. We focus first on the creation of the global economic architecture that went hand-in-hand with the emergence of the United States after World War II, and then discuss a set of development issues across a number of developing countries related to globalization and the role of the US in the global economy. In the second part of the course we examine how the process of globalization has produced a number of reactions within and between different states, ranging from revolution to state failure.

Case studies will include Iran, Nicaragua, and the Philippines.

Offered: 15W

MALS 346 - Diasporas and Migrations

Instructor: Regine Rosenthal; Klaus Milich

Over the past two decades, the term diaspora has gained wide currency and intense scrutiny in scholarly work. Originating in the Hebrew Bible as prophesy of the Jewish "dispersion in all kingdoms of the earth," contemporary uses of the term have accrued meaning in a variety of contexts and disciplines to designate "the movement, migration, or scattering of people away from an established or ancestral homeland." Considering mass-migration, exile, and expulsion in all sectors of the world, this seminar will focus on a variety of concepts and theories related to diaspora. Studying a range of ethnographic, historical, theoretical, and literary texts, we will compare Jewish, African, and Asian diasporas in the context of historical, cultural and territorial characteristics. We will also discuss questions such as "the power of diaspora" vs. homeland, the role of the nation state vs. transnational or post-national aspects of culture, cultural identity, and hybridity.

Offered: 15S

MALS 361 - Global Media and Culture

Instructor: Ronald Edsforth; Joanne Devine

This course provides students the opportunity to study, discuss, and write about global media and the transformation of cultures and relations between peoples since the 1980s. Although most historians argue that globalization is an old process that began with the establishment of inter-regional trade many centuries ago, they agree with other social scientists who see this most recent phase of globalization as qualitatively different from earlier stages of the process. The most important of these changes is the development and diffusion of new global media. Indeed it seems fair to say that what most people mean when they use the word "globalization" today would not exist without the new global media. We begin the term by examining various conceptual discourses about the character and meaning of globalization, the media, and cultural change and survival. We then explore the recent rise of global media with special attention paid to technological innovations, transnational corporate consolidation, and political deregulation. In the second half of the term the seminar focuses its attention on more specific cases of the cultural impacts of the new global media in both rich and less developed countries.

MALS 364 - Telling Stories for Social Change

Instructor: Pati Hernandez; Ivy Schweitzer

Our social structure is full of unseen, unspoken, and unheard dynamics. These hidden and irresponsible social behaviors have always contributed to the building of visible and invisible social walls. Behind these walls, a growing invisible population has found a way to social visibility through addiction, violence, and crime. This course offers students the unique opportunity to collaborate with a group of people from behind those social walls from two distinct perspectives: theoretical and practical. For one class each week, students will study the root causes of social isolation and invisibility mainly pertaining to incarceration and addiction, in an active learning classroom. For the other half, students will travel to Sullivan County Department of Corrections, in Unity, NH and participate in an interdisciplinary arts program for inmates there. Its final goal is the creation and performance of an original production on the theme of the inmates' voices. The final project for the course will combine research on themes related to incarceration, rehabilitation, transition, facilitation with critical analysis and self-reflection on the effectiveness of community-based learning and performance in rehabilitation.

Offered: 15S

Mathematics - Graduate

Chair: Dana P. Williams

Vice Chair: Scott D. Pauls

Professors V. Chernov, P. G. Doyle, C. S. Gordon, M. J. Groszek, P. J. Hanlon, R. C. Orellana, S. D. Pauls, D. Rockmore, T. R. Shemanske, D. I. Wallace, D. L. Webb, D. P. Williams, P. Winkler; Associate Professors A. H. Barnett, S. Elizalde, C. J. Sutton, J. D. Trout, J. Voight; Assistant Professor F. Fu, E. van Erp; Research Instructors P. Clare, E. Costa, N. Malik, B. Muetzel, J. Pantone, R. Sadykov; Visitors; P. Herbrich, S. Miner, A. Riddell, J. Sijlsing, N. Tanabe; Adjunct Professor E. Demidenko; Adjunct Associate Professor B. F. Cole.

To view Mathematics Graduate courses, click here. (p. 587)

To view Mathematics Undergraduate requirements, click here. (p. 370)

To view Mathematics Undergraduate courses, click here. (p. 376)

The Graduate Program in Mathematics

Dartmouth College offers programs of graduate study leading to the Ph.D. and A.M. degrees in mathematics. With rare exceptions, the A.M. program is the first step in

the Ph.D. program. The Ph.D. program is designed to meet the need for mathematicians who are highly qualified in both teaching and scholarship. The College provides an environment in which a doctoral candidate can pursue professional study in mathematics and prepare to be an effective teacher.

Requirements for the Master's Degree (A.M.)

In addition to the general College requirements for the master's degree, the math department requirements for the A.M. in mathematics are as follows:

1. Satisfactory completion of six core courses: 101, 103, 104, 111, 113, and 114.[1]
2. Successful completion of the Master's certification exam.[2]

Note (1): Normally the requirements for the A.M. are completed in one year, with the Master's certification exam completed shortly after the end of the spring term.

Note (2): The general College requirements referred to above are three terms in residence at Dartmouth and credit in eight courses of graduate quality; these courses may sometimes, up to a limit of four, be replaced by approved research or special study.

Requirements for the Doctor's Degree (Ph.D.)

The requirements for the Ph.D. degree in mathematics are as follows:

1. Successful completion of the A.M. degree (described above).
2. Departmental certification in two advanced areas of study.[3]
3. Admission to Ph.D. candidacy by the departmental Graduate Program Committee as a result of its second review, which takes place at the end of the spring term of the second year of graduate study. This review will take account of all the relevant information that the Graduate Program Committee can gather, such as the student's record in courses and seminars, the student's performance during the certification process, and an estimate of the student's ability to write an acceptable thesis.
4. Demonstration of a reading knowledge of a foreign language normally chosen from French, German, and Russian. The Graduate Program Committee will monitor students' progress in its annual review.
5. Completion of a doctoral thesis of acceptable quality, and its defense in an oral examination.
6. Successful completion of the teaching seminar and teaching two courses in the three years after passing to candidacy. Preparation for the teaching seminar includes such activities as tutoring in the years before admission to candidacy. This requirement is met by receiving credit for Mathematics 107 once during each year preceding

admission to candidacy, credit for Mathematics 147, and credit for Mathematics 149 twice during the three years following admission to candidacy.

[1] Syllabi for these six courses are available from the Department of Mathematics.

[2] Past exams are available on the Department of Mathematics website.

[3] Syllabi for each area of certification are available from the Department of Mathematics.

MATH - Mathematics - Graduate Courses

To view Mathematics Graduate requirements, click here. (p. 586)

To view Mathematics Undergraduate requirements, click here. (p. 370)

To view Mathematics Undergraduate courses, click here. (p. 376)

MATH 100 - Topics in probability theory

15F: Arrange. Winkler.

MATH 101 - Topics in algebra

15F: Arrange. Webb.

MATH 102 - Topics in geometry

MATH 103 - Measure Theory and Complex Analysis

15F: Arrange. Gordon.

Cross-Listed as: MATH 073

MATH 104 - Topics in topology

16W: Arrange. Chernov.

MATH 105 - Topics in number theory

MATH 106 - Topics in applied mathematics

16S: Arrange. Pauls.

MATH 107 - Supervised Tutoring

Tutoring or assisting with teaching under the supervision of a faculty member.

MATH 108 - Topics in combinatorics

MATH 109 - Topics in mathematical logic

MATH 110 - Probability theory

MATH 111 - Abstract Algebra

16W: Arrange. Miner.

Cross-Listed as: MATH 081

MATH 112 - Geometry

15F: Arrange. Muetzel

MATH 113 - Analysis

16S: Arrange. Williams

MATH 114 - Algebraic Topology

16S: Arrange. Sadykov.

Cross-Listed as: MATH 074

MATH 115 - Number Theory

16S: Arrange. Voight.

MATH 116 - Applied mathematics

MATH 117 - First Year Graduate Seminar

For all graduate students but specifically for 1st year graduate students. This course will provide a springboard for graduate students between 1st and 2nd year. Also available for undergraduates wanting to explore a variety of topics in mathematics.

This course will have 3-6 modules on multiple topics taught by various faculty members sharing work related to their research. The intention is to give 1st year graduate students an overview of areas on math available to them in the department to assist in choosing their future track and faculty advisor. Topics and Faculty to be determined.

Offered: 15X: Arrange

MATH 118 - Combinatorics

16W: Arrange. Pantone.

MATH 119 - Mathematical Logic

MATH 120 - Current problems in probability theory

MATH 121 - Current problems in algebra

MATH 122 - Topics in analysis

MATH 123 - Current problems in analysis

16W: Arrange. Clare.

MATH 124 - Current problems in topology**MATH 125 - Current problems in number theory****MATH 126 - Current problems in applied mathematics****MATH 127 - Reading Course**

Advanced graduate students may elect a program of supervised reading continuing the topics of their course work.

MATH 128 - Current problems in combinatorics**MATH 129 - Current problems in mathematical logic****MATH 137 - Independent Reading**

Advanced graduate students may, with the approval of the advisor to graduate students, engage in an independent reading program.

MATH 147 - Teaching Seminar

A seminar to help prepare graduate students for teaching. (This course does not count toward the general College requirements for the master's degree.)

MATH 148 - Independent Project

A graduate student may, with the approval of the advisor to graduate students, engage in an independent study project. Groups of graduate students may, for example, prepare joint work including reading and informal seminars aimed at mastering a certain topic.

MATH 149 - Supervised Teaching

Teaching under the supervision of a faculty member.

MATH 156 - Graduate Research

Research under the guidance of a staff member.

MATH 157 - Thesis Research

Research under the guidance of the student's thesis advisor. Open to candidates for the Ph.D. degree.

MATH 158 - Independent Research

Advanced graduate students may, with the approval of the advisor to graduate students, engage in an independent research project.

Microbiology and Immunology

Chair: William R. Green

Professors D. J. Bzik (Microbiology and Immunology), A. Cheung (Microbiology and Immunology), R. I. Enelow (Medicine, and Microbiology and Immunology), S. N. Fiering (Microbiology and Immunology, and Genetics), W. R. Green (Microbiology and Immunology), P. M. Guyre (Physiology & Neurobiology, and Microbiology and Immunology), W. F. Hickey (Pathology, and Microbiology and Immunology), L. H. Kasper (Medicine,

and Microbiology and Immunology), D. A. Leib (Microbiology and Immunology), R. J. Noelle (Microbiology and Immunology), G. A. O'Toole (Microbiology and Immunology), W. R. Rigby (Medicine, and Microbiology and Immunology), C. L. Sentman, (Microbiology and Immunology), B. A. Stanton (Microbiology and Immunology, and Physiology & Neurobiology), P. R. Sundstrom (Microbiology and Immunology), R. K. Taylor (Microbiology and Immunology), E. J. Usherwood (Microbiology and Immunology), W. F. Wade (Microbiology and Immunology); Professor Emeritus M. W. Fanger (Microbiology and Immunology), N. J. Jacobs (Microbiology and Immunology), E. R. Pfefferkorn (Microbiology and Immunology); Associate Professors B. L. Berwin (Microbiology and Immunology), R. A. Cramer (Microbiology and Immunology), P. A. Ernst (Genetics, and Microbiology and Immunology), D. A. Hogan (Microbiology and Immunology), R. V. Stan (Pathology, and Microbiology and Immunology), M. J. Turk (Microbiology and Immunology), M. E. Zegans (Surgery, and Microbiology and Immunology); Assistant Professors M. E. Ackerman (Engineering Sciences, and Microbiology and Immunology), Y. H. Huang (Surgery, and Microbiology and Immunology), T. Lahey (Medicine, and Microbiology and Immunology), D. Mullins (Microbiology and Immunology), J. Obar (Microbiology and Immunology), P. A. Pioli (Physiology & Neurobiology, and Microbiology and Immunology).

To view Microbiology and Immunology courses, click here.

The Ph.D. in Microbiology and Immunology is administered by the Microbiology and Immunology Department of Dartmouth Medical School.

To qualify for award of the Ph.D. degree, a student must fulfill the following requirements:

1. Satisfactory completion of a year-long graduate-level sequence in biochemistry, cellular and molecular biology; a one-term teaching assignment; and a three-term course in laboratory biochemistry. The last will consist of three small research projects, conducted in rotation with different faculty members for periods of about three months each.
2. Satisfactory completion of three other graduate-level courses in biochemistry or related disciplines.
3. Satisfactory completion of an approved ethics course.
4. Attendance at the weekly seminar series of the Program.
5. Participation in a journal club during fall, winter and spring terms every year and in the weekly Research in

Progress series.

6. Satisfactory completion of a written and oral qualifying examination.
7. Satisfactory completion of a significant research project and preparation of a thesis acceptable to the thesis advisory committee.
8. Successful defense of the thesis in an oral examination and presentation of the work in a lecture.

The courses listed below are primarily designed for graduate students. The student should decide, in consultation with his/her committee and course instructors, whether his/her background is appropriate for the content of the course.

FIRST-YEAR CORE COURSES

First-Year students must take the following courses:

MICR - Microbiology and Immunology Courses

To view Microbiology and Immunology requirements, click here (p. 588).

MICR 104 - The Molecular Mechanisms of Cellular Responses

Instructor: Smith and associates

Together with Biology 103, this course constitutes the second term of a year-long graduate-level sequence in biochemistry, cell and molecular biology. The central theme of the course is the molecular mechanisms by which cells respond to stimuli, to their environment and to other cells. Topics include membrane transport, protein targeting, energy conversion, signal transduction cell motility and the cytoskeleton, and the cell cycle. Emphasis will be placed on the experimental basis for understanding cell function. This course culminates with discussion of the fidelity of cellular responses to both 'self' and pathogens. Note that this course must be taken concurrently with Biology 103 and that students will need to enroll in both courses to complete the Molecular and Cellular Biology Graduate Program requirements for winter term. Not open to undergraduate students. Smith and associates.

Offered: 16W: M, W, F 8:30-9:50 a.m., X-hour Th 8:30-9:50 a.m.

MICR 105 - Spring MCB Core Course Modules

The final term of a year-long graduate level course in biochemistry, cell and molecular biology, a continuation of BIOC 101, GENE 102, BIOL 103 and MICRO 104. These special-topics mini-courses provide more in-depth information about specific areas in biochemistry, cell and molecular biology. Each first-year MCB student must enroll in three sequential modules. Module topics offered each year will vary. Prerequisite: Biochemistry 101, Genetics 102, Biology 103 and Microbiology

104. Students should contact Janet Cheney for current list of spring-term modules and descriptions.

Offered: 16S: M, W, F 8:30-9:50 a.m., X-hour Th 8:30-9:50 a.m.

MICR 108 - Spring MCB Core Course Modules

The final term of a year-long graduate level course in biochemistry, cell and molecular biology, a continuation of BIOC 101, GENE 102, BIOL 103 and MICRO 104. These special-topics mini-courses provide more in-depth information about specific areas in biochemistry, cell and molecular biology. Each first-year MCB student must enroll in three sequential modules. Module topics offered each year will vary. Prerequisite: Biochemistry 101, Genetics 102, Biology 103 and Microbiology 104. Students should contact Janet Cheney for current list of spring-term modules and descriptions.

Offered: 16S: M, W, F 8:30-9:50 a.m., X-hour Th 8:30-9:50 a.m.

MICR 142 - Advanced Cellular and Molecular Immunology

Instructor: Usherwood and associates

Advanced immunology including contemporary topics of humoral and cell-mediated immune responses. Development and differentiation, lymphoid sub-populations, cell cooperation, cytokines, immunogenetics and major histocompatibility restriction, antigen receptor systems, antigen processing pathways, clinical aspects, including the interactions of retroviruses, particularly the AIDS (HIV) virus, with the immune system, and the use of immunologic systems to study gene regulation, receptor-ligand interactions, and other fundamental molecular processes. Lectures and discussion.

Prerequisite: BIOC 102 or an equivalent, or permission of the instructor

Offered: 17W: Arrange Offered in alternate years

MICR 144 - Cellular and Molecular Basis of Immunity

Instructor: Sentman and associates

This course will cover the biology and clinical aspects of the immune response. Students will use textbooks, review articles, and case studies to obtain an up-to-date understanding of how the immune system functions in health and disease. This course will combine didactic lectures, group learning and discussion. This course is designed to be a graduate level course that builds upon a basic introductory immunology course. The Core course, an undergraduate immunology course, or a medical immunology course is a prerequisite, so the faculty will assume that all students have a basic understanding of how the immune response functions and the vocabulary of immunology. This course will explore topics in more

depth, emerging research areas, and cover topics not typically covered in a basic immunology course.

