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Organization, Regulations, and Courses 2013

*Photo by Eli Burakian '00*

**September 2013**



## ABOUT THIS CATALOG

### **Volume LXXIV, Number 9, September 2013.**

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 2013), 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.

Cover photograph by Eli Burak, '00 Dartmouth College photographer.

## 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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 Da'aga Hill Bowman, A.B., J.D., M.E., Arlington, VA  
 Karen McKeel Calby, A.B., Darien, CT  
 Stefanie Cantor, B.A., J.D., W. Newton, MA  
 Leslie A. Davis Dahl, A.B. Greenwich, CT  
 Wayne Davis, A.B., M.B.A., Boston, MA  
 Geoffrey S. Edelson, A.B, M.S., Ph.D, Andover, MA  
 Hosea H. Harvey, A.B, J.D., Ph.D, Philadelphia, PA  
 James V. Kelsey, A.B., M.D., Lyme, NH  
 Mitchell Kurz, A.B., M.B.A., M.E., New York, NY  
 Susan C. S. Luria, A. B., M.B.A., Shaker Heights, OH  
 Ellen Gomprecht Oppenheim, A.B., New Canaan, CT  
 Ellis B. Rowe, A.B., M.B.A., Jacksonville, FL  
 Ricki Stern, A.B., M.B.A., New York, NY  
 Peggy Epstein Tanner, A.B., New York, NY  
 Kadita N. Tshibaka, A.B., M.B.A., Spotsylvania, VA

### Administrative Organization

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 Martin N. Wybourne, B.Sc., Ph.D., and D.Sc., Interim Provost  
 William J. Anderson Jr., Interim Vice President for Campus Planning & Facilities  
 Martha J. Beattie, A.B., Vice President for Alumni Relations  
 Paul Danos, B.S., M.B.A., Ph.D., Dean of the Tuck School of Business

Robert B. Donin, B.A., J.D., General Counsel  
Evelynn M. Ellis, A.A., B.A., M.M., D.Ed., Vice President for Institutional Diversity and Equity  
Joseph J. Helble, B.S., Ph.D., Dean of the Thayer School of Engineering  
Jeffrey L. Horrell, A.M.L.S., A.M., M. Phil., Ph.D., Dean of Libraries and Librarian of the College  
Charlotte H. Johnson, B.A., J.D., Dean of the College  
Robert W. Lasher, A.B., M.A., Senior Vice President for Advancement  
Michael Mastanduno, B.A., M.A., Ph.D., Dean of the Faculty of Arts and Sciences  
Myron S. McCoo, B.A., M.A., J.D., Vice President & Chief Human Resources Officer  
Richard G. Mills, Executive Vice President and Chief Financial Officer  
Wiley Souba, B.S., M.D., Sc.D., M.B.A., Vice President for Health Affairs and Dean of the Geisel School of Medicine at Dartmouth  
Michael F. Wagner, B.S., M.S., Vice President for Finance  
Ellen J. Waite-Franzen, B.A., M.A., Vice President and Chief Information Officer  
*Appointment Pending*, Vice President for Communication  
*Appointment Pending*, Vice President for Development

## The Faculty of Arts and Sciences

### Academic Administrators

Carol L. Folt, B.A., M.A., Ph.D., President, Professor of Biology  
Martin N. Wybourne, B.Sc., Ph.D., and D.Sc., Provost, Professor of Physics and Astronomy  
Michael Mastanduno, B.A., M.S., Ph.D., Dean of the Faculty of Arts and Sciences, Professor of Government  
Lynn A. Higgins, B.A., M.A., Ph.D., Associate Dean of the Faculty for International and Interdisciplinary Studies, Professor of French and Comparative Literature  
David Kotz, B.A., M.S., Ph.D., Associate Dean for the Sciences, Professor of Computer Science  
Nancy Marion, B.A., M.P.A., Ph.D., Associate Dean for the Social Sciences, Professor of Economics  
F. Jon Kull, A.B., Ph.D., Dean of Graduate Studies,

Professor of Chemistry  
Adrian W.B. Randolph, A.B., M.A., Ph.D., Associate Dean for the Arts & Humanities, Professor of Art History  
Meredith H. Braz, M.A.T., Registrar  
Richard R. Crocker, Ph.D., Dean of the Tucker Foundation  
Jeffrey L. Horrell, A.M.L.S., A.M., M. Phil., Ph.D., Dean of Libraries and Librarian of the College  
Jeffrey H. James, B.A., Director of the Hopkins Center  
Charlotte H. Johnson, B.A., J.D., Dean of the College  
Maria Laskaris, A.B., Dean of Admissions and Financial Aid  
Harry Sheehy, B.A., Director of Athletics and Recreation  
Michael Taylor, M.A., M.A., Ph.D., Director of the Hood Museum  
Ellen J. Waite-Franzen, B.A., M.A., Vice President and Chief Information Officer

### 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 and Gender Studies and in Writing and Rhetoric  
Ivan Abrahamian (2008) Ph.D., Assistant Professor of Chemistry  
Maral Abrahamian (2010) Ph.D., Research Instructor of Theater  
Rogaia Mustafa Abusharaf (2014) Ph.D., Visiting Associate Professor of Anthropology  
Margaret E. Ackerman (2010) Ph.D., Assistant Professor of Engineering Sciences  
Susan Ackerman (1990) Ph.D., Preston H. Kelsey Professor of Religion and of Women's and Gender Studies  
Lisa V. Adams (2006) M.D., Adjunct Assistant Professor of Geography  
Reginald B. Adams Jr. (2013) Ph.D., Visiting Associate Professor of Psychological and Brain Sciences

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

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

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

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

Georgi Alexi-Meskhishvili (1996) Visiting Professor of Theater

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 and of Asian and Middle Eastern Studies

Amy Rebekah Allen (1997) Ph.D., Parents Distinguished Research Professor in the Humanities and Professor of Philosophy and of Women's and Gender Studies

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

Shirley Anghel (2013) Administrative Associate in Spanish and Portuguese Languages and Literatures

Claudia A. Anguiano (2011) Ph.D., Lecturer of Writing and Rhetoric

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

Obianuju C. Anya (2013) Ph.D., Visiting Assistant Professor of Spanish and Portuguese Languages and Literatures

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 Women's and Gender Studies

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

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., Associate 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., Mandel Family Professor in the Arts and Sciences and Professor of Religion

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

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

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

Antonia J. Barry (2010) J.D., Lecturer of Government

Kenneth M. Bauer (2011) D.Phil., Lecturer of Anthropology 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

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

Faith Evelyn Beasley (1986) Ph.D., Professor of French and Italian Languages and Literatures and of Women's and Gender Studies

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

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

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 and of Jewish Studies

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

Renee L. Bergland (2009) Ph.D., Visiting Professor of Women's and Gender Studies

- Vincent H. Berk (2002) Ph.D., Lecturer of Engineering Sciences
- Ethan M. Berke (2008) M.D., Adjunct Associate Professor of Geography
- Sharon Elizabeth Bickel (1997) Ph.D., Associate Professor of Biological Sciences
- Jennifer Bilbo (2013) M.F.A., Costume Designer in Theater
- 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 Third Century Professor in the Sciences and Professor of Physics and Astronomy
- Lin Bo (2013) B.A., Instructor of Studio Art
- Colleen Glenney Boggs (2001) Ph.D., Professor of English and of Women's and Gender Studies
- Carol Elizabeth Ruth Bohmer (2002) Ph.D., Visiting Associate Professor of Government and of Sociology
- Douglas Thomas Bolger (1993) Ph.D., Professor of Environmental Studies and of Comparative Literature
- Petra Bonfert-Taylor (2010) Ph.D., Lecturer of Engineering Sciences
- Robert E. Bonner (2005) Ph.D., Professor of History
- Stephanie D. Boone (1990) M.Ed., Administrator in Writing and Rhetoric
- Lynda Elizabeth Boose (1985) Ph.D., Professor of English and of Writing and Rhetoric
- Ilaria Borelli (2013) B.A., Administrative Associate in French and Italian Languages and Literatures
- Andrea Borsic (\_\_\_\_) Ph.D., Lecturer of Engineering Sciences
- Mark E. Borsuk (2006) Ph.D., Associate Professor of Engineering Sciences and Adjunct Associate Professor of Biological Sciences
- Neil Von Boyer (1977) M.M., Senior Lecturer of Music
- William Boyer (2010) Ph.D., Lecturer of Music and of Writing and Rhetoric
- Sergey L. Bratus (2005) Ph.D., Research Assistant Professor of Computer Science
- Susan Joy Brison (1985) Ph.D., Associate Professor of Philosophy and of Women's and Gender Studies
- Alain J. Brizard (2002) Ph.D., Adjunct Associate Professor of Physics and Astronomy
- Sabine Broeck (2009) Ph.D., William P. and Dewilda N. Harris German-Dartmouth Distinguished Visiting Professor of Women's and Gender Studies
- Michael A. Bronski (2000) M.A., Senior Lecturer of Women's and Gender 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
- Nicha Brumlik (2013) William P. and Dewilda N. Harris German-Dartmouth Distinguished Visiting Professor of Jewish Studies
- William C. Bryant (2013) Instructor of Studio Art
- 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-Chavez (1986) Ph.D., Professor of Spanish and Portuguese Languages and Literatures
- Ann Elizabeth Bumpus (2004) Ph.D., Senior Lecturer of Philosophy
- Louis G. Burkot (1981) M.M., Senior Lecturer of Music
- Leslie A. Butler (2003) Ph.D., Associate Professor of History and of Women's and Gender Studies
- John R. Butterly (2003) M.D., Adjunct Professor of Geography
- 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
- Alexandra M. Campbell (2013) Instructor of Studio Art

- 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
- Courtney C. Carignan (2013) Ph.D., Research Associate in Biological Sciences
- Jordan Carpenter (2013) M.A., Research Associate in Film and Media Studies
- 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
- 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
- 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., Associate 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
- Stephen Chang (2013) M.A., Research Associate in Psychological and Brain Sciences
- Andrew H. Chapman (2013) M.A., Research Instructor of Russian
- Simon Chauchard (2011) Ph.D., Assistant Professor of Government
- Pramit Chaudhuri (2008) Ph.D., Assistant Professor of Classics
- Celia Chen (2003) Ph.D., Research Professor of Biological Sciences
- Xiaolei Chen (2012) Ph.D., Research Associate in Chemistry
- Zenghong Chen (2008) M.A., Lecturer of Asian and Middle Eastern Languages and Literatures
- 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
- Min Hyung Cho (2012) Ph.D., Research Instructor of Mathematics
- 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 Cirmigliaro (2009) Ph.D., Assistant Professor of Spanish and Portuguese Languages and Literatures
- Ann Stephanie Clark (1990) Ph.D., Professor of Psychological and Brain Sciences
- Michelle Tolman Clarke (2007) Ph.D., Assistant Professor of Government
- Eric V. Clifton (2014) Ph.D., Lecturer of Economics
- 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
- Soyica Diggs Colbert (2007) Ph.D., Associate Professor of English
- John Pruyon 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
- Joshua A. Compton (2008) Ph.D., Senior Lecturer of Writing and Rhetoric

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

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

Andrew C. Connolly (2012) Ph.D., Research Associate in Psychological and Brain Sciences

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

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

Kathleen Anne Corrigan (1983) Ph.D., Associate Professor of Art History

Kathryn Linn Cottingham (1998) Ph.D., Professor of Biological Sciences

Piper Coutinho-Sledge (2014) M.A., Lecturer of Sociology

R. Alan Covey (2011) Ph.D., Associate Professor of Anthropology

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

Michelle Cox (2012) Ph.D., Administrative Associate and Lecturer of Writing and Rhetoric

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

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

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

Matthew D. Cravens (2012) Ph.D., Visiting Assistant Professor of Public Policy

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

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

Kathleen M. Cunneen (2003) B.F.A., Stage Manager in 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 (2002) Ph.D., Associate Professor of Earth Sciences

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

Zajj B. Daugherty (2011) Ph.D., Research Instructor of Mathematics

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., Professor of Spanish and Portuguese Languages and Literatures

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

Eugene Demidenko (1999) Ph.D., Adjunct Professor of Mathematics

Shusa Deng (2011) Ph.D., Research Associate in Physics and Astronomy

Richard Eugene Denton (1990) Ph.D., Research Professor of Physics and Astronomy

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

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

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

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

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

Susan J. Diesel (2010) Ph.D., Senior Lecturer of Mathematics

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

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

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

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

Jed James Dobson (2012) A.M., Lecturer of Writing and Rhetoric

Seth D. Dobson (2006) Ph.D., Assistant Professor of Anthropology

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

Nathaniel J. Dominy (2010) Ph.D., Associate 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 Instructor of Mathematics

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

Karen G. Dowell (2013) B.S., 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) B.A., Instructor of Government

Robert Lewis Drysdale III (1978) Ph.D., Professor of Computer Science

Bradley C. Duchaine (2010) Ph.D., Associate Professor of Psychological and Brain Sciences

Robert P. Duff (2006) D.M.A., Lecturer of Music

Bruce Duncan (1969) Ph.D., Dartmouth Professor of German Studies

John Dunlop (2002) M.M., Lecturer of Music

Carol Dunne (2005) M.F.A., Senior Lecturer of Theater

Nathan Bruce Duthu (1996) J.D., Samson Occom Professor of Native American Studies

Eric V. Edmonds (1999) Ph.D., Professor of Economics

George Edmondson (2004) Ph.D., Associate Professor of English

Laura Edmondson (2006) Ph.D., Associate Professor of Theater

Ronald William Edsforth (1993) Ph.D., Senior Lecturer of History

David G. Ehrlich (1993) M.F.A., Visiting Professor of Asian and Middle Eastern Studies and of Film and Media Studies

Dale Floyd Eickelman (1989) Ph.D., Ralph and Richard Lazarus Professor of Anthropology and Human Relations

Yasser Elhariry (2012) Ph.D., Assistant Professor of French and Italian Languages and Literatures

William Elison (2011) Ph.D., Senior Lecturer of Anthropology

Sergi Elizalde (2005) Ph.D., Associate Professor of Mathematics

Brig B. Elliott (2013) B.A., Adjunct Professor of Computer Science

Brenden Epps (2012) Ph.D., Assistant Professor of Engineering Sciences

Steven J. Ericson (1989) Ph.D., Associate Professor of History

Thomas Ernst (2005) Ph.D., Visiting Professor of Linguistics and Cognitive Science

Carl Boyden Estabrook (1990) Ph.D., Associate Professor of History

Michael Evans (2013) Ph.D., Research Associate, Neukom Institute

Thomas Ford Evans (2004) M.F.A., Senior Lecturer of Theater

Aden L. Evens (2006) Ph.D., Associate Professor of English

Lawrence Ezrow (2013) Ph.D., Visiting Professor of Government

Hany Farid (1999) Ph.D., Professor of Computer Science

J. Martin Favor (1993) Ph.D., Associate Professor of English

Gregory A. Feiden (2013) B.S., Research Associate in Physics and Astronomy

Xiahong Feng (1994) Ph.D., Frederick Hall Professor of Mineralogy and Geology and Professor of Earth Sciences

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

Thomas Ferrara (2004) Lecturer of Studio Art

Robert Anthony Fesen (1989) Ph.D., Professor of Physics and Astronomy

Samuel B. Fey (2013) B.A., Lecturer of Biological Sciences

James Donald Feyrer (2001) Ph.D., Associate Professor of Economics

David Zachary Finch (2005) M.F.A., Lecturer of English

Susan B. Finer (2012) M.Ed., Visiting Instructor of Education

Stuart D. Finkel (2012) Ph.D., Visiting Associate Professor of History and of Russian Language and Literature

William Alan Fischel (1973) Ph.D., Robert C. 1925 and Hilda Hardy Professor of Legal Studies and Professor of Economics

Mary Flanagan (2008) Ph.D., Sherman Fairchild Distinguished Professor in Digital Humanities and Professor of Film and Media Studies

Lisa Fleischer (2006) Ph.D., Associate Professor of Computer Science

Forrest D. Fleischmann (2012) M.S., Research Associate in Environmental Studies

Ann Barry Flood (2001) Ph.D., Adjunct Professor of Sociology

Winfried Fluck (2011) Ph.D., Visiting Professor of Liberal Studies

Jennifer L. Fluri (2005) Ph.D., Associate Professor of Geography and of Women's and Gender Studies

Carol Lynn Folt (1982) Ph.D., Dartmouth Professor of Biological Sciences

Eric R. Fossum (2010) Ph.D., Lecturer of Engineering Sciences

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

Coleen Ann Fox (2000) Ph.D., Visiting Assistant Professor of Geography and of Environmental Studies

Rodolfo Alberto Franconi (1991) Ph.D., Associate Professor of Spanish and Portuguese Languages and Literatures

Nancy Katherine Frankenberry (1977) Ph.D., John Phillips Professor of Religion

Jonathan B. Freeman (2012) Ph.D., Assistant Professor of Psychological and Brain Sciences

Susanne Elizabeth Freidberg (1998) Ph.D., Professor of Geography

Andrew J. Friedland (1987) Ph.D., Richard and Jane Pearl Professor of Environmental Studies and Adjunct Professor of Earth Sciences

Harvey Frommer (1997) Ph.D., Visiting Professor of Liberal Studies

Myrna K. Frommer (1997) Ph.D., Visiting Professor of Liberal Studies

Harold Jefferson Frost (1981) Ph.D., Associate Professor of Engineering Sciences

Liangfeng Fu (2011) Ph.D., Research Associate in Chemistry

Veronika Fuechtner (2002) Ph.D., Associate Professor of German Studies

Theodore A. Fulton (2012) Ph.D., Adjunct Professor of Physics and Astronomy

Margaret G. Funnell (2006) Ph.D., Adjunct Associate Professor of Psychological and Brain Sciences

Brett Gamboa (2010) Ph.D., Assistant Professor of English

Marianne Cecilia Gaposchkin (2000) Ph.D., Associate Professor of History

Brenda J. Garand (1995) M.F.A., Professor of Studio Art

Elsa Garmire (1995) Ph.D., Sydney E. Junkins 1887 Professor of Engineering Sciences

Deborah Anne Garretson (1976) Ph.D., Associate Professor of Russian Language and Literature

Alysia Garrison (2011) B.A., Instructor of English

Gerd Gemunden (1991) Ph.D., Sherman Fairchild Professor in the Humanities and Professor of German Studies and of Comparative Literature

Tillman U. Gerngross (1999) Ph.D., Professor of Engineering Sciences and Adjunct Professor of Chemistry

Gretchen Holbrook Gerzina (2005) Ph.D., Kathe Tappe Vernon Professor in Biography and Professor of English

Levi S. Gibbs (2013) M.A., Instructor of Asian and Middle Eastern Languages and Literatures

Evelyn L. Gick (2003) Ph.D., Visiting Assistant Professor of Liberal Studies

Adrianna Gillman (2011) Ph.D., Research Instructor of Mathematics

Bed P. Giri (2004) Ph.D., Assistant Professor of English

Amy S. Gladfelter (2005) Ph.D., Associate Professor of Biological Sciences

Marcelo Gleiser (1991) Ph.D., Appleton Professor in Natural Philosophy and Professor of Physics and Astronomy

Lewis Herzl Glinert (1997) Ph.D., Professor of Asian and Middle Eastern Languages and Literatures

David Samuel Glueck (1992) Ph.D., Professor of Chemistry

Maria Ida Gobbini (2007) Ph.D., Associate Professor of Psychological and Brain Sciences

Karen Gocsik (1988) Ph.D., Administrator in Writing and Rhetoric

Reena N. Goldthree (2010) Ph.D., Assistant Professor of African and African-American Studies

Antonio Gomez (2005) Ph.D., Associate Professor of Spanish and Portuguese Languages and Literatures

Christina Gomez (1997) Ph.D., Visiting Associate Professor of Latin American, Latino and Caribbean Studies and of Sociology

- Douglas J. Goodman (2009) Ph.D., Lecturer of Sociology
- Carolyn Sue Gordon (1990) Ph.D., Benjamin P. Cheney Professor of Mathematics
- Richard H. Granger Jr. (2006) Ph.D., Professor of Psychological and Brain Sciences and Adjunct Professor of Engineering Sciences
- Margaret Robson Graver (1996) Ph.D., Aaron Lawrence Professor of Classics
- Robert J. Graves (2003) Ph.D., John H. Krehbiel Sr. Professor for Emerging Technologies and Professor of Engineering Sciences
- Ronald Michael Green (1969) Ph.D., Eunice and Julian Cohen Professor for the Study of Ethics and Human Values and Professor of Religion
- William Green (2002) Ph.D., Adjunct Professor of Biological Sciences
- Udi Ehud Greenberg (2010) Ph.D., Assistant Professor of History
- Brian D. Greenhill (2010) Ph.D., Assistant Professor of Government
- Gordon Wayne Gribble (1968) Ph.D., Dartmouth Professor of Chemistry
- Erik E. Griffin (2012) Ph.D., Assistant Professor of Biological Sciences
- Gevorg Grigoryan (2011) Ph.D., Assistant Professor of Computer Science
- Lev Grinberg (2013) Ph.D., Brownstone Family Visiting Professor in Judaic Culture
- Karl E. Griswold (2007) Ph.D., Associate Professor of Engineering Sciences
- Mikhail Gronas (2002) Ph.D., Associate Professor of Russian Language and Literature
- Robert Henry Gross (1977) Ph.D., Associate Professor of Biological Sciences
- Marcia Jean Groszek (1984) Ph.D., Professor of Mathematics
- Natasha M. Grotz (2004) Ph.D., Senior Lecturer of Biological Sciences
- Mary Lou Guerinot (1985) Ph.D., Ronald and Deborah Harris Professor in the Sciences and Professor of Biological Sciences
- Lauren E. Gulbas (2011) Ph.D., Assistant Professor of Anthropology
- Alan Leslie Gustman (1969) Ph.D., Loren M. Berry Professor of Economics
- Lourdes Gutierrez Najera (2004) Ph.D., Assistant Professor of Anthropology and of Latin American, Latino and Caribbean Studies
- Gladys S. Guzman-Bueno (1986) M.A., Senior Lecturer of Spanish and Portuguese Languages and Literatures
- Frederick Lowell Haas Jr. (1979) A.B., Adjunct Assistant Professor of Music
- Lee Hachadoorian (2012) Ph.D., Visiting Assistant Professor of Geography
- Timothy Peter Hackett (2004) M.F.A., Avalon Professor in the Humanities and Professor of Theater
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Mara Beth Sabinson (1985) B.A., Associate Professor of Theater

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

Naaboroko Sackeyfio (2008) Ph.D., Assistant Professor of History and of African and African-American Studies

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

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

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

Michael J. Sateia (1999) M.D., Adjunct Professor of Psychological and Brain Sciences

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

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

Ariane S. Schwartz (2011) M.A., Lecturer of Classics

Joshua R. Schwartzstein (2010) Ph.D., Assistant Professor of Economics

Ivy Terry Schweitzer (1983) Ph.D., Professor of English and of Women's and Gender Studies