Prerequisite: A basic immunology course: BIOC 102, BIOL 046, or an equivalent

Offered: 16F: Arrange Offered in alternate years

MICR 145 - Human Genetics

Instructor: Fiering

This course will consider the structure, organization and function of the human genome, with an emphasis on how human genetics will develop now that the genome of humans and many other organisms have been sequenced. The mouse and other model organisms will also be discussed in regard to how they may genetically differ or be similar to humans. The course will have two sessions a week (110 minute sessions). Each session will cover a specific topic and for most sessions the topic will be presented by one of the students enrolled in the course.

Prerequisite: Permission of the instructor

Cross-Listed as: GENE 145

Offered: 15F: Arrange Offered in alternate years

MICR 146 - Immunotherapy

Instructor: Usherwood and associates

This course will consider both basic scientific and therapeutic aspects of three important areas of immunology: vaccination, tumor immunology, and autoimmunity. The vaccination module will consider current vaccination strategies and new advances in vaccinology. The tumor immunology module will consider the challenges of tumor antigen identification and mechanism of delivery to the immune system to combat malignancies. Autoimmunity will be discussed to describe basic mechanisms behind the disease and what can be done to modulate the immune response to prevent or treat such diseases. Sessions will consist of a faculty-lead discussion of the primary literature relating to each topic, interspersed with student lead presentations on selected areas.

Prerequisite: A previous immunology course and/or permission of an instructor

Offered: 16S: Arrange Offered in alternate years

MICR 148 - Advanced Molecular Pathogenesis

Instructor: Bzik, Cheung, and associates

An advanced course in molecular pathogenesis with emphasis on genetic aspects of host-microbe interactions and modern model genetic systems for the study of important human pathogens. Each session will begin with a 50- to 80-minute lecture pertaining to the topic area and will be followed by a 1.5- to 2-hour discussion of current papers (assigned reading) pertaining to the topic area. Discussion of the assigned reading for a particular session

centers around a set of questions developed by the student presenter in collaboration with the instructor and based upon a short written report that the student has prepared on the topic.

Prerequisite: permission of the instructor

Offered: 15F: Arrange Offered in alternate years

MICR 149 - Microbial Physiology and Metabolism

Instructor: O'Toole and Hogan

This course focuses on central concepts of bacterial physiology and metabolism. We focus on a range of strategies that bacteria use to make energy, and general concepts related to nutrient acquisition and utilization. The first class period presents a general overview of metabolism and bacterial phylogeny. In subsequent classes, students present a 50 min lecture on an assigned topic. One paper is discussed each class period on the same topic.

Prerequisite: permission of the instructor

Offered: 17S: Arrange Offered in alternate years

MICR 167 - The Biology of Fungi and Parasites that Cause Disease

Instructor: Paula Sundstrom

This course will focus on the molecular features of fungi and parasites that form the basis of strategies for adhering to and invading human host cells and tissues. The difficulties associated with development of drugs that neutralize eukaryotic fungi and parasites but do not harm mammalian cells, heighten the importance of research on fungi and parasites and emphasize the unique aspects of eukaryotic pathogens compared to bacteria. Fungi, which are major pathogens in AIDS and other immunosuppressed patients, and parasites, such as malaria, which devastate human populations world-wide, will be emphasized.

Offered: 16W: 2A

MICR 197 - Graduate Research in Microbiology & Immunology: Pre-Qual I

An original individual experimental or theoretical investigation beyond the undergraduate level in Microbiology and Immunology. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing two or more other graduate or undergraduate courses. Staff of the Program.

Offered: All terms: Arrange

MICR 198 - Graduate Research in Microbiology & Immunology: Pre-Qual II

An original individual experimental or theoretical investigation beyond the undergraduate level in Microbiology and Immunology. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research. Staff of the Program.

Offered: All terms: Arrange

MICR 199 - Graduate Research in Microbiology & Immunology: Pre-Qual III

An original individual experimental or theoretical investigation beyond the undergraduate level in Microbiology and Immunology. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term. Staff of the Program.

Offered: All terms: Arrange

MICR 297 - Graduate Research in Microbiology & Immunology: Post-Qual I

An original individual experimental or theoretical investigation beyond the undergraduate level in Microbiology and Immunology. This course is open only to graduate students, subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit and should be elected by students conducting research and also electing two or more other graduate or undergraduate courses. Mentor from the Program.

Offered: All terms: Arrange

MICR 298 - Graduate Research in Microbiology & Immunology: Post-Qual II

An original individual experimental or theoretical investigation beyond the undergraduate level in Microbiology and Immunology. This course is open only to graduate students, subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credits and should be elected by students electing only departmental colloquia in addition to research. Mentor from the Program.

Offered: All terms: Arrange

MICR 299 - Graduate Research in Microbiology & Immunology: Post-Qual III

An original individual experimental or theoretical investigation beyond the undergraduate level in Microbiology and Immunology. This course is open only

to graduate students, subsequent to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credits and should be elected by students conducting research exclusively in any one term. Mentor from the Program.

Offered: All terms: Arrange

Music - Graduate

Chair: Steve Swayne

Professors M. Casey, K. Dong, T. C. Levin, M. P. O'Neal, S. Pinkas, S. R. Swayne; Assistant Professors W. Cheng, A. Fure, S. Topel; Senior Lecturers T. E. Atherton, N.V. Boyer, L.G. Burkot, M. L. Cassidy, J. Diamond, T. C. Haunton, G. M. Hayes, E. C. Mellinger, J. D. Muratore, D. R. Newsam, A. Ogle, J. E. Polk, A. F. Princiotti; Lecturers D. J. Baldini, E. Carroll, J. Dunlop, J. Halloran; Adjunct Associate Professor H. F. Shabazz; Adjunct Assistant Professor F. L. Haas; Visiting Lecturers M. M. Marsit, R. Moseley.

Directors of Hopkins Center performing organizations: D. M. Glasgo, Director, Barbary Coast Jazz Ensemble; L. G. Burkot Jr., Conductor, Dartmouth College Glee Club; W. L. Cunningham, Director, Dartmouth College Gospel Choir; R. P.D. Duff, Conductor, Handel Society of Dartmouth College; A. F. Princiotti, Conductor, Dartmouth Symphony Orchestra; M. M. Marsit, Conductor, Dartmouth College Wind Ensemble and Director, Dartmouth College Marching Band; H. F. Shabazz, Director, World Music Percussion Ensemble.

To view Music Graduate courses, click here (p. 592).

To view Music Undergraduate requirements, click here. (p. 385)

To View Music Undergraduate courses, click here. (p. 388)

Requirements for the Master of Arts Degree (M.A.) in Digital Musics

The field of digital music requires knowledge and skills in music, computer science, cognition or neuroscience, engineering or physics, as well as some significant expertise in one or more of these disciplines. In addition to music, graduate students in our program may bring to bear experience in other, widely diverse fields (such as visual art, philosophy, mathematics, etc.). Candidates for admission to the Master of Arts program

typically hold one of the following degrees, together with relevant experience:

1. Music: A bachelor's degree in music or equivalent experience and demonstrated accomplishment in musical composition and/or performance.
2. Computer Science: A bachelor's degree in computer science or equivalent experience. This might include knowledge of applied mathematics, machine learning, or related areas of science and engineering.
3. Engineering Sciences or Physics: A bachelor's degree in engineering sciences or physics, or equivalent experience. This could include knowledge of acoustics, digital electronics and microprocessors, techniques of modeling and analyzing systems, or general hardware design.
4. Music Cognition: Demonstrated knowledge and experience in the field.
5. Proven excellence or demonstrated potential in some other field, in preparation for advanced work in digital musics.

Regardless of a student's area of specialization within the program, the requirements for completion of the Master of Arts Degree in Digital Musics include:

1. A minimum of seven terms in residence.
2. Demonstrated experience and expertise on an acoustic musical instrument; an understanding of Western music theory that includes four-part harmony, modulation, and form and analysis; a knowledge of musical styles that includes the music of the world's peoples, twentieth-century art music, American popular music and traditional Western art music.
3. Enrollment in the Proseminars in Music and Technology (MUS 101-105), given each term, for a total of 6 graduate seminars. Students generally take each Proseminar at least once, Composition (MUS 104), twice.
4. A number of electives in different disciplines (as well as music), including, but not limited to engineering, psychology, computer science, mathematics and physics. The electives and the specific courses in computer science and engineering will depend on the student's background and area of specialization within the program. Electives may be used to remedy deficiencies in mathematics, computer science, engineering, or music.
5. Directed research (thesis courses). Two courses (MUS 138) taken under the joint supervision of a member of the music faculty and a member of another cooperating department.

6. A thesis approved by the student's graduate committee demonstrating a mastery of the materials in the student's area of concentration within the program.

MUS - Music - Graduate Courses

To view Music Graduate requirements, click here (p. 591).

To view Music Undergraduate requirements, click here. (p. 385)

To view Music Undergraduate courses, click here. (p. 388)

MUS 101 - Topics in the Repertoire of Electro-Acoustic and Computer Music

Instructor: Vanoni

There exists a body of music that has not been widely heard because its radical style and content do not make it a commodity suitable for widespread distribution. A knowledge and understanding of this repertoire provides an important historical and musical background to recent, current, and future work, and is essential to creative work in the field. In this seminar students will systematically examine the repertoire of electro-acoustic and computer music, through its aesthetics, theories, concepts, techniques, and technologies as well as its historical and cultural contexts.

Offered: 14F; Arrange

MUS 102 - Music, Information and Neuroscience

Instructor: Casey

This course covers theory and practice of music information systems with an emphasis on creative applications. Topics include information theory, audio feature extraction methods, metric spaces, similarity methods, mathematical and computational models of music, probability and statistics of music feature spaces, machine learning and decision support systems, links between surface-levels and deep structure in music, comparative analysis of music collections, audio and multimedia search engines, scalability to large audio collections, and modeling of human music cognition using fMRI data.

Cross-Listed as: MUS 14

Offered: 17W: Arrange

MUS 103 - Sound Analysis, Synthesis, and Digital Signal Processing

Instructor: Casey

This seminar covers topics in sound analysis, synthesis and digital signal processing from theoretical, mathematical, and practical perspectives. Topics include important ideas in the history of digital and analog synthesis, and will draw on classical models as well as current and future

techniques. Standard and speculative algorithms for digital sound processing will be analyzed in depth. Students will realize many of these ideas in a variety of digital music environments.

Offered: 16W: Arrange

MUS 104 - Computer Music Composition

Instructor: Fure

A seminar in techniques of composition for digital, acoustic and electro-acoustic instruments. Certain insights into the systems, poetics, and structure of music can only be gained through the activity of composition itself. In this respect, the activity of composing is of particular benefit to students with a primarily scientific background. Exercises are designed to explore diverse contemporary compositional materials, forms, and activities.

Offered: 16S: Arrange

MUS 105 - Musical Systems

Instructor: Topel

This course examines advanced theories of form, structure, composition, performance and interaction, and deals with their realization in functional systems for research, theoretical and artistic purposes. A special emphasis will be to bridge the gap between abstract theory and concrete implementation. Theoretical ideas covered in this class might include: computer-aided composition, non-deterministic algorithms, interaction design, perceptual modeling, artificial intelligence in music, meta-theory, bio-musical systems, and evolutionary models. Implementations might include: interactive environments, music languages, compositional software, musical instruments, learning systems, and adaptive systems.

Offered: 15F: Arrange

MUS 137 - Directed Research.

Instructor: The staff

Offered: All terms.

MUS 138 - Directed Research. The staff.

Instructor: The staff

Equivalent to two courses.

Offered: All terms.

MUS 139 - Directed Research. The staff.

Instructor: The staff

Equivalent to three courses.

Offered: All terms.

Pharmacology and Toxicology

Chair: Ethan Dmitrovsky

Primary appointee faculty: Professors M. Cole, R. W. Craig, E. Dmitrovsky, A. R. Eastman, B. D. Roebuck, M. B. Sporn; Associate Professors J. DiRenzo, A. F. Kisselev, Y. Sanchez, M. R. Spaller, M. Spinella; Assistant Professor M. Kurokawa, C. J. Marsit, T. W. Miller; Research Associate Professor K. T. Liby; Research Assistant Professor S. J. Freemantle.

To view Pharmacology and Toxicology courses, click here (p. 593).

Requirements for the Doctor's Degree (Ph.D.)

PHAR - Pharmacology and Toxicology Courses

To view Pharmacology and Toxicology requirements, click here (p. 593).

PHAR 123 - Graduate Toxicology

Instructor: B. Roebuck

This course provides an introduction to toxicology as a discipline, with a focus on the molecular basis for toxicity of chemicals in biological systems. Major topics include: principles of cell and molecular toxicology, xenobiotic metabolism, molecular targets of cellular toxicity, genetic toxicology, chemical carcinogenesis, immunotoxicology, neurotoxicology, clinical toxicology, and quantitative risk assessment. Faculty lectures and discussion. This course is open to graduate, medical and advanced undergraduate students (with permission from the Course Director).

Prerequisite: PEMM 101 and PEMM 102 or permission of course director

Offered: 15W: Arrange Offered in alternate years

PHAR 124 - Ethical Conduct of Research

Instructor: Gullledge and North

This course is required for all PEMM and MCB graduate students. There will be approximately four one-and-a-half hour small group discussion sessions and four one hour lectures with the times to be arranged. Topics will include: mentoring, data collection, academic integrity, ethical use of human subjects and laboratory animals, authorship, sponsored research and intellectual property. Faculty lectures and discussion.

Offered: 15W: Arrange Offered every year

PHAR 126 - Cancer Biology

Instructor: A. R. Eastman

The course will present a comprehensive survey of the biology, biochemistry, pharmacology, and genetics of cancer. Students will become familiar with such areas as cancer terminology, epidemiology, carcinogenesis, tumor promotion, metastasis, oncogenes, tumor suppressor genes, tumor viruses, growth factors, hormones, immunology, and therapy. Where possible, emphasis will be placed on the most recent cell and molecular aspects of cancer. The class will be in lecture format and meet for 3 hours each week. Faculty lectures and discussion.

Prerequisite: PEMM 101 and PEMM 102, or permission of course director

Offered: 15S: Arrange Offered in alternate years

PHAR 131 - Experimental Therapeutics & Drug Discovery

Instructor: J. DiRenzo

The course will present a practical survey of technical approaches to all stages of drug development and will include target identification, small molecule and biotherapeutic design and the development of therapeutic diagnostics. Topics will include: pharmacogenomics, pharmacogenetics, functional genomics, global gene expression, proteomics, gene targeting, and drug development. The class will be in lecture format with student presentations of recent publications relevant to specific lectures. The class will meet for 3 hours each week. Faculty lectures and discussion.

Prerequisite: PEMM 101 and PEMM 102, or permission of course director

Offered: 16S: Arrange Offered in alternate years

PHAR 133 - Pharmacology of Drug Development

Instructor: M. Spinella

This course will provide a solid foundation in the principles of pharmacology including pharmacodynamics, pharmacokinetics, drug metabolism and biotransformation, bioavailability and receptor pharmacology. Emphasis is on how drugs are developed and the challenges and pitfalls that are involved in the drug development process using real-life examples. The class will be a combination of lecture format and student projects and presentations. The class will meet for approximately 3 hours each week. Faculty lectures and student projects and presentations.

Prerequisite: PEMM 101 and PEMM 102, or permission of course director

Offered: 14F: Arrange Offered every other year

PHAR 137 - Project Research (Qualifying Examination)

Instructor: M. Spinella

Prerequisite: PEMM 101 and PEMM 102, or permission of course director

Offered: Summer Terms: Arrange

PHAR 141 - Research Rotation 1

Offered: All terms: Arrange

PHAR 142 - Research Rotation 2

Offered: All terms: Arrange

PHAR 143 - Research Rotation 3

Offered: All terms: Arrange

PHAR 216 - Medical Pharmacology

Instructor: Course Directors: S. Freemantle and D. Nierenberg

The major, conceptual modules are general principles, pharmacology of autonomic and central nervous system, cardiovascular pharmacology, endocrine and autacoid pharmacology, chemotherapy, and toxicology. Instruction is primarily through classroom lectures (67 hours) with four small group sessions on clinical pharmacology in Terms I and II. Emphasis is placed on understanding the dynamic mechanisms by which drugs modify normal biochemical or physiological functions and how they correct pathophysiological disturbances of those functions. Faculty lectures and small group facilitators.

Prerequisite: DMS I

Offered: DMS II calendar (terms 1-5) Offered every year

PHAR 217 - Medical Pharmacology

Instructor: Course Directors: S. Freemantle and D. Nierenberg

The major, conceptual modules are general principles, pharmacology of autonomic and central nervous system, cardiovascular pharmacology, endocrine and autacoid pharmacology, chemotherapy, and toxicology. Instruction is primarily through classroom lectures (67 hours) with four small group sessions on clinical pharmacology in Terms I and II. Emphasis is placed on understanding the dynamic mechanisms by which drugs modify normal biochemical or physiological functions and how they correct pathophysiological disturbances of those functions. Faculty lectures and small group facilitators.