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

Edwin Seroussi (2008) Ph.D., Brownstone Family Visiting Professor in Judaic Culture

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

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

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

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

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

Jack E. Shepherd Jr. (1998) Ph.D., Adjunct Professor of Biological Sciences and of Environmental Studies

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

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

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

Michael E. Shinder (2012) Ph.D., Senior Research Associate and Lecturer of Psychological and Brain Sciences

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

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

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

Alicia Sivitz (2011) Ph.D., Research Associate in Biological Sciences

Jonathan Snowden Skinner (1995) 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., Professor of Biological Sciences

Kristin E. Smith (2008) Ph.D., Visiting Assistant Professor of Sociology

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

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

Timothy Paul Smith (2004) Ph.D., Research Assistant Professor of Physics and Astronomy

Jessica G. Smolin (2006) Ph.D., Lecturer of Comparative Literature and of Latin American, Latino and Caribbean Studies

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

Christopher Shaun Sneddon (2000) Ph.D., Associate 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

Stephanie J. Somersille (2013) Ph.D., Lecturer of Mathematics

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

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

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

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

Gwen M. Spencer (2012) Ph.D., Research Associate in Computer Science

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

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

James N. Stanford (2008) Ph.D., Assistant Professor of Linguistics and Cognitive Science

Elena Starostina (2012) Ph.D., Research Associate in Biological Sciences

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

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

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

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

Scott P. Stokoe (1998) B.A., Adjunct Instructor of Environmental Studies

Thomas M. Stoll (2012) Ph.D., Lecturer of Music

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

Madeline Sturm (2013), Instructor of Studio Art

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

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

Bagus Tirta Susilo (2010) Ph.D., Research Associate in Psychological and Brain 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., Professor of Music
- Joyce M. Szabo (2013) Ph.D., Visiting Professor of Native American Studies
- Andrea W. Tarnowski (1993) Ph.D., Associate Professor of French and Italian Languages and Literatures and of Comparative Literature
- Jeffrey Steven Taube (1990) Ph.D., Professor of Psychological and Brain Sciences
- Bradley W. Taylor (2005) Ph.D., Assistant Professor of Biological Sciences
- 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
- 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 Sciences
- Christine Jean Thomas (1997) Ph.D., Associate Professor of Philosophy
- Jessica Thompson (2013) M.A., Research Associate in Music
- Pamela Esme Thompson (1979) M.F.A., Professor of Studio Art
- Tazewell Thompson (2013) Guest Design/Lighting/Director of Theater
- John Robert Thorstensen (1980) Ph.D., Professor of Physics and Astronomy
- Carl Philip Thum (1996) Ph.D., Administrator in Writing and Rhetoric
- Francesco Ticozzi (2011) Ph.D., Adjunct Assistant Professor of Physics and Astronomy
- Antonio Dwayne Tillis (2009) Ph.D., Associate Professor of African and African-American Studies
- Michele Tully Tine (2009) Ph.D., Assistant Professor of Education
- Travis P. Todd (2013) Ph.D., Research Associate in Psychological and Brain Sciences
- Spencer Topel (2009) Ph.D., Assistant Professor of Music
- Lorenzo Torresani (2009) Ph.D., Assistant Professor of Computer Science
- Peter Warren Travis (1970) Ph.D., Henry Winkley Professor of Anglo-Saxon and English Language and Literature
- 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
- Benjamin A. Valentino (2003) Ph.D., Associate Professor of Government
- Douglas W. Van Citters (2008) Ph.D., Assistant Professor of Engineering Sciences
- Johannes H. van Erp (2009) Ph.D., Assistant Professor of Mathematics
- Diederik J. Vandewalle (1988) Ph.D., Associate Professor of Government
- Shalene A. M. Vasquez (2006) Ph.D., Associate Professor of English
- Vikrant Vaze (2013) Ph.D., Assistant Professor of Engineering Sciences
- Myrna E. Agostini Velez (1982) B.A., Senior Lecturer of Spanish and Portuguese Languages and Literatures
- Samuel Jose Velez (1976) Ph.D., Associate Professor of Biological Sciences
- 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 and of Comparative Literature

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

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

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

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

Dylan D. Wagner (2012) Ph.D., Research Associate in Psychological and Brain Sciences

Alice S. Walden (2012) B.A., Lecturer of Philosophy

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) M.S., 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. 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., Assistant Professor of Environmental Studies

Aaron S. Weed (2011) Ph.D., Research Associate in Biological Sciences

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

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

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

Frank H. Welder Jr. (2012) Ph.D., Senior Lecturer of Chemistry

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

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

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

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

Barbara Elizabeth Will (1994) Ph.D., 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

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

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

Christianne Hardy Wohlforth (2001) Ph.D., Adjunct Assistant Professor of Government

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

Fang Min Wu (2012) Ph.D., Visiting Professor of Asian and Middle Eastern Languages and Literatures

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

Yu-Chien Wu (2009) Ph.D., Research Assistant Professor of Psychological and Brain Sciences

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

Haoran Xue (2013) M.S., Research Associate in Chemistry

Kenneth S. Yalowitz (2003) M.A., Adjunct Professor of Government

Dexi Yang (2013) Ph.D., Research Associate in Chemistry

Dmitri Yanov-Yanovsky (2009) B.A., Visiting Professor of Music

Albert S. Yee (2009) Ph.D., Visiting Professor of Government

Sabrina P. Yegela (2013) Instructor of Studio Art

C. Frank Zarnowski (2008) D.A., Visiting Professor of Economics

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

Huaiying Zhang (2011) Ph.D., Research Associate in Biological Sciences

Jian Zhang (2011) Ph.D., Research Associate in Computer Science

Juwen Zhang (2012) Ph.D., Visiting Associate 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:

<b>Arts and Humanities</b>	<b>Sciences</b>	<b>Social Sciences</b>
Art History [ARTH]	Biological Sciences [BIOL]	Anthropology [ANTH]
Asian and Middle Eastern Languages and Literatures [AMEL]	Chemistry [CHEM]	Economics [ECON]
Classics [CLAS]	Computer Science [COSC]	Education [EDUC]
English [ENGL]	Earth Sciences [EARS]	Geography [GEOG]
Film and Media Studies [FILM]	Engineering Sciences [ENGS]	Government [GOVT]
French [FREN] and Italian [ITAL]	Mathematics [MATH]	History [HIST]
German [GERM]	Physics [PHYS] and Astronomy [ASTR]	Psychological and Brain Sciences [PSYC]
Music [MUS]		Sociology [SOCY]
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]

Comparative Literature [COLT]

Environmental Studies [ENVS]

Jewish Studies [JWST]

Latin American, Latino and Caribbean Studies [LACS]  
and [LATS]

Linguistics [LING] and Cognitive Science [COGS]

Mathematics and Social Sciences [M&SS]

Native American Studies [NAS]

Women's and Gender Studies [WGST]

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.

## 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://www.dartmouth.edu/admissions/apply/>. In addition, prospective first-year students may request a printed General Information Bulletin through the online request form at <http://www.dartmouth.edu/admissions/actions/signup.html>.

#### 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 specified credit on entrance or awarded by transfer 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.<sup>2</sup> 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.<sup>3</sup>

<sup>2</sup> *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.*

<sup>3</sup> *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 two terms. Students entering after their second year will be allowed a maximum of one two-course load and one four-course load. Within those limits no permissions are required nor are there changes in tuition.
7. Students admitted after their first year must file a major card and an enrollment pattern according to the deadline for second-year students. Students admitted after their second year must file a major card and an enrollment pattern during the 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 Degree Audit System, giving each student a report of progress toward the degree, is available on Bannerstudent: <http://www.dartmouth.edu/bannerstudent>. It shows progress toward meeting all general education and distribution requirements; it does not include major or minor requirement progress. Students should check this regularly and should check with their major and minor department/program as well. Each student is responsible for tracking degree progress and ensuring that s/he has met all degree requirements. The Offices of the Registrar, Pre-Major Advising, and the Dean of the Undergraduate Students are available to aid in interpretation of the audit and to clarify progress toward graduation.

### *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 and to apply for the degree. Personal academic information such as class schedules, grades, and the DegreeWorks degree audit report 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*

The Student Accessibility Services (SAS) office 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 provides, arranges, or facilitates appropriate academic adjustments, program modifications, and services to accommodate students' curricular and co-curricular pursuits. 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.

Services are determined on an individual basis. They may include American Sign Language interpretation, speech-to-text captioning, note taking, document conversion, adjustments to test-taking arrangements (such as extended time for timed, in-class tests), advocacy training, and housing modifications. Service eligibility is based, at least in part, on the quality and comprehensiveness of a student's disability documentation and degree of current functional need experienced by the student. 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. Arrange for SAS to receive substantiating documentation about the student's disability. Information about this documentation may be found at the SAS web site. Information provided to the Student Accessibility Services office is protected by campus and SAS confidentiality policy and related federal law.
3. Make an intake appointment by sending an electronic mail message to [Student.Accessibility.Services@Dartmouth.edu](mailto:Student.Accessibility.Services@Dartmouth.edu) or calling (603) 646-9900.

Dartmouth College is committed to ensuring that the programs and activities of the institution are accessible, and it is the responsibility of students to disclose disability, provide appropriate documentation and request academic adjustments and services in a timely manner. Late or retroactive requests may not be honored. Students who believe they may need academic adjustments and services are strongly encouraged to contact the Student Accessibility Services 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 policy/procedure violation may have occurred. See:

[http://www.dartmouth.edu/~accessibility/currentundergraduate\\_student\\_questions\\_concerns\\_and\\_complaint\\_grievance\\_resolution.html](http://www.dartmouth.edu/~accessibility/currentundergraduate_student_questions_concerns_and_complaint_grievance_resolution.html) for information about the processes.

#### *Language Requirement Waiver*

The foreign language requirement may be waived in certain cases upon petition to the Foreign Language

Waiver Committee. The Dartmouth College foreign language requirement may be waived if a student has a demonstrated disability-related need for a waiver. Normally, such a waiver will not be granted in the absence of a verified diagnosis of a related disability by a specialist in the field. Students who think they may warrant a waiver of the language requirement because of a disability should contact the Student Accessibility Services office. Petitions will be considered only from students with documented disabilities who have not yet completed the language requirement. No requests for 'grade waivers' will be considered apart from petitions to waive the requirement. That is, even students with documented disabilities cannot petition for their language grades to be discounted in their grade-point averages once they have completed the language requirement. Petitions will be considered by the Foreign Language Waiver Committee. Contact Student Accessibility Services for more information.

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.

#### *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 below. 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 later.

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 Departmental 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 the filing of 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 on file, 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 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 the filing of a major are outlined later in the Catalog. After a student files a major, changes may be made by consulting the authorized major adviser, completing three new cards, having them signed, and filing one of them with the Registrar. NOTE: On-line major card implementation is planned for '13-'14 whereupon some of these procedures will be updated.

#### *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 file a written statement with the primary department or program and with 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 prerequisite 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.

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 card 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 as such. The primary field, as noted, must be a department or program authorized to offer a major; the card will bear the signature of the chair (or faculty delegate) of this department or program indicating specific and overall approval. The card will also be signed below the first signature by the chair (or faculty delegate) for the secondary department or program, again indicating specific and overall approval. Both faculty members, in signing the major card, 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.' Please note that a student might take exactly the same courses, but not have the signature of 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 for directions on the filling out and filing of the major cards.

#### *Special Major*

A student may pursue a special major program of study provided that it possesses intellectual coherence and educational merit and has the approval of two faculty advisers and of the Divisional Council of the primary adviser.

After consultation with an appropriate faculty member or members the student wishing to pursue a special major should submit in writing the proposed individualized program of study to the Chair of the appropriate Council. The proposal should state the purpose and objective of the program of study and list ten interrelated courses, no more than three of which may consist primarily of independent reading, study, or research. 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. Finally, at least one course must be listed consisting of independent study or research in association with the primary adviser. It may be the case that an independent research course in a special major has a minimum GPA requirement. In those cases, the minimum GPA for the research course becomes a requirement for the special major.

A proposed special major program will be reviewed by the Council, which will consider in its evaluation the intellectual coherence of the program, the program’s relevance to career objectives, 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, to date, some of the four councils have not met in the summer, students who will be 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. Again, the approval of a special major is a quite demanding process involving many steps. Necessarily, securing it requires considerable elapsed time. The applicant should not apply for such a major unless he or she 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 not interested in pursuing a Standard or Modified Major; the appropriate Council requires evidence that one of these usual majors will not suffice. Students who graduate with a Special Major often start with a standard or modified major and later develop the plan for an individualized program.

*Important note: Petitions for a special major will not normally be accepted by any of the divisional councils, or by the council for special programs, unless the petition is presented early enough to allow the student three full terms of regularly enrolled course work at Dartmouth before graduation.*

Upon approval of a Special Major, the council will notify by letter the student, the advisers, and the Office of the Registrar; the letter will give 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 adviser and the Associate Dean of the appropriate division, and confirmation by the Dean to the Office of the Registrar.

Upon 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 appropriate Council; 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 filling out a card similar to a major card, indicating the courses constituting the minor program, along with the terms in which the courses will be taken. The filing of a copy of this card, signed by the adviser, in the Office of the Registrar and with the department or program, constitutes the actual act of enrolling for the 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; this is presently the case in the Engineering and Chemistry 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 appropriate Divisional Councils. A special minor normally shall include no more than one course taken prior to petition and approval.

Note: Online minor declaration is scheduled for 2013-2014.

#### *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 College<sup>4</sup> 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.

<sup>4</sup> *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 individual lessons in Music, which typically extend over three terms, or certain senior honors courses where the work in a preliminary course cannot be evaluated until a second course and/or a thesis or other project is completed. The designation of ON must be approved by the Department or Program Chair and designated as such prior to the first day of class. Students must be notified in writing at the beginning of the course by the professor that the final grade in the course will be delayed. For each course, the date when the final grades will be given, normally no later than the end of the following term, must be included in the request for use of the ON designation, and this date must be filed in the

Registrar's Office. Grades for any course not having such permission must be assigned at the end of the term in which the course is offered.

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.<sup>5</sup> As in regularly graded courses, there can be a temporary standing of Incomplete.

<sup>5</sup> *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.<sup>6</sup> 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:

<sup>6</sup> *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 students who participate in one of Dartmouth's formal exchange programs and qualified students admitted through the Admissions Office for the summer term only who may elect one, two or three courses on a partially prorated tuition basis. Lists of summer courses, along with information regarding tuition, room and board are available from the director of Admissions, Admissions Office, Dartmouth College, Hanover, NH 03755. 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 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 revised major cards. 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 Office of Off-Campus Programs administers Dartmouth-sponsored 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. and Dartmouth F.S.P., carry Dartmouth course credit. Other off-campus coursework activity, exchange programs or non-Dartmouth programs, may be eligible for transfer credit.

The Committee on Off-Campus Activities (COCA) is charged to review and supervise all Dartmouth-sponsored off-campus academic programs and activities. A student enrolled in a Dartmouth off-campus program pays full tuition and is eligible for normal scholarship aid.

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. Dartmouth Off-Campus Academic Programs: Officially recognized programs that are administered and taught by Dartmouth Faculty. Students receive specific course credits and grades. A list of programs for 2013-2014 follows this section.

The Off-Campus Programs website describes all programs in detail. Note: The Chinese, Japanese, German, 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 Off-Campus Programs website by the appropriate deadlines; selection is made by the sponsoring department or program. It is the student’s responsibility to contact Off-Campus Programs 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 Foreign Study programs 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 foreign study 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.) 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 Off-Campus Programs 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 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.

## Off-Campus Academic Programs in 2013-14

### Foreign Study (D.F.S.P.)

Program	Department	Term
Argentina — Buenos Aires.	Spanish and Portuguese (Spanish).	S

Brazil — Salvador.	Spanish and Portuguese (Portuguese).	X
China — Beijing.	Asian and Middle Eastern Languages and Literatures (Chinese).	X
Costa Rica and Cayman Islands.	Biological Sciences.	W
Czech Republic — Prague.	Geography.	S
France — Paris (three offerings).	French and Italian (French).	F,W,S
Germany — Berlin.	German Studies.	F
India - Hyderabad	AMES/WGST	W
Ireland - Dublin	English	F
Italy — Rome.	Art History.	S
Morocco — Fez.	Asian and Middle Eastern Studies.	S
Morocco — Tangier.	Asian and Middle Eastern Languages and Literatures (Arabic).	F
New Zealand — Auckland.	Anthropology and Linguistics and Cognitive Science.	W
Spain — Madrid.	Spanish and Portuguese (Spanish).	F
Southern Africa.	Environmental Studies.	F
United Kingdom — Edinburgh.	Philosophy.	F
United Kingdom — Edinburgh.	Religion.	F
United Kingdom — Glasgow.	English.	F
United Kingdom — London.	Government.	F
United Kingdom — London.	History.	F
United Kingdom — London	Music.	F
Western U.S. and Canada.	Earth Sciences.	F

### Language Study Abroad (D.L.S.A.)

<b>Program</b>	<b>Department</b>	<b>Term</b>		
			Bocconi University, Milan.	F
Argentina — Buenos Aires (two offerings).	Spanish and Portuguese (Spanish).	W,S	Chinese University of Hong Kong (CUHK), Hong Kong.	F,S
Brazil – Salvador.	Spanish and Portuguese (Portuguese).	X	Choulalongkorn University (Engineering), Bangkok, Thailand.	W
China — Beijing (LSA+).	Asian and Middle Eastern Languages and Literatures (Chinese).	F	Keble College, Oxford, United Kingdom.	F,W,S
France — Lyon (two offerings).	French and Italian (French).	W,S	McGill University, Montreal, Canada.	F
France — Toulouse (two offerings)(LSA+).	French and Italian (French — Advanced).	W,S	Morehouse College, Atlanta, Georgia.	F
Germany — Berlin (two offerings).	German Studies.	X,S	Spelman College, Atlanta, Georgia.	F
Japan — Tokyo (LSA+).	Asian and Middle Eastern Languages and Literatures — Advanced.	X	Twelve-College Exchange: Amherst, Bowdoin, Connecticut	F,W,S
Italy— Rome (two offerings) (LSA+).	French and Italian (Italian — Advanced).	W,S	(& National Theater Institute), Mount Holyoke, Smith, Trinity, Vassar, Wellesley, Wesleyan, Wheaton, Williams Mystic Seaport Program.	
Italy — Rome.	French and Italian (Italian).	F	University of California, San Diego (Muir College), California.	F,W,S
Russia — St. Petersburg (LSA+).	Russian — Advanced.	X	University of Copenhagen, Copenhagen, Denmark.	F
Spain — Barcelona (three offerings).	Spanish and Portuguese (Spanish).	F,W,S	Federation of German Universities, Germany.	F,W,S
			Keio University, Tokyo, Japan.	F,W,S
			Kanda University (KUIS)Chiba, Japan.	F
			Yonsei University Seoul, South Korea.	F

### **Anticipated Off-Campus Academic Programs for 2014-15**

#### **Foreign Study (D.F.S.P.)**

#### **Domestic Off-Campus Program<sup>7</sup>**

<b>Program</b>	<b>Department</b>	<b>Term</b>	<b>Program</b>	<b>Department</b>	<b>Term</b>
Los Angeles, CA (FSP)	Film & Media Studies	W	Argentina — Buenos Aires.	Spanish and Portuguese (Spanish).	S
Washington, DC (FSP)	Government	S	Costa Rica and Cayman Islands.	Biological Sciences.	W
			Czech Republic — Prague.	Geography.	S
			France — Paris (three offerings).	French and Italian (French).	F,W,S
			Germany — Berlin.	German Studies.	F

<sup>7</sup> For convenience in operation, these programs are entered elsewhere under D.F.S.P.

#### **Exchange Programs**

Greece	Classics	S	(LSA+).	Languages and Literatures (Chinese).	
India – Hyderabad.	AMES/WGST.	W	France — Lyon (two offerings).	French and Italian (French).	W,S
Italy — Rome.	Art History.	S	France — Toulouse (two offerings) (LSA+).	French and Italian (French — Advanced).	W,S
Morocco — Fez.	Asian and Middle Eastern Studies.	S	Germany — Berlin (two offerings).	German Studies.	X,S
Morocco – Tangier.	Asian and Middle Eastern Languages and Literatures (Arabic).	F	Japan — Tokyo (LSA+).	Asian and Middle Eastern Languages and Literatures — Advanced.	X
New Zealand — Auckland.	Anthropology and Linguistics and Cognitive Science.	W	Italy— Rome (two offerings) (LSA+).	French and Italian (Italian — Advanced).	W,S
Spain — Madrid.	Spanish and Portuguese (Spanish).	F	Italy — Rome.	French and Italian (Italian).	F
Southern Africa.	Environmental Studies.	F	Russia — St. Petersburg (LSA+).	Russian — Advanced.	X
United Kingdom — Edinburgh.	Film Studies	X	Spain — Barcelona (three offerings).	Spanish and Portuguese (Spanish).	F,W,S
United Kingdom — Edinburgh.	Philosophy.	F	Spain - Santander (LSA+)	Spanish and Portuguese (Spanish).	X
United Kingdom — Edinburgh.	Religion.	F	<b>Domestic Off-Campus Program<sup>8</sup></b>		
United Kingdom — Glasgow.	English.	F	<b>Program</b>	<b>Department</b>	<b>Term</b>
United Kingdom — London.	Government.	F	Los Angeles (DSP)	Film & Media Studies	W
United Kingdom — London.	History.	F	Washington, D.C. (FSP).	Government.	S
United Kingdom — London.	Music.	S	<sup>8</sup> For convenience in operation, these programs are entered elsewhere under D.F.S.P.		
United Kingdom – London.	Theater.	X	<b>Exchange Programs</b>		
Western U.S. and Canada.	Earth Sciences.	F	Bocconi University, Milan, Italy.		F

**Language Study Abroad (D.L.S.A.)**

Program	Department	Term		
Argentina-Buenos Aires.	Spanish and Portuguese (Portuguese).	W,S	Chinese University of Hong Kong (CUHK), Hong Kong.	F,S
Brazil — Salvador.	Spanish and Portuguese (Portuguese).	X	Choulalongkorn University (Engineering), Bangkok, Thailand.	W
China — Beijing	Asian and Middle Eastern	F		

Keble College, Oxford, United Kingdom.	F,W,S
McGill University, Montreal, Canada.	F
Morehouse College, Atlanta, Georgia.	F
Spelman College, Atlanta, Georgia.	F
Twelve-College Exchange: Amherst, Bowdoin, Connecticut (& National Theater Institute), Mount Holyoke, Smith, Trinity, Vassar, Wellesley, Wesleyan, Wheaton, Williams Mystic Seaport Program.	F,W,S
University of California - (Muir College). San Diego, CA.	F,W,S
University of Copenhagen, Copenhagen, Denmark.	F
Federation of German Universities, Germany.	F,W,S
Keio University, Chiba, Japan.	F,W,S
Kanda University (KUIS) Chiba, Japan.	F
Yonsei University, Seoul, South Korea.	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. An application fee of \$1100 is assessed for each fall transfer term and a fee of \$2200 for each winter, spring and summer transfer 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 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. However, students should be aware that some academic departments and programs may have earlier deadlines to approve individual courses.
- 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.
4. Withdrawal in good standing. Students withdrawn in good standing are eligible to transfer credits from another institution; resulting credits are included in the maximum of four allowed toward the degree. A completed application of this kind must be filed with the Office of the Registrar no later than the end of the first term of reenrollment at the College. As retroactive approval is never guaranteed, such students are strongly urged to obtain approval for each course before enrolling in it even though prior approval is not required.