Prerequisite: DMS I

Offered: DMS II calendar (terms 1-5) Offered every year

PHAR 297 - Level I: part-time research: 1 course equivalent

Offered: All terms: Arrange

PHAR 298 - Level II: part-time research: 2 course equivalent

Offered: All terms: Arrange

PHAR 299 - Level III: full-time thesis research: 3 course equivalent

Offered: All terms: Arrange

Program in Experimental and Molecular Medicine

Director: Alan R. Eastman

Faculty: Professors D. Bartlett, M. Cole, R. W. Craig, R. A. Darnall, J. A. Daubenspeck, A. R. Eastman, R. I. Enelow, G. Fejes-Toth, V. A. Galton, R. Granger, A. I. Green, W. R. Green, P. M. Guyre, L. P. Henderson, J. Leiter, L. D. Lewis, R. Maue, A. Naray-Fejes-Toth, E. E. Nattie, W. G. North, R. J. Powell, W. F. C. Rigby, B. D. Roebuck, M. B. Sporn, B. A. Stanton, H. M. Swartz, J. S. Taube, C. R. Wira, H. H. Yeh; Associate Professors D. J. Bucci, J. DiRenzo, P. E. Holzheimer, W. Kelley, W. B. Kinlaw, C. H. Lowrey, R. B. Robey, Y. Sanchez, N. W. Shworak, M. R. Spaller, M. Spinella, P. J. Whalen, H. A. Wishart; Assistant Professors F. Briggs, B. C. Christensen, A. T. Gullledge, A. F. Kisselev, M. Kurokawa, S. Lee, P. J. Lenck-Santini, B. W. Luikart, C. J. Marsit, T. Miller, P. A. Pioli, E. Rzuclidlo, R. V. Stan, C. Tomlinson; Research Associate Professors L. A. Flashman, A. L. Howell, M. J. Mulligan-Kehoe, M. P. Vincenti; Research Assistant Professor A. S. Andrew.

To view Experimental and Molecular Medicine courses, click here (p. 595).

Requirements for the Doctoral Degree (Ph.D.)

To qualify for award of the Ph.D. degree, a student must fulfill the following requirements:

1. Satisfactory completion of the following required courses:

PEMM 101. Scientific Basis of Disease I
PEMM 102. Scientific Basis of Disease II
PEMM 103. Biostatistics
PEMM 124. Ethical Conduct of Research

ADDITIONAL REQUIREMENTS BY TRACK:

2. Attendance and participation in the Program's weekly seminars and journal clubs.
3. Students must be enrolled in a research course every term; rotations in the early terms and thesis research credit thereafter.

PEMM 141, PEMM 142, PEMM 143. Research Rotations (three to be completed within 9 months)
PEMM 297, PEMM 298, PEMM 299. Thesis Research, a credit/no credit course for graduate students

4. PEMM 137. Qualifying Exam. (Satisfactory completion of a written and oral qualifying examination)
5. Satisfactory completion of a significant research project, and preparation of a thesis describing this research.
6. Successful defense of the thesis in an oral examination, and presentation of the work in a seminar.

For further information, see the Graduate Study Catalog.

PEMM - Experimental and Molecular Medicine Courses

To view Experimental and Molecular Medicine requirements, click here (p. 595).

PEMM 101 - Scientific Basis of Disease I

This course offers a general introduction to molecular medicine through principles from cell biology, molecular biology, neurobiology and physiology. Basic biological concepts will be integrated with clinical correlations and translational research. The class will meet 6 hours per week and combine both lectures and readings from the primary literature. Teaching modules will cover Integration of Biological Systems, Macromolecular Structure, Nuclear Processes, Protein Synthesis, turnover and trafficking, and Metabolism. Course director: Cole. Module leaders: Yeh, Cole.

Offered: 14F Offered every year

PEMM 102 - Scientific Basis of Disease II

This course is a continuation of PEMM 101 and offers a general introduction to molecular medicine through principles from cell biology, molecular biology, neurobiology and physiology. Basic biological concepts will be integrated with clinical correlations and translational research. The class will meet 6 hours per week and combine both lectures and readings from the primary literature. Teaching modules will cover Plasma membrane receptors: channels and transporters, Plasma membrane receptors: adhesion, motility, proliferation and survival, Immunology and Inflammation. Course director: Cole. Module leaders: Kisselev, Guyre, Shworak.

Offered: 15W Offered every year

PEMM 103 - Biostatistics

This course is a survey of the biostatistical methods most often used in medical research, be it bench science, clinical research or translational science. The methods will be illustrated using studies relevant to research in molecular medicine. Course director: J. Gui, Marsit, and Christensen.

Offered: 14F Offered every year

PEMM 113 - Advanced Endocrine Physiology

This is a seminar course in which both students and faculty will present novel and important topics in Endocrine Physiology.

Cross-Listed as: PHLS 113

Offered: 14F Offered every 4th year

PEMM 114 - Advanced Respiratory Physiology

This is an advanced seminar course covering specialized topics in respiratory physiology.

Cross-Listed as: PHLS 114

Offered: 16W Offered every 4th year

PEMM 115 - Neurosciences

The goal of the Neuroscience Course is to provide the student with the basic science background necessary to understand the clinical signs and symptoms of disorders of the human nervous system. The organization and function of the central and peripheral nervous systems will be presented from a correlated anatomical, physiological, and pharmacological perspective by means of lectures and conferences, and by laboratory exercises that incorporate dissection of the brain. Among the topics covered will be: the embryonic/fetal development of the nervous system; the gross and microscopic organization of the brain and spinal cord; the physiology of the neuron and neural transmission; control of motor and sensory functions; neuroendocrine control; control of involuntary functions; the special senses; the higher mental functions such as memory and language; the maintenance of consciousness and sleep; and the motivation and regulation of emotional states. In addition, the course will include an introduction to modern imaging modalities as they apply to neurological diagnosis and also will consider the interface between the brain and behavior. Course director: R. Swenson.

Offered: 15S Offered every year (On DMS calendar - offered in term III, mid-March until beginning of June)

PEMM 116 - Advanced Cardiovascular Physiology

This is a seminar course in which both students and faculty will present novel and important topics in Endocrine Physiology. This course provides a systematic review of cardiac physiology; related topics, including circulatory physiology, vascular biology, and cardiovascular disease will also be discussed. Each class will center on 1-2 of the first 14 chapters in the book. The clinical topics covered in the last four chapters can be included in the student seminars. After reviewing this material, each student will select and present a brief seminar on a topic related to the material in the assigned chapter. Course Director: Katz

Cross-Listed as: PHLS 115

Offered: Offered as requested

PEMM 117 - Advanced Renal Physiology

This lecture course will cover a broad range of topics in renal physiology. Ten, two hour lectures will be given by the Renal Faculty and there will be two written examinations. Medical Physiology 112 or an equivalent course is a prerequisite.

Cross-Listed as: PHLS 117

PEMM 119 - Advanced Immunology: Mucosal Immunity

An advanced level immunology course on aspects of the mucosal immune system, including the secretory IgA response, intraepithelial lymphocyte function, specialized antigen presentation, lymphocyte recirculation and homing patterns, hormonal and cytokine regulation, etc. A comprehensive evaluation of the interface of the gastrointestinal and reproductive mucosal systems with the immune system will provide a basis for discussion of sexually transmitted infectious diseases including AIDS, gynecological cancers, and vaccine development considerations. Features of these mucosal immune systems will be compared and contrasted to that of the non-mucosal secondary lymphoid organs.

Cross-Listed as: PHLS 119

Offered: Offered as requested

PEMM 123 - Graduate Toxicology

Instructor: B. Roebuck

This course provides an introduction to toxicology as a discipline, with a focus on the molecular basis for toxicity of chemicals in biological systems. Major topics include: principles of cell and molecular toxicology, xenobiotic metabolism, molecular targets of cellular toxicity, genetic toxicology, chemical carcinogenesis, immunotoxicology, neurotoxicology, clinical toxicology, and quantitative risk assessment. Faculty lectures and discussion. This course is open to graduate, medical and advanced undergraduate students (with permission from the Course Director).

Prerequisite: PEMM 101 and PEMM 102, or permission of course director

Cross-Listed as: PHAR 123

Offered: 15W: Arrange. Offered every other year

PEMM 124 - Ethical Conduct of Research

This course is required for all PEMM and MCB graduate students. There will be approximately four one-and-a-half hour small group discussion sessions and four one hour lectures with the times to be arranged. Topics will include: mentoring, data collection, academic integrity, ethical use of human subjects and laboratory animals, authorship,

sponsored research and intellectual property. Faculty lectures and discussion. Course Directors: Gulledge, North.

Cross-Listed as: PHLS 124 and PHAR 124

Offered: 16W: Arrange. Offered every year

PEMM 126 - Cancer Biology

Instructor: A. Eastman

This course will present a comprehensive survey of the biology, biochemistry, pharmacology, and genetics of cancer. Students will become familiar with such areas as cancer terminology, epidemiology, carcinogenesis, tumor promotion, metastasis, oncogenes, tumor suppressor genes, tumor viruses, growth factors, hormones, immunology, and therapy. Where possible, emphasis will be placed on the most recent cell and molecular aspects of cancer. The class will be in lecture format and meet for 3 hours each week. Faculty lectures and discussion. PEMM 101/102 (or equivalent) is a prerequisite for this course.

Prerequisite: PEMM 101 and PEMM 102, or permission of instructor

Offered: 15S: Arrange. Offered in alternate years

PEMM 128 - Perinatal Physiology

Selected topics in fetal and neonatal physiology. Course Director: Darnall

Cross-Listed as: PHSL 128

Offered: Offered as requested

PEMM 131 - Experimental Therapeutics & Drug Discovery

Instructor: J. DiRenzo

The course will present a practical survey of technical approaches to all stages of drug development and will include target identification, small molecule and biotherapeutic design and the development of therapeutic diagnostics. Topics will include pharmacogenomics, pharmacogenetics, functional genomics, global gene expression, proteomics, gene targeting, and drug development. The class will be in lecture format with student presentations of recent publications relevant to specific lectures. The class will meet for 3 hours each week. Faculty lectures and discussion.

Prerequisite: PEMM 101 and PEMM 102, or permission of course director

Cross-Listed as: PHAR 131

Offered: 16S: Arrange Offered in alternate years

PEMM 132 - Physiological Systems Modeling

Instructor: A. Daubenspeck

This Ordinary, time-varying, nonlinear differential equations describe a wide range of physiological systems and responses. Students will learn to model dynamic physiological systems including excitable membrane phenomena, cardiovascular and respiratory system mechanics and control, and other systems of particular interest to each student. The orientation of the course is pragmatic rather than theoretical, and the goal of the course is to teach students how to construct and evaluate quantitative simulations of physiological phenomena using commonly available computer tools. There are no prerequisites for this course beyond successful completion of the first-year Physiology course. This course will be offered in alternate Spring terms, next in 2015, and will meet at the convenience of the participants.

Cross-Listed as: PHSL 132

Offered: 15S: Arrange. Offered in alternate years

PEMM 133 - Pharmacology of Drug Development

Instructor: M. Spinella

This course will provide a solid foundation in the principles of pharmacology including pharmacodynamics, pharmacokinetics, drug metabolism and biotransformation, bioavailability and receptor pharmacology. Emphasis is on how drugs are developed and the challenges and pitfalls that are involved in the drug development process using real-life examples. The class will be a combination of lecture format and student projects and presentations. The class will meet for approximately 3 hours each week. Faculty lectures and student projects and presentations.

Prerequisite: PEMM 101 and PEMM 102, or permission of course director

Cross-Listed as: PHAR 133

Offered: 14F: Arrange. Offered every year

PEMM 137 - Project Research (Qualifying Examination)

Instructor: A. Eastman

Summer term: Arrange

PEMM 141 - Research Rotation I

Instructor: A. Eastman

All terms: Arrange

PEMM 142 - Research Rotation II

Instructor: A. Eastman

All terms: Arrange

PEMM 143 - Research Rotation III

Instructor: A. Eastman

All terms: Arrange

PEMM 150 - Neurosciences I: Molecular and Cellular Neuroscience

Instructor: L. Henderson

This course is designed for students with a solid fundamental background in Neuroscience. Students should have completed Medical Neuroscience or the equivalent as a prerequisite. Students without this background who wish to take this course may do so with permission of the Instructor. Lectures will cover both classical papers relevant to cellular and molecular neuroscience as well as recent studies that highlight controversial and important findings in this field. Students will be required to read and critique original research papers. Discussion of these papers is an integral part of the course.

Offered: 16S: Arrange. Offered every year

PEMM 212 - Neurosciences II

Instructor: J. Taube

The course (Neuroscience II) is an intermediate/advanced course in neuroscience - from the molecular level on up through the cognitive and clinical levels. It will be taught this summer by a group of us from the medical school and college and is intended for those students who have completed the medical neuroscience course. It is open to all students, but first-year PEMM students who intend to concentrate in neuroscience should definitely plan on taking it. The course will involve a combination of lecture/tutorials and reading/discussing journal articles.

Offered: 14F

PEMM 211 - Neurobiology of Disease

Instructor: R. Swenson, Lee, and others

This course will introduce students to the cellular and molecular processes that are pathologically altered in a variety of neurological diseases. Students will also learn by reading and presenting seminal papers on neurological disease topics how neuroscientists research the causes and potential treatments of the disease. The course will be team taught by experts from the neuroscience faculty who will give a one hour didactic lecture in the first session of the week. Then, in a 2 hour session later in that week, students will present and critique scientific papers on the topic chosen by the faculty for that week. Faculty lectures and discussion.

Prerequisite: For graduate students--Neurosciences (spring term; R. Swenson, Course Director); For undergraduate students--must be senior Neuroscience major. Instructor: Lee (course director) and others.

Offered: 16W: Arrange. Offered every year

PEMM 271 - Advanced Biomedical Sciences

Instructor: H. Yeh

This course emphasizes the integration of molecular, cellular, and systems level information and the experimental approaches used to understand physiology and pathophysiology. It is designed to provide graduate students with a more sophisticated understanding of the major systems of an organism and how they act and interact in order for an individual to adapt and survive in the face of changing environmental resources and challenges. The course is organized into week-long, "stand alone" modules that cover integrative, translational topics in immunology, cardiovascular physiology, endocrinology, and neurobiology (e.g., influenza, congestive heart failure, sleep disorders, drug addiction, space physiology). Course meetings are a mixture of lectures and in-class discussions led by the participating faculty, as well as laboratory exercises and demonstrations, including human brain dissections, visits to clinical laboratories and diagnostic centers, and "hands on" opportunities with state-of-the-art electrophysiological and cardiovascular techniques. Course activities are supplemented by primary research articles, reviews, and other on-line materials.

Offered: 15S: Arrange. Offered every year

PEMM 275 - Vascular Biology

Instructor: R. Stan

The principles of development, organization and function of the cardiovascular tree in health and disease will be discussed in lecture format. Topics will include the physiology and regulation of vasculature as an organ system, the molecular and cellular biology of endothelial cell function, and the molecular basis of the disorders of the vascular system. Emphasis will be placed on molecular aspects of cardiovascular disease such as atherosclerosis, diabetes, inflammation and neovascularization. The course will meet 4 hours per week. Course materials will include current literature reviews and research articles.

Offered: 15S: Arrange. Offered every year

PEMM 297 - Level I: part-time research: 1 course equivalent

Instructor: A. Eastman

All terms: Arrange

Offered: All terms

PEMM 298 - Level II: part-time research: 2 course equivalent

Instructor: A. Eastman

All terms: Arrange

Offered: All terms

PEMM 299 - Level III: full-time research: 3 course equivalent

Instructor: A. Eastman

All terms: Arrange

Offered: All terms

Physics and Astronomy - Graduate

Chair: James W. LaBelle

Professors M. P. Blencowe, R. R. Caldwell, B. C. Chaboyer, R. A. Fesen, M. Gleiser, M. K. Hudson, J. W. LaBelle, K. A. Lynch, R. Onofrio, A. J. Rimberg, B. N. Rogers, J. R. Thorstensen, L. Viola, G. A. Wegner, M. N. Wybourne; Associate Professors S. H. Alexander, R. M. Millan; Assistant Professors R. C. Hickox, C. Ramanathan, K. C. Wright; Visiting Associate Professor Y. J. Brown; Adjunct Professors P. Crane, W. Lotko, B. W. Pogue, J. B. Weaver; Adjunct Associate Professors A. H. Barnett, B. T. Kress, C. G. Levey, T. P. Smith, A. Ukhorskiy, S. Weinstein; Adjunct Assistant Professor J. Liu, F. Ticozzi; Research Professors R. E. Denton, J. G. Lyon, H-R Mueller.

To view Astronomy Graduate courses, click here. (p. 600)

To view Physics Graduate courses, click here. (p. 601)

To view Physics and Astronomy Undergraduate requirements, click here. (p. 417)

To view Astronomy Undergraduate courses, click here. (p. 421)

To view Physics Undergraduate courses, click here. (p. 423)

Courses for Graduate Credit

Physics and astronomy courses offered for graduate credit are those numbered 061 or higher. The Department of Physics and Astronomy will allow graduate credit for any course offered by the Departments of Biochemistry, Biological Sciences, Chemistry, Earth Sciences, Engineering Sciences, or Mathematics that receives graduate credit from that department.

Requirements for the Master's Degree (M.S.)

The general requirements for the master's degree are given in the Graduate Study section of this catalog. These requirements, together with the specific requirements of the Department of Physics and Astronomy indicated below, normally allow completion of the degree in two years. It is expected that graduate students who have not completed the equivalent of the Dartmouth physics major program will do so in their first year of graduate study.

Physics students:

1. Degree credit for eight graduate courses, exclusive of teaching courses. Two of the eight courses may be

Graduate Research. At least six of the eight courses should be in physics and astronomy.

2. Credit for at least one term of Supervised Undergraduate Teaching (PHYS 257).
 3. Completion of a culminating experience chosen from the following options:
 - a. Completion of a satisfactory thesis, which must be defended before the M.S. Thesis Committee in a public forum.
 - b. Significant co-authorship of a publication submitted to a refereed journal or refereed conference proceedings, defended publicly.
 - c. Passing the Ph.D. qualifying examination.
- Astronomy students:
1. Degree credit for eight graduate courses, exclusive of teaching courses. Two of the eight courses may be Graduate Research. At least six of the eight courses should be in physics and astronomy.
 2. Credit for at least one term of Supervised Undergraduate Teaching (PHYS 257).
 3. Completion of a culminating experience chosen from the following options:
 - a. Completion of a satisfactory thesis, which must be defended before the M.S. Thesis Committee in a public forum.
 - b. Significant co-authorship of a publication submitted to a refereed journal or refereed conference proceedings, defended publicly.

Requirements for the Doctor's Degree (Ph.D.)

A student will be admitted to Ph.D. candidacy upon:

Physics students:

1. Receiving credit for six out of the following nine core courses: PHYS 76, PHYS 90 [formerly 91], PHYS 100, PHYS 101, PHYS 103-106, PHYS 109.
2. Passing the departmental qualifying examination.
3. Presenting a thesis proposal and successfully defending it before an appointed Ph.D. thesis committee, for certification.
4. Passing a departmental review of the student's course record and preliminary research progress.
5. Receiving credit for at least two terms of Supervised Undergraduate Teaching (PHYS 257) and PHYS 256.

Students must achieve thesis proposal certification by the end of the fall term of their fourth year, in order to remain in good standing. Students who successfully complete

these requirements will be admitted to Ph.D. candidacy by the Department.

Astronomy students:

1. Receiving credit for ASTR 74, ASTR 115, ASTR 116, ASTR 117, ASTR 118 and any one physics course numbered 61 or above, and any other courses required by the student's advisory committee. Receiving credit for at least six terms of graduate research.
2. Passing a research exam at the end of their first and second years.
3. Presenting a thesis proposal and successfully defending it before an appointed Ph.D. thesis committee, for certification.
4. Passing a departmental review of the student's course record and preliminary research progress.
5. Receiving credit for at least two terms of Supervised Undergraduate Teaching (PHYS 257) and PHYS 256.

Students must achieve thesis proposal certification by the end of the fall term of their fourth year, in order to remain in good standing. Students who successfully complete these requirements will be admitted to Ph.D. candidacy by the Department.

The candidate will receive the Ph.D. degree upon

1. Receiving degree credit for at least twelve graduate courses, exclusive of teaching courses. Physics students: Two of the twelve courses may be Graduate Research, and at least two terms of Graduate Research must be completed no later than the second summer in residence. Astronomy students: Six of the twelve courses may be Graduate Research, and at least six terms of Graduate Research must be completed no later than the second summer in residence.
2. Receiving credit for at least two terms of Supervised Undergraduate Teaching (PHYS 257) and PHYS 256.
3. Completing a dissertation of substantial significance and publishable quality.
4. Successfully defending the dissertation before the Ph.D. Thesis Committee in a public forum.

It is expected that most students will receive the Ph.D. degree by the end of the fifth year of graduate study.

ASTR - Astronomy - Graduate Courses

To view Astronomy Graduate requirements, click here. (p. 599)

To view Physics Graduate courses, click here. (p. 601)

To view Astronomy Undergraduate requirements, click here. (p. 417)

To view Astronomy Undergraduate courses, click here. (p. 421)

To view Physics Undergraduate courses, click here. (p. 423)

ASTR 115 - Advanced Stellar Astrophysics

Instructor: Chaboyer

A study of the physical processes in stellar interiors, stellar evolution, and nucleosynthesis. Topics to be covered include big bang nucleosynthesis, the equations of stellar structure, equations of state, opacities, nuclear reactions, energy transport in stars, polytrope models, stellar models, the evolution of stars, and supernovae, white dwarfs and neutron stars.

Prerequisite: Permission of instructor.

Offered: 15F: 12 Offered in alternate years

ASTR 116 - Galactic Systems

The structure of galaxies and the dynamics of stellar systems. Topics include application of the Boltzmann transport equation to stellar systems, star cluster models, spiral structure, stellar populations, and the classification of galaxies. Active galaxies and their physical processes.

Prerequisite: Permission of the instructor.

Offered: 17W: Arrange Offered in alternate years

ASTR 117 - Interstellar Astrophysics

Structure, dynamics, and energy balance of the interstellar medium. Topics covered include high-energy particle and radiation interactions with interstellar gas, H II regions, shocks, molecular clouds, star forming regions, stellar mass loss nebulae and bubbles, and supernova remnants.

Prerequisite: ASTR 074, or permission of the instructor

Offered: 17S: Arrange Offered in alternate years

ASTR 118 - Observational Cosmology

Instructor: Wegner

The observational determination of the structure of the universe. Determination of the astronomical distance scale, Hubble's law, and measurements of the space distribution and peculiar motions of galaxies. Statistical treatment of the data. Quasars and gravitational lenses, nucleosynthesis and the cosmic microwave background. Comparison with cosmological models and theories of galaxy formation.

Prerequisite: ASTR 074, or permission of the instructor

Offered: 16W: Arrange Offered in alternate years

ASTR 122 - Special Topics

Advanced treatment of topics in astronomy.

Offered: All terms: Arrange

PHYS - Physics - Graduate Courses

To view Physics Graduate requirements, click here. (p. 599)

To view Astronomy Graduate courses, click here. (p. 600)

To view Physics Undergraduate requirements, click here. (p. 417)

To view Astronomy Undergraduate courses, click here. (p. 421)

To view Physics Undergraduate courses, click here. (p. 423)

PHYS 100 - Mathematical Methods for Physicists

Instructor: Mueller

A survey of basic mathematical concepts and tools as relevant to physics applications, with emphasis on finite- and infinite-dimensional linear vector spaces as a unifying framework. Representative topics include: analytic function theory, complex integration and series expansion; basic concepts in linear algebra, linear operators, eigenvalue problems, diagonalization, spectral theorem; systems of ordinary differential equations, operator-valued differential equations; functional spaces and convergence notions, complete orthonormal basis sets; Weierstrass theorem, Fourier series and transforms, Sturm-Liouville systems and orthogonal polynomials, special functions; partial differential equations of mathematical physics, solution by separation of variables, integral transforms, eigenfunction expansions; introduction to Green's function techniques.

Prerequisite: one of ENGS 092, MATH 043, MATH 046 or equivalent with permission of instructor.

Offered: 15F, 16F: 11

PHYS 101 - Classical Mechanics

Instructor: Lynch

Lagrangian and Hamiltonian formulation of mechanics, canonical transformations, relativistic mechanics, and continuum mechanics.

Prerequisite: PHYS 044

Offered: 15F, 16F: 10A

PHYS 103 - Advanced Quantum Mechanics

Instructor: Viola

Time-dependent and time-independent perturbation theory, and the variational method. Identical particles, the two-electron system, the Helium atom, many particle systems, and the Hartree-Fock approximation. Scattering theory, bound and resonance states, atom-electron scattering, and Coulomb scattering. Interaction of radiation with matter. The Dirac equation and introduction to second quantization.

Prerequisite: PHYS 090, PHYS 100, and PHYS 101

Offered: 16S: 10 Offered in alternate years

PHYS 104 - Statistical Mechanics I

Instructor: Blencowe

Fundamentals of equilibrium statistical mechanics, with emphasis on non-interacting classical and quantum many-body systems. Statistical interpretation of thermodynamics from ensemble theory, with selected applications.

Prerequisite: PHYS 043, PHYS 044, PHYS 90, or equivalent. PHYS 100 recommended.

Offered: 16S, 17S: 11

PHYS 105 - Electromagnetic Theory I

Instructor: Rogers

Potential theory of electrostatics, magnetostatics, and steady currents. Maxwell's equations, gauge transformations, and conservation laws.

Prerequisite: PHYS 041

Offered: 16W, 17W: 10A

PHYS 106 - Electromagnetic Theory II

Solutions of the homogeneous and inhomogeneous wave equations, retarded potentials, covariant formulation. Radiation, radiation reaction, and dynamics of charged particles. Scattering and dispersion.

Prerequisite: PHYS 066 and PHYS 105.

Offered: 17S: 10A Offered in alternate years

PHYS 107 - Relativistic Quantum Field Theory

Instructor: Onofrio

Spontaneous symmetry breaking and the Higgs mechanism. The Weinberg-Salam model. Path integral quantization of scalar fields and functional formalism. The effective action and the effective potential. Divergences and renormalization of field theories. Finite temperature field theory. Symmetry restoration at high temperatures.

Prerequisite: PHYS 101 and PHYS 103

Offered: 16W: 11 Offered in alternate years

PHYS 108 - Fluid Mechanics

Theory of fluid motion. Kinematics of flow fields. Viscous and ideal flows. Shear flows, hydrodynamic stability, transition, and turbulence. Gas dynamics and shocks. Boundary layers. Rotating fluids, geophysical flows. Thermal convection and conduction. Waves.

Prerequisite: PHYS 101, or permission of the instructor.

Offered: As needed

PHYS 109 - Statistical Mechanics II

Statistical mechanics of interacting classical and quantum many-body systems, collective phenomena and phase transitions. Fundamentals of non-equilibrium statistical mechanics, the approach to equilibrium, transport processes, classical and quantum open systems.

Prerequisite: PHYS 104, PHYS 103 recommended

Offered: 16X: Arrange Offered in alternate years

PHYS 110 - Methods in Applied Mathematics II

Instructor: Staff

Continuation of Physics 100 with emphasis on variational calculus, integral equations, and asymptotic and perturbation methods for integrals and differential equations. Selected topics include functional differentiation, Hamilton's principle, Rayleigh-Ritz method, Fredholm and Volterra equations, integral transforms, Schmidt-Hilbert theory, asymptotic series, methods of steepest descent and stationary phase, boundary layer theory, WKB methods, and multiple-scale theory.

Prerequisite: PHYS 100, or equivalent

Cross-Listed as: ENGS 200

Offered: 16W: Arrange Offered in alternate years.

PHYS 111 - Plasma Kinetic Theory

Instructor: Hudson

Statistical mechanics and kinetic theory of plasmas. Transport and thermal relaxation phenomena. Microscopic foundations of a fluid description. Waves and instabilities, linear and nonlinear. Emission, absorption, and scattering of electromagnetic radiation.

Prerequisite: PHYS 068, and preferably PHYS 106, or permission of the instructor

Offered: 16W: Arrange Offered in alternate years

PHYS 113 - Microscopic Theory of Solids

Instructor: Ramanathan

Microscopic theory of electron energy bands in solids; vibrational magnetic and electronic elementary excitations.

Applications to classical and quantum transport, magnetism, and superconductivity.

Prerequisite: PHYS 073 and PHYS 090, or permission of the instructor. PHYS 103 recommended

Offered: 16W: Arrange Offered in alternate years

PHYS 114 - General Relativity and Cosmology

Prerequisite: Permission of the instructor.

Offered: Not offered in the period from 15F through 17S

PHYS 116 - Quantum Information Science

Instructor: Viola

An introduction to some of the active research areas on quantum information science, from a physics perspective. While the final choice and balance will be adjusted to actual demand and interest, special emphasis will be devoted to: Quantum algorithms for efficient search, factoring, and quantum simulation; theory and applications of entanglement; methods for quantum control and error correction; physical implementations of quantum information processing.

Prerequisite: PHYS 042 and PHYS 075, or PHYS 090

Offered: 16S: Arrange Offered in alternate years

PHYS 118 - Computational Plasma Dynamics

Theory and computational techniques used in contemporary plasma physics, especially nonlinear plasma dynamics, including fluid, particle and hybrid simulation approaches, also linear dispersion codes and data analysis. This is a "hands-on" numerical course; students will run plasma simulation codes and do a significant amount of new programming (using Matlab).

Prerequisite: PHYS 068 or equivalent with ENGS 091 or equivalent recommended, or permission of the instructor.

Cross-Listed as: ENGS 153

Offered: 17W: Arrange Offered in alternate years

PHYS 120 - Nonlinear Systems

Prerequisite: ENGS 100 or equivalent.

Offered: Not offered in the period from 15F through 16S

PHYS 121 - Seminar

Study and discussion in a current area of physics or astronomy.

Offered: All terms: Arrange

PHYS 122 - Special Topics

Advanced treatment of topics in physics and in astronomy.

Offered: All terms: Arrange

PHYS 123 - Optics

Instructor: Garmire

The physical principles and engineering applications of optics, with an emphasis on optical systems. Geometric optics: ray tracing, first-order analysis, imaging, radiometry. Wave optics: polarization, interference, diffraction, Fourier optics. Sources and detectors. Fiber optic systems.

Identical to ENGS 123.

Prerequisite: ENGS 023 or PHYS 041, and ENGS 092 or equivalent

Cross-Listed as: ENGS 123

Offered: 15F: Arrange Offered in alternate years

PHYS 124 - Optical Devices and Systems

Identical to, and described under, ENGS 124

Prerequisite: ENGS 023 or PHYS 041

Cross-Listed as: ENGS 124

Offered: Not offered in the period 15F through 17S.

PHYS 126 - Semiconductor Theory and Devices

Identical to, and described under, ENGS 122.

Prerequisite: ENGS 024 and ENGS 032 or equivalents

Cross-Listed as: ENGS 122

Offered: Not offered in the period 15F through 16S.

PHYS 127 - Reading Course

Advanced graduate students may elect a program of independent reading.

Offered: All terms: Arrange

PHYS 128 - Methods of Materials Characterization

Instructor: Baker

Identical to, and described under, ENGS 133.

Prerequisite: ENGS 24 or permission

Cross-Listed as: ENGS 137 and CHEM 137

Offered: 17S: 2A Offered in alternate years

PHYS 137 - Graduate Research I: Level I

Part time (one credit) thesis research under the guidance of a staff member. Open to candidates for the M.S. degree and Ph.D. students before admission to candidacy.

Offered: All terms: Arrange

PHYS 138 - Graduate Research I: Level II

Part time (two credits) thesis research under the guidance of a staff member. Open to candidates for the M.S. degree and Ph.D. students before admission to candidacy.

Offered: All terms: Arrange

PHYS 139 - Graduate Research I: Level III

Full time (three credits) thesis research under the guidance of a staff member. Open to candidates for the M.S. degree and Ph.D. students before admission to candidacy.

Offered: All terms: Arrange

PHYS 256 - Instruction in Teaching for Graduate Students

Two-term, one credit course designed for incoming graduate students who will serve as graduate teaching assistants in the department. The course will provide students with resources and experiences directly relevant to typical teaching assistant duties, including public speaking, lab supervision, teacher/student relations and grading. Required of entering Ph.D. students. This course is not open for credit to undergraduates.

Offered: 15F, 16W, 16F, 17W: Arrange

PHYS 257 - Supervised Undergraduate Teaching

Tutoring, laboratory teaching, student evaluation, and leading recitation classes, under the supervision of a faculty member.

Prerequisite: PHYS 256

Offered: All terms: Arrange

PHYS 297 - Graduate Research II: Level I

Part time (one credit) thesis research under the guidance of a staff member. Open to candidates for the Ph.D. degree.

Offered: All terms: Arrange

PHYS 298 - Graduate Research II: Level II

Part time (two credits) thesis research under the guidance of a staff member. Open to candidates for the Ph.D. degree.

Offered: All terms: Arrange

PHYS 299 - Graduate Research II: Level III

Full time (three credits) thesis research under the guidance of a staff member. Open to candidates for the Ph.D. degree.