#### *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 (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.

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 2017*, 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 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, from such courses if approved by Dartmouth departments or programs. The maximum number of pre-matriculation credits that students may apply toward their degree 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. 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.

\*Note: Dartmouth College's policy on pre-matriculation credit is changing effective with students entering fall 2014. See the Admissions website for further information.

## **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 three times. Each qualifying student has until the end of the tenth day of classes of any term within the maximum of three to add a fourth course or to drop a fourth course elected after the start of the term. Note: It is not possible to elect four courses until the term in question

has begun. If a fourth course is dropped later than the deadline specified, one of the three uses of this provision is thereby lost. A fourth course may be dropped until the end of the sixth week of classes. After that, the rules for withdrawal from courses apply. A student who has already exhausted the quota of three 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.

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.

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". The Committee on Instruction will deny an undergraduate student petition to take a course at the Tuck School of Business unless the course has been cross-listed or is one of the special TUCK courses offered to undergraduates.

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.

### *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 Registrar's 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; however, any student remaining enrolled in a fourth course after the end of the second week has used up one of his or her three allowed four-course terms without extra tuition, even if the fourth course is later dropped.

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 Withdraw. 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 (every student is entitled to file a choice of major after the beginning of the fourth term in residence and must do so by the end of his or her fifth term or, in some cases, immediately thereafter.)

Students in residence (R) during the winter term of their second year must file their major 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 file the major before leaving at the end of the winter. Students not in residence in their second winter will be required to file their major by the last day of class in their next term of residence. Since no student is required to file 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 filing is delayed from that indicated above until the end of the fifth term of enrollment is reached. Any student who does not meet the deadline for filing the major will be ineligible to register for any subsequent residence term until a valid major is filed with the Office of the Registrar.

Early in the appropriate term, every student required to file a major completes three identical major cards, providing his or her name, the type and field of major, the specific courses chosen, and the approval (by signature) of the chair of the department or program (or other authorized faculty member designated by the chair). In filling out the card the student and faculty member must be careful to also list the courses that are prerequisite to the major. In the main section for the actual major courses, list exactly eight for a standard major (or nine or ten for one of the standard majors so requiring), or exactly ten for a modified major. One card is to be turned in at the Office of the Registrar; the others are for the student and the department/program. Note: Online major declaration planned for 2013; new information forthcoming.

*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 the pattern, be sure to alter your official enrollment pattern (D-plan) 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 on a major card 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 obtain agreement of the two departments or programs and file both majors with the Registrar, approved by both Chairs. The culminating experience must be satisfied for both majors. In designing the dual 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 filing, 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. 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 a transcript 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).

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 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 2010-2011 through 2012-2013 were, in descending order 3.91, 3.80, 3.63. Accordingly, these values govern the awarding of the corresponding honors in 2013-2014.

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 two students who attain the first and second highest standings for the college course 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.

Note: The policy described in the aforementioned paragraph is under review.

#### *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 2013-2014. Preliminary examination suggests that the required averages will closely approximate, in descending order 3.96, 3.85, 3.70.

#### *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 two members from each of three Divisions of the Faculty: Humanities, Social Sciences, and Sciences. 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. This must be completed a minimum of one term prior to the term in which the student will graduate. 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 would have placed them in the top 40% of the previous year's sophomore 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. McCorrian 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 McCorrian: 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, up to a maximum of twelve terms, 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 Stafford 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](http://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 [www.dartmouth.edu/~finaid](http://www.dartmouth.edu/~finaid).

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 fifteen thousand one-hundred forty eight dollars (\$15,148) 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 three terms during their college career. After use of the three allowed four-course terms a supplementary charge of five thousand and fifty dollars (\$5,050) 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 2013-2014. Charges for the summer term of 2014-2015 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 \$2,684 per term and apartment rent will be \$2,884 per term for the 2013-2014 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.

On-campus students for the 2013 summer term will choose from one of following dining plans:

- 1) SmartChoice20 \$1,733.00, flex dollar allotment of \$75.00
- 2) SmartChoice14 \$1,645.00, flex dollar allotment of \$125.00
- 3) SmartChoice10 \$1,545.00, flex dollar allotment of \$400.00
- 4) SmartChoice5 \$1,440.00, flex dollar allotment of \$875.00

Additionally, Dining Services will offer to off campus students a fourth option:

- (5) SmartChoiceOC — An \$875.00 per term all flex dollar plan (declining balance account or DBA).

On-campus students for the 2013 fall term through 2014 spring term, excepting fall term first-year students, will choose from one of following dining plans:

- 1) SmartChoice20 or BlockChoice180 for \$1,798.00, flex dollar allotment of \$100.00
- 2) SmartChoice14 or BlockChoice125 for \$1,710.00, flex dollar allotment of \$150.00
- 3) SmartChoice10 or BlockChoice90 for \$1,610.00, flex dollar allotment of \$415.00
- 4) SmartChoice5 or BlockChoice45 for \$1,570.00, flex dollar allotment of \$920.00

Additionally, Dining Services will offer to off campus students a fourth option:

- (5) SmartChoiceOC — An \$910.00 per term all flex dollar plan (declining balance account or DBA).

More information about dining at Dartmouth can be found at the Dining Services (DDS) website (<http://www.dartmouth.edu/dining/>). 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 2013-2014 academic year which includes Summer term 2013 through Spring term 2014.

#### *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 dollars (\$20). 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 dollars (\$150). The fee covers a number of services offered by the undergraduate Career Services Office, including recruiting services and career inventories such as the Myers Briggs Type Indicator and the Strong. This fee covers these services while the student is in attendance at the college. This fee also entitles the student to an unlimited number of official academic transcripts.

#### *General Student Services Fee*

All undergraduate students are assessed a \$277 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 \$78.00 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 \$81 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 78.00 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 \$2187.00 will be billed to the student account, except those having an approved waiver, in early July for the 2013-2014

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, 2013 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.

An application processing fee of \$1100 is assessed for each fall transfer term and a fee of \$2200 for each winter, spring and summer transfer 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*

The Dartmouth Monthly Payment Plan, administered by Sallie Mae, provides students and their families the means to pay all or part of their expenses in ten interest-free installments. There is a \$50 annual enrollment fee. The plan begins with the June 1 payment, and families should enroll prior to June 1 in order to meet the College's payment schedule. The enrollment deadline is August 31, 2013.

#### *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](mailto:MALS.Program@Dartmouth.EDU).

## INSTRUCTION

### 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.

### 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.

### 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.

### 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.

#### 65-Minute periods three times weekly:

9	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-	x-period:	Tu 12:00-

		12:20		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 W	3:00-4:05		
2A	TuTh	2:00-3:05	No x-period	
	and W	4:15-5:20		

#### 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	
	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	
	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
11+†	MF	11:15-12:05	x-period:	W 11:15-12:05
	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
3A	M	3:00-4:50	x-period:	M 5:00-5:50
	and Th	4:00-5:50		
3B	TuTh	4:00-5:50	x-period:	M 5:00-5:50

† 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.

## 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: Antonio D. Tillis

Professors S. E. Freidberg (Geography), G. H. Gerzina (English), K. L. Walker (French and Italian); Associate Professors R. M. Baum (AAAS, Religion), M. A. Chaney (English), S. D. Colbert (English), A. A. Coly (AAAS, Comparative Literature), L. Edmondson (Theater), J. M. Favor (English), R. A. Franconi (Spanish and Portuguese), D. K. King (Sociology), A. D. Tillis (AAAS), G. R. Trumbull IV (History), S. A. Vásquez (English); Assistant Professors B. P. Giri (English), R. N. Goldthree (AAAS), R. J. Johnson (History), E. Perez (Religion); R. J. Rickford (History), N. Sackeyfio (History); Lecturers F. L. Haas (Music), J. Rabig (History, MALS), J. G. Smolin (LALACS), Visiting International Professor M. A. A. Salgueiro (AAAS, State University of Rio de Janeiro, Brazil).

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. 77).

**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, or AAAS 15.  
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 or AAAS 15 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.  
Honors Thesis: AAAS 98 and AAAS 99.

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. Early approval of a modified major should be obtained from the student's major department 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, or AAAS 15  
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 98/99. 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. 76).

#### AAAS 7 - First Year Seminar

Offered: Consult special listings.

#### AAAS 10 - Introduction to African American Studies

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.

Distribution: Dist: SOC; WCult: CI. Offered: 14F: 10A.

#### AAAS 11 - Introduction to African Studies

Trumbull

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.

Distribution: Dist: SOC; WCult: NW. Offered: 14W: 10A.

#### AAAS 12 - Race and Slavery in U.S. History (formerly Black America to the Civil War)

Johnson

*Identical to, and described under, History 16.*

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 16. Offered: 15S: 10.

#### AAAS 13 - Black America since the Civil War

Rickford

*Identical to, and described under, History 17*

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 17. Offered: 14S: 11.

#### AAAS 14 - Pre-Colonial African History

Sackeyfio

*Identical to, and described under, History 5.1*

Distribution: Dist: SOC; WCult: NW. Crosslisted as: HIST 5.1. Offered: 14W: 2A 14X: 10A.

#### AAAS 15 - History of Africa since 1800

Sackeyfio

*Identical to, and described under, History 66*

Distribution: Dist: SOC; WCult: NW. Crosslisted as: HIST 66. Offered: 14S: 12.

#### AAAS 16 - History, Culture and Society: The Many Faces of Latin America

14W: Buéno, Walker; 15W: Franconi, Pastor;

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.

Distribution: Dist: LIT; WCult: NW. Crosslisted as: LACS 4. Offered: 14W, 15W: 10A.

#### **AAAS 18 - Introduction to African Religions**

Baum

*Identical to, and described under, Religion 14.*

Distribution: Dist: TMV; WCult: NW. Crosslisted as: REL 14. Offered: 14S: 10A.

#### **AAAS 19 - Africa and the World**

Trumbull

*Identical to, and described under, History 5.8*

Distribution: Dist: SOC or INT; WCult: NW. Corequisite: HIST 5.8. Offered: 13F: 2A 14F: 3B.

#### **AAAS 24 - The Black Radical Tradition in America**

Rickford

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.

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 37. Offered: 14W: 11.

#### **AAAS 25 - Constructing Black Womanhood**

King

*Identical to, and described under, Sociology 46*

Distribution: Dist: SOC; WCult: CI. Crosslisted as: SOCY 46 and WGST 33.1. Offered: 15W: 3A.

#### **AAAS 26 - Toni Morrison**

Vasquez; Colbert

*Identical to, and described under, English 53.02*

Distribution: Dist: LIT; WCult: W. Crosslisted as: ENGL 53.02. Offered: 14W: 12.

#### **AAAS 31 - Black Theater, U.S.A.**

Colbert

*Identical to, and described under, Theater 22*

Distribution: Dist: ART; WCult: CI. Crosslisted as: THEA 22 and ENGL 53. Offered: 14W: 11.

#### **AAAS 33 - The African American Intellectual**

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.

Distribution: Dist: SOC; WCult: CI. Offered: 15W: 12.

#### **AAAS 34 - Early Black American Literature**

Favor

*Identical to, and described under, English 30*

Distribution: Dist: LIT; WCult: W. Crosslisted as: ENGL 30. Offered: 13F: 10.

#### **AAAS 35 - Modern Black American Literature**

Colbert

*Identical to, and described under, English 33*

Distribution: Dist: LIT; WCult: W. Crosslisted as: ENGL 33. Offered: 13F: 10A.

#### **AAAS 39 - History of Jazz**

Haas

*Identical to, and described under, Music 5*

Distribution: Dist: ART; WCult: W. Crosslisted as: MUS 5. Offered: 14W: 10A.

#### **AAAS 40 - Gender Identities and Politics in Africa**

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.

Distribution: Dist: INT; WCult: CI. Crosslisted as: WGST 34.2. Offered: 14S: 2A 15S: 2A.

#### **AAAS 42 - Women, Religion and Social Change in Africa**

Baum

This introductory, multidisciplinary course examines women's religions 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.

Distribution: Dist: TMV, WCult: NW. Crosslisted as: REL 19 and WGST 44.3. Offered: 13F: 10A.

#### **AAAS 44 - Contemporary Africa: Exploring Myths, Engaging Realities**

*Identical to, and described under, Anthropology 36*

Distribution: Dist: SOC; WCult: CI. Crosslisted as: ANTH 36. Offered: Not offered in the period 13F through 15S.

#### **AAAS 46 - History of Modern South Africa**

Sackeyfio

*Identical to, and described under, History 67*

Distribution: Dist: SOC; WCult: NW. Crosslisted as: HIST 67. Offered: 14S: 10 14X: 2A.

#### **AAAS 50 - Colonialism, Development and the Environment in Asia and Africa**

Haynes

Distribution: Dist: INT or SOC; WCult: NW. Crosslisted as: HIST 75 and ENVS 45. Offered: 15W: 12.

#### **AAAS 51 - African Literatures: Masterpieces of Literatures from Africa**

Coly

*Identical to, and described under, Comparative Literature 51*

Distribution: Dist: LIT or INT; WCult: NW. Crosslisted as: COLT 51 and ENGL 53. Offered: 14W: 10A 15W: 10A.

#### **AAAS 52 - The History of North Africa from the Arrival of Islam to the Present**

Trumbull

*Identical to, and described under, History 68*

Distribution: Dist: SOC; WCult: NW. Crosslisted as: HIST 68. Offered: 14F: 10A.

#### **AAAS 53 - Islam in Africa**

Trumbull

*Identical to, and described under, History 69*

Distribution: Dist: SOC; WCult: CI. Crosslisted as: HIST 69. Offered: 15W: 10A.

#### **AAAS 54 - Topics in African Theater and Performance**

Edmondson

*Identical to, and described under, Theater 23*

Distribution: Dist: ART; WCult: NW. Crosslisted as: THEA 23. Offered: 14W: 12.

#### **AAAS 55 - African Cinema**

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.

Distribution: Dist: ART; WCult: NW. Crosslisted as: FILM 42. Offered: 15S: 10A.

#### **AAAS 60 - Slavery and Emancipation in Latin America and the Caribbean (formerly AAAS 83.3)**

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.

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: HIST 86, LACS 58. Offered: 14W: 10.

**AAAS 64 - United States Afro-Latino Literature (formerly AAAS 88)**

Tillis

This course proposes to examine literature written by U.S. citizens of African and Spanish- Caribbean ancestry. This growing group of writers represents new perspectives that are challenging while broadening the scope, definition and imaginary conception of "American literature," specifically in North America. Laden with neo-cartographies of the home-space, the works of writers such as Marta Vega, Loida Maritza Perez, and Nelly Rosario challenge institutionalized notions of space, place, location, home, nation, culture, citizenship and identity.

Distribution: Dist: LIT or INT; WCult: W. Crosslisted as: LATS 43 COLT 57 INTS 17. Offered: 13F: 3-6pm, Tuesday.

**AAAS 65 - Introduction to Postcolonial Literature**

Giri

*Identical to, and described under, English 42.*

Distribution: Dist: LIT or INT; WCult: NW. Crosslisted as: ENGL 42. Offered: 14X: 2A.

**AAAS 66 - Critical Issues in Postcolonial Studies**

Giri

*Identical to, and described under, English 48*

Distribution: Dist: LIT; WCult NW. Crosslisted as: ENGL 48, COLT 70. Offered: Not offered in 2013-14; May be offered in 2014-15.

**AAAS 67 - Colonial and Postcolonial Masculinities**

Coly

*Identical to, and described under, Comparative Literature 67*

Distribution: Dist: LIT. Crosslisted as: COLT 67, ENGL 54, and WGST 52.1. Offered: 14W: 2A.

**AAAS 80.2 - Black Brazilian Women Writers**

Salgueiro

This course focuses on the contemporary literary production by women of African ancestry in Brazil. The

genres covered will be poetry, short story and novel. Students will engage selected literary texts focusing on issues such as slavery and race relations, the construction of family, class divisions and spatial marginality, industrialization, and gender and sexuality politics. Authors will include the likes of Conceição Evaristo and Miriam Alves, two of the most important contemporary Afro-Brazilian literary voices, among others.

Distribution: Dist: LIT. Crosslisted as: COLT 52.2, LACS 64 and WGST 47.5. Offered: 14W: 3B.

**AAAS 80.3 - Blacks in Hollywood Film**

Tillis

This class is designed to explore the development, treatment and promulgation of created visual images relative to the presentation and representation of blacks in Hollywood film from the genesis of feature-length film, roughly 1915, to filmic productions of the early 21st century. In so doing, the class will examine critically Hollywood's cinematic treatment of black people focusing on the following: patriarchal masculinity, black masculinity, black womanhood, and the black male/white female paradigm.

Distribution: Dist: SOC; WCult: CI. Offered: 13F: 3-6pm, Wednesday 14X: 3-6pm, Tuesday.

**AAAS 81 - The Black Arts Movement**

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.

Distribution: Dist: LIT WCult: W. Crosslisted as: ENGL 53. Offered: 14S: 10A.

**AAAS 82.3 - August Wilson and Suzan-Lori Parks**

Colbert

*Identical to, and described under, English 72.16.*

Distribution: Dist: LIT WCult: W. Crosslisted as: ENGL 72.16 and THEA 10. Offered: Not offered in the period 13F through 15S.

### **AAAS 83.2 - Food and the African World**

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.

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: GEOG 80. Offered: Not offered in the period 13X through 15S.

### **AAAS 83.4 - Caribbean History: 1898 to the Present**

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.

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: HIST 6. Offered: 14S: 2.

### **AAAS 83.5 - African Religions of the Americas**

Pérez

*Identical to, and described under, Religion 17*

Distribution: Dist: INT or TMV; WCult: CI. Crosslisted as: REL 17. Offered: 13F: 2.

### **AAAS 83.6 - Caribbean Lyric and Literature**

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*.

Crosslisted as: ENGL 53 and LACS 66. Offered: 14S: 2A.

### **AAAS 84 - Black Britain in Literature and Film**

Gerzina

Black people have lived in Britain since the sixteenth century and published books there since the eighteenth century. This course is a detailed analysis of the lives, representation and authorship of black people in Britain. We will read modern authors such as Caryl Phillips, Sam Selvon, Andrea Levy, Bernardine Evaristo, Paul Gilroy, and Zadie Smith, and works by eighteenth-century authors such as Olaudah Equiano and Ignatius Sancho. Films include documentaries on black Britain and feature films. Main topics are immigration and outsiders; crafting a literary voice; the concept of "home"; multicultural Britain; and the formation of a Black British identity.

Distribution: Dist: LIT; WCult: CI. Offered: 14S: TBD.

### **AAAS 85.1 - South African Literature in English**

Crew

*Identical to, and described under, English 53*

Distribution: Dist: LIT; WCult: CI. Crosslisted as: ENGL 53. Offered: 15S: Arrange.

### **AAAS 85.2 - Afro-Latin American Literature in Translation**

Tillis

This course examines the development of Afro-Latin American literature. Texts represent a sampling of the literary production of writers of African ancestry from Cuba, Brazil, the Dominican Republic, Colombia, Uruguay, and Peru. Works will be read as literary artifacts attesting to the history of Blacks in Latin America. The major focus of analysis of literary texts will be socio-cultural and historical in order to offer an interdisciplinary approach to literary studies.

Offered: Not offered in the period 13X through 15S.

### **AAAS 85.3 - International Development and Afro-descendants in Contemporary Latin America**

This course examines contemporary development challenges facing Latin America's Afro-descendant

communities. Through a variety of interdisciplinary course materials, we will interrogate themes such as nationalism; history of development policy; rural and urban poverty; Human Rights; development –induced displacement (DID); tourism development; land struggles, land titling and the World Bank; Social Development Policy and the Inter-American Development Bank; Favela life in Brazil; Afro-descendant feminisms; Afro-descendant and indigenous cooperation and the state; extractive industries and Afro-Andeans; blackness and its multiple meanings in Latin America; and Afro-descendant transnationalism in the U.S.

Distribution: Dist: INT or SOC; WCult: CI . Offered: Not offered in the period 13X through 15S.

### **AAAS 86 - Nationalism and Revolution in the Caribbean**

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.

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: LACS 54 and HIST 6. Offered: 14W: 2.

### **AAAS 88.2 - Women and Gender in the African Diaspora**

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.

Distribution: Dist: INT or SOC WCult: CI. Crosslisted as: HIST 6 and WGST 38.2. Offered: 14S: 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 90.1 - Gender and Race in Latin America**

Baldez

*Identical to, and described under, LACS 80*

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: LACS 80. Offered: 14W: 2A.

### **AAAS 90.2 - Dave the Potter: Slavery Between Pots and Poems**

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.

Distribution: Dist: ART. Crosslisted as: ENGL 55. Offered: Not offered in the period 13X through 15S.

### **AAAS 90.3 - Afro-Diasporic Dialogues: Latin America and the U.S.**

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."

Distribution: Dist: SOC or INT; WCult: CI . Offered: 14S: 12.

### **AAAS 90.4 - Africa in the African-American Mind**

Rickford

This seminar examines African-American political and cultural visions of Africa in the 19th and 20th centuries, emphasizing the themes of black nationalism, Pan Africanism and anticolonialism, as well as emigration, repatriation and exile. Attitudes toward Africa have profoundly shaped African-American identity and consciousness. The complexity of these views belie notions of simplistic or essential relationships between

"black folk here and there," and invite critical contemplation of the roles Africa has played in the African-American imaginary. Rickford.

Crosslisted as: HIST 96. Offered: 13F: 3A.

### **AAAS 90.5 - The Black Male: Invented or Engineered?**

Tillis

This course examines the Black male experience primarily in the U.S. through socio-political ideologies, plastic arts, literature, and film. A cultural studies approach will enable students to analyze and critique the created or engineered epistemologies relating to the Black male image(s) across disciplines. The course will give critical attention to the definitions (those self-imposed and those inflicted by others) of Black "maleness" in a contemporary context as they are made manifest in selected readings and visual presentations. Students are encouraged to bring related material from media outlets (television, magazines, newspapers, advertisements, etc.) to class.

Crosslisted as: WGST 34.5. Offered: Not offered in the period 13X through 15S.

### **AAAS 91 - The Harlem Renaissance**

Favor

*Identical to, and described under, English 53*

Distribution: Dist: LIT; WCult: CI. Crosslisted as: ENGL 53. Offered: Not offered in the period 13X through 15S.

### **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 42: Politics of Africa  
 Government 86: Race, Law and Identity  
 History 96: Race, Ethnicity and Immigration in U.S. 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: D. F. Eickelman, S. A. Kan, D. L. Nichols;  
 Associate Professors: R. A. Covey, S. R. Craig, N. J. Dominy, J. M. Watanabe; Assistant Professors: S. D. Dobson, L. Gulbas, L. Gutiérrez Nájera; Adjunct Assistant Professors: K. M. Muldoon; Visiting Assistant Professors: R.M. Abusharaf, K. Bauer, V. Herrmann; The Robert A. 1925 and Catherine L. McKennan Postdoctoral Fellow: C. L. Kivland; Neukom Fellows: J. Herrmann, K. Schroer; Montgomery Fellow: D. Potts; Emeriti Professors: H. Alverson, K. Endicott; Emeritus Associate Professor: K. Korey

Consult the Departmental Administrator, Thérèse Périn-Deville, for further information.

*To view Anthropology courses, click here* (p. 86).

### **Requirements for the Major**

The major consists of ten courses, to be selected as follows:

1. ANTH 1 or ANTH 3.
2. At least one course from each of the following four subject areas: archaeology, one area course in cultural anthropology, one topical course in cultural anthropology (if ANTH 1 is taken in fulfillment of requirement 1), and biological anthropology (these areas are indicated as ARCH, TOPICAL, AREA, or BIOL in each course description). Topical replaces “ethnology” (ETHN) and area replaces “culture” (CULT) in previous versions,
3. Any six additional courses (five if ANTH 1 is taken in fulfillment of requirement 1) from among the department’s offerings.

A culminating experience is required for the major and must be satisfied by completion of a Culminating Seminar selected from one of the following areas: cultural anthropology (73), archaeology (75), or biological anthropology (77), to be taken as one of the ten courses required for the major.

**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, or SSOC 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 or ANTH 3, 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 can be signed by any faculty in the Anthropology department, and must be submitted with the major card 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 topical and area courses in 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 concentrating in archaeology should take at least one topical course and one regional course in archaeology. Students interested in graduate studies in archaeology should have a statistics course and fieldwork experience that can be gained by taking an archaeological field school for transfer credit.

*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. Students planning on graduate studies in cultural anthropology are advised to take Main Currents in Anthropology, ANTH 73.

*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.

**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 Anthropology minor* in Anthropology comprises six courses, which include ANTH 1 or ANTH 3 plus one area course in cultural anthropology, one course in biological anthropology, one course in archaeology, and two additional courses within the department to be selected by the student. If ANTH 3 is not taken in fulfillment of the first requirement, then one of the two courses selected by the student must be a topical course in cultural anthropology.

*The Anthropology of Global Health minor* is composed of six courses one from each of the following core competency areas.

1. Introductory: 1 or 3.
2. Medical: 17, 45, 50.6, 55, 61.
3. Biological: 6, 38, 40, 41, 43.
4. Methodological Approaches: 18, 56
5. Area/Regional: 4, 25, 27, 32, 33, 34, 35, 36, 37, 39, 47, 52,
6. Topical: 14, 19, 26, 30, 31, 44, 48, 49, 51, 75.

Of these six courses, at least four must be taken within the Anthropology Department. Students may petition the department to substitute relevant courses from other fields

for no more than two competency areas 3, 5, and 6. (Students should consult with the Anthropology Department for a list of examples of appropriate courses).

### 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 courses ordinarily required in the 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 given in the table below.

Introductory Anthropology: 1, 3, 4, 5, 6, 8, 9, 11, 12.1, 12.2, 12.3, 12.5, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 26

Area Courses in Cultural Anthropology: 4, 25, 27, 32, 35, 36, 37, 39, 47, 50.4, 52

Topical Courses in Cultural Anthropology: 3, 9, 12.1, 12.3, 14, 15, 16, 17, 18, 19, 30, 31, 33, 34, 44, 45, 48, 49, 50.2, 51, 53, 55, 56, 61, 73

Archaeology: 5, 8, 11, 12.2, 12.5, 21, 22, 23, 24, 50.5, 57, 59, 75

Biological Anthropology: 6, 20, 38, 40, 41, 42, 43, 50.9, 77

### Introductory:

ANTH 1	Introduction to Anthropology
ANTH 3	Introduction to Cultural Anthropology
ANTH 4/NAS 10	Peoples and Cultures of Native North America
ANTH 5	Reconstructing the Past: Introduction to Archaeology
ANTH 6	Introduction to Biological Anthropology
ANTH 8	The Rise and Fall of Prehistoric Civilizations
ANTH 9	Introduction to the Study of Language and Culture
ANTH 11/NAS 11	Ancient Native Americans

ANTH 12.1/FILM 41	Ethnographic Film (Identical to FILM 041)
ANTH 12.2	The Archaeology of the Ancient Near East
ANTH 12.3	The Ethnography of Violence
ANTH 13	Feminist Ethnography
ANTH 14	Death and Dying
ANTH 15	Political Anthropology
ANTH 16/PBPL 81.7	Secrecy and Lying in Politics, Law and Society
ANTH 17	The Anthropology of Health and Illness
ANTH 19	Islam: An Anthropological Approach
ANTH 20	Lemurs, Monkeys and Apes
ANTH 21/LACS 42	The Aztecs
ANTH 22/LACS 43	Olmecs, Maya, and Toltecs: Ancient Civilizations of Mesoamerica
ANTH 23/LACS 44	The Incas
ANTH 26/WGST 61.5	Gender and Global Health

### Area courses in cultural anthropology:

ANTH 4/NAS 10	Peoples and Cultures of Native North America
ANTH 25/NAS 49	The Land of the Totem Poles: Native Peoples of the Northwest Coast
ANTH 27	Thought and Change in the Middle East and Central Asia
ANTH 32	Anthropology of Tibet and the Himalayas
ANTH 35	Maya Indians Under Mexican and Guatemalan Rule
ANTH 36/AAAS 44	Anthropology and Contemporary Africa: Exploring Myths, Engaging Realities
ANTH 37	Legacies of Conquest: Latin America
ANTH 39/RUSS 12	Ethnicity and Nationalism in Russia and Neighboring States
ANTH 47/NAS 37	Alaska: American Dreams and Native Realities
ANTH 50.4/AAAS 64/LACS 50	Race, Power, and Development in Global Haiti
ANTH 52	Introduction to Maori Society

### Topical courses in cultural:

ANTH 3	Introduction to Cultural Anthropology
ANTH 9	Introduction to the Study of Language and Culture

ANTH 12.1/FILM 41	Ethnographic Film (Identical to FILM 041)
ANTH 12.3	The Ethnography of Violence
ANTH 13	Feminist Ethnography
ANTH 14	Death and Dying
ANTH 15	Political Anthropology
ANTH 16/PBPL 81.7	Secrecy and Lying in Politics, Law and Society
ANTH 17	The Anthropology of Health and Illness
ANTH 18	Introduction to Research Methods in Cultural Anthropology
ANTH 19	Islam: An Anthropological Approach
ANTH 26/WGST 61.5	Gender and Global Health
ANTH 30	Hunters and Gatherers
ANTH 31/WGST 36.1	Gender in Cross-Cultural Perspective
ANTH 33/LATS 44	Crossing Over: Latino Roots and Transitions
ANTH 34/LATS 45	Comparative Perspectives on the U.S.-Mexican Borderlands
ANTH 44	Globalization from Above and Below
ANTH 45	Asian Medical Systems
ANTH 48	The Anthropology of Religion
ANTH 49	Culture and the Environment
ANTH 50.1	Anthropology of War and Peace
ANTH 50.2	Religion, Reason and Reform in Morocco
ANTH 50.8/JAPN 61	Politics of Language in Modern Japan
ANTH 51	Colonialism and Its Legacies in Anthropological Perspective
ANTH 53	Anthropology of Ethnicity and Nationalism
ANTH 55	Anthropology of International Health
ANTH 56	Introduction to Research Methods in Medical Anthropology
ANTH 61/WGST 61.4	Women and Madness
ANTH 73	Main Currents in Anthropology
<b>Archaeology:</b>	
ANTH 5	Reconstructing the Past: Introduction to Archaeology
ANTH 8	The Rise and Fall of Prehistoric Civilizations
ANTH 11/NAS 11	Ancient Native Americans
ANTH 12.2	The Archaeology of the Ancient Near East
ANTH 12.5	Death and the Afterlife in the Ancient Near East and Egypt

ANTH 21/LACS 42	The Aztecs
ANTH 22/LACS 43	Olmeecs, Maya, and Toltecs: Ancient Civilizations of Mesoamerica
ANTH 23/LACS 44	The Incas
ANTH 24	Early Civilizations of the Andes
ANTH 50.3	Digital Archaeology
ANTH 50.5	Environmental Archaeology
ANTH 57	Origins of Inequality
ANTH 75	Ecology, Culture, and Environmental Change
<b>Biological:</b>	
ANTH 6	Introduction to Biological Anthropology
ANTH 20	Lemurs, Monkeys and Apes
ANTH 38	Human Adaptations
ANTH 40	Human Functional Anatomy
ANTH 41	Human Evolution
ANTH 42	Primate Societies
ANTH 43	Human Osteology
ANTH 50.9	Primate Extinctions: Past and Present
ANTH 77	Origins of Language

### ANTH - Anthropology Courses

*To view Anthropology requirements, click here (p. 83).*

#### ANTH 1 - Introduction to Anthropology

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.

Distribution: SOC or INT; WCult: CI. Offered: 13F, 14F: 10.

#### ANTH 3 - Introduction to Cultural Anthropology

Craig, Gutiérrez Nájera, Gulbas

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)

Distribution: SOC or INT; WCult: NW. Offered: 14W, 14X, 15W: 10.

#### **ANTH 4 - Peoples and Cultures of Native North America**

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)

Distribution: SOC; WCult: NW. Crosslisted as: NAS 10. Offered: 13F: 11; 14W: 2.

#### **ANTH 5 - Reconstructing the Past: Introduction to Archaeology**

Covey

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)

Distribution: SOC. Offered: 14S, 15S: 11.

#### **ANTH 6 - Introduction to Biological Anthropology**

Dobson, 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)

Distribution: SCI. Offered: 13F: 11; 14F: 2A; 15S: 10.

#### **ANTH 7 - First-Year Seminars in Anthropology**

Offered: Consult special listings.

#### **ANTH 8 - The Rise and Fall of Prehistoric Civilizations**

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)

Distribution: SOC or INT; WCult: NW. Offered: 13F, 14F: 10.

#### **ANTH 9 - Introduction to the Study of Language and Culture**

Nozawa

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)

Distribution: SOC. Offered: 14S: 2A.

#### **ANTH 11 - Ancient Native Americans**

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)

Distribution: SOC; WCult: NW. Crosslisted as: NAS 11. Offered: Not offered in the period 2013-15.

#### **ANTH 12.1 - Ethnographic Film (Identical to FILM 041)**

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)

Distribution: INT or SOC; WCult: NW. Crosslisted as: FILM 41. Offered: Not offered in the period 2013-15.

#### **ANTH 12.2 - The Archaeology of the Ancient Near East**

Potts

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)

Distribution: SOC or INT; WCult: NW. Offered: 14S: 2A.

### **ANTH 12.3 - The Ethnography of Violence**

Kivland

Violence is widely recognized as a problem in modern society, with policies and interventions to combat violence, or to employ it, dominating local and global politics. Yet the meaning of violence is seldom analyzed. This course explores violence as both an embodied experience and a socially and culturally mediated problem. Particular attention is paid to understanding how violence relates to manifestations of power, configurations of legitimacy, structures of inequality, and perceptions of difference. Using personal, collective, and institutional perspectives, this course raises key questions concerning security, resistance, suffering, and criminality in a globalized world. (TOPIC)

Distribution: SOC. Crosslisted as: WGST 42.5. Offered: 13F, 14F: 10A.

### **ANTH 12.5 - Death and the Afterlife in the Ancient Near East and Egypt**

V. Herrmann

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)

Distribution: Pending Faculty Approval. Offered: 13F: 2A.

### **ANTH 13 - Feminist Ethnography**

Gulbas

Ethnography is a defining feature of cultural anthropology. This course will locate the place of feminist theory within the central debates regarding ethnography and the politics of representation. We will examine the historical and theoretical developments within ethnographic writing, beginning with an exploration of anthropology's earliest women ethnographers. In the second part of the course, we will shift our attention to contemporary themes in feminist ethnography, including feminist politics, positionality, fieldwork experience, and experiments in writing styles. (TOPIC)

Distribution: Pending Faculty Approval. Offered: 14F: 10A.

### **ANTH 14 - Death and Dying**

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)

Distribution: SOC or INT. Offered: Not offered in the period 2013-15.

### **ANTH 15 - Political Anthropology**

Eickelman

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)

Distribution: SOC or INT; WCult: NW. Offered: Not offered in the period 2013-15.

### **ANTH 16 - Secrecy and Lying in Politics, Law and Society**

Eickelman

Claims to secret knowledge—in families, organizations, and states—is a form of authority over those who do not possess it. This seminar explores how claims to secret knowledge and lying relate to the institutional and cultural frameworks in which knowledge is produced, the use of "leaks" to challenge hierarchical controls and sometimes sustain them, and the ways in which secrecy, deception, and lying form a necessary and often desirable part of social, political, and economic life. (TOPIC)

Distribution: SOC. Crosslisted as: PBPL 81.7. Offered: 13F: 10A.

### **ANTH 17 - The Anthropology of Health and Illness**

Gulbas, Craig

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)

Distribution: SOC or INT. Offered: 13F, 15S: 10A.

### **ANTH 18 - Introduction to Research Methods in Cultural Anthropology**

Gutiérrez Nájera

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)

Distribution: SOC. Offered: 13F, 14F: 3A.

### **ANTH 19 - Islam: An Anthropological Approach**

Eickelman

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. (TOPIC)

Distribution: SOC; WCult: CI. Crosslisted as: AMES 6. Offered: Not offered in the period 2013-15.

### **ANTH 20 - Lemurs, Monkeys and Apes**

Dobson, 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)

Distribution: SCI. Offered: 14S, 14F: 10; 15S: 10A.

### **ANTH 21 - The Aztecs**

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)

Distribution: SOC; WCult: NW. Crosslisted as: LACS 42. Offered: 15W: 12.

### **ANTH 22 - Olmecs, Maya, and Toltecs: Ancient Civilizations of Mesoamerica**

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)

Distribution: SOC; WCult: NW. Crosslisted as: LACS 43. Offered: 13F, 14F: 12.

### **ANTH 23 - The Incas**

Covey

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).

Distribution: SOC, WCult: NW. Crosslisted as: LACS 44. Offered: 15W: 11.

### **ANTH 24 - Early Civilizations of the Andes**

Covey

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 Chimu societies. (ARCH)

Distribution: SOC or INT; WCult: NW. Offered: 14S: 2.

**ANTH 25 - The Land of the Totem Poles: Native Peoples of the Northwest Coast**

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)

Distribution: SOC; WCult: NW. Crosslisted as: NAS 49. Offered: Not offered in the period 2013-15.

**ANTH 26 - Gender and Global Health**

Gulbas

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)

Distribution: Dist: INT or SOC; WCult: CI. Crosslisted as: WGST 61.5. Offered: 14F: 2A.

**ANTH 27 - Thought and Change in the Middle East and Central Asia**

Eickelman

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)

Distribution: SOC; WCult: NW. Crosslisted as: AMES 5. Offered: 14S: 10A.

**ANTH 30 - Hunters and Gatherers**

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. (TOPIC)

Distribution: SOC or INT; WCult: NW. Prerequisite: One introductory Anthropology course. Offered: 14X: 10A.

**ANTH 31 - Gender in Cross-Cultural Perspective**

Gulbas

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)

Distribution: SOC or INT; WCult: CI. Crosslisted as: WGST 36.1. Offered: 13F: 2A.

**ANTH 32 - Anthropology of Tibet and the Himalayas**

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)

Distribution: Dist: SOC, WCult: NW. Crosslisted as: AMES 26. Offered: 15S: 2A.

**ANTH 33 - Crossing Over: Latino Roots and Transitions**

Gutiérrez Nájera

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)

Distribution: SOC; WCult: CI. Crosslisted as: LATS 44.  
Offered: Not offered in the period 2013-15.

**ANTH 34 - Comparative Perspectives on the U.S.-Mexican Borderlands**

Gutiérrez Nájera

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)

Distribution: SOC; WCult: CI. Crosslisted as: LATS 45.  
Offered: 14W: 12.

**ANTH 35 - Maya Indians Under Mexican and Guatemalan Rule**

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)

Distribution: SOC; WCult: CI. Prerequisite: One course in Anthropology or Latin American, Latino and Caribbean Studies. Offered: 15S: 12.

**ANTH 36 - Anthropology and Contemporary Africa: Exploring Myths, Engaging Realities**

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)

Distribution: Dist: SOC; WCult: CI. Prerequisite: One introductory course in anthropology or in AAAS or by permission. (AREA). Crosslisted as: AAAS 44. Offered: Not offered in the period 2013-14.

**ANTH 37 - Legacies of Conquest: Latin America**

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)

Distribution: SOC. WCult: CI. Prerequisite: One course in anthropology or Latin American and Caribbean Studies. (AREA). Offered: 14F: 12.

**ANTH 38 - Human Adaptations**

Dominy

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)

Distribution: SCI. Offered: Not offered in the period 2013-15 .

**ANTH 39 - Ethnicity and Nationalism in Russia and Neighboring States**

Kan

This course explores the emergence of ethnic identity and nationalism among the peoples of the Russian empire, the Soviet Union and their successor states. Drawing on anthropological and historical works, it examines the process of formation of a centralized multiethnic Russian

empire and the liberation struggle of its nationalities prior to 1917. It then proceeds to the crucial period of 1917 - 1991 and explores the theory and practice of nationalities politics of the Bolshevik, Stalinist, and late Soviet socialism. The dissolution of the USSR, the rise of interethnic conflicts, and the relations between ethnic groups in Russia and the successor states are the focus of the second half of the course, where several case studies are discussed in depth. (AREA)

Distribution: SOC; WCult: CI. Crosslisted as: RUSS 39. Offered: Not offered in the period 2013-15.

#### **ANTH 40 - Human Functional Anatomy**

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)

Distribution: SLA. Offered: 15S; 2A.

#### **ANTH 41 - Human Evolution**

Dobson

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)

Distribution: SCI. Prerequisite: ANTH 6 or permission of the instructor. (BIOL). Offered: 13F: 2; 14F: 12.

#### **ANTH 42 - Primate Societies**

Dobson

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)

Distribution: SCI. Offered: Not offered in the period 2013-15.

#### **ANTH 43 - Human Osteology**

Muldoon

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)

Distribution: SLA. Prerequisite: ANTH 6 or permission of the instructor. Offered: 13F, 15W: 12.

#### **ANTH 44 - Globalization from Above and Below**

Gutiérrez Nájera

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)

Distribution: SOC or INT. Offered: Not offered in the period 2013-15.

#### **ANTH 45 - Asian Medical Systems**

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)

Distribution: SOC; WCult: NW. Offered: Not offered in the period 2013-15.

#### **ANTH 47 - Alaska: American Dreams and Native Realities**

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)

Distribution: SOC; WCult: CI. Crosslisted as: NAS 37. Offered: 14W, 15S: 2A.

### **ANTH 48 - The Anthropology of Religion**

Kan, 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)

Distribution: SOC or INT; WCult: NW. Prerequisite: One course in Anthropology or Religion or permission of the instructor. Offered: 13F: 2; 15S: 10.

### **ANTH 49 - Culture and the Environment**

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)

Distribution: SOC or INT; WCult: W. Offered: 14W: 10A.

### **ANTH 50.1 - Anthropology of War and Peace**

Abusharaf

"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)

Distribution: Pending Faculty Approval. Offered: 14S: 2A.

### **ANTH 50.2 - Religion, Reason and Reform in Morocco**

Eickelman

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. (TOPIC)

Distribution: SOC; WCult: NW. Crosslisted as: AMES FSP. Offered: 14S: FSP.

### **ANTH 50.3 - Digital Archaeology**

J. Herrmann

Remote sensing, geographic information science (GIS), and 3D visualization are becoming an essential part of archaeological research. This course will provide students with knowledge of the theory and methods necessary to incorporate these techniques into an archaeological project. Students will learn to manage and analyze digital data through a series of class exercises and an individual research project where they will receive hands-on training in GIS, terrestrial and satellite remote sensing, data integration, and visualization.(ARCH)

Distribution: Pending Faculty Approval. Offered: 15W: 11.

### **ANTH 50.4 - Race, Power, and Development in Global Haiti**

Kivland

Although often cast as marginal in Western thought, Haiti holds a central place in the history of the modern world. This course examines the tension between Haiti's worldly significance and current predicament by drawing on studies of Haiti within the anthropology of the "Black Atlantic," or African diaspora, and globalization studies. Students will acquire an historical understanding of Haitian society and culture and an enriched perspective on the country's social problems. Independent research is required. (AREA)

Distribution: Dist: SOC; WCult: CI. Crosslisted as: AAAS 88.5 / LACS 50.2. Offered: 13F, 14F: 2A.

### **ANTH 50.5 - Environmental Archaeology**

J. Herrmann

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)

Distribution: Pending Faculty Approval. Offered: 14S: 10.

### **ANTH 50.6 - HIV/AIDS Through a Biosocial Lens: 30 Years of a Modern Plague**

Craig/Lahey

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)

Distribution: INT. Crosslisted as: COCO 2. Offered: Not offered in the period 2013-15.

### **ANTH 50.8 - Politics of Language in Modern Japan**

Nozawa

This course examines linguistic practice as a mediator of sociopolitical interests in contemporary Japan. Drawing on linguistic anthropology, sociolinguistics, literary studies, and semiotics, we seek to understand complex conditions of power relations that shape and are shaped by the way people in Japan communicate ('pragmatics') and reflexively talk about communication ('meta-pragmatics'). Our basic aim is to analytically delineate the metapragmatic/hegemonic stereotype of Japan as a homogeneous ethnolinguistic community and to consider critical alternatives to it. We will explore ethnographic accounts of heterogeneous sites of language-in-use, and address issues such as language standardization, globalization, gender and race relations, subcultures, affect, political economy, etc. Students will learn not just about various sites of linguistic activity in and about Japan, but they will also learn how to situate the Japanese linguistic modernity in a crosscultural, comparative, historical perspective. (TOPIC)

Distribution: Dist: INT; WCult: NW. Crosslisted as: JAPN 61. Offered: 14S: 12.

### **ANTH 50.9 - Primate Extinctions: Past and Present**

Muldoon

Extinction has played a central role in shaping long-term evolutionary patterns of primate diversity. In this course, we examine the theory and methods associated with the science of species extinction, using evidence from the primate and human fossil record. Topics covered include species vulnerability to extinction, background vs. catastrophic extinctions, and the past and future of primate diversity. Students will gain an understanding of the large-scale trends that have affected the evolution of human and non-human primates. (BIOL)

Distribution: SCI. Offered: Not offered in the period 2013-15.