Offered: All terms: Arrange

Physiology and Neurobiology

Chair: Hermes H. Yeh

Professors D. Bartlett Jr., R. A. Darnall (Pediatrics and Physiology), J. A. Daubenspeck (Physiology and

Biomedical Engineering), G. Fejes-Toth, V. A. Galton, P. M. Guyre, L. P. Henderson (Physiology and Biochemistry), J. C. Leiter (Physiology and Medicine), H. L. Manning (Medicine and Physiology), R. A. Maue (Physiology and Biochemistry), A. Naray-Fejes-Toth, E. E. Nattie, W. G. North, D. L. St. Germain (Medicine and Physiology), B. A. Stanton (Microbiology & Immunology and Physiology), H. M. Swartz (Radiology, Physiology and Community and Family Medicine), C. R. Wira, H. H. Yeh; Visiting Professor A. Katz (Medicine and Physiology); Associate Professor R. B. Robey; Assistant Professors F. Briggs, A. Gullledge, B.W. Luikart, P.A. Pioli (Obstetrics & Gynecology and Physiology); Research Associate Professor J.E. Bodwell, A.; Research Assistant Professors J.V. Fahey, A. Li, L.A. Sheldon.

The Molecular, Cellular and Systems* Physiology Graduate Program is centered in the Physiology Department of Dartmouth Medical School, which is located in the Borwell Building at the Dartmouth-Hitchcock Medical Center. It includes faculty from other departments in the Medical School. The courses listed below are designed for graduate students.

*The MCSP program is being phased out and no longer admits students. Starting with the 2007-2008 academic year, it has been replaced by the Biomedical Physiology track of the new Program in Experimental and Molecular Medicine.

PHYSIOLOGY AND NEUROBIOLOGY REQUIREMENTS

Requirements for the Doctor's Degree (Ph.D.)

To qualify for award of the Ph.D. degree, a student must fulfill the following requirements:

1. The Medical Physiology courses (PHSL 110 and PHSL 120) plus an additional section in Gastro-Intestinal Physiology.
2. Two terms of Biochemistry.
3. The Medical Neuroscience course.
4. The Critical Reading of Scientific Literature course.
5. A course on Scientific Ethics.
6. Three research rotations.
7. Two Advanced Physiology courses.
8. Two elective courses, which may be either a core course or an advanced course offered by either Physiology or another department.
9. Thesis research propositional examination.
10. Laboratory research leading to the preparation of a thesis.
11. Defense of the thesis.

Psychological and Brain Sciences - Graduate

Chair: David J. Bucci

Professor Emeritus G. L. Wolford; Professor D. J. Bucci, A. S. Clark, , R. H. Granger, J. V. Haxby, T. F. Heatherton, H. C. Hughes, J. G. Hull, W. M. Kelley, J. S. Taube, P. U. Tse, P. J. Whalen; Associate Professors C. P. Cramer, B. C. Duchaine, M. I. Gobbini, T. P. Wheatley; Assistant Professor L. Chang, J. Manning, M. Meng, W. M. Shim, K. S. Smith, A. Soltani, M. van der Meer; Senior Lecturer J. F. Pfister; Visiting Associate Professor J. L. Scheiner, J. White; Adjunct Professor R. A. Maue, J. Sargent; Adjunct Associate Professor M. G. Funnell; Adjunct Assistant Professor M. J. Detzer, W. L. Hudenko; Research Professor P. Cavanagh; Research Associate Professor V. A. Reed, Research Assistant Professor E. Cooper.

All requirements or options that need approval of the Chair of the Departmental Undergraduate Committee must be filed in the Departmental office with a completed Checklist. Appropriate Checklists may be downloaded from the Departmental web site described below.

To view Psychological and Brain Sciences Graduate courses, click here. (p. 605)

To view Psychological and Brain Sciences Undergraduate requirements, click here. (p. 427)

To view Psychological and Brain Sciences Undergraduate courses, click here. (p. 429)

Requirements for the Doctor's Degree (Ph.D.)

The Department offers graduate training leading to the Ph.D. in Cognitive Neuroscience or Experimental Psychology. The program emphasizes acquaintance with the basic psychological and neural processes that form the core of contemporary psychological science. Students are encouraged in their research to address problems of broad significance and to be knowledgeable about the theory that makes breadth coherent.

The requirements for the Ph.D. degree in Psychological and Brain Sciences are as follows:

1. A passing grade in the required proseminar (100), statistical courses (110, 111), and five additional graduate courses (chosen from a series of Core Courses and Seminars).
2. Completion of the teaching apprenticeship program.
3. A passing grade in a Specialist Examination containing both written and oral parts, typically by the end of the second year.
4. Fulfillment of the two-year-residence requirement.

5. Completion of independent research and a dissertation; a defense of the dissertation; and presentation of the dissertation research in a public oral colloquium.
6. For more specific details regarding the program see the 'Guide to PBS Graduate Program.'

Psychological and Brain Sciences Department Website

Please check the Departmental website at <http://www.dartmouth.edu/~psych/> for further information, including updated course offerings, PBS Bulletins, Departmental Colloquia, and PDF versions of all checklists.

PSYC - Psychological and Brain Sciences - Graduate Courses

To view Psychological and Brain Sciences Graduate requirements, click here. (p. 604)

To view Psychological and Brain Sciences Undergraduate requirements, click here. (p. 427)

To view Psychological and Brain Sciences Undergraduate courses, click here. (p. 429)

PSYC 100 - Proseminar

Instructor: PBS Faculty

An introduction to the research programs of PBS Faculty. Taken by students in their first year.

Offered: Fall Term

PSYC 110 - Measurement and Statistics I

Instructor: Wolford

First section of Graduate level statistics. Taken by students in their second year.

Offered: Fall Term

PSYC 111 - Measurement and Statistics II

Instructor: Wolford

Second term of Graduate level statistics. Typically taken by PBS students in their second year.

Offered: Winter Term

PSYC 117 - Specialist Reading Part 1

Taken while doing specialist reading and written exam, usually not awarded a grade until completed ('ON' appears in the grade column until exam is completed).

Offered: Every Term

PSYC 118 - Specialist Reading Part II

Taken while doing specialist grant proposal and defense, usually not awarded a grade until completed ('ON' appears in the grade column until exam is completed).

Offered: Every Term

128 - Cognitive Neuroscience

Instructor: Kelley

Cognitive Neuroscience is a scientific discipline that applies the tools of neuroscience to the study of cognition, with an emphasis on understanding the neural underpinnings of mental processes. This course will examine various advanced topics in cognitive neuroscience, including, for example, memory, attention, language, motivation, executive function and decision-making.

PSYC 174 - Computational Neuroscience

Instructor: Granger

Brain circuits are circuits. Just as we can write down what an iphone or computer does, so we can derive candidate operations and algorithms that brain circuits are carrying operations out. Brains are very non-standard engineering devices: they have unusually low-precision synaptic connections, operating at speeds that are ridiculously slower than electronic circuits; yet brains are so good at some tasks, from face and voice recognition to language understating, that engineers have been forced to imitate brains in order to rival their performance. Real scientific comprehension of nature invariably enables us to manipulate, and sometimes improve, the objects of study – from bridges and buildings, to drugs and alloys, to artificial limbs and implants. The brain is no exception: mechanistic understanding of brain will lead to new ways to diagnose, treat, modify, and enhance brains. The course introduces the biological and mathematical elements needed to understand brain computation, from cells and synapses, to local circuits, to anatomical system designs to long-term potentiation rules, to artificial neural networks, and discusses both the history and the state of the art in our understanding of how brains compute our thoughts.

Offered: 14F

PSYC 176 - Neural Plasticity and Behavior

Instructor: Bucci

This course will focus on various aspects of plasticity, including mechanisms of synaptic plasticity, neurogenesis, changes in brain structure and function during development (adolescence in particular), etc. Importantly, there will be an overarching emphasis on how these changes in the nervous system affect behavior.

Offered: 14F

PSYC PSYC 179 - Practical analysis of neural data

Instructor: van der Meer

This course provides a hands-on introduction to the analysis of neurophysiology data using MATLAB. Even if you do not expect to have such data of your own, an understanding of neural data analysis is essential to the interpretation of much of the literature in the field.

Using previously recorded data sets containing spiking and/or field potential data, we will make contact with concepts from computer science, signal processing, and statistics. However, rather than providing a thorough theoretical grounding, the focus is on practical experience, along with pointers to more complete treatment. Specific topics covered include data and project management, visualization, Fourier analysis, filtering, time-frequency analysis, undirected and directional connectivity, spike-field relationships, firing rate estimation, encoding and decoding.

Offered: Winter Term

PSYC 187 - Supervised Undergraduate Teaching

Sign up for this when you TA a course.

Offered: Every Term

PSYC 188 - Supervised Research

Typically taken by 1st year students conducting research.

Offered: Every Term

PSYC 189 - Independent Research

Typically taken by 2nd year students conducting research.

Offered: Every Term

PSYC 190 - Predissertation Research

Sign up for this when conducting research after specialist exam is finished, but before dissertation proposal has been defended.

Offered: Every Term

PSYC 191 - Dissertation Research

Sign up for this when you are conducting research after your dissertation proposal is approved by committee and presented to area group.

Offered: Every Term

PSYC 288 - Supervised Research

Sign up or this when you need two course credits for supervised research.

Offered: Every Term

PSYC 289 - Independent Research

Sign up for this when you need two course credits for independent research.

Offered: Every Term

PSYC 290 - Predissertation Research

Sign up for this when you need two course credits for pre-dissertation research.

Offered: Every Term

PSYC 291 - Dissertation Research

Sign up for this when you need two course credits for dissertation research.

Offered: Every Term

PSYC 388 - Supervised Research

Sign up for this when you need three course credits for supervised research.

Offered: Every Term

PSYC 389 - Independent Research

Sign up for this when you need three course credits for independent research.

Offered: Every Term

PSYC 390 - Predissertation Research

Sign up for this when you need three credits for pre-dissertation Research.

Offered: Every Term

PSYC 391 - Dissertation Research

Sign up for this when you need three credits for dissertation research.

Offered: Every Term

Quantitative Biomedical Sciences

Director: Jason H. Moore

Curriculum Director: Kristine A. Pattin

Professors A. Andrew, F. Asselbergs, C. Bailey-Kellogg, E. Barry, M. Beach, B. Christensen, A. Das, E. Demidenko, J.A. Doherty, S. Gerber, G. Grigoryan, B. Gross, J. Gui, M. Karagas, Z. Li, T. MacKenzie, C. Marsit, J.H. Moore, T. Onega, J. Rees, A. Tosteson, T. Tosteson, R. Triosi, M. Whitfield, S. Williams, O. Zhaxybayeva

To view Quantitative Biomedical Sciences courses, click here (p. 607).

Requirements for a Doctoral Degree (Ph.D.) in Quantitative Biomedical Sciences (QBS)

Modern biomedical research relies on both multidisciplinary and interdisciplinary approaches. Multidisciplinary approaches bring several different scientific disciplines such as bioinformatics and genetics to bear on a research question. Interdisciplinary approaches synthesize knowledge and methods from other disciplines to provide an integrated framework for solving complex biomedical problems in new ways. The rapid advancement of high-throughput technologies such as DNA microarrays and mass spectrometry for measuring biological systems and their application as part of translational medicine has generated a significant demand for investigators doing cutting-edge research in quantitative disciplines such as bioinformatics, biostatistics and epidemiology. Those with the greatest impact are cross-trained in multiple disciplines giving them the ability to synthesize and integrate several disciplines to provide a truly interdisciplinary approach to solving complex biomedical problems.

The goal of the Graduate Program in Quantitative Biomedical Sciences (QBS) is to prepare Ph.D. students for careers at the intersection of biomedical research and quantitative sciences such as bioinformatics, biostatistics and epidemiology.

The requirements for the Ph.D. degree in Quantitative Biomedical Sciences are as follows:

1. Satisfactory completion of a two-term course in quantitative biomedical sciences (QBS I and II), a one-term teaching assignment, and a three-term research course in quantitative biomedical sciences. The latter will consist of three small research projects, conducted in rotation with different faculty members for periods of about three months each.
2. Satisfactory completion of two terms of bioinformatics (Foundations to Bioinformatics I and II), two terms of biostatistics (Foundations of Biostatistics I and II), two terms of epidemiology (Foundations of Epidemiology I and II) and one term of research ethics (Scientific Integrity and Research Ethics).
3. Satisfactory completion of two approved graduate level elective courses.
4. Participation in the weekly graduate research colloquium.
5. Satisfactory completion of an oral qualifying examination.
6. Satisfactory completion of a significant research project,

and preparation of a thesis describing this research.

7. Successful defense of the thesis in an oral examination, and presentation of the work in a public lecture.

QBS - Quantitative Biomedical Sciences Courses

To view *Quantitative Biomedical Sciences* requirements, [click here](#) (p. 606).

QBS 100 - Human Biology for Population Research

Instructor: Marsit

This course is designed to solidify key cellular, molecular, and genetic concepts in the biology of human health and disease. Students in this course will develop a fundamental understanding of the molecular pathogenesis and genetic predisposition to disease, be familiar with the modern tools and technologies to study disease in model systems and human populations, and be able to read, present, and discuss primary literature on human pathobiology. Topics include normal and pathologic cellular processes, genetic and epigenetic mechanisms, and examples of major disease outcomes such as cancer.

Offered: 15F:T, TH 9-10:30am

QBS 110 - Integrative Biomedical Sciences I

Instructor: Williams, Patten

This is the first of a two-part course designed to introduce students to introduce students to the diversity of biomedical research at Dartmouth across the quantitative, experimental, observational and clinical sciences. In addition to hearing about specific research topics, students will be introduced to the core facilities and shared resources that are available for use by Dartmouth faculty, staff and students. At the culmination of the term, students will present a class project that will consist of a short grant proposal that will summarize a hypothetical collaboration among three Dartmouth faculty and one or more core facilities or shared resources as described.

Prerequisite: Permission of Instructor

Offered: 15F: M, W, F 10:30-11:20 a.m.

QBS 111 - Integrative Biomedical Sciences II

Instructor: Williams and Associates

The goal of the course is to apply a combination of bioinformatics, biostatistics and epidemiology skills to the collaborative analysis of a complex biomedical dataset. Students will work with the course directors and other faculty to define a research question, complete an analysis, interpret a set of results and prepare a written report.

Prerequisite: Integrative Biomedical Sciences I or Permission of Instructor

Offered: 15F: Arrange

QBS 120 - Foundations of Biostatistics I: Statistical Inference

Instructor: Li and T.Tosteson

This is a graduate level course in statistics designed to teach the fundamental knowledge required to read and, with further study, contribute to the statistical methodology literature. An in depth overview of statistical estimation and hypothesis testing will be provided, including the method of least squares, maximum likelihood methods, asymptotic methods, Bayesian inference, multivariate hypothesis testing and correction for multiple comparisons, quasi and partial likelihood, M-estimation, sandwich variance, and the delta-method. The basic elements of statistical design and sample size calculations will be introduced. Resampling strategies will be discussed in the context of the bootstrap and cross validation, as well as simulation as a tool for statistical research. The basic elements of statistical design and sample size calculations will be introduced. The emphasis will be on theory used in modern applications in biomedical sciences, including genomics, molecular epidemiology, and translational research. The course will feature computational examples using the statistical package R, but will also give students exposure to other popular statistical packages such as SAS and STATA. The course will meet for 3 hours per week.

Prerequisite: Multivariate calculus, introductory probability and linear algebra are required, or completion of QBS 149 and permission of instructors.

Offered: 16W

QBS 121 - Foundations of Biostatistics II: Regression

Instructor: MacKenzie and T.Tosteson

This course will cover generalized regression theory as practiced in biostatistics and the quantitative biomedical sciences. The basics of linear model theory will be presented and extended to generalized linear models for binary, counted, and categorical data, along with regression for censored survival data. Multivariate regression and mixed fixed and random effects regression models for longitudinal and repeated measures data. Regression methods for right censored time-to-event will include Cox's model, with discussion of time-dependent covariates and left truncation. Methods for dealing with missing data will be explored. Special topics will include measurement error in regression, instrumental variables, propensity scores and inverse propensity weighted estimation. Current methodologies for model selection and classification will be introduced in the context of applications in genomics and the biomedical sciences. The course will primarily feature computational examples using the statistical package R, but will also give students exposure to other popular statistical packages such as SAS and Stata. The course will meet for 3 hours per week.

Prerequisite: Foundations of Biostatistics I or Permission of Instructor

Offered: 16S

QBS 130 - Foundations of Epidemiology I: Theory and Methods

Instructor: Doherty

This graduate level course in epidemiology is designed to teach the underlying theory of epidemiologic study designs and analysis and prepare students for conduct of epidemiology research. Design of investigations seeking to understand the cause of human disease, disease progression, treatment and screening methods include clinical trials, cohort studies, case-cohort, case-case, nested case-control and case-control designs, as well as an introduction to family-based studies. Concepts of incidence rates, attributable rate and relative rate, induction and latent periods of disease occurrence along with confounding, effect modification, misclassification and classification, and statistical power will be covered in depth. The course will meet for 3 hours per week.