### **ANTH 51 - Colonialism and Its Legacies in Anthropological Perspective**

Watanabe, 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)

Distribution: SOC or INT. WCult: CI. Offered: 14W, 15W: D.F.S.P.

### **ANTH 52 - Introduction to Maori Society**

Watanabe, 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)

Distribution: SOC. WCult: NW. Offered: 14W, 15W: D.F.S.P.

### **ANTH 53 - Anthropology of Ethnicity and Nationalism**

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)

Distribution: SOC or INT; WCult: CI. Offered: 14W, 15S: 10A.

#### **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.

Distribution: SOC. Prerequisite: Two courses in Anthropology. Offered: 14W, 15W: D.F.S.P.

#### **ANTH 55 - Anthropology of International Health**

Craig

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, 'international 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)

Distribution: SOC or INT. Offered: No plans to offer course during the 13-14 terms.

#### **ANTH 56 - Introduction to Research Methods in Medical Anthropology**

Craig

This course will introduce students to the various methods Medical Anthropologists have used to understand and study health, illness, health care, health-seeking behavior, as well as issues surrounding the ethics of anthropological research in a variety of medical contexts. This course will provide both theoretical foundations and "hands-on" opportunities to study issues directly relevant to health and illness, and to the effective provision of health care. This course is designed for both undergraduates and Dartmouth Medical School (DMS) students. (TOPIC)

Distribution: SOC . Offered: 14S: 2A.

#### **ANTH 57 - Origins of Inequality**

Covey

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)

Distribution: SOC or INT; . Offered: 15S: 2.

#### **ANTH 59 - Who Owns the Past?**

Covey

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)

Distribution: Pending Faculty Approval. Offered: 14W: 2.

#### **ANTH 61 - Women and Madness**

Gulbas

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)

Distribution: SOC, WCult: CI. Crosslisted as: WGST 61.4. Offered: 14S, 15W: 12.

#### **ANTH 73 - Main Currents in Anthropology**

Watanabe

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)

Distribution: SOC. Offered: 13F: 12.

### **ANTH 75 - Ecology, Culture, and Environmental Change**

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)

Distribution: SOC. Offered: 14W, 15W: 10.

### **ANTH 77 - Origins of Language**

Dobson

Language is an emergent property of multiple interacting biological processes, some of which are shared with other animals. The goal of this capstone seminar in biological anthropology is to investigate the origins of language by integrating perspectives from evolutionary linguistics, primate behavior, and paleoanthropology. Students will be required to critique recent research on the evolution of language, while developing an understanding of the history of current debates. (BIOL)

Distribution: SCI. Offered: 14S: 10A; 15S: 12.

### **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, A. W. B. Randolph; Associate Professors M. K. Coffey, K. A. Corrigan, A. F. Hockley; Assistant Professors N. M. Camerlenghi, K. Hornstein, S. L. Kim; Senior Lecturers J. L. Carroll, M. E. Heck, S. E. Kangas; Lecturer: K. O'Rourke.

Consult the Department Administrator for further information.

*To view Art History courses, click here (p. 98).*

### **Requirements for the Major**

For the Class of 2014 and earlier, twelve courses as follows:

*Prerequisite:* Two courses from Art History 1, 2, or 4.

*Requirements:* Ten courses consisting of the following: one Studio Art course; six Art History courses, each from a different area (Ancient; Medieval; Renaissance; Baroque, Rococo and Neoclassical; Modern; Asian); two seminars in Art History (one numbered 80 through 84, *and* either Art History 85 or 86, which will serve as the Major Culminating Experience); and one other Art History course numbered 10 or higher. (Classical Studies 20, 21, 22, 24, 25, 26 may be substituted for this other course.) N.B.: Art History 1, 2, and 4 may serve *only* as major prerequisite courses.

For the Class of 2015 and later, 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 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 [CLAS 20, CLAS 21, CLAS

22, CLAS 24, CLAS 25, or CLAS 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 consult with one of the Department's designated faculty advisors, complete a Major Worksheet (available outside the Department office) and three major cards, which will be checked by the Department Administrator, and then return to the advisor for final approval and signatures. A copy of the signed major card and the Major Worksheet must be filed with the Art History Department.

### Modified Major

Students wishing to declare a modified major must consult with one of the Department's designated faculty advisors, meet with the Department Administrator, then submit a short description of the proposed modification and a completed Modified Major Worksheet (available outside the Department office). If the proposal is approved by the departmental faculty, a copy of the signed Major Card, Worksheet, and rationale statement must be filed with the Department of Art History. 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.

### Art History Modified

For the Class of 2014 and earlier, thirteen courses as follows:

*Prerequisite:* Two courses from Art History 1, 2, or 4.

*Requirements:* Seven Art History courses: four courses in four out of six categories (Ancient; Medieval; Renaissance; Baroque, Rococo and Neoclassical; Modern; Asian); one of either Art History 85 or 86 (constituting the Major Culminating Experience); and two other Art History courses numbered 10 or higher, one of which must be a seminar (Art History 80–84) or an Honors Thesis course (Art History 90–91). *N.B.:* Art History 1, 2, and 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.

For the Class of 2015 and later, 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 80–84) or an Honors Thesis course (ARTH 90–91).

*N.B.: ARTH 1, 2, and 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

For the Class of 2014 and earlier, six courses as follows:

*Prerequisite:* One or two of Art History 1, 2, or 4.

*Requirements:* Four Art History courses, from four out of six categories (Ancient; Medieval; Renaissance; Baroque, Rococo and Neoclassical; Modern; Asian). If only one prerequisite is taken, any additional Art History course may be taken as the sixth course. An Art History seminar (Art History 80-84) is not required, but is strongly encouraged. *N.B.:* Art History 1, 2, and 4 may serve *only* as prerequisite courses.

For the Class of 2015 and later, 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 80-84) 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 first consult with one of the Department's designated faculty advisors, complete a Minor Worksheet (available outside the Department office) and three Minor Cards, which will be checked by the Department Administrator, and then return

to the advisor for final approval and signatures. A copy of the signed Minor Card and the Minor Worksheet must be filed with the Art History Department.

### **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 90-91 (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:

ITAL 1 (or its equivalent) and one of the following courses: ARTH 1, ARTH 21, ARTH 22, ARTH 25, ARTH 30, ARTH 31. 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 Cohen, Corrigan, Kenseth, or Randolph as early as possible in their academic careers.

## **ARTH - Art History Courses**

*To view Art History requirements, click here (p. 96).*

### **ARTH 1 - Bodies and Buildings: Introduction to the History of Art in the Ancient World and the Middle Ages**

Cohen, Kangas

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.

Distribution: ART; WCult: W. Offered: 13F, 14F: 11.

### **ARTH 2 - Introduction to the History of Art II**

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.

Distribution: ART; WCult: W. Offered: 14W, 15W: 11.

### **ARTH 4 - Introduction to World Architecture**

Camerlenghi, 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.

Distribution: ART. Offered: 14S: 2.

### **ARTH 7 - First-Year Seminars in Art History**

Offered: Consult special listings.

### **ARTH 10 - Foreign Study I**

Cohen

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: 14S, 15S: D.F.S.P.

**ARTH 11 - Foreign Study II**

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.

Distribution: ART; WCult: W. Prerequisite: Membership in the Foreign Study Program. Offered: 14S, 15S: D.F.S.P.

**ARTH 12 - Foreign Study III**

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: 14S, 15S: D.F.S.P.

**ARTH 16 - Special Topics in the History of Art**

13F: Taylor, 14W: Kenseth, 14S: Camerlenghi, 14X: Camerlenghi, 15W: Kenseth, 15S: Kenseth

In 13F, *Picasso: The Vollard Suite*.

Between 1930 and 1937 Picasso created a series of etchings known as the "Vollard Suite." This class will coincide with the Hood Museum's *Picasso: The Vollard Suite* exhibition, which includes the 100 etchings from the edition alongside works by Goya and Rembrandt. The class will explore the themes, techniques, and critical reception of the *Vollard Suite*, as well as its social and political context, and its dialogue with Surrealism and the art of the past.

*Dist: ART, WCult: W.*

In 14W, *Michelangelo*.

Michelangelo Buonarroti, called "Il Divino" in his own lifetime, was the dominant practitioner of painting, sculpture and architecture in sixteenth-century Italy. This course will focus on Michelangelo's most famous creations in the light of recent restorations and new scholarship. Finally, we will look at the intersection of his visual works with his biography: how these works relate to Michelangelo's creation of his own image, chiefly through the works of his biographers Vasari and Condivi.

*Dist: ART, WCult: W.*

In 14S, *Islamic Architecture*.

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 socio-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.

*Dist: ART, WCult: NW.*

In 14X, a topic in the history of architecture.

*Dist: ART.*

In 15W, a topic in Renaissance or Baroque art.

*Dist: ART, WCult: W.*

In 15S, *Velazquez and the Spanish Baroque*.

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.

*Dist: ART, WCult: W.*

Distribution: Varies. Offered: 13F: 10A; 14W: 10A; 14S: 10; 14X: 10A; 15W: 2A; 15S: 2A .

**ARTH 17 - Special Topics in the History of Art**

13F: Camerlenghi, 14W: Powers, 14S: Hornstein, 14F: Camerlenghi, 15W: Kangas, 15S: Coffey

In 13F, *Castles, Cloisters and Cathedrals*.

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.

*Dist: ART, WCult: W*

In 14W, *The Power of Place: Urban and Rural Images in American Art, 1900-1945*

By turn of the century, the forces of industrialization had shifted American national identity from agrarian to urban. Images of city and country made by American artists began to reflect a cultural anxiety over the consequences of this demographic shift. In this course we will explore the power of art associated with place in the first half of the twentieth-century in the United States, and

examine the social, economic and political context for this work.

*Dist: ART, WCult: W*

In 14S, *When Media Were New*.

This survey of different forms of modern reproductive visual media provides a historical perspective on contemporary habits of media consumption. In addition to focusing visual technologies that emerged over the past two hundred years (lithography, photography, film and video) we will also consider earlier developments such as printing cultures in early modern Europe to historicize the relationship between reproducibility, visual culture, and society.

*Dist: ART, WCult: W*

In 14F, *The Architecture of Late Antiquity*

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.

*Dist: ART, WCult: W*

In 15W, *Art and Archaeology of Israel* (identical to JWST 41).

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.

*Dist: ART, WCult: NW*

In 15S, *Introduction to Visual Culture*

What role does *visual* information play in our understanding of the world around us? How do we assess truth in paintings, photographs, medical illustrations, or websites? Does the power of the visual lie in the image, our interpretation, or the way it is deployed? These are some questions that will guide our study. This course is appropriate for any student. It will be run as a lecture/discussion/lab.

*Dist: ART*

Distribution: Varies. Offered: 13F: 2; 14W: 2; 14S: 10A; 14F: 2; 15W: 11; 15S: 12.

### **ARTH 20 - The Art of Ancient Egypt and the Ancient Near East**

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.

Distribution: ART; WCult: NW. Offered: 14W: 11; 15S: 10A.

### **ARTH 21 - Art in Ancient Greece: Temples, Gods, Heroes**

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.

Distribution: ART; WCult: W. Offered: 13F: 12.

### **ARTH 22 - Art in the Hellenistic era: from Alexander to Cleopatra**

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.

Distribution: ART; WCult: W. Offered: 15W: 2A.

### **ARTH 25 - Roman Art**

Corrigan

A study of architecture, sculpture, painting, and decorative arts in Rome and the Empire from the Republican period through the second century A.D. 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 the works made for private individuals.

Distribution: ART; WCult: W. Offered: 14W: 12.

**ARTH 30 - Early Christian Art**

Corrigan

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.

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

**ARTH 31 - Byzantine Art**

Corrigan

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

**ARTH 32 - Early Medieval Art**

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.

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

**ARTH 33 - Gothic Art and Architecture**

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.

Distribution: ART; WCult: W. Offered: 14S: 2A.

**ARTH 36 - Italian Medieval Art and Architecture, 1200-1400**

Randolph

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.

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

**ARTH 40 - Florence 1400-1450: Culture, Politics, Society**

Randolph

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.

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

**ARTH 41 - Italian Visual Culture, 1450-1500**

Randolph

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.

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

**ARTH 42 - The High Renaissance and Mannerism in Italy**

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.

Distribution: ART; WCult: W. Offered: 15S: 10A.

**ARTH 43 - Northern Renaissance Art**

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.

Distribution: ART. WCult: W. Offered: Not offered in the period from 13F through 15S.

#### **ARTH 45 - Southern Baroque Art**

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.

Distribution: ART; WCult: W. Offered: 14S: 10A.

#### **ARTH 46 - Northern Baroque Art**

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.

Distribution: ART; WCult: W. Offered: 15W: 10A.

#### **ARTH 48 - Rococo to Neoclassicism**

O'Rourke

This course explores the transformative period in European art and culture between 1700 and 1800, when the Rococo, seen as playful and decadent, gave way to the politically and morally charged art of Neoclassicism. We study painting, sculpture, and prints in France, England, and Italy in relation to academic art theory, the public sphere, the exhibition, the Grand Tour, colonialism, and the socio-political upheavals leading to the French Revolution. Artists include Hogarth, Boucher, Tiepolo, Kauffman, Reynolds, David.

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

#### **ARTH 49 - European Art in the Age of Revolution (1750-1850)**

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.

Distribution: ART; WCult: W. Offered: 13F: 10.

#### **ARTH 50 - Romanticism**

From the late eighteenth to the mid-nineteenth century the artistic and intellectual movement of Romanticism dominated European culture. Its emphasis on strong emotions, tumultuous nature, and individual imagination was seen as a reaction against the rationalism of Neoclassicism, and as a response to major social and political changes. This course explores key paintings, sculptures, and prints by Romantic artists from France, Britain, Germany, and Spain, including Delacroix, Géricault, Constable, Turner, Goya and Friedrich.

Distribution: ART. WCult: W. Offered: Not offered in the period from 13F through 15S.

#### **ARTH 51 - Realism, Impressionism and Post-Impressionism**

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.

Distribution: ART; WCult: W. Offered: 15W: 10.

#### **ARTH 52 - Building America: An Architectural and Social History**

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.

Distribution: ART; WCult: W. Crosslisted as: HIST 34.  
Offered: Not offered in the period from 13F through 15S.

### **ARTH 53 - Twentieth Century Art in Europe, 1900-1945**

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.

Distribution: ART; WCult: W. Offered: 14S: 2A.

### **ARTH 54 - The First Crisis of Modernism: Painting and Sculpture 1914-1945**

Offered: Not offered in the period from 13F through 15S.

### **ARTH 55 - Late and Post-Modernism: Art from 1945 to the Present**

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **ARTH 59 - Modern Architecture**

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.

Distribution: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **ARTH 60 - The Arts of China**

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.

Distribution: ART; WCult: NW. Offered: Not offered in the period from 13F through 15S.

### **ARTH 61 - Introduction to Korean Art**

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.

Distribution: ART; WCult: NW. Crosslisted as: AMES 21.06. Offered: 14W: 10A.

### **ARTH 63 - Sacred Art and Architecture of Japan**

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.

Distribution: ART; WCult: NW. Offered: 14F: 10.

### **ARTH 64 - The Japanese Painting Tradition**

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.

Distribution: ART; WCult: NW. Offered: 14S: 11.

### **ARTH 65 - Japanese Prints**

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.

Distribution: ART; WCult: NW. Offered: 15W: 11.

**ARTH 66 - The Camera in Nineteenth-Century Asia**

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.

Distribution: ART; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**ARTH 67 - Contemporary Arts of Asia**

Hockley

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.

Distribution: ART; WCult: NW. Offered: 14W: 10; 14F: 12.

**ARTH 68 - Modern and Contemporary Korean Art**

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.

Distribution: ART; WCult: NW. Crosslisted as: AMES 21.07. Offered: 13F: 10A; 15W: 10A.

**ARTH 70 - American Art and Identity**

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.

Distribution: Dist: ART; WCult: CI. Offered: 15W: 12.

**ARTH 71 - The "American Century": Modern Art in the United States**

Coffey

This course surveys visual culture in North America over the twentieth century. 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.

Distribution: Dist: ART; WCult: CI. Offered: Not offered in the period from 13F through 15S.

**ARTH 72 - Mexican Muralism**

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.

Distribution: Dist: ART; WCult: CI. Offered: Not offered in the period from 13F through 15S.

**ARTH 75 - Twentieth Century Art from Latin America**

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.

Distribution: Dist: ART; WCult: CI. Crosslisted as: LACS 78. Offered: 14S: 10.

**ARTH 76 - Mexican Modernism**

Coffey

This course surveys Modern art in Mexico from the turn of the twentieth century through the late 1960s. The course emphasizes Mexican muralism, but we will also examine alternative modernisms developing simultaneously and in opposition to this dominant discourse. We will survey painting, sculpture, murals, photography, popular graphics, folk art, architecture, and urban planning. Class will be devoted to the analysis of visual as well as textual materials from the period.

Distribution: Dist: ART; WCult: CI. Offered: Not offered in the period from 13F through 15S.

### **ARTH 81 - Domes**

Camerlenghi

For over three millennia, domes have graced the skyline of human settlements and crowned the most important buildings of a civilization. Historically, domes have covered everything from kilns to tombs, from bell-towers to latrines; however, most significantly, they were built atop places of worship and commemoration. This research seminar explores the development of domes and examines the social, cultural and religious factors that favored the development and proliferation of this monumental architectural form.

Offered: 15W: 3A.

### **ARTH 82 - Advanced Seminar**

Offered: Not offered in the period from 13F through 15S.

### **ARTH 83 - Advanced Seminar**

Offered: Not offered in the period from 13F through 15S.

### **ARTH 84 - Media and Meaning in Renaissance Sculpture**

Randolph

Wood, bronze, marble, and clay: these are the materials we associate with the astonishing variety of Renaissance Italian sculpture. This seminar offers students the opportunity to research and discuss fascinating works of art, focusing on meanings generated not only through symbols and figures, but also through the materials used.

Offered: 13F: 2A.

### **ARTH 85 - Senior Seminar in Art Historical Theory and Method**

Cohen

This course, identical to ARTH 86, constitutes the Culminating Experience in the Art History major.

Offered: 13F: 3A; 14F: 10A.

### **ARTH 86 - Senior Seminar in Art Historical Theory and Method**

Hornstein

This course, identical to ARTH 85, constitutes the Culminating Experience in the Art History major.

Offered: 14W: 2A.

### **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: 13F, 14W, 14F, 15W: 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: 14W, 14S, 15W, 15S: 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, L. Harb; Senior Lecturers N. Ben Yehuda, J. Chahboun, M. Ishida, A. Li, M. Ouajjani, I. W. Watanabe; Lecturers Z. Chen, S. Nozawa; Visiting Professors F. M. Wu; Visiting Lecturer F. Shi.

*To view Asian and Middle Eastern Languages and Literature courses, click here.* (p. 108)

*To view Arabic courses, click here* (p. 108).

*To view Chinese courses, click here* (p. 112).

*To view Hebrew courses, click here* (p. 117).

*To view Japanese courses, click here* (p. 119).

### 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. 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. AMELL 17 or AMELL 18 cannot count towards the minor.

### Foreign Study Programs

*Dartmouth Foreign Study Program in Tangier, Morocco*

Prerequisites: ARAB 10 and two out of the following three courses, with a B+ average or permission of the director: ARAB 21, ARAB 22, ARAB023, ARAB 025, or the equivalent.

The Dartmouth Arabic Foreign Study Program is held in Tangier, Morocco during the fall term. The FSP offers two credits in Modern Standard Arabic at the advanced level (ARAB 31 and ARAB 32), one credit for ARAB 11, a seminar taught by the program director in residence. In addition, students will participate in regularly scheduled cultural trips, cooking and music lessons, lectures on

Morocco, and meals with Moroccan families. For application and further information, please contact the Off Campus Programs Office, 44 North College Street.

Not offered in the 2013-2014 academic year.

*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.

The summer FSP will not be offered in 2014; students interested in study in China should consider the fall LSA+.

*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 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. 106)

#### 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

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.

Distribution: SOC or INT; WCult: CI. Crosslisted as: LING 11. Offered: 13F: 2A.

#### AMEL 18 - Language and Society in Asia and the Middle East

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.

Distribution: SOC or INT; WCult: CI. Offered: 14X, 14F: 10A.

#### AMEL 85 - Independent Research

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

Open only to AMELL majors who are participating in the Honors Program. See guide-lines under 'Honors Program.'

Offered: All terms: Arrange.

### ARAB - Arabic Courses

*To view Arabic requirements, click here* (p. 106).

#### ARAB 1 - First-Year Courses in Arabic

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 13F, 14F: 8, 9S, 9S.

### **ARAB 2 - First-Year Courses in Arabic**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 14W, 15W: 9S, 9S .

### **ARAB 3 - First-Year Courses in Arabic**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 14S, 15S: 9S, 9S.

### **ARAB 10 - Introduction to Arab Culture (Identical to AMES 4)**

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.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: AMES 4. Offered: 14S, 15W: 10A.

### **ARAB 11 - Special Topics in Arabic Studies [NOTE: Not offered in 13F]**

Staff

Distribution: Dist: LIT; WCult: NW. Offered: 14F: D.F.S.P. (Dartmouth in Morocco).

### **ARAB 21 - Intermediate Arabic**

Chahboun

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.

Distribution: WCult: NW. Offered: 13F: 10, 14F: 11.

### **ARAB 22 - Intermediate Arabic**

Ouajjani

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: ARAB 3 or equivalent. Offered: 14W: 10 15W: 11.

### **ARAB 23 - Intermediate Arabic**

Chahboun

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: ARAB 3 or equivalent. Offered: 14S, 15S: 10.

### **ARAB 24 - Formal Spoken Arabic**

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: ARAB 3 or equivalent. Offered: Not offered in the period from 13F through 15S.

### **ARAB 25 - Moroccan Arabic**

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 an intermediate, second year language course and may not be counted as one of the four required upper-level language courses for the AMELL-Arabic major or the AMELL-Arabic modified major.

Distribution: WCult: NW. Prerequisite: ARAB 3, or the equivalent, or permission of the instructor. Offered: 14X, 15X: 12.

### **ARAB 31 - Advanced Arabic**

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.

Distribution: WCult: NW. Prerequisite: Two out of the following three courses: ARAB 21, ARAB 22, ARAB 23, or permission of the instructor, or the equivalent. . Offered: 13F, 14F: 11 .

### **ARAB 32 - Advanced Arabic**

Chahboun, Smolin

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.

Distribution: WCult: NW. Prerequisite: Two out of the following three courses: ARAB 21, ARAB 22, ARAB 23, or permission of the instructor, or the equivalent. . Offered: 14W: 10 15W: 2A.

### **ARAB 33 - Advanced Arabic**

Ouajjani, Smolin

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.

Distribution: WCult: NW. Offered: 14S: 10 15S: 10A.

### **ARAB 34 - Media Arabic**

Kadhim

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).

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two second-year level Arabic courses or permission of the instructor. . Offered: Not offered in the period from 13F through 15S.