Prerequisite: Permission of Instructor

Offered: 16W

QBS 131 - Foundations of Epidemiology II: Molecular Epidemiology

Instructor: Doherty

This is the second of a two course sequence of graduate level epidemiology (Foundations of Epidemiology I and II). The two courses are designed to teach the underlying theory of epidemiologic study designs and analysis and prepare students for conduct of epidemiology research. Design of investigations seeking to understand the cause of human disease, disease progression, treatment and screening methods include clinical trials, cohort studies, case-cohort, case-case, nested case-control and case-control designs. Concepts of incidence rates, attributable rate and relative rate, induction and latent periods of disease occurrence, confounding, effect modification, misclassification, and causal inference will be covered in depth. The courses will meet for 3 hours per week.

Prerequisite: Foundations of Epidemiology I or Permission of Instructor

Offered: 16F

QBS 146 - Foundations of Bioinformatics I: Molecular and Computational Genomics

Instructor: Whitfield

The sequencing of the complete genomes of many organisms is transforming biology into an information science. This means the modern biologist must possess both molecular and computational skills to adequately mine this data for biological insights. Taught mainly from

the primary literature, topics will include genome sequencing and annotation, genome variation, gene mapping, genetic association studies, gene expression and functional genomics, proteomics and systems biology. The course will meet for 3 hours per week.

Prerequisite: Permission of Instructor

Cross-Listed as: GENE146

Offered: 16S

QBS 147 - Genomics: From Data to Analysis

Instructor: Zhaxybayeva

Massive amounts of genomic data pervade 21st century life science. Physicians now assess the risk and susceptibility of their patients to disease by sequencing the patient's genome. Scientists design possible vaccines and treatments based on the genomic sequences of viruses and bacterial pathogens. Better-yielding crop plants are assessed by sequencing their transcriptomes. Moreover, we can more fully explore the roots of humanity by comparing our genomes to those of our close ancestors (e.g., Neanderthals, Denisovans). In this course, students will address real-world problems using the tools of modern genomic analyses. Each week students will address a problem using different types of genomic data, and use the latest analytical technologies to develop answers. Topics will include pairwise genome comparisons, evolutionary patterns, gene expression profiles, genome-wide associations for disease discovery, non-coding RNAs, natural selection at the molecular level, and metagenomic analyses.

Cross-Listed as: BIOL47/147

Offered: 15S:10

QBS 149 - Mathematics and Probability for Statistics and Data Mining

Instructor: Demidenko and Gui

This course will cover the fundamental concepts and methods in mathematics and probability necessary to study statistical theory. Relevant concepts and methods from univariate and multivariate calculus will be introduced as necessary, along with related topics in linear and matrix algebra. Computational methods for statistics, including nonlinear optimization and Monte Carlo simulation will be introduced. Special attention will be given to students' active learning by programming in a statistical software package. The course will meet for 3 hours per week.

Prerequisite: Undergraduate Calculus or Permission of Instructor

Offered: 15F: M 2-5pm

QBS 175 - Foundations of Bioinformatics II: Introduction to Bioinformatics

Instructor: Bailey-Kellogg and Grigoryan

Computation is vital for modern molecular biology, helping scientists to model, predict the behaviors of, and control the molecular machinery of the cell. This course will study algorithmic challenges in analyzing biomolecular sequences (what genes encode an organism, and how are genes related across organisms?), structures (what do the proteins constructed for these genes look like, and what does that tell us about their mechanisms?), and functions (what do these things do, and how do they interact with each other in doing it?). The course is application-driven, but focused on the underlying algorithms and information processing techniques, employing approaches from search, optimization, pattern recognition, and so forth. The course will meet for 3 hours per week.

Prerequisite: Introduction to Programming and Computation or Permission of Instructor

Cross-Listed as: COSC175

Offered: 15F:2A

QBS 176 - Methods in Statistical Genetics and Genomics

Instructor: Amos, Gorlov, Byun

The purpose of this course is to provide students with training in methods of statistical genetics, especially genetic epidemiology designed to identify genetic factors. This course provides instruction on tools of genetic analysis for both simple and complex diseases. We will also instruct students in the use of association methods for gene discovery, instruction in mining and analysis of sequence data provide some discussion of data mining tools for genetic epidemiology. The course teaches both the theory and application of some commonly used methods for linkage and association analysis. In this course we will focus on discrete traits or diseases.

Prerequisite: Permission of Instructor

Offered: S14: Not offered every term

QBS 177 - Algorithms for Data Science

Instructor: Amos

This course provides an introduction to algorithms used in data science with applications to biomedical science. The goal of this course is to present an overview of many of the approaches used for big data focusing on analytical methods. The course assumes that students have some knowledge of R. Students will be provided with 2 large databases. Lectures on data reduction, classification, and optimization will request students complete homework for

these datasets. In addition, students will form teams at the beginning of the term and will propose a project and complete an analysis to be presented at the end of the term. All grades will be derived from the homework and project summaries.

Cross-Listed as: MATH177

Offered: 15S

QBS 178 - Statistic for Clinical and Translational Research

Instructor: T. Tosteson

This course will be taught by the faculty of the Division of Biostatistics who are active in SYNERGY, the Dartmouth Institute for Clinical and Translational Research, the Cancer Center, and the Multidisciplinary Clinical Research Center.

Offered: 15F

QBS 194 - Biostatistics Journal Club

Instructor: Amos and Gui

This is a 1 credit hour course that discusses new findings and applications in biostatistics and data science. The format comprises a monthly seminar from a faculty member, usually from an external location and presentations in the format of a journal club for the remainder of the weekly meetings. The journal club format is an informal structure in which students present one or possibly two manuscripts (if two manuscripts will be discussed they must be thematically related).

Offered: All Terms: M 12-1pm

QBS 195 - Independent Study

Instructor: Williams and Associates

Independent study in QBS is structured to allow students to explore subject matter and enhance their knowledge in QBS related fields. This independent study for QBS students will count as an elective credit and is offered during each academic term. The arrangement and a course outline is to be developed between the student and a QBS faculty member prior to the start of the summer term as well as approved by QBS administration. The student and faculty will work together to structure the study program and set goals that are to be met by the end of the term. The course of study may include, but is not limited to, literature review, seminar attendance, online course material, small projects, and presentations related to the specific field being studied. Assignment of credit or no-credit will be given at the end of the term.

Offered: All Terms: Arrange

QBS 196 - Supervised Teaching in QBS

Instructor: Williams and Associates

This course is required for all QBS graduate students, based on the assertion that an essential element of graduate education is the experience gained in teaching other students. Such teaching experience is of particular relevance to students interested in academic careers. Students will conduct discussion sessions and provide assistance to the instructor as required in QBS courses under the supervision of the course instructor(s). The faculty and student teaching assistant work very closely to develop assignments. In some cases, the students are encouraged to present lectures for which they receive detailed feedback on their teaching style. The instructor will guide them on how to teach the material if required, how to run a discussion, how to evaluate student responses, and grading. Performance will be monitored throughout the term and appropriate evaluation, coupled with detailed suggestions for improvement, will be provided. This course is not open to undergraduates.

Offered: All Terms: Arrange

QBS 197 - Graduate Research in Quantitative Biomedical Sciences I

Instructor: Karagas, Williams, T.Tosteson, and Associates

An original individual, experimental, or theoretical investigation beyond the undergraduate level in quantitative biomedical sciences. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit. Advanced research is to be registered for post-qualifier examination.

Prerequisite: Permission of Instructor

Offered: All Terms: Arrange

QBS 198 - Graduate Research in Quantitative Biomedical Sciences II

Instructor: Karagas, Williams, T.Tosteson, and Associates

An original individual, experimental, or theoretical investigation beyond the undergraduate level in quantitative biomedical sciences. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credits. Advanced research is to be registered for post-qualifier examination

Prerequisite: Permission of Instructor

Offered: All Terms: Arrange

QBS 199 - Graduate Research in Quantitative Biomedical Sciences III

Instructor: Karagas, Williams, T.Tosteson, and Associates

An original individual, experimental, or theoretical investigation beyond the undergraduate level in quantitative biomedical sciences. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credits. Advanced research is to be registered for post-qualifier examination.

Prerequisite: Permission of Instructor

Offered: All Terms: Arrange

QBS 270 - Quantitative Biomedical Sciences Seminar Series and Journal Club

Instructor: Williams, Pattin, Doherty, Zhaxybayeva

Fall/Spring : Biostatistics/Computational Biology

All first year QBS graduate students are required to enroll in the Quantitative Biomedical Sciences Journal Club except in the summer term; however it is encouraged that QBS graduate students attend this journal club in subsequent years. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Individuals will identify a QBS faculty member who will guide them in choosing a current paper related to their research or published by their lab. This faculty member will also advise the student on the paper presentation format and attend the journal club that week. The presentation should include a brief discussion of the significance of the paper as well as a description of the methods used. While the presenter should be prepared to lead the discussion, members of the journal club are expected to come with questions about the paper. These questions can focus on methods, discussion, and interpretation of the results and their implications. This course will meet for a 1.5-hour discussion every other week. Winter: Epidemiology

Winter: Epidemiology

Graduate level journal club focused on interpreting scientific literature specific to epidemiological and biomedical research studies. Students will learn about the key aspects of a scientific study, how to critically evaluate epidemiological and biomedical research studies and how to effectively communicate study findings to others. Students will meet weekly and discuss one to two publications. Publications will cover key epidemiological and study design concepts. Students will be expected to read publications before each class and be prepared to discuss the studies as a group.

Cross-Listed as: Computational Biology Journal Club

Offered: 15F, 16W, 16S: W 12-1:30 p.m.

QBS 297 - Advanced Graduate Research in Quantitative Biomedical Sciences I

Instructor: Karagas, Williams, T.Tosteson, and Associates

An original individual, experimental, or theoretical investigation beyond the undergraduate level in quantitative biomedical sciences. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries one course credit. Advanced research is to be registered for post-qualifier examination.

Prerequisite: Permission of Instructor

Offered: All Terms: Arrange

QBS 298 - Advanced Graduate Research in Quantitative Biomedical Sciences II

Instructor: Karagas, Williams, T.Tosteson, and Associates

An original individual, experimental, or theoretical investigation beyond the undergraduate level in quantitative biomedical sciences. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries two course credit. Advanced research is to be registered for post-qualifier examination.

Prerequisite: Permission of Instructor

Offered: All Terms: Arrange

QBS 299 - Advanced Graduate Research in Quantitative Biomedical Sciences III

Instructor: Karagas, Williams, T.Tosteson, and Associates

An original individual, experimental, or theoretical investigation beyond the undergraduate level in quantitative biomedical sciences. This course is open only to graduate students, prior to passing their qualifying exam; it may be elected for credit more than once. This course carries three course credit. Advanced research is to be registered for post-qualifier examination.

Prerequisite: Permission of Instructor

Offered: All Terms: Arrange

The Dartmouth Institute

To view The Dartmouth Institute courses, click here (p. 611).

ECS - The Dartmouth Institute Courses

To view The Dartmouth Institute requirements, click here (p. 611).

ECS 100 - Inferential Methods and Systematic Review: Part 1

Instructor: Robin Larson

In this course students engage in thinking about common health care related questions and identifying basic approaches and challenges to studying them. Part 1 of this

course focuses on recognizing the purpose, structure, strengths and weaknesses of various study designs, while developing skills to critically assess the relevance and validity of their conclusions. At the same time, each student begins to develop a research question of their own and, after conducting a preliminary literature search, submits a proposal for conducting a systematic review.

4 credits; (HP, P, LP, NC)

**Core Requirement for MPH and MS*

Prerequisites: None

Offered: Late Summer - Thursdays 8:00 am - 12:00 pm

ECS 102 - Inferential Methods and Systematic Review: Part 2

Instructor: Robin Larson

Part 2 of this course is dedicated to step-by-step instruction on conducting and communicating the findings of a systematic review. Students work in pairs or trios to hone a single research question, identify and critically appraise the peer-reviewed literature on the topic, use statistical analyses to interpret and summarize their findings, and present the work in both a poster session and a final manuscript. Each team submits multiple intermediate products (a revised proposal, data collection forms, draft methods, mock tables and figures, an abstract, and a draft paper) and is given numerous opportunities for peer and instructor feedback prior to presenting their poster and submitting their final manuscript.

4 credits; (HP, P, LP, NC)

**Core Requirement for MPH and MS*

Prerequisites: ECS 100

Offered: Fall - Thursdays 8:00 am - 12:00 pm

ECS 107 - Pharmaceuticals, Health and Health Policy

Instructor: Nancy Morden

This is a course concerning prescription benefits, access, and utilization in the US. The class will study current prescription access and barriers and their impact on health and health costs in the US. The course will consider the interplay between prescription drug spending and overall health costs with attention to market issues including moral hazard, adverse selection, direct to consumer advertising, public policy, and the influence of insurance and information on patient/consumer preferences. Focusing largely on Medicaid and the new Medicare Part D drug benefit, the course will examine the theory and effects of formularies, cost-sharing, prior approval requirements and optimal prescription access. The course will conclude with a brief introduction to the research opportunities and obstacles created by prescription claims data.

4 credits; (HP, P, LP, NC)

Prerequisites: ECS 111 or permission of the instructor.

Offered: Spring - Fridays 8:00 am - 12:00 pm

ECS 111 - Critical Issues in Health and Health Care

Instructor: Paul Gardent

This course is designed to provide an opportunity for all newly-enrolled Master's students to develop a foundational understanding of critical issues in health and health care today, especially as they relate to key aspects of the research and practice of TDI. The course will use lectures and a series of case studies, discussed from both the public health and health care delivery perspectives, to provide grounding in issues that can be explored in depth during the rest of the academic year. Students will explore how to improve the health of a population, the boundaries and financing of the US health care system, and different methods used to analyze and present solutions to problems in health and health care.

4 credits; (HP, P, LP, NC)

**Core Requirement for MPH and MS*

Prerequisites: None

Offered: Late Summer - Fridays 8:00 am - 12:00 pm

ECS 112 - Special Topics in Health Policy: Medical Care and the Corporation

Instructor: Paul Gardent and Michael Zubkoff

This course is intended to 1) illustrate the applicability of management concepts and techniques to the health care and biotechnology industries; 2) enhance the ability of managers to serve as trustees of health care organizations; and 3) demonstrate how corporate managers can exercise judgment and control over expenditures for health care benefits while protecting the health of their employees. The characteristics and components of the health care system and their interactions and determinants will be analyzed. The history of corporate and governmental intervention in health care will be reviewed. The importance of understanding the medical market dynamics and the options for data-driven strategies for market reform will be stressed. Case examples will highlight the use of new analytic techniques for understanding and managing the medical markets.

3 credits; (HP, P, LP, NC). Enrollment in this course is officially in the Fall term, although the course starts during the Late Summer term. This course is cross-listed with Tuck School of Business in their MBA program. It is limited to MS students in Health Care Leadership concentration.

Prerequisites: None

Offered: Fall - Wednesdays 4:45 pm - 8:15 pm

ECS 113 - Understanding Health Reform

Instructor: Carrie Colla

This five-week two-credit short course is intended to further students understanding of health policy and financing in the United States through study of the Patient Protection and Affordable Care Act (PPACA). Specific areas of study will include accountable care organizations, health information technology, employer and individual insurance mandates, comparative effectiveness research, and insurance expansions. Learning takes place through readings of selected manuscripts, lecture and discussion, and assignments.

2 credits (HP, P, LP, NC)

Offered: Winter - Fridays 1:00 pm - 4:00 pm (Jan 4-Feb 1)

ECS 115 - Strategic & Financial Management of Health Care Organizations

Instructor: Paul Gardent

Strategic and Financial Management of Health Care Institutions offers students the opportunity to learn about and practice strategic and financial management as those disciplines apply to health care institutions. By the end of the course, students will be able to understand financial accounting, cost accounting, financial analysis, financial strategy, organizational structure, strategic planning, environmental analysis, and marketing. Students will be able to apply financial techniques to strategic analysis of the health care environment, cost reduction in health care and to organizational decision making. The ability to apply that knowledge will be reinforced through projects, casework and homework problems. The course integrates textbooks, cases, and projects. The first half of the course focuses on financial analysis; the second half of the course focuses on strategy.

4 credits; (HP, P, LP, NC)

Required for MPH

Prerequisites: No economics preparation assumed

Offered: Winter - Fridays 8:00 am - 12:00 pm

ECS 117 - Continual Improvement of Healthcare: An Overview

Instructor: Tina Foster and Greg Ogrinc

This course offers participants the opportunity to discover and preview the knowledge, methods, and skills necessary to effect the continual improvement of the quality and value of health care. Participants will be offered an opportunity to connect that knowledge, and those methods and skills, to their personal life and work. This course includes a significant amount of weekly pre-class preparation. Small group work is encouraged during the afternoon lab period.

4 credits; (HP, P, LP, NC)

**Core Requirement for MPH and MS*

Prerequisites: None

Offered: Fall - Tuesdays 8:00 am - 12:00 pm

ECS 119 - Decision and Cost-Effectiveness Analysis: Practicum

Instructor: Anna Tosteson and Sam Finlayson

This course, which covers the fundamental principles and mechanics of decision analysis and cost-effectiveness analysis, is offered in conjunction with ECS 121 (see its description below). Students in ECS 119 participate in the same weekly assignments and attend the same lectures as students in ECS 121, but students in ECS 119 complete an independent practicum project and paper instead of a small group project. Approval of a practicum project by the course instructors is required before a student can pre-register for ECS 119.