### **ARAB 41 - Advanced Arabic**

Smolin, 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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Arabic courses, or permission of the instructor. Offered: 13F: 10A 14F: By arranged time.

### **ARAB 42 - Advanced Arabic**

Harb

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Arabic courses, or permission of the instructor. Offered: 14W, 15W: 2.

### **ARAB 43 - Advanced Arabic**

Harb

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Arabic courses, or permission of the instructor. Offered: 15S: 2.

### **ARAB 51 - Introduction to Classical Arabic**

Kadhim

This course provides an introduction to the styles and genres of Classical and Qur'anic Arabic. Close reading of a number of pre-modern literary, scientific, historical, and

theological texts (including the Qur'an, Hadiths, and Islamic exegetical traditions) will be undertaken. A systematic review of classical Arabic grammar will also be undertaken. A main objective of the course is to equip students with the skills required for the study, critical analysis, and interpretation of primary sources for Arab-Islamic civilization. Prerequisites: Two second-year level Arabic courses or permission of the instructor. Kadhim.

Distribution: Dist: LIT; WCult: NW. Offered: 15W: Arrange.

### **ARAB 59 - Independent Advanced Study in Arabic Language and Literature**

Staff

Available to students who wish to do advanced or independent study in Arabic. 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.

Distribution: 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.**

Harb, Smolin

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.

In 14W and 15W, *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? Harb.

In 15S, *Modern Arabic Fiction*.

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. Smolin.

Distribution: Dist: LIT; WCult: NW. . Offered: 14W, 15W: 2A 15S: 2A.

### **ARAB 62 - Topics in Classical Arabic Literature and Culture**

Harb

Classical Arabic literature spans over thirteen centuries from pre-Islamic times until the advent of the modern Arab "renaissance" in the 19th and 20th centuries. Among the outstanding products of this literature are the famed pre-Islamic qasidahs, the adab works of the Abbasid al-Jahiz, the maqamas of al-Hariri, the exquisite lyrics of the Andalusian Ibn Zaydun, and the celebrated One Thousand and One Nights. Each offering of the course will focus on a particular author, genre, theme, or period. The course is conducted entirely in English. May be repeated for credit if topic varies.

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.

In 14S and 15S, *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? Harb.

*The Arabian Nights East and West* (Identical to COLT 35; not offered in the period from 13F through 15S)

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. Kadhim.

Distribution: Dist: LIT; WCult: NW. Offered: 14S, 15S: 2A.

**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.

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**ARAB 81 - Topics in Arabic Literature and Culture**

Smolin, Kadhim

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.

In 13F, *The New Arabic Novel*.

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. Smolin.

In 14F: Arranged. *The Arabic Novel: Narrating Tradition, Change, and Identity*.

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. Kadhim.

Distribution: Dist: LIT; WCult: NW. Offered: 13F: 2A 14F: Arrange.

**CHIN - Chinese Courses**

To view Chinese requirements, [click here](#) (p. 106).

**CHIN 1 - First-Year Courses in Chinese**

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.

Distribution: Satisfactory completion of Chinese 3 fulfills the language requirement. Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 13F: 9S, 10+ 14F: 9S, 9S, 10+.

**CHIN 2 - First-Year Courses in Chinese**

Mowry, Gibbs, Blader

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.

Distribution: Satisfactory completion of Chinese 3 fulfills the language requirement. Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 14W, 15W: 9S, 10+.

**CHIN 3 - First-Year Courses in Chinese**

Gibbs, 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.

Distribution: Satisfactory completion of Chinese 3 fulfills the language requirement. Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 14S: 9S, 10+ 15S: 9S, 9S.

#### **CHIN 4 - Advanced First-Year Chinese**

Li, Chen

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.

Distribution: Students who plan to use this course to fulfill the language requirement may not take it under the Non-Recording Option. Never serves in partial satisfaction of Distributive or World Culture requirements. Offered: 13F, 14F: 9S, 9S, 10+.

#### **CHIN 10 - Introduction to Chinese Culture**

Xing, Blader

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 FSP, for the major, and the minor.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: AMES 12. Offered: 14S: 12 15W: 2.

#### **CHIN 11 - Special Topics in Chinese Studies**

Staff

FSP director's course.

Distribution: WCult: NW. Offered: Not offered in the period from 13F through 15S.

#### **CHIN 22 - Intermediate Modern Chinese (Second-year level)**

Chen, Li

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.

Distribution: Dist: LIT; WCult: NW. Offered: 14W: 9S, 12 15W: 11, 12.

#### **CHIN 23 - Intermediate Modern Chinese (Second-year level)**

Chen, Shi, Li

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.

Distribution: Dist: LIT; WCult: NW. Offered: 14S: 9S, 10+ 15S: 9S, 11.

#### **CHIN 31 - Advanced Modern Chinese (Third-year level)**

Shi, staff

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: CHIN 23 or permission of the instructor. Offered: 13F, 14F: 10.

**CHIN 32 - Advanced Modern Chinese (Third-year level)**

Shi, staff

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: CHIN 23 or permission of the instructor. Offered: 14W: 11 15W: 10.

**CHIN 33 - Advanced Modern Chinese (Third-year level)**

Shi, staff

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: CHIN 23 or permission of the instructor. Offered: 14S: 11 15S: 10.

**CHIN 41 - Advanced Chinese (Fourth-year level)**

Shi, staff

Advanced readings from literary, political, and historical publications.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Chinese courses or permission of the instructor. Offered: 14X, 15X: 10.

**CHIN 42 - Advanced Chinese (Fourth-year level)**

Shi, staff

Advanced reading from literary, political, and historical publications.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Chinese courses or permission of the instructor. Offered: 13F, 14F: 9S.

**CHIN 43 - Advanced Chinese (Fourth-year level)**

Li

Advanced reading from literary, political, and historical publications.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Chinese courses or permission of the instructor. Offered: 14W, 15W: 11.

**CHIN 44.1 - Chinese Martial Arts Fiction**

Xing

This course is an introduction to the Chinese literary genre of martial arts fiction, including the world of Chinese martial arts, especially taijiquan. It will focus on Yitian tulong ji (Heaven Sword and Dragon Saber: literally, The Tale of Relying on Heaven to Slay the Dragon) by Jin Yong (Louis Cha), the most successful and influential contemporary Chinese martial arts fiction writer. Supplementary readings of the relevant original classics on martial arts will also be introduced.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Chinese courses or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

**CHIN 44.2 - Modern Chinese Poetry**

Xing

An introduction to modern Chinese poetry. Rebellious 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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Chinese courses or permission of the instructor. Offered: 15S: 10A.

**CHIN 51 - Introduction to Classical Chinese**

Allan

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.).

Distribution: Dist: LIT; WCult: NW. Prerequisite: First-year Chinese. This course is a requirement for majors in the Chinese language and literature track. Offered: 14W, 15W: 10A .

**CHIN 52 - Readings in Classical Chinese: Daoist Philosophical Texts**

Allan

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.

Distribution: Dist: TMV; WCult: NW. Prerequisite: CHIN 51, or consent of the instructor. CHIN 52 may be considered a non-language course. Offered: 15S: 10A.

**CHIN 53 - Readings in Classical Chinese: Confucian Philosophical Texts**

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.

Distribution: Dist: TMV; WCult: NW. Prerequisite: CHIN 51, or consent of the instructor. CHIN 53 may be considered a non-language course. Offered: 14S: 2A.

**CHIN 54 - Classical Chinese Poetry**

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: CHIN 51 or permission of the instructor. . Offered: 14F: 10A.

**CHIN 59 - Independent Advanced Study in Chinese Language and Literature**

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.

Distribution: Dist: LIT; WCult: NW. Offered: All terms except summer, subject to faculty availability: Arrange.

**CHIN 61 - Topics in Modern Chinese Literature and Culture**

Gibbs

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.

In 15S, *Love and Desire in Modern Chinese Literature*. 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. Gibbs.

Distribution: Dist: LIT; WCult: NW. Offered: 15S: 2A.

**CHIN 62 - Topics in Traditional Chinese Literature and Culture**

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.

In 13F and 14F, *Chinese Calligraphy*.

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.

Distribution: Dist: ART; WCult: NW. Offered: 13F: 10A 14F: 2A.

**CHIN 63 - Themes in Chinese Literature and Culture**

Gibbs, Xing, Mowry

Courses under this rubric will provide the student with a comprehensive view of the most frequently occurring themes in Chinese literary writings from the second millennium B.C.E. to the present. The most prominent among these themes are love (patriotic, familial, romantic, and platonic) and social protest. Individual literary genres in China have traditionally been associated, in a general way, with historical/dynastic periods. Therefore, tracing the evolution, for example, of the theme of romantic love will lead the student through the multiplicity of ways that an idea can be transformed by diverse literary mediums and different historical periods. In reaching a fundamental understanding through literature of the Chinese way of looking at a specific idea as it evolved over time, we will understand better the uniqueness of both Chinese values and institutions.

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.

In 13F, *Languages of China*. Identical to, and described under, LING 11. Pulju.

In 14W and 15W, *Traditional Performance in China: Past and Present*. (Pending approval.) 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. Gibbs.

In 14S, *Chinese Painting, Poetry and Philosophy*. (Pending approval.) Xing.

In 15S, *Women in China*. 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. Mowry.

Distribution: Dist: LIT; WCult: NW. Offered: 14W, 15W: 2A 14S: 3B 15S: 11.

**CHIN 81 - Lu Xun and Hu Shi**

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.

Distribution: Dist: LIT; WCult: NW. Offered: 14F: 2A.

**CHIN 82 - Chinese Calligraphy and Manuscript Culture: Orchid Pavillion**

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.

Distribution: Dist: ART; WCult: NW. Offered: 13F, 15S: 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.

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F through 15S.

## **HEBR - Hebrew Courses**

*To view Hebrew requirements, click here* (p. 106).

### **HEBR 1 - First-Year Courses in Modern Hebrew**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 13F, 14F: 2.

### **HEBR 2 - First-Year Courses in Modern Hebrew**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 14W, 15W: 2.

### **HEBR 3 - First-Year Courses in Modern Hebrew**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 14S, 15S: 2.

### **HEBR 10 - Introduction to Hebraic and Israeli Culture**

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.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: Identical to AMES 17 and JWST 16. Offered: 14W, 15S: 10A.

### **HEBR 21 - Intermediate Modern Hebrew**

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: HEBR 3 or permission of instructor. Offered: 13F, 14F: By arranged time.

### **HEBR 22 - Intermediate Modern Hebrew**

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: HEBR 3 or permission of instructor. Offered: 14S, 15S: by arranged time.

### **HEBR 23 - Intermediate Modern Hebrew**

Ben Yehuda

Distribution: Dist: LIT; WCult: NW. Prerequisite: HEBR 22 or permission of instructor. Offered: Not offered in the period from 13F through 15S.

### **HEBR 31 - Advanced Modern Hebrew**

Distribution: Dist: LIT; WCult: NW. Prerequisite: HEBR 23 or permission of instructor. Offered: Not offered in the period from 13F through 15S.

### **HEBR 32 - Advanced Modern Hebrew**

Distribution: Dist: LIT; WCult: NW. Prerequisite: HEBR 31 or permission of instructor. Offered: Not offered in the period from 13F through 15S.

**HEBR 33 - Advanced Modern Hebrew**

Distribution: Dist: LIT; WCult: NW. Prerequisite: HEBR 32 or equivalent. Offered: Not offered in the period from 13F through 15S.

**HEBR 51 - The Hebrew of the Bible**

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.

Distribution: Dist: LIT; WCult: NW. Crosslisted as: JWST 24.1. Offered: 14W, 15W: By arranged time.

**HEBR 52 - Readings in Biblical Hebrew**

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.

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**HEBR 59 - Independent Advanced Study in Hebrew Language and Literature**

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.

Distribution: Dist: LIT; WCult: NW. Offered: All terms except summer, subject to faculty availability: Arrange.

**HEBR 61 - Topics in Modern Hebrew Literature and Culture**

Glinert

Emerging in 18th and 19th century Europe, Modern Hebrew literature produced the Hasidic anecdote and fable seeking to revitalize the religious Jewish masses; then the excited and tortured novels and poetry of Jewish intellectuals seeking to Westernize themselves while remaining true to their roots; and now, the radically different literature of contemporary Israel dealing with Zionism, modernity, the lonely individual, war and peace.

Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of Hebrew. There

are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

In 13F and 15S, *Film, Fiction, and the Arab-Israeli Conflict* (Identical to Jewish Studies 42). 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. Glinert.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: Identical to JWST 42. Offered: 13F: 10A; 15S: 2A.

**HEBR 62 - Topics in Classical Hebrew Literature and Culture**

Glinert

Classical Hebrew literature spans 3000 years, from the Biblical period until the advent of Jewish 'modernity' in the 18th-19th centuries, and reflects the lives and values of Jews in their ancient homeland and across the Ashkenazi and Sephardi diasporas. Among the outstanding products of this literature, whose effects on Jewish and Western civilization have been incalculable, are the Bible, the Midrash, and Talmud of late Antiquity. Medieval Hebrew genres include the theological and erotic poetry of Spain and Italy, the laments of the Crusades, the travelogue, ethical fables, philosophical essays, and Messianic folklore. Courses listed under HEBR 62 are open to students of all classes.

Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of Hebrew. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

*Midrash: How the Rabbis Interpreted the Bible* (Identical to JWST 24.3 (p. 314)). 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.

Distribution: Dist: LIT; WCult: NW. Crosslisted as: Identical to JWST 24.3. Offered: Not offered in the period from 13F through 15S.

**HEBR 63 - Themes in Hebrew Literature and Culture**

Glinert

Committed to tradition but irresistibly changing, Hebrew literature across the centuries has created a delicate set of modulations on major themes, which may be deemed leitmotifs of Jewish culture and which continue to surface even in secular Israel. Among them are love and the mystical eros, holy land and holy people, the sacrifice of Isaac and martyrdom, exile and the messiah.

Courses numbered 61 - 63 are literature-in-translation courses, and do not require knowledge of Hebrew. There are no prerequisites and courses are open to students of all classes. They may be repeated for credit if the topic varies.

In 14X and 14F, *Jewish Humor and its Roots: Rabbis, Rogues, and Schlemiels* (Identical to JWST 24.2). 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. Glinert.

Distribution: Dist: LIT; WCult: W. Crosslisted as: Identical to JWST 24.2. Offered: 14X, 14F: 2A.

### **HEBR 81 - Topics in Hebrew Literature and Culture**

Glinert

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F through 15S.

### **JAPN - Japanese Courses**

To view Japanese requirements, [click here](#) (p. 106).

#### **JAPN 1 - First-Year Courses in Japanese**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 13F, 14F: 9S, 9S.

#### **JAPN 2 - First-Year Courses in Japanese**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. Offered: 14W, 15W: 9S, 9S.

#### **JAPN 3 - First-Year Courses in Japanese**

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.

Distribution: Never serve in partial satisfaction of Distributive or World Culture requirements. . Offered: 14S, 15S: 9S, 9S.

#### **JAPN 10 - Introduction to Japanese Culture**

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. Open to all classes. Required for the LSA+, major and minor.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: AMES 13. Offered: 14S, 15S: 11.

#### **JAPN 11 - Special Topics in Japanese Studies**

Dorsey

Distribution: WCult: NW. Offered: 14X, 15X: D.L.S.A.+ (Dartmouth in Japan).

**JAPN 22 - Intermediate Modern Japanese**

Dorsey

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.

Distribution: WCult: NW. Offered: 14X, 15X: D.L.S.A.+ (Dartmouth in Japan).

**JAPN 23 - Intermediate Modern Japanese**

Dorsey

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.

Distribution: WCult: NW. Offered: 14X, 15X: D.L.S.A.+ (Dartmouth in Japan).

**JAPN 31 - Advanced Japanese**

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: JAPN 23 or permission of instructor. Offered: 13F, 14F: 11.

**JAPN 32 - Advanced Japanese**

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: JAPN 31 or permission of instructor. Offered: 14W, 15W: 11.

**JAPN 33 - Advanced Japanese**

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: JAPN 32 or permission of instructor. Offered: 14S:10 15S: 11.

**JAPN 41 - Advanced Japanese**

Watanabe

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: Two third-year level Japanese courses, or permission of the instructor. Offered: 13F, 14F: 11.

**JAPN 42 - Advanced Japanese**

Dorsey, 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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: JAPN 41 or permission of the instructor. Offered: 14W, 15W: 2.

**JAPN 43 - Advanced Japanese**

Dorsey

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: JAPN 41 or JAPN 42, or permission of the instructor. Offered: 15S: 2.

**JAPN 59 - Independent Advanced Study in Japanese Language and Literature**

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.

Distribution: Dist: LIT; WCult: NW. Offered: All terms except summer, subject to faculty availability: Arrange.

**JAPN 61 - Topics in 20th Century Japanese Literature and Culture**

Nozawa

Classes offered under this rubric deal with major figures, themes, or issues of twentieth-century Japanese 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.

In 13F, *The Culture of Anime and Manga* (Identical to COLT 40.02). This course explores various analytic frameworks for understanding Japanese manga and anime as sociocultural phenomena. From a cultural anthropological perspective, we want to understand how manga and anime texts constitute a “culture” in a distinctive way and how it relates to existing sociohistorical conditions and aesthetic traditions. We may also call this culture “otaku culture,” in so far as this is how some of its participants and observers habitually describe it today. Contemporary otaku cultural experience and sensibility touch on a wide variety of issues and ideas including nationalism, globalization, locality, technology, gender, subjectivity, postwar history, death, the human, the animal, and the inanimate. As such, the culture of anime and manga is not simply a convenient window through which to explore “Japanese culture” but is itself a heterogeneous site of cultural action, norms, desires, aesthetics, economy, and politics. *Dist: LIT; WCult: NW.* Nozawa.

In 14W, *Everyday Life and Memory in Postwar Japan*. This course examines diverse techniques of memory-making in postwar Japan. In particular, we will be interested in the personal, everyday, and affective dimensions of memory-making practices and narratives. What does history look like when viewed through the lens of everyday practices and personal desires? How should we account for the relationship between macrohistories of social groups and microhistories of personal, idiosyncratic experience? Drawing on social history, cultural anthropology, studies in autobiography, and material culture studies, we explore diverse topics such as: postwar/postcolonial politics of memory; life history writing; trauma and healing; archives, monuments, and mementos; nostalgia; funerary practices. *Dist: LIT; WCult: NW.* Nozawa.

In 14S, *The Politics of Language in Modern Japan* (Identical to ANTH 50.8). This course examines linguistic practice as a mediator of sociopolitical interests in contemporary Japan. Drawing on linguistic anthropology, sociolinguistics, literary studies, and semiotics, we seek to understand complex conditions of power relations that

shape and are shaped by the way people in Japan communicate (“pragmatics”) and reflexively talk about communication (“meta-pragmatics”). Our basic aim is to analytically delineate the meta-pragmatic/ hegemonic stereotype of Japan as a homogeneous ethnolinguistic community and to consider critical alternatives to it. We will explore ethnographic accounts of heterogeneous sites of language-in-use, and address issues such as language standardization, globalization, gender and race relations, subcultures, affect, and political economy. *Dist: LIT; WCult: NW.* Nozawa.

Distribution: Dist: LIT; WCult: NW. Offered: 13F: 10A 14W: 2A 14S: 12.

### **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.

*Word and Image in Modernizing Japan.* Images and text have been variously combined in the Japanese tradition, from the ancient picture scrolls to today’s manga (comics). This course traces the evolution of such media in early modern Japan, with a focus on the late nineteenth century shift from the “communal reading” of visually-oriented texts to the silent, solitary reading of fiction. Some consideration will also be given to the re-emergence of the visual imagination in film, manga, and animation. *Dist: LIT; WCult: NW.* Dorsey.

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F through 15S.

### **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.

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**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.

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**Asian and Middle Eastern Studies**

Chair: Allen F. Hockley

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), J. L. Fluri (Women's and Gender Studies and Geography), A. F. Hockley (Art History), J. M. Lind (Government), 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), 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), B. P. Giri (English), L. Harb (AMEL), S. L. Kim (AMES and Art History), J. Smolin (AMEL), 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), D. G. Ehrlich (AMES), F. M. Wu (AMEL); Visiting Assistant Professor C. A. Fox (Geography); Visiting Lecturer F. Shi (AMEL); Mellon Postdoctoral Fellows D. Paudel (Geography), M. Yessayan (Women and Gender Studies).

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. 124).*

**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 AMES 91 or a substitute as described above (another advanced research seminar or AMES 86); and five non-language courses in the selected area. Like major programs, minors should be carefully planned in consultation with an advisor.

Beginning with the Class of 2013, AMES majors and minors will be required to take one interregional course as part of their program of study: either AMES 40 or another preapproved course of an interregional nature. 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 for the 2013-2014 academic year will be presented and defended in the third week of May 2014, and will need to be submitted one week before the end of spring term, 2014. 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 5.2, HIST 68, HIST 69, HIST 71, HIST 89, REL 8, or REL 16. 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.

### **Dartmouth Foreign Study Program in Hyderabad, India**

AMES also offers, in partnership with the Women's and Gender 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 Telegu 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 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 one preapproved course with a grade of B or higher in Asian and Middle Eastern Studies or Women's and Gender Studies. Contact the AMES Chair for a current list of approved AMES prerequisites.

For an application or further information, visit the Off Campus Programs Office, 44 North College Street, or go to the OCP web site.

### **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.

### **Other Approved Courses in Ames**

All departmental and program courses that have been approved for credit toward the AMES major are listed by area of concentration on the AMES web site: <http://www.dartmouth.edu/~asia/>, or on the planning sheets available outside the AMES/DAMELL office in Bartlett Hall or downloadable from the web site.

### **AMES - Asian and Middle Eastern Studies Courses**

*To view Asian and Middle Eastern Studies requirements, click here (p. 122).*

#### **AMES 1 - Hindi-Urdu as a Cultural System**

Hindi is written in the script used for Sanskrit, the classical language of Hinduism, which provides its more elevated vocabulary. Urdu draws its script, as well as its fancier registers, from Persian and Arabic. But in grammar the two languages are virtually the same. Is Hindi for Hindus, and Urdu for Muslims? What does it mean for language to be divided along lines of religion? This course's language training component will introduce Devanagari script and some grammar and basic conversation. We will also explore literary genres and other forms of expression, including modern Hindi-Urdu culture's most popular vehicle--Bollywood cinema.

Distribution: Dist: SOC; WCult: CI. Offered: Not offered in the period from 13f through 15s.

#### **AMES 4 - Introduction to Arab Culture**

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.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: Identical to ARAB 10. Offered: 14S, 15W: 10A.

### **AMES 5 - Thought and Change in the Middle East and Central Asia**

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.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: Identical to ANTH 27. Offered: 14S: 10A.

### **AMES 6 - Islam: An Anthropological Approach**

Eickelman

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: Identical to ANTH 19. Offered: Not offered in the period from 13F through 15S.

### **AMES 8 - Introduction to Islam**

Reinhart

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: Identical to REL 8 . Offered: 14X: 10.