6 credits; (HP, P, LP, NC)

Prerequisites: ECS 100, 140A, 140B, and permission from instructor prior to pre-registration.

Offered: Spring - Tuesdays 1:00 pm - 5:00 pm

ECS 119 - Decision and Cost Effective Analysis

Instructor: Anna Tosteson and Sam Finlayson

This course covers the fundamental principles and mechanics of decision analysis and cost-effectiveness analysis. Topics covered in the course include basics of probability (including Bayes' Theorem), structuring decision problems as decision trees and Markov models, components of preference (value preference, time preference, and risk preference), valuing multidimensional outcomes, evaluating decision trees, sensitivity analysis, value of information, and basic principles of cost-effectiveness analysis. The course has a weekly lab that involves use of decision analysis software to reinforce concepts presented in class. Labs are also used for development, progress review and discussion of small group decision analysis projects, which culminate in formal presentations the last week of class. Weekly problem sets are also used to reinforce the concepts presented in class.

4 credits; (HP, P, LP, NC)

Prerequisites: ECS 100, ECS 140A, 140B

Offered: Spring - Tuesdays 1:00 pm - 5:00 pm

ECS 122 - Survey Research Methods and Principles

Instructor: Lisa Schwartz and Steve Woloshin

This course introduces the basic skills needed to conduct and present survey research. It will focus on two aspects of such research: designing and administering a survey

(primary data collection); and accessing, analyzing and reporting on data from publicly available national survey data (secondary data analysis). Topics covered will include survey design, sampling, validity, reliability, data collection, analysis, interpretation and reporting of results. To reinforce practical skills, the course will include weekly computer labs, research in progress sessions to critique draft survey instruments, and a journal club to critically read articles reporting survey results.

4 credits; (HP, P, LP, NC)

Prerequisites: ECS 140A, 140B

Offered: Winter - Wednesdays 9:00 am - 3:30 pm

ECS 124 - Design & Improvement of Clinical Microsystems

Instructor: Tina Foster, Marjorie Godfrey and Joel Lazar

This course creates an opportunity for students to study and apply the principles and concepts learned in ECS 117, The Continual Improvement of Health Care, to the work of managing the health and value of health care for a defined population of patients. Participants will work in partnership with selected managed care settings throughout the United States. Specifically, this course will offer participants an opportunity to identify the processes involved in managing a panel of patients, learn the knowledge and skills providers need to manage panels and provide optimal patient care, identify approaches for taking costs out of the care while maintaining or improving quality and enhancing customer satisfaction, understand the difference between the efforts for improvement of care at the front line and in the front office and how they may be related, and identify some of the barriers to making the health of a population better.

6 credits; (HP, P, LP, NC)

Prerequisites: ECS 117

Offered: Spring - Tuesdays 8:00 am - 12:00 pm

ECS 125 - Qualitative Methods Toolbox (SHORT COURSE)

Instructor: Louise Davies

This short course is aimed at helping students develop basic skills with commonly used non-numeric data. We will cover approaches to sound collection of data, and move through an actual data analysis process, finishing with written and visual communication of findings. The basic principles of qualitative research design and analysis using grounded theory will be covered. In addition, students will gain experience with interviewing and focus group facilitation, basic data analysis (by hand and with qualitative analysis software), and other relevant qualitative research skills.

2 credits; (HP, P, LP, NC)

Prerequisites: ECS 100

Offered: Winter - Tuesdays 8:00 am - 12:00 pm (Jan 8-Feb 5)

ECS 126 - Statistical Measurement and Analysis for Quality Improvement

Instructor: Mark Splaine and Greg Ogrinc

This course explores the history and theory of statistical process control and its application to health care. Specific topics covered include: development of measures; data collection; graphical display of data; the theory and construction of control charts for means, proportions, counts and rare events; statistical testing with control charts; analysis of means. Benchmarking and an organizational approach to measurement and improvement are discussed. Different study designs for improvement work are explored. The course emphasizes application of theories and principles through the use of case studies, small group exercises and interactive discussions with guest presenters. Lab exercises, a group project and a take-home final exam are required elements of the course.

4 credits; (HP, P, LP, NC)

Prerequisites: ECS 117, ECS 140A and B (preferred)

Offered: Winter - Tuesdays 1:00 pm - 5:00 pm

ECS 127 - Patient Safety: Reducing Medical Errors (SHORT COURSE)

Instructor: Gautham Suresh and Samuel Casella

With medical errors causing up to 98,000 deaths each year in US hospitals, Patient Safety is a topic of great importance. This course will teach students the basic concepts and principles of patient safety, and will arm them with practical tools to improve Patient Safety in healthcare settings. Students will also learn about important resources on Patient Safety that will allow them to keep up to date with new emerging knowledge in Safety.

2 credits; (HP, P, LP, NC)

Prerequisites: ECS 117

Offered: Spring - Thursdays 1:00 pm - 5:00 pm (Mar 28-April 25)

ECS 130 - Practical Approaches to Today's Health Care Ethics Challenges (SHORT COURSE)

Instructor: William A. Nelson

This highly interactive, inter-professional elective is designed to give students an overview of health care ethics, including recognizing and responding to contemporary clinical, research, and organizational ethical conflicts in health care. The students will become familiar with the application of ethics principles to today's health care ethics challenges faced by health care professionals. Through the discussion of case studies, students will build practical

ethical reasoning skills and strategies for dealing with frequently encountered ethics issues, as well as approaches for anticipating and decreasing the presence of ethics conflicts. Students will also gain an understanding of the structure and function of a Hospital Ethics Committees and an Institutional Review Board/Committee for the Protection of Human Subjects. Emphasis throughout the elective will be on critical thinking, real-world application and decision-making in a professional environment.

2 credits; (HP, P, LP, NC)

Prerequisites: None

Offered: Late Summer - Tuesdays 9:00 am - 11:30 am (8/28, 9/4, 9/18, 9/25) and Thursdays 1:00 pm - 3:30 pm (9/13 and 9/20)

ECS 131 - Patient Centered Health Communications

Instructor: Alice Andrews and Dale Vidal

Health care decisions are complicated – *really* complicated – and frequently lack evidence to determine a ‘one best’ course of treatment. As such, patient-centered health communications increasingly are recognized as a critical means to facilitate health care decisions that provide patients with “the care they need, and no less; and the care they want and no more” (Al Mulley, The Dartmouth Center for Health Care Delivery Science)

The objectives of this short course are to 1) engage you to think broadly about the impact of communication at the patient, institutional, and population level; 2) to gain skills and experience related to the design and development of decision support tools and methods; 3) to understand the challenges involved in implementing decision support into practice at both at the institution and international level.

Offered: Winter

ECS 140A - Epidemiology/Biostatistics: Part 1

Instructor: H. Gilbert Welch

The epidemiology component of this course introduces the basic principles of epidemiology, including formulation of the research question, choice of study subjects, measures of disease frequency, assessment of exposure and disease status, study design (cross-sectional studies, prospective and retrospective cohort studies, case-control studies, and clinical trials), measures of association between exposure and disease (risk ratio and risk difference measures) and causal inference. Taught as lectures and assigned exercises, this course stresses the practical applications of epidemiological techniques.

The biostatistical topics in this course include vital rates and ratios, probability concepts, discrete and continuous probability distributions, populations and samples, and introduction to the use of computers for statistical analysis.

4 credits; (HP, P, LP, NC)

**Core Requirement for MPH and MS*

Prerequisites: None

Offered: Late Summer - Mondays 8:00 am - 5:00 pm

ECS 140B - Epidemiology/Biostatistics: Part 2

Instructor: H. Gilbert Welch

The epidemiology component of this course extends the basic principles of epidemiology from ECS140A and introduces additional basic principles of epidemiology, including measurement precision and accuracy, use of statistical testing, and interval estimation in epidemiological studies. Taught as lectures and assigned exercises, this course stresses the practical applications of epidemiological techniques.

The biostatistical topics in this course include exploring and organizing data, life tables, nonparametric analysis, sampling distributions and statistical inference, statistical estimations, hypothesis testing, sample size and power, two-sample comparisons, multiple comparisons, association and correlation, and simple linear regression.

4 credits; (HP, P, LP, NC)

**Core Requirement for MPH and MS*

Prerequisites: ECS 140A

Offered: Fall - Mondays 8:00 am - 5:00 pm

ECS 141 - Epidemiology/Biostatistics 2

Instructor: Brenda Sirovich and Matthew Davis

The epidemiological portion examines methods used to evaluate the role of chance, bias, and confounding in epidemiological studies. Topics include sources and definitions of bias and confounding, analytic techniques, e.g., stratified analyses, Mantel-Hanszel techniques, uses of logistic regression analysis in cohort and case control studies, and introduction to life table analysis using both Kaplan-Meier and regression techniques. Other topics include planning data management and analysis in epidemiological studies and estimating sample size. Lectures are illustrated by reference to epidemiological data.

The biostatistical portion of the course continues the examination of topics raised in the Late Summer and Fall terms (See ECS 140A and 140B).

6 credits; (HP, P, LP, NC)

Prerequisites: ECS 140A, ECS 140B

Offered: Winter - Mondays 8:00 am - 5:00 pm

ECS 144 - The Current Status of Practice Variation Research (SHORT COURSE)

Instructor: John Wennberg

This four-session seminar will focus on readings from the book, *Tracking Medicine*, by John E. (Jack) Wennberg. Wennberg reviews his and his colleagues' work on practice variations, beginning with small area variation in Vermont, extending through efforts to evaluate the reasons behind variation in surgical procedures, and concluding with the more recent work associated with overuse of supply sensitive care as described in the Dartmouth Atlas of Health Care. The course includes a section on current health policy as it relates to practice variation. The format of each session will include an initial lecture followed by small group discussions with a report back at the end of each afternoon.

3 credits, (HP, P, LP, NC)

Prerequisites: None

Offered: Fall - Section 1 - Thursdays 1:00 pm - 3:00 pm,
Section 2 - Fridays 1:00 pm - 3:00 pm

ECS 147 - Advanced Methods in Health Services Research

Instructor: Tracy Onega

This course will develop student analytic competencies to the level necessary to conceptualize, plan, carry out, and effectively communicate small research projects in patient care, epidemiology, or health services. Lectures, demonstrations, and labs will be used to integrate and extend methods introduced in other TDI courses. The course will also cover new methods in epidemiology and health services. The students will use research datasets from the Medical Care Epidemiology Unit at TDI, including Medicare data, in classroom lab exercises and course assignments. Course topics focus on key aspects observational research including risk adjustment, multilevel analyses, instrumental variables, and small area analysis. Practical skill areas will include programming in STATA, studying datasets for completeness and quality, designing tables, and figures, and data management techniques. Emphasis is on becoming independent in analytic workflow. The instructors will tutor students as they develop their own analytic projects.

6 credits; (HP, P, LP, NC)

Prerequisites: ECS 140A, 140B, 141

Offered: Spring - Mondays 8:30 am - 4:00 pm

ECS 151 - Environmental Health Science and Policy

Instructor: Carolyn Murray and Robert McLellan

This course engages students in the exploration of major environmental and occupational health issues through application of the basic tools of environmental science

including epidemiologic methods, toxicology and risk assessment. Participants will examine the relationship between environmental and occupational exposures and human disease with emphasis on the interface of science and policy, the role of regulatory agencies and environmental risk communication. Topics include air and water quality, hazardous waste, radiation, heavy metals, food safety, environmental pathogens, and clinical occupational medicine. Faculty use a variety of teaching tools including lectures, audiovisual media, case studies, guest experts, and assigned readings/exercises. As a culminating project, students will author an environmental policy white paper based on a synthesis of scientific evidence.

4 credits; (HP, P, LP, NC)

Required for MPH

Prerequisites: ECS 140A (or equivalent introductory epidemiology/biostatistics course) and ECS 100 or approval of the instructor.

Offered: Winter - Thursdays 8:00 am - 12:00 pm

ECS 154 - Social and Behavioral Determinants of Health

Instructor: Lisa Purvis

This course describes the evolution of the predominant illness patterns that dominate contemporary populations. It delves into explanations for individual and population health that focus primarily social and behavioral determinants for health promotion and disease prevention. Finally, it examines local and global responses to burgeoning factors that will significantly impact population health in the coming decades.

4 credits; (HP, P, LP, NC)

Required for MPH

Prerequisites: None

Offered: Late Summer - Wednesdays 1:00 pm - 5:00 pm

ECS 155 - The Geographies of Health and Disease

Instructor: Ethan Berke

This course provides a broad introduction to medical geography, spatial epidemiology, and the principles and methods used in the disciplines. The course is divided into three parts. The first section introduces the importance of place in understanding disease and health and covers topics in spatial epidemiology and analysis of geographic data. The second section uses case studies to explore the geography of disease, including infectious diseases and diffusion models, small area studies, workforce issues, and chronic disease. The third section of the course covers several special topics including the challenges of using aggregate data, the built environment and neighborhood planning, and parcel-level analysis in relation to chronic

disease and health promotion. Students will be introduced to geographic information systems (GIS) software. Learning takes place through lecture and discussion, critical reading of selected manuscripts, weekly GIS lab sessions, assignments, and a team project.

4 credits; (HP, P, LP, NC)

Prerequisites: ECS 140A, 140B, or permission of the instructor

Offered: Spring - Thursdays 10:00 am - 11:50 am (plus a choice of labs on either Wednesdays from 2:00 pm - 3:50 pm or Thursdays from 10:00 am - 11:50 am)

ECS 160 - Public Health Capstone: Part 1

Instructor: Rosemary Orgren and Scott Shipman

The public health capstone project provides students with an opportunity to apply principles and skills learned in the classroom and in the field – through the measurement, organization, and improvement of public health care. Part 1 of this course is designed to expose students to potential topic areas for in-depth scholarly work to be completed in Part 2.

1 credit (C, NC)

Required for MPH; Not available for MS, PhD, Post-doc or Special students.

Prerequisites: ECS 100, 102, 111, 115, 117, 140A and B, 151, 154, or consent of course director.

Offered: Winter - Thursdays 1:00 pm - 4:00 pm

ECS 161 - Public Health Internship

Instructor: Rosemary Orgren and Scott Shipman

The public health field internship provides students with an opportunity to apply principles and skills learned in the classroom - the measurement, organization, and improvement of public health care - to real situations in the field. A minimum of 200 hours is to be spent at the placement site during the winter and spring terms. Attendance at public health-related conferences, events, and meetings is highly recommended throughout the year and can be counted toward an additional 40 hours of required public health-related education. Typically, this internship occurs in the final term of the year, but other arrangements are possible with permission of the course director. Students who have completed their internships prepare and present posters at the conclusion of the spring term and complete an exit appraisal of their experience and achievements.

4 credits (C, NC)

Required for MPH; Not available for MS, PhD, Post-doc or Special students.

Prerequisites: ECS 100, 102, 111, 115, 117, 140A and B, 151, 154, 160 or consent of course director.

Offered: Spring Term - Will vary among students

ECS 162 - Public Health Capstone Project: Part 2

Instructor: Rosemary Orgren and Scott Shipman

This culminating project is typically completed in conjunction with the internship project. Culminating projects require one of the following options for all students: a) data collection and analysis related to a public health question appropriate for a research paper, b) planning and implementation of a needs assessment with a community organization in conjunction with a grant proposal, c) intervention design for community implementation, or d) a systematic literature review of a public health issue.

4 credits (HP, P, LP, NC)

Required for MPH; Not available for MS, PhD, Post-doc or Special students.

Prerequisites: ECS 100, 102, 111, 115, 117, 140A and B, 151, 154, 160 or consent of course director.

Offered: Spring - Wednesdays 9:00 am - 12:00 pm

ECS 177-179 - Research Capstone Series 1-3

Instructor: Stephen Bartels, Jeremiah Brown, Jon Lurie and Kim Perez

The overarching goal of this course, a series of three tutorial seminars taught during the academic year, is to provide a progressive roadmap for the student's professional development in the evaluative clinical sciences. Specific goals are to assure acquisition, demonstration, and documentation of specific competencies in the evaluative clinical sciences and guide and support the completion of an academically robust, high quality culminating research proposal or paper.

2 credits each term (HP, P, LP, NC)

Prerequisites: None

Offered: Fall, winter and spring terms

ECS 186-189 - Directed Readings

Students may participate in a Directed Readings course through arrangements with a faculty member. "Directed" coursework involves readings and special projects, and is subject to approval by an approved TDI faculty supervisor and the Associate Director of Education (for masters degree students) or the Chair of their program (for PhD students).

Directed Readings are typically literature reviews on a specific topic with a paper due at the end of the term that provides an overview of the topic(s) to be reviewed, the references read and the process used to identify readings and that summarizes the theory and evidence found in the literature review.