**AMES 9 - Hinduism**

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, Sanskritic Hinduism and its constant interaction with popular and local traditions.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: Identical to REL 9 . Offered: 14S: 11.

**AMES 10 - The Religions of China**

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: Identical to REL 10. Offered: 14W: 10.

**AMES 11 - Introduction to Korean Culture**

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: HIST 9. Offered: 13F: 2A; 14W: 2A.

**AMES 12 - Introduction to Chinese Culture**

Xing, Blader

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.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: Identical to CHIN 10. Offered: 14S: 12, 15W: 2.

**AMES 13 - Introduction to Japanese Culture**

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.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: Identical to JAPN 10 . Offered: 14S, 15S: 11.

**AMES 15 - Modern Islam**

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: Identical to REL 16. Offered: 14S, 15S: 12.

**AMES 17 - Introduction to Hebraic and Israeli Culture**

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.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: Identical to HEBR 10 and JWST 16. Offered: 14W, 15S: 10A.

**AMES 18 - History and Culture of Indonesia**

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.

Distribution: WCult: NW. Offered: Terms: TBA.

### **AMES 19 - Introduction to South Asia**

Distribution: WCult: NW. Offered: Not offered in the period from 13F through 15S.

### **AMES 21 - Topics in Korean Studies**

See descriptions below.

Distribution: Varies.

#### **AMES 21.01 - Cultural Struggles in Colonial Korea**

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.

Distribution: Dist: ART or INT; WCult: NW. Offered: Not offered in the period from 13f though 15s.

#### **AMES 21.02 - Science and Technology in the Making of Modern Korea**

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: HIST-6. Offered: Not offered in the period from 13f through 15s.

#### **AMES 21.03 - Exploring Korea Through Film**

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.

Offered: 14W: 3A, 15S: 3A.

#### **AMES 21.04 - North Korea, Origins and Transitions**

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.

Distribution: DIST: SOC; WCult: NW. Crosslisted as: HIST 6. Offered: 14W:11, 15W:11.

#### **AMES 21.05 - Christianity in Korea**

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.

Distribution: DIST: TMV; WCult: NW. Crosslisted as: HIST 78, REL 32. Offered: 14S: 11; 14F: 11.

#### **AMES 21.06 - Introduction to Korean Art**

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 20<sup>th</sup> century. No prior knowledge of Korean art or history, or of the Chinese or Korean language, is expected.

Distribution: DIST: ART; WCult: NW. Crosslisted as: ARTH 61. Offered: 14W: 10A.

#### **AMES 21.07 - Modern and Contemporary Korean Art**

Kim

This course examines the art and culture of Korea from the end of the 19<sup>th</sup> century through the 20<sup>th</sup> 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.

Distribution: DIST: ART; WCult: NW. Crosslisted as: ARTH 68- Cross List Pending. Offered: 13F: 10A, 14W: 10A.

#### **AMES 24 - Asian Performance Traditions**

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.

Distribution: Dist: ART; WCult: NW. Crosslisted as: Identical to THEA 24. Offered: 14S: 2A .

#### **AMES 25 - Unveiling the Harem Dancer**

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.

Distribution: Dist: INT; WCult: NW. Crosslisted as: Identical to THEA 10 and WGST 59.3. Offered: 14W: 12.

#### **AMES 26 - Anthropology of Tibet and the Himalayas**

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.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: Identical to ANTH 32. Offered: 15S: 2A.

#### **AMES 27 - Gender and Modern Media in India**

Ohnuma, TBA

Credit for this course is given to students who successfully complete this course at the University of Hyderabad while on the AMES/WGST FSP.

Distribution: WCult: NW. Crosslisted as: WGST 91. Offered: 14W, 15W: D.F.S.P.

#### **AMES 28 - Contemporary Social Movements in India**

Ohnuma/TBA

Credit for this course is given to students who successfully complete this course at the University of Hyderabad while on the AMES/WGST FSP.

Distribution: WCult: NW. Crosslisted as: WGST 92. Offered: 14W, 15W: D.F.S.P.

#### **AMES 29 - Foreign Study in India**

Ohnuma, TBA

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/WGST FSP. Topics vary from year to year.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: WGST 90. Offered: 14W, 15W: D.F.S.P.

**AMES 30 - Global Sounds**

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.

Distribution: Dist: ART; WCult: NW. Crosslisted as: Identical to MUS 4. Offered: 13F: 10A, 14F: 10A.

**AMES 35 - Visual Cultures of South Asia**

Elison

Are ways of seeing and showing culturally constructed? Drawing on approaches from religious studies, anthropology, art history, and media studies, this course will present and theorize a range of visual practices specific to the societies of historical and contemporary South Asia. Contexts include religious practices, including but not limited to Hindu visual worship, or darshan; classical and contemporary art and architecture; norms of selfpresentation (or self-effacement) involving religion, caste, and especially gender; performance genres; political spectacle; and cinema, both ethnographic works and commercial productions.

Distribution: Dist: ART; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**AMES 36 - Topics in the Religions of India**

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."

Distribution: Dist: TMV; WCult: NW. Crosslisted as: Identical to REL 40. Offered: Not offered in the period from 13F through 15S.

**AMES 39 - Tibetan Buddhism**

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**AMES 40 - Asian Animation as Socio-Political Artifact**

Ehrlich

Because animated films have traditionally been targeted at children, animators in Asia have often been able to sidestep much of the political control exercised by some of their more centralized governments to create sophisticated artistic works. Students will analyze works from China,

Japan, Korea, India and Iran within a socio-political and cultural context. Faculty from AMES will provide guest lectures on Asian history and politics.

Distribution: Dist: INT or ART; WCult: NW. Crosslisted as: FILM 42. Offered: 13F: 2A.

**AMES 40.01 - Magic and Supernaturalism in Asian Literature and Film**

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*.

Distribution: Dist: LIT; WCult: NW. Offered: Not offered in the period from 13F to 15S.

**AMES 40.02 - Nomads from Central Asia to the Middle East: Historical and Contemporary Perspectives**

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.

Distribution: Dist: INT or SOC; WCult: NW. Offered: 15S.

**AMES 41 - Topics in the Middle East**

Distribution: Varies.

**AMES 41.01 - Feminism, Islam and Modernity in the Muslim World**

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.

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: WGST 52.3. Offered: 14S.

### **AMES 42 - Topics in South and South East Asian Studies**

Distribution: Varies .

#### **AMES 42.02 - Visual Cultures of Tibet and the Himalaya: Identity and the Transformation of Tradition**

How are traditions represented and re-interpreted in the making of cultural and national identity? This course draws from religious studies, art history, and anthropology to study how Tibetan and Himalayan identities are made and negotiated through art, Buddhist ritual objects and performances, temples, museums, and cities. Our case studies will extend from Tibet to Bhutan, Mustang, Tibetan exile communities in India and Nepal, and the circulation of Tibetan objects around America and worldwide.

Distribution: Dist: ART; WCult: NW. Offered: Not offered in the period from 13F to 15S.

#### **AMES 42.03 - Environment and Development in South Asia**

Paudel

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.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: GEOG 42. Offered: 13F: 11.

#### **AMES 43 - Topics in East Asia**

Distribution: Varies.

#### **AMES 43.01 - Environment and Development in the Himalaya and Tibet**

Crosslisted as: GEOG 80. Offered: Not offered in the period from 13F to 15S.

#### **AMES 43.03 - Tokyo and Shanghai as Ideas: Urban Space/Imagined Modernity**

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.

Distribution: Dist: Lit or Int; WCult: NW. Offered: 15W: 12.

#### **AMES 43.06 - Translated Identities: Japanese Appropriations of Chinese Culture**

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.

Distribution: Dist: LIT; WCult: CI. Offered: 14W: 12.

#### **AMES 45 - Ethnomusicology**

Levin

Ethnomusicology is the study of music-particularly that outside the Western classical tradition-in its social and cultural context. In winter 2014, the course will explore music in Asia. Course work includes reading and critical writing as well as listening and viewing assignments. Class sessions feature frequent visits by musicians. Active participation in music-making exercises is expected of all class members, including those with no prior musical experience.

Distribution: Dist: ART; WCult: NW. Offered: 14W: 2A.

#### **AMES 53 - Discovering an Islamic City (formerly AMES 33)**

Eickelman/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.

Distribution: Dist: SOC; WCult: NW. Offered: 14S, 15S: D.F.S.P.

### **AMES 54 - Arabic as a Cultural System**

Eickelman, 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.

Distribution: WCult: NW. Offered: 14S, 15S: D.F.S.P.

### **AMES 55.01 - Religion, Reason and Reform in Morocco**

Eickelman

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.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: ANTH 50.2. Offered: 14S: D.F.S.P.

### **AMES 55.02 - Topics in the Study of Islam**

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."

Distribution: Dist: TMV; WCult: NW. Crosslisted as: REL 28. Offered: Not offered in the period from 13F through 15S: D.F.S.P.

### **AMES 55.03 - Political Economy of Development in the Middle East**

Topic varies with each offering.

Crosslisted as: GOVT 81. Offered: 15S: D.F.S.P.

### **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.

Distribution: Varies.

### **AMES 91.01 - Colonial Photography in Asia and the Middle East**

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.

Distribution: Dist: Art or INT; WCult: CI. Offered: 14W.

### **AMES 91.02 - Dilemmas of Development: India, China, and the Middle East**

Vandewalle

Both China and India have witnessed extraordinary economic growth and development during the last two-three decades and have emerged among 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. This seminar investigates the reasons behind the economic success of China and India, and those that explain the lack of economic performance in the Middle East, focusing in part on the fate of the region's most populous country, Egypt.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: GOVT 84.1. Offered: 15W.

## Biological Sciences - Undergraduate

Chair: Elizabeth F. Smith

Professors M. P. Ayres, E. M. Berger, K. L. Cottingham, M. R. Dietrich, C. L. Folt, M. L. Guerinot, T. P. Jack, 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, R. H. Gross, R. E. Irwin, S. J. Véléz; Assistant Professors E. E. Griffin, B. W. Taylor, 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, A. J. Friedland, T. U. Gerngross, W.R. Green, N. J. Jacobs, A. R. Kapuscinski, D. A. Leib, L. R. Lynd, R. A. Maue, G. A. O'Toole, P. R. Sundstrom, R. K. Taylor, R. A. Virginia, M. E. Zegans; Adjunct Associate Professors N. J. Dominy, L. C. Myers; Adjunct Assistant Professors S. D. Dobson, G. Grigoryan, K. E. Griswold, R. R. Knapp, N. J. Reo; Research Professors C. Y. Chen, G. C. Ruben; Research Assistant Professors H.-S. Jung, T. Punshon.

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*To view Biological Sciences Graduate requirements, click here.* (p. 476)

*To view Biological Sciences Graduate courses, click here.* (p. 477)

### 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 four foundation courses: BIOL 12 (Cell Structure and Function); BIOL 13 (Gene Expression and Inheritance); 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.

### **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 (Topics in Applied Probability), MATH 50 (Probability and Statistical Inference), MATH 70 (Mathematical Statistics)

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**

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.* **Changes to AP/IB credit policy for the Class of 2018** Beginning with the entering Class of 2018, Dartmouth will no longer grant course credit for AP or IB examinations. This policy change will not take effect until the fall of 2014, and it will not impact current applicants to Dartmouth who intend to enroll in the fall of 2013.

### 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.

## SOME EXAMPLES OF COURSES THAT WOULD CONTRIBUTE TO VARIOUS AREAS OF CONCENTRATION

(possible faculty mentors are listed in parentheses):

### Behavior and Neurobiology (Calsbeek, Irwin, McPeck, ter Hofstede, Vélez, Witters):

BIOL 27	Animal Behavior
BIOL 34	Neurobiology
BIOL 37	Endocrinology
BIOL 74	Advanced Neurobiology
PSYC 65	Systems Neuroscience with Laboratory

### Biochemistry (Bickel, Dolph, Gladfelter, Griffin, Schaller, Sloboda, Smith, Witters):

BIOL 37	Endocrinology
BIOL 40	Biochemistry
BIOL 45	Molecular Biology
BIOL 46	Microbiology
BIOL 66	Molecular Basis of Cancer
BIOL 69	Cell Signaling
BIOL 71	Current Topics in Cell Biology
CHEM 52	Organic Chemistry
BIOL 78	Molecular Mysteries of Human Biology
CHEM 63	Environmental Chemistry
CHEM 67	Physical Biochemistry
ENGS	Biological Physics
30/PHYS 30	
ENGS 64	Cellular and Molecular Biomechanics
CHEM 58	Honors Organic Chemistry
PHYS	Biological Physics
30/ENGS 30	
CHEM 42	Biological Chemistry II

### Cell Biology (Bickel, Dolph, Gladfelter, Griffin, Schaller, Sloboda, Smith, Witters):

BIOL 34	Neurobiology
BIOL 37	Endocrinology
BIOL 38	Experimental Genetic Analysis
BIOL 40	Biochemistry
BIOL 42	Biology of the Immune Response
BIOL 45	Molecular Biology
BIOL 46	Microbiology
BIOL 66	Molecular Basis of Cancer
BIOL 67	The Biology of Fungi and Parasites that Cause Disease
	Cell Signaling
BIOL 69	Current Topics in Cell Biology
BIOL 71	Molecular Mysteries of Human Biology
BIOL 78	
CHEM 41	Biological Chemistry I
CHEM 67	Physical Biochemistry

ENGS 30/PHYS 30	Biological Physics
ENGS 64	Cellular and Molecular Biomechanics
CHEM 52	Organic Chemistry
CHEM 58	Honors Organic Chemistry
PHYS 30/ENGS 30	Biological Physics
CHEM 42	Biological Chemistry II
<b>Development (Berger, Griffin, Jack, Peterson):</b>	
BIOL 24	Vertebrate Zoology
BIOL 28	Macroevolution
BIOL 36	History of Genetics
BIOL 38	Experimental Genetic Analysis
BIOL 40	Biochemistry
BIOL 43	Developmental Biology
BIOL 45	Molecular Biology
BIOL 63	RNA: The Real Secret of Life
BIOL 65	Current Topics in Molecular Genetics
BIOL 76	Advanced Genetics
<b>Ecology (Ayres, Calsbeek, Chen, Cottingham, Irwin, McPeck, Peart, Taylor):</b>	
BIOL 25	Introductory Marine Biology and Ecology
BIOL 27	Animal Behavior
BIOL 28	Macroevolution
BIOL 29	Biostatistics
BIOL 31	Physiological Ecology
BIOL 53	Aquatic Ecology
BIOL 55	Ecological Research in the Tropics I
BIOL 56	Ecological Research in the Tropics II
BIOL 57	Ecological Research on Coral Reefs
BIOL 58	Advanced Community Ecology
BIOL 59	Biostatistics II
ENVS 79/EARS 35	The Soil Resource
ENVS 80	Seminar in Environmental Studies
BIOL 21	Population Ecology
BIOL 22	Methods in Ecology
BIOL 51	Advanced Population Ecology
BIOL 23	Plant Biology and Human Health
BIOL 54	Advanced Plant Biology and Human Health
CHEM 52	Organic Chemistry
CHEM 58	Honors Organic Chemistry
<b>Evolutionary Ecology (Calsbeek, Irwin, McPeck, ter Hofstede):</b>	
BIOL 27	Animal Behavior
BIOL 29	Biostatistics
BIOL 31	Physiological Ecology

BIOL 38	Experimental Genetic Analysis
BIOL 45	Molecular Biology
BIOL 58	Advanced Community Ecology
BIOL 59	Biostatistics II
BIOL 21	Population Ecology
BIOL 51	Advanced Population Ecology
BIOL 28	Macroevolution

**Genetics (Berger, Bickel, Dolph, Griffin, Guerinot, Jack, McClung):**

BIOL 36	History of Genetics
BIOL 38	Experimental Genetic Analysis
BIOL 45	Molecular Biology
BIOL 66	Molecular Basis of Cancer
BIOL 71	Current Topics in Cell Biology
BIOL 76	Advanced Genetics
BIOL 65	Current Topics in Molecular Genetics

**Genomics, Bioinformatics and Computational Biology (Cottingham, Gross, McPeck, McClung, Zhaxybayeva):**

BIOL 28	Macroevolution
BIOL 29	Biostatistics
BIOL 36	History of Genetics
BIOL 45	Molecular Biology
BIOL 59	Biostatistics II
BIOL 39	Computational Molecular Biology
BIOL 38	Experimental Genetic Analysis
BIOL 47	Genomics: From Data to Analysis

and appropriate Computer Science, Mathematics, and Engineering Sciences courses

**Human Biology (Dolph, Gladfelter, Smith, Vélez, Witters):**

BIOL 24	Vertebrate Zoology
BIOL 34	Neurobiology
BIOL 35	Human Physiology
BIOL 36	History of Genetics
BIOL 37	Endocrinology
BIOL 40	Biochemistry
BIOL 42	Biology of the Immune Response
BIOL 45	Molecular Biology
BIOL 46	Microbiology
BIOL 66	Molecular Basis of Cancer
BIOL 67	The Biology of Fungi and Parasites that Cause Disease
BIOL 69	Cell Signaling
BIOL 71	Current Topics in Cell Biology
BIOL 78	Molecular Mysteries of Human Biology
CHEM 52	Organic Chemistry
CHEM 58	Honors Organic Chemistry

**Molecular Ecology (Calsbeek, McPeck):**

BIOL 21	Population Ecology
BIOL 51	Advanced Population Ecology
BIOL 31	Physiological Ecology

BIOL 36	History of Genetics
BIOL 40	Biochemistry
BIOL 45	Molecular Biology
BIOL 58	Advanced Community Ecology

**Molecular Evolution (Dietrich, McPeck, Peterson, Zhaxybayeva):**

BIOL 28	Macroevolution
BIOL 36	History of Genetics
BIOL 38	Experimental Genetic Analysis
BIOL 39	Computational Molecular Biology
BIOL 40	Biochemistry
BIOL 45	Molecular Biology
BIOL 47	Genomics: From Data to Analysis
BIOL 48	Principles of Evolutionary Medicine

**Molecular Genetics (Berger, Bickel, Dolph, Gladfelter, Griffin, Guerinot, Jack, McClung):**

BIOL 38	Experimental Genetic Analysis
BIOL 45	Molecular Biology
BIOL 66	Molecular Basis of Cancer
BIOL 69	Cell Signaling
BIOL 71	Current Topics in Cell Biology
CHEM 52	Organic Chemistry
CHEM 58	Honors Organic Chemistry
BIOL 65	Current Topics in Molecular Genetics
BIOL 76	Advanced Genetics

**Paleobiology (Peterson):**

BIOL 24	Vertebrate Zoology
BIOL 28	Macroevolution
BIOL 63	RNA: The Real Secret of Life
EARS 31	Paleobiology
EARS 40	Materials of the Earth (formerly EARS 34)
EARS 45	Field Methods: Techniques of Structural and Stratigraphic Analysis
EARS 46	Field Methods: Environmental Monitoring
EARS 47	Field Methods: Resource and Earth Hazards Assessment
EARS 72	Geobiology

**Physiology and Organismal Biology (Ayres, Calsbeek, McPeck, ter Hofstede, Vélez, Witters):**

BIOL 24	Vertebrate Zoology
BIOL 30	Physiology
BIOL 31	Physiological Ecology
BIOL 34	Neurobiology
BIOL 35	Human Physiology
BIOL 37	Endocrinology
BIOL 42	Biology of the Immune Response
BIOL 78	Molecular Mysteries of Human Biology
CHEM 52	Organic Chemistry

CHEM 58	Honors Organic Chemistry
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**Plant Biology (Ayres, Guerinot, Irwin, Jack, McClung, Peart, Schaller):**

BIOL 21	Population Ecology
BIOL 51	Advanced Population Ecology
BIOL 22	Methods in Ecology
BIOL 23	Plant Biology and Human Health
BIOL 31	Physiological Ecology
BIOL 54	Advanced Plant Biology and Human Health
BIOL 55	Ecological Research in the Tropics I
BIOL 57	Ecological Research on Coral Reefs
BIOL 58	Advanced Community Ecology
CHEM 52	Organic Chemistry
CHEM 58	Honors Organic Chemistry
BIOL 65	Current Topics in Molecular Genetics
BIOL 56	Ecological Research in the Tropics II

**Plant Molecular Biology (Guerinot, Jack, McClung, Schaller):**

BIOL 36	History of Genetics
BIOL 39	Computational Molecular Biology
BIOL 45	Molecular Biology
BIOL 65	Current Topics in Molecular Genetics
CHEM 52	Organic Chemistry
CHEM 58	Honors Organic Chemistry

**Secondary Education (Peterson):**

Details available in the Biology Office.

\*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. 131)

*To view Biological Sciences Graduate requirements, click here.* (p. 476)

*To view Biological Sciences Graduate courses, click here.* (p. 477)

**BIOL 1 - Clinical Biomedical Research**

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.

Distribution: SCI. Prerequisite: BIOL 12 and BIOL 13 and permission of the instructor. BIOL 2 and either BIOL 29 or MATH 10 are also recommended. Offered: 14S: 2A.

### **BIOL 2 - Human Biology**

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.

Distribution: SCI. Offered: 13F, 14F: 11.

### **BIOL 3 - Independent Research in History and Philosophy of Biology**

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 4 - Genes and Society**

Gross

This course is designed for the humanities or social sciences major. It focuses on how our current understanding of genetic mechanisms has led to new biological insights and to the development of powerful technologies with far reaching implications for our society. It is the aim of this course to provide a solid understanding of the mechanisms of molecular genetics and to discuss

implications of genetic engineering and related technologies to our every day lives. Although this course will focus on the science, we will also consider the ethical, political, human, and economic impacts of these technologies. Several guest lecturers will provide personal perspectives based on their experiences. The ultimate goal of the course is to provide an understanding of the biology and technology so that students can make informed decisions on issues that continually and increasingly arise in our society. Open to all students without prerequisite. BIOL 4 does not count for biology major or minor credit.

Distribution: SCI. Offered: 14S, 15S: 10A.

### **BIOL 5 - Philosophy of Biology**

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.

Distribution: SCI. Offered: not offered in 2013-2014.

### **BIOL 6 - Dinosaurs (Identical to Earth Sciences 4)**

Peterson

This course is designed for the non-major. It will cover all aspects of dinosaur biology including their origin and evolution, phylogeny, behavior, physiology, and extinction. Because dinosaurs will be placed in their biological and geological contexts, other topics will include the geological record, the processes of fossilization, and vertebrate evolution in general. Particular attention will be paid to current debates including the origin of birds and mass extinction. The goal of this course is to teach the basic principles of evolutionary biology using dinosaurs as exemplars of evolutionary patterns and processes. Open to all students without prerequisite. Offered in alternate years. BIOL 6 does not count for biology major or minor credit.

Distribution: SCI. Crosslisted as: EARS 4. Offered: 15W:10A.