All terms: By arrangement. (HP/P/LP/NC)

ECS 186 is two credits; ECS 187 is four credits; ECS 188 is eight credits; ECS 189 is twelve credits.

Prerequisites for Masters degree students: Core courses or permission of an approved faculty supervisor and an Approved Proposal. To obtain approval of proposal, prior to the beginning of the term please submit by email to Center for Education the Readings cover sheet and proposal with an electronic signature or email from the proposed TDI faculty supervisor.

ECS 196-199 - Directed Research

Students may participate in a Directed Research course through arrangements with a faculty member. "Directed" coursework involves a specific research proposal and is subject to approval by an approved TDI faculty supervisor and the Associate Director of Education (for Masters degree students) or the Chair of their program (for PhD students).

When the intended work to be accomplished is considered to be 'deep background' reading for the student's general training or topic, choose directed readings courses (ECS 186-189); see separate guidelines. On the other hand, if the literature review to be accomplished is intended to be primarily directly related to preparing a dissertation or other research project, use the directed research courses. Also use directed research for preparing the PhD proposal and for carrying out all research activities for design, analysis, and writing up the findings.

All terms: By arrangement (HP/P/LP/NC)

ECS 196 is two credits; ECS 197 is four credits; ECS 198 is eight credits; ECS 199 is twelve credits.

Prerequisites for Masters degree students: Core courses or permission of the Associate Director of Education and an Approved Proposal. To obtain approval of proposal, submit to Center for Education the Research cover sheet and proposal with an electronic signature or email from the proposed TDI faculty supervisor.

ECS 250-254 - Supervised Teaching

This experience for the student teacher assumes that the course has been developed and taught in prior terms. Course faculty and the student teaching assistant (TA) work closely to develop and evaluate discussion assignments and associated homework. TAs conduct discussion sessions in courses under the supervision of the course faculty. TAs may be encouraged to present lectures for which they receive detailed feedback on their teaching style. TAs receive instruction on effective teaching techniques, such as how to teach the material, how to run a discussion, how to evaluate student responses, and grading. TA performance will be monitored throughout the term and the supervising faculty will provide appropriate

evaluation, coupled with detailed suggestions for improvement.

Teaching Assistants should plan on being available for 13 weeks of a 10-week course, for final course planning prior to the start of the term and student evaluation purposes after the end of the term.

All terms: By arrangement. (ECS 250=1/2 cr; ECS 251=1 cr; ECS 252=2 cr; ECS 253=3 cr; ECS 254=4 cr). (Credit/No Credit grade).

Prerequisites: PhD student, familiarity with the subject matter, and prior approval from TDI's Center for Education and the supervising faculty member; MS and MPH students must request an exception from the Associate Director of Education to participate.

ECS 257-259 - Advanced-Level Student Teaching

This experience for the student teacher assumes that the student has had considerable experience in teaching this course content. This is an advanced teaching course in which student teachers are given the opportunity to refine their teaching techniques and expand their role, under the supervision of the course faculty, and to include more advanced levels of responsibility as an instructor compared to those expected under ECS 256. Students enrolling in this course must have completed their programmatic teaching requirement and otherwise be experienced as a teacher and exceptionally proficient in the subject matter.

All terms: By arrangement. 1-3 credits (ECS 257=1 credit; ECS 258=2 credits; ECS 259=3 credits). (Credit/No Credit grade)

ECS 276-279 - Supervised Research Assistantship

Only PhD Students, PhD Candidates, or non-degree-seeking postdoctoral fellows with a thesis degree may sign up for Supervised Research Assistantship Courses. When the intended work to be accomplished is considered to be for training as a research assistant and work to be completed is for a grant or work of the faculty member and the student would not qualify for first authorship on reports or publications and is being paid hourly as a student employee, the student should sign up for Supervised Research Assistantship courses at the appropriate level. Otherwise, the student should sign up for directed research.

All terms: By arrangement. (Credit/No Credit)

Prerequisites: Doctoral student or candidate status or post-doctoral fellow

ECS 297-299 - Doctoral Research

Thesis research under the guidance of a faculty member who is the student's designated Dissertation Research Advisor. See Tabs 3 and 7 in the PhD Student Handbook for more details and examples of acceptable proposals.

All terms: By arrangement.

ECS 297 is four credits; ECS 298 is eight credits; ECS 299 is twelve credits.

Prerequisites: PhD candidacy status, including successfully defending the thesis proposal.

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Index

AAAS - African and African American Studies Courses	80
About Lesbian, Gay, Bisexual, and Transgender Studies	366
About This Catalog	4
Academic Administrators	11
Academic Honor	35
Academic Standing Limits on Transfer Courses	57
Academic Support	39
Access and Accommodation for Students with Disabilities	39
Active Faculty	14
Additional Requirements by Track:	595
Administrative Organization	10
Admission	35
Advanced Courses	319, 461
Advanced Creative Writing Courses	261
African and African American Studies	514
African and African-American Studies	79
AMEL Asian and Middle Eastern Languages and Literatures Courses	116
American Government	309
AMES - Asian and Middle Eastern Studies Courses ..	132
ANTH - Anthropology Courses	91
Anthropology	90, 514
ARAB - Arabic Courses	117
Art History	101, 514
ARTH - Art History Courses	103
Asian and Middle Eastern Languages and Literatures - Arabic, Chinese, Hebrew, Japanese	113
Asian and Middle Eastern Studies	130, 514
Associated Courses	89, 350, 514
Associated Courses for LACS/LATS	358
ASTR - Astronomy - Graduate Courses	600
ASTR - Astronomy - Undergraduate Courses	421
Auditing a Course	60
Awards for Graduate Study	68
BIOC - Biochemistry Courses	539
Biochemistry - Graduate	538
Biochemistry - Graduate Research Colloquium	541
BIOL - Biological Sciences - Graduate Courses	542
BIOL - Biological Sciences - Undergraduate Courses ..	142
Biological Sciences - Graduate	541
Biological Sciences - Undergraduate	140
Board of Visitors of the John Sloan Dickey Center	9
Board of Visitors of the Rockefeller Center	10
CHEM - Chemistry - Graduate Courses	548
CHEM - Chemistry - Undergraduate Courses	158
Chemistry - Graduate	546
Chemistry - Undergraduate	155
CHIN - Chinese Courses	120
Class Dues	70
Classics	514
Clinical Translational Science	532
CLST - Classical Studies Courses	166
COCO - College Courses	176
Cognitive Science	174
COGS - Cognitive Science	175
College Charges	69
College Courses	176
COLT - Comparative Literature - Graduate Courses ..	553
COLT - Comparative Literature - Undergraduate Courses	178
Communicating Science	580
Comparative Literature	514
Comparative Literature - Graduate	552
Comparative Literature - Undergraduate	177
Comparative Politics	310
Computer Science - Graduate	554
Computer Science - Undergraduate	186
Computing Equipment Charges	70
COSC - Computer Science - Graduate Courses	558
COSC - Computer Science - Undergraduate Courses ..	189
Course Election	77
Course Groups	243
Course Listing	370
Course Loads	59
Course Offerings	469
Credit/No Credit Courses	49
Credits and Proficiencies on Entrance	58
CTSC - Courses	532
Culminating Experience in the Major	43
Dartmouth Athletic Advisory Board	10
Dartmouth College Mission Statement	5
Dartmouth Student Information System	39
Degree Audit	39
Departments/Programs and Courses - Graduate	532
Departments/Programs and Courses - Undergraduate ..	79
Divisions of the Faculty	33
Document Fee	70
EARS - Earth Sciences - Graduate Courses	561
EARS - Earth Sciences - Undergraduate Courses	202
Earth Sciences - Graduate	560
Earth Sciences - Undergraduate	199
ECON - Economics Courses	212
Economics	210
ECS - The Dartmouth Institute Courses	611
EDUC - Education Courses	218
Education	218, 514
Election of a Major	62
Election of Courses	59
Elementary Course	449
Emeritus Faculty	11
Emeritus Presidents	14
ENGG - Engineering - Graduate Courses	568

Engineering Sciences - Graduate	565	Honor List	65
Engineering Sciences - Undergraduate	222	Honors	64
ENGL - English Courses	244	Honors in the Major	64
English	241, 514	HUM - Humanities Courses	350
ENGS - Engineering Sciences - Graduate Courses	569	Humanities	350
ENGS - Engineering Sciences - Undergraduate Courses	230	Independent Research Courses	396
Enrollment Patterns (D-Plans)	51	Individual Instruction Program - IIP	394
Environmental Studies Program	263	Institute for Writing and Rhetoric	527
ENVS - Environmental Studies Courses	265	Instruction	77
Ethics Institute	272	Intermediate Courses	453
Ethics Minor	273	Intermediate Creative Writing Courses	261
Ethics Minor Requirements	273	International Relations	314
Examples of Majors	289	International Services Fee	70
Faculty Guidelines for Responding to Violations of the		International Studies Minor	197
Academic Honor Principle	36	Interregional and Comparative	334
Fellowships	75	Intro Creative Writing Courses	260
Fellowships and Scholarships	66	Introductory Courses	306, 388, 449
Film and Media Studies	515	INTS - International Studies Courses	198
Final Grades	62	ITAL - Italian Courses	285
Financial Aid	69	Italian	515
First-Year Core Courses	589	James O. Freedman Presidential Scholars	67
Foreign Study Courses	396	Japanese	515
Four-Course Loads	59	JAPN - Japanese Courses	127
FREN - French Courses	276	Jewish Studies	350, 515
French	515	JWST - Jewish Studies Courses	350
French and Italian Languages and Literatures	273	LACS - Latin American and Caribbean Studies Courses	359
FRIT - French and Italian in Translation Courses	284	Language and Advanced Language Study Abroad Program	356
GENE - Genetics Courses	577	Language Requirement Waiver	40
General (Latin) Honors	64	LAT - Latin Courses	172
General Education Requirements		Classics - Classical Studies; Greek	163
Categories	41	Latin American and Caribbean Studies	515
Procedures	42	Latin American, Latino, and Caribbean Studies	357
General Student Services Fee	70	Latino Studies	516
Genetics - Graduate	577	LATS - Latino Studies Courses	364
GEOG - Geography Courses	291	Lesbian, Gay, Bisexual, and Transgender Studies	366
Geography	289, 515	Liberal Studies	366
GERM - German Studies Courses	300	LING - Linguistics Courses	367
German Studies	298, 515	Linguistics	366
Global Health Initiative	199	Literature in Translation	370
Government	304, 515	Major in Neuroscience	404
GOVT - Government Courses	306	MALS - Master of Arts in Liberal Studies Courses	581
Graduate courses	553	Master of Arts in Liberal Studies	581
Graduate Degrees in Arts and Sciences	74	MATH - Mathematics - Graduate Courses	587
Graduate Ethics	580	MATH - Mathematics - Undergraduate Courses	376
Graduate Studies Office Courses	580	Mathematics - Graduate	586
Graduate Study	73	Mathematics - Undergraduate	370
GRK - Greek Courses	171	Medieval and Renaissance Studies	385
HCDS - Courses	536	MICR - Microbiology and Immunology Courses	589
Health Access Fee	71	Microbiology and Immunology	588
Health Care Delivery Science	535	Minor in Materials Science	370
Health Insurance Charges	71	Minor in Neuroscience	404
HEBR - Hebrew Courses	125	Minor Requirements	397
HIST - History Courses	334	Miscellaneous Charges	71
History	331, 515		

Modified Major.....	44	Psychological and Brain Sciences - Graduate.....	604
Multiple Major.....	63	Psychological and Brain Sciences - Undergraduate.....	427
MUS - Music - Graduate Courses.....	592	Public Policy Minor.....	442
MUS - Music - Undergraduate Courses.....	388	QBS - Quantitative Biomedical Sciences Courses.....	607
Music.....	516	QSS - Quantitative Social Science Courses.....	440
Music - Graduate.....	591	Quantitative Biomedical Sciences.....	606
Music - Undergraduate.....	385	Quantitative Social Science.....	439
NAS - Native American Studies Courses.....	398	Refund Policy.....	73
Native American Studies.....	516	Registration and Course Changes.....	60
Native American Studies Program.....	397	Regulations.....	35
Neuroscience.....	404	Regulations Concerning Enrollment Pattern Changes..	72
Non-Recording Option.....	50	Regulations Covering Payment of Student Account Charges.....	72
Numbering and Level.....	78	REL - Religion Courses.....	448
Off-Campus Activities.....	52	Related Courses.....	304
Organization of Dartmouth College 2015-16.....	6	Religion.....	447, 516
Organization, Regulations, and Courses 2015-16.....	3	Requirements for the Degree of Bachelor of Arts.....	36
Our Core Values.....	5	Room and Board Charges.....	70
Our Legacy.....	5	RUSS - Russian Language and Literature Courses.....	464
Overseers of the Geisel School of Medicine.....	7	Russian Language and Literature.....	463, 516
Overseers of the Hood Museum of Art.....	9	SART - Studio Art Courses.....	495
Overseers of the Hopkins Center.....	9	Scholarship Ratings.....	47
Overseers of the Thayer School.....	8	Science and Technology Studies.....	469
Overseers of the Tuck School.....	8	Section I - Non-Major Courses.....	244
Payment Plans.....	73	Section II - Major Courses.....	244
PBPL - Public Policy.....	443	Section III - Special Topics Courses.....	250
PEMM - Experimental and Molecular Medicine Courses	595	Section IV-Junior Colloquia.....	256
Performance Courses.....	394	Section V - Senior Seminars.....	257
PHAR - Pharmacology and Toxicology Courses.....	593	Section VI - Creative Writing.....	260
Pharmacology and Toxicology.....	593	Section VII - Foreign Study Courses.....	262
Phi Beta Kappa.....	65	Section VII - Independent Study and Honors.....	263
PHIL - Philosophy Courses.....	406	Senior Fellowships.....	66
Philosophy.....	404, 516	Social Science.....	469
PHYS - Physics - Graduate Courses.....	601	Sociology.....	469, 516
PHYS - Physics - Undergraduate Courses.....	423	SOCY - Sociology Courses.....	471
Physical Education.....	417	Some examples of courses that would contribute to various Areas of Concentration.....	142
Physics and Astronomy - Graduate.....	599	SPAN - Spanish Courses.....	485
Physics and Astronomy - Undergraduate.....	417	Spanish.....	516
Physiology and Neurobiology.....	603	Spanish and Portuguese Languages and Literatures ...	480
Physiology and Neurobiology Requirements.....	604	Special Major.....	45
Political Analysis.....	307	Special Students.....	51
Political Theory and Public Law.....	317	SPEE - Speech Courses.....	527
PORT - Portuguese Courses.....	491	SSOC - Social Science Courses.....	469
Administration of Courses; Scheduling of Final Examinations.....	61	Standard Departmental or Program Major.....	44
Preparation for Graduation.....	63	Statement of Credits.....	47
Prerequisite.....	77	Student Activities Fee.....	70
Printable Version.....	621	Student Penalty Fees and Fines Policy.....	71
Professional Development and Leadership.....	580	Student Residence.....	73
Professional Schools.....	73	Student-Initiated Seminars.....	494
Program in Experimental and Molecular Medicine....	595	Students Matriculating after the First Year.....	38
PSYC - Psychological and Brain Sciences - Graduate Courses.....	605	Studio Art.....	494
PSYC - Psychological and Brain Sciences - Undergraduate Courses.....	429	Summary of Anthropology Curriculum.....	91
		Supplemental Course Fees.....	71
		Temporary Transcript Designations.....	48

The Academic Programs.....	34
The Dartmouth Institute.....	611
The Degree of Doctor of Philosophy.....	75
The Degree of Master of Arts in Liberal Studies.....	75
The Degrees of Master of Arts Master of Science.....	74
The Faculty of Arts and Sciences	11
The Honors Program.....	46
The Institute of Arctic Studies	198
The John Sloan Dickey Center For International Understanding.....	197
The Major	43
The Minor	47
The Nelson A Rockefeller Center for Public Policy...	442
The Society of Sigma Xi.....	65
THEA - Theater Courses	505
Theater	500, 516
Theories in the Study of Religion Courses	452
Theory and Composition	391
Time Sequence.....	77

Time, Place, and Culture.....	393
Transfer Credits For Matriculating Transfer Students ..	58
Trustees.....	6
TUCK - Tuck Undergraduate Courses.....	511
Tuck - Undergraduate	511
Tucker Foundation Transitional Board of Visitors 2015- 2016.....	10
Tuition Charges.....	69
Two-Course Loads.....	59
Undergraduate Study	35
University Seminars.....	511
Upper-Level Courses that Cross-Subfields.....	308
War and Peace Studies.....	199
Weekly Schedule Diagram.....	78
WGSS - Women's, Gender, and Sexuality Studies Courses	514
Women's, Gender, and Sexuality Studies Program	511
Working Rules and Regulations	58
WRIT - Writing Courses.....	529