### **BIOL 8 - Chemical Principles and Biological Processes I**

Kull, Sloboda

This two-term course will cover principles and processes of general chemistry as applied to biochemistry and cell biology. Over the course of two terms, students will receive an introduction to the fundamental principles of chemistry (matter, elements, atoms, equilibria, acids and

bases, enthalpy, thermochemistry, entropy, free energy, redox reactions, and electrochemistry) in the context of fundamental biological processes and systems (biopolymer structure, protein folding and denaturation, membranes and transport, receptor/ligand binding, metabolism and energy production). Upon completion of both Biology/Chemistry 8 and 9, students will have fulfilled the prerequisites necessary for entry into Chemistry 6 and received credit for BIOL 11 as a major course. Successful completion of only the first term (Biology/Chemistry 8) will result in a SCI distributive credit but will not fulfill the CHEM 6 prerequisite and will not count for credit toward the Biology major. Biology 8 and 9 are the same as Chemistry 8 and 9. For simplicity, and for clarity with respect to professional school applications, upon completion of this two-term sequence the student transcript will show Biology 8 and Chemistry 9, regardless of how students elected these courses at the time of registration.

Students who have received credit for Chemistry 5 taken at Dartmouth, or received transfer credit for Chemistry 5, may not enroll in Biology/Chemistry 8. Students who have received pre-matriculation credit for Chemistry 5 may not enroll in Biology/Chemistry 8 without permission of the Chemistry Department. Pre-matriculation credit for Chemistry 5 will be withdrawn for students who subsequently enroll in Biology/Chemistry 8. Students who receive credit for Biology/Chemistry 9 may not subsequently enroll in Chemistry 5.

Pre-health students who complete Biology/Chemistry 9 will have fulfilled the following with respect to the pre-health requirements: one term of general chemistry with lab, and one term of general biology without lab.

Distribution: Enrollment is limited to 80 students. BIOL/CHEM 8: SCI; BIOL/CHEM 9: SLA. Prerequisite: MATH 3, or MATH 1 and MATH 2, or MATH 1 and CHEM 2. (First year students taking MATH 1 will be placed in CHEM 2); MATH 3 may be elected concurrently with BIOL 8/CHEM 8; however, MATH 3 as well as BIOL 8/CHEM 8 must be completed with a passing grade before enrolling in BIOL 9/CHEM 9. Crosslisted as: CHEM 8. Offered: 13F: 10A; Laboratory: Arrange.

## **BIOL 9 - Chemical Principles and Biological Processes II**

Kull, Sloboda

This two-term course will cover principles and processes of general chemistry as applied to biochemistry and cell biology. Over the course of two terms, students will receive an introduction to the fundamental principles of chemistry (matter, elements, atoms, equilibria, acids and bases, enthalpy, thermochemistry, entropy, free energy, redox reactions, and electrochemistry) in the context of fundamental biological processes and systems (biopolymer structure, protein folding and denaturation, membranes and transport, receptor/ligand binding, metabolism and energy

production). Upon completion of both Biology/Chemistry 8 and 9, students will have fulfilled the prerequisites necessary for entry into Chemistry 6 and received credit for BIOL 11 as a major course. Successful completion of only the first term (Biology/Chemistry 8) will result in a SCI distributive credit but will not fulfill the CHEM 6 prerequisite and will not count for credit toward the Biology major. Biology 8 and 9 are the same as Chemistry 8 and 9. For simplicity, and for clarity with respect to professional school applications, upon completion of this two-term sequence the student transcript will show Biology 8 and Chemistry 9, regardless of how students elected these courses at the time of registration.

Students who have received credit for Chemistry 5 taken at Dartmouth, or received transfer credit for Chemistry 5, may not enroll in Biology/Chemistry 8. Students who have received pre-matriculation credit for Chemistry 5 may not enroll in Biology/Chemistry 8 without permission of the Chemistry Department. Pre-matriculation credit for Chemistry 5 will be withdrawn for students who subsequently enroll in Biology/Chemistry 8. Students who receive credit for Biology/Chemistry 9 may not subsequently enroll in Chemistry 5.

Pre-health students who complete Biology/Chemistry 9 will have fulfilled the following with respect to the pre-health requirements: one term of general chemistry with lab, and one term of general biology without lab.

Distribution: Enrollment is limited to 80 students. BIOL/CHEM 8: SCI; BIOL/CHEM 9: SLA. Prerequisite: MATH 3, or MATH 1 and MATH 2, or MATH 1 and CHEM 2. (First year students taking MATH 1 will be placed in CHEM 2); MATH 3 may be elected concurrently with BIOL 8/CHEM 8; however, MATH 3 as well as BIOL 8/CHEM 8 must be completed with a passing grade before enrolling in BIOL 9/CHEM 9. Crosslisted as: CHEM 9. Offered: 14W: 10A; Laboratory: Arrange.

## **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.

**In 13F at 10A, Biological Approaches to Global Challenges.** Humanity faces numerous global challenges, many of which are deeply rooted in biology. The provision of adequate food and water and the protection from infectious disease is uncertain for many on our planet. How can resources be balanced with population growth? How can sustainable development be achieved while addressing global climate change and other aspects of environmental degradation? This class will illustrate how biology (integrating genetics, molecular biology, ecology and evolution) is essential to both to understand and to design and implement solutions to many global challenges. McClung, McPeck.

**In 14W at 10, DNA to Diversity.** We have chosen “DNA to Diversity” as a theme because we want to highlight how modern biology integrates all levels from the molecule to the diversity of life. As an organizing principle, we focus on the development of complex multicellular organisms. We will explore how cellular processes are driven by key developmental control genes, how cells communicate, and how these molecular and cellular mechanisms shape diverse forms of life. We will investigate how ecological forces drive natural selection, and how this and other evolutionary processes have sorted and sifted DNA mutations, producing DNA blueprints that direct development. Over the course of the term, students should gain a perspective on how genetic and environmental changes have produced the astonishing variety of species and life forms that now exist on earth, and how biologists are piecing that puzzle together. Jack, Peart.

**In 14S at 10, Emerging Infectious Diseases: How Microbes Rule the World.** 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. Grotz, B. Taylor

Distribution: SCI. Offered: 13F: 10A 14W: 10 14S: 10 14F: tbd 15W: tbd 14S: tbd.

### **BIOL 12 - Cell Structure and Function**

Gladfelter, Smith, Bickel, Schaller

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.

Distribution: SLA. Prerequisite: Note: BIOL 12, 13, 15, 16 may be taken in any order. Offered: 13F, 14S, 14F, 15S: 9L; Laboratory: Arrange.

### **BIOL 13 - Gene Expression and Inheritance**

Berger, Dolph, Griffin

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.

Distribution: SLA. Prerequisite: Note: BIOL 12, 13, 15, 16 may be taken in any order. Offered: 14W: 9L, 14X: 10, 15W: 9L; Laboratory: Arrange.

### **BIOL 15 - Genetic Variation and Evolution**

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.

Distribution: SLA. Prerequisite: Note: BIOL 12, 13, 15, 16 may be taken in any order. Offered: 14W, 15W: 11; Laboratory: Arrange.

### **BIOL 16 - Ecology**

Irwin, 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.

Distribution: SLA. Prerequisite: Note: BIOL 12, 13, 15, 16 may be taken in any order. Offered: 13F, 14S, 14F, 15S; 10; Laboratory: Arrange.

### **BIOL 21 - Population Ecology**

TBA

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.

Distribution: SCI. Prerequisite: BIOL 15 or BIOL 16. Offered: 14F; 2A; Discussion: Arrange.

### **BIOL 22 - Methods in Ecology**

TBA

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.

Distribution: SLA. Prerequisite: BIOL 16. Offered: 14X; 12; Laboratory: M 1:45-5:45.

### **BIOL 23 - Plant Biology and Human Health**

Irwin

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.

Distribution: SLA. Prerequisite: One of BIOL 12, 13, 14/30, 15, 16 OR one of ENVS 2, ANTH 6, EARS 18, GEOG 3 or 4 OR permission of the instructor. Offered: 14S; 10A; Laboratory: Arrange.

### **BIOL 24 - Vertebrate Zoology**

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.

Distribution: SCI. Prerequisite: BIOL 15 or BIOL 16. Offered: 13F; 10.

### **BIOL 25 - Introductory Marine Biology and Ecology**

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.

Distribution: SCI. Prerequisite: One of the following: BIOL 12, BIOL 13, BIOL 14/30, BIOL 15 or BIOL 16. Offered: 15S; 11.

**BIOL 27 - Animal Behavior**

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.

Distribution: SLA. Prerequisite: BIOL 15 or BIOL 16.  
Offered: 14F: 10A; Laboratory-Discussion: Arrange.

**BIOL 28 - Macroevolution**

Peterson

This course focuses on evolution above the level of individual species, and is designed to complement BIOL 15. We will first examine the evolution of whales to learn the basic principles and methodology of macroevolutionary analysis. Then, using these tools, we will examine in detail the origin of animals, the Cambrian explosion, and their subsequent evolution from the Cambrian to the Recent. Topics covered will include body plan evolution and development, rates of morphological and molecular evolution, punctuated evolution, group selection theory, and mass extinction. Offered in alternate years.

Distribution: SCI. Prerequisite: BIOL 15 or BIOL 16.  
Offered: not offered 2013-2015.

**BIOL 29 - Biostatistics**

Cottingham

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).

Distribution: QDS. Prerequisite: Two courses from among Bio11-16. Offered: 14W:10A, 14S: 8AM-9:50AM MWF; 14W: Laboratory M or Tu 2:00-5:30.

**BIOL 30 - Physiology**

Velez, Maue

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 14. Students who have received BIOL 14 credit may not enroll in BIOL 30. Students in the classes of 2013-2016 may use BIOL 14 or BIOL 30 credit as one of their three required foundation courses for the major.

Distribution: SLA. Prerequisite: BIOL 12, 13 or 16.  
Offered: 14W: 10, 14X: 10A, 15W: 10; Laboratory: Arrange.

**BIOL 31 - Physiological Ecology**

Ayes

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.

Distribution: SLA. Prerequisite: One of the following: BIOL 12, BIOL 13, BIOL 14/30, BIOL 15, or BIOL 16.  
Offered: 15S: 10A; Laboratory: Arrange.

**BIOL 34 - Neurobiology**

Vélez

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.

Distribution: SLA. Prerequisite: BIOL 12 or BIOL 14/30. Offered: 13F, 14F: 11; Laboratory: Arrange.

### **BIOL 35 - Human Physiology**

Vélez

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.

Distribution: SCI. Prerequisite: BIOL 12 or BIOL 14/30. Offered: 14S: 11.

### **BIOL 36 - History of Genetics**

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.

Distribution: SCI. Prerequisite: BIOL 13 or BIOL 15. Offered: not offered 2013-2014.

### **BIOL 37 - Endocrinology**

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.

Distribution: SCI. Prerequisite: BIOL 12. A prior course that emphasizes genetics is recommended. Otherwise permission of instructor. Offered: 14S, 15S: 10A.

### **BIOL 38 - Experimental Genetic Analysis**

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.

Distribution: SLA. Prerequisite: BIOL 13. Offered: TBD.

### **BIOL 39 - Computational Molecular Biology**

Gross

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.

Distribution: SCI. Prerequisite: BIOL 13. Offered: 14W, 15W: 2A.

### **BIOL 40 - Biochemistry**

Schaller

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.

Distribution: SCI. Prerequisite: BIOL 12 and CHEM 52 or CHEM 58 or permission of the instructor. Offered: 13F, 14F: 10; Discussion W or Th 2:00-3:00.

### **BIOL 42 - Biology of the Immune Response**

Green

This course will consider immunoglobulin structure, antigen-antibody reactions, complement, hypersensitivity, immunogenetics, immunodeficiency, tumor immunology and therapy, and autoimmunity.

Distribution: SCI. Prerequisite: BIOL 12 or BIOL 13, or permission of the instructor. Offered: 14W, 15W: 9L.

### **BIOL 43 - Developmental Biology**

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.

Distribution: SCI. Prerequisite: BIOL 12 or 13. Offered: 14S, 15S: 9L.

### **BIOL 45 - Molecular Biology**

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.

Distribution: SCI. Prerequisite: BIOL 13. Offered: 14W, 14X, 15W: 10.

### **BIOL 46 - Microbiology**

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.

Distribution: SLA. Prerequisite: BIOL 12, BIOL 13, or BIOL 16. Offered: 13F, 14F: 12; Laboratory: Arrange.

### **BIOL 47 - Genomics: From Data to Analysis**

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.

Distribution: SCI. Prerequisite: BIOL 13 OR BIOL 15. COSC 1 OR MATH 10 (or equivalent) OR BIOL 29 is recommended but not required. Offered: 14S, 15S: 10.

### **BIOL 48 - Principles of Evolutionary Medicine**

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.

Distribution: SCI. Prerequisite: BIOL 15 or 16 or permission of instructor. Offered: 13F: 10A.

### **BIOL 51 - Advanced Population Ecology**

TBA

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.

Distribution: SCI. Prerequisite: BIOL 16 and one course from among BIOL 22-31. Offered: 14F: 2A; Discussion: Arrange.

### **BIOL 53 - Aquatic Ecology**

B.Taylor

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.

Distribution: SLA. Prerequisite: BIOL 15 or BIOL 16 and one course from among BIOL 21-31, BIOL 46. Offered: 13F: 10A; Laboratory: Arrange.

### **BIOL 54 - Advanced Plant Biology and Human Health**

Irwin

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.

Distribution: SLA. Prerequisite: One of BIOL 21-49 OR permission of the instructor. Offered: 14S: 10A; Laboratory: Arrange.

### **BIOL 55 - Ecological Research in the Tropics I**

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.

Distribution: SLA. Prerequisite: BIOL 16, one course from among BIOL 21-28, BIOL 31; acceptance into program, BIOL 15 and BIOL 29 recommended. Offered: 14W, 15W: D.F.S.P.

### **BIOL 56 - Ecological Research in the Tropics II**

Ayres

A continuation of BIOL 55. See BIOL 55 for a description of the Biology Foreign Study Program.

Distribution: SLA. Prerequisite: BIOL 55 (taken in same term). Offered: 14W, 15W: D.F.S.P.

### **BIOL 57 - Ecological Research on Coral Reefs**

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.

Distribution: SLA. Prerequisite: BIOL 55 and BIOL 56 (taken in same term). Offered: 14W, 15W: D.F.S.P.

### **BIOL 58 - Advanced Community Ecology**

TBA

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.

Distribution: SCI. Prerequisite: BIOL 15, BIOL 16 and one course from among BIOL 21-31. Offered: 15W: TBA.

### **BIOL 59 - Biostatistics II**

McPeck

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.

Distribution: QDS. Prerequisite: BIOL 29. Offered: 15S: 9L.

### **BIOL 61 - Advanced Ecological Resilience**

Peart

A more advanced version of BIOL 26 (please see course description). Students will develop collaborative projects that contribute to knowledge, based on primary literature, data and/or modeling. Students may gain credit for only one of the BIOL 26, BIOL 61 or BIOL 122.

Distribution: TAS. Prerequisite: (1) BIOL 16 and one of BIOL 21, BIOL 22, BIOL 25, BIOL 31, BIOL 51, BIOL 53, BIOL 55-57, BIOL 58 OR (2) students with quantitative skills and suitable preparation in ENGS, ENV5 or one of the social sciences may seek permission of the instructor.

### **BIOL 62 - Molecular Evolution**

Peterson

Although our knowledge of the history of life has traditionally come from the geological record, modern molecular techniques have revealed a new record of the history of life, the molecular record as preserved in the DNA of every single living organism. This class will explore this molecular record, comparing and contrasting it with the known geologic record, to address many of the seminal events in the history of life including the origin and initial radiation of animals, the diversification and extinction patterns of organisms through deep time, and the origin of the modern fauna including humans. The active learning component of the class will entail amplifying, cloning and sequencing of genes that will serve as the basis for phylogenetic reconstruction and molecular clock estimation on a current evolutionary problem. Offered in alternate years.

Distribution: SCI. Prerequisite: One from among BIOL 28, BIOL 36, BIOL 38, BIOL 39 and BIOL 45.

### **BIOL 63 - RNA: The Real Secret of Life**

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.

Distribution: SCI. Prerequisite: One from among BIOL 28, BIOL 36, BIOL 38, BIOL 40 or BIOL 45. Offered: 15S: 12.

### **BIOL 65 - Current Topics in Molecular Genetics**

Grotz, Jack

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 65.1 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 65.2 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*.

Distribution: SCI. Prerequisite: BIOL 12 and 13 and one from among Biology 38, 40, 45, Chemistry 41. Offered: not offered 2013-2014.

### **BIOL 66 - Molecular Basis of Cancer**

TBA

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.

Distribution: SCI. Prerequisite: BIOL 12 and BIOL 13 and one from among BIOL 38, BIOL 40, BIOL 45, CHEM 41. Offered: 14W, 15W: 10A.

### **BIOL 67 - The Biology of Fungi and Parasites that Cause Disease**

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.

Distribution: SCI. 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. Offered: 14W: 2A.

### **BIOL 69 - Cell Signaling**

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.

Distribution: SCI. Prerequisite: BIOL 12 and BIOL 13, and at least one course from among: BIOL 37, BIOL 40, BIOL 45, CHEM 41. Offered: 13F, 14F: 2A.

### **BIOL 71 - Current Topics in Cell Biology**

Zegans

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.

Distribution: SCI. Prerequisite: BIOL 12 and BIOL 13 and one from among BIOL 38, BIOL 40, BIOL 45, CHEM 41. Offered: 14S: 10.

### **BIOL 76 - Advanced Genetics**

Berger

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.

Distribution: SCI. Prerequisite: BIOL 12 and BIOL 13 and one from among BIOL 38, BIOL 45, or permission of instructor. Offered: 14S: 2A.

### **BIOL 78 - Molecular Mysteries of Human Biology**

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.

Distribution: SCI. 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 14/30, BIOL 35 or BIOL 37). Priority will be given to senior Biology majors. Offered: 14W, 15W: 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**

Grotz

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: 14S, 15S: Arrange.

## **Chemistry - Undergraduate**

Chair: Dale F. Mierke

Professors J. J. BelBruno, R. S. Cantor, R. Ditchfield, D. S. Glueck, G. W. Gribble, R. P. Hughes, P. A. Jacobi, J. E. G. Lipson, G. C. Micalizio, D. F. Mierke, D. E. Wilcox, J. S. Winn; Associate Professor J. Wu; Assistant Professors I. Aprahamian, E. V. Pletneva; Senior Lecturers S. P. Milde, C. O. Welder; Adjunct Professors T. U. Gerngross, U. J. Gibson, D. R. Madden, F. J. Kull, R. A. Naumann, H. M. Swartz; Adjunct Associate Professor M. R. Spaller, Adjunct Research Assistant Professor B. P. Jackson;

Research Professors D. M. Lemal, T. A. Spencer; Research Assistant Professors M. Pellegrini, A. A. Pletnev

To view *Chemistry Undergraduate courses*, click here. (p. 150)

To view *Chemistry Graduate requirements*, click here. (p. 481)

To view *Chemistry Graduate courses*, click here. (p. 483)

## 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 submits a major card 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 add further courses in chemistry, physics, and mathematics to 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 add further courses in chemistry, biochemistry, biological sciences, mathematics, and physics to 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 without as much

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 by the time they enroll in the major and submit their major cards. They must confirm their plans 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 file a written statement with the Department's Undergraduate Advisory Committee and with the Registrar, explaining their rationale for the courses selected for the modified major.

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 9-6, 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.

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 9-6, or CHEM 10; MATH 3 and MATH 8 (or equivalent); and PHYS 13-14 (*strongly recommended*) or PHYS 3-4 or PHYS 15-16.

Required Courses: Of the eight courses, a minimum of six must be in chemistry to include a) CHEM 51 or CHEM 57, CHEM 75 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 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. 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 9-6, 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.)

Required Courses: CHEM 41, CHEM 51 or CHEM 57, CHEM 52 or CHEM 58, CHEM 75, CHEM 76, 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 9-6, 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.

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, or CHEM 153; (b) CHEM 63, 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.

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 handout 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://www.dartmouth.edu/~chem/docs/chemmajorplanning.pdf>.

Students considering a Chemistry Department major are strongly encouraged to take CHEM 5-6 (or CHEM 9-6, or CHEM 10) in their first year. Students with advanced placement in English, foreign language, or 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 on the major card filed with the Department must be approved in writing by 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 submit a minor card signed by a member of the Chemistry Department's Undergraduate Advisory Committee no later than the *end of the first week of the last term in residence prior to graduation.*

Prerequisite: CHEM 5-6, or CHEM 9-6, or CHEM 10 and MATH 3

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 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 087 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 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 <http://www.dartmouth.edu/~chem> 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. 146)

*To view Chemistry Graduate requirements, click here.* (p. 481)

*To view Chemistry Graduate courses, click here.* (p. 483)

### **CHEM 2 - Quantitative Reasoning in Chemistry**

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.

Distribution: SCI. Offered: 13F, 14F: 10.

### **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 advanced placement credit for CHEM 5-6 may not enroll in CHEM 5-6 or

CHEM 10 for credit without permission of the Department. Advanced placement credit 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.

Distribution: SLA. Offered: 13F: 10 14W: 9L, 10 14F: 10 15W: 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 advanced placement credit for CHEM 5-6 may not enroll in CHEM 5-6 or CHEM 10 for credit without permission of the Department. Advanced placement credit 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.

Distribution: SLA. Offered: 13F: 9L 14S: 9L, 10 14F: 9L 15S: 9L, 10; Laboratory: Arrange.

### **CHEM 7 - First-Year Seminars in Chemistry**

Offered: Consult special listings.

### **CHEM 8 - Chemical Principles and Biological Processes I (Identical to BIOL 8)**

Kull, Sloboda

The first term of a two-course sequence to cover principles and processes of general chemistry as applied to biochemistry and cell biology. Over the course of two terms, students will receive an introduction to the fundamental principles of chemistry (matter, elements, atoms, equilibria, acids and bases, enthalpy, thermochemistry, entropy, free energy, redox reactions, and electrochemistry) in the context of fundamental biological processes and systems (biopolymer structure,

protein folding and denaturation, membranes and transport, receptor/ligand binding, metabolism and energy production). Upon completion of both CHEM 8 and 9, students will have fulfilled the prerequisites necessary for entry into CHEM 6 and any of the foundation level courses in Biology (BIOL 12-16). Successful completion of only the first term (BIOL/CHEM 8) will result in a SCI distributive credit but will not fulfill any prerequisite requirements. BIOL 8 and BIOL 9 are the same as CHEM 8 and CHEM 9. For simplicity, and for clarity with respect to professional school applications, upon completion of this two-term sequence the student transcript will show BIOL 8 and CHEM 9, regardless of how students elected these courses at the time of registration. Enrollment is limited to 80 students. Students who have received credit for CHEM 5 taken at Dartmouth, or received transfer credit for CHEM 5, may not enroll in BIOL/CHEM 8. Students who have received pre-matriculation credit for CHEM 5 may not enroll in BIOL/CHEM 8 without permission of the Chemistry Department. Pre-matriculation credit for CHEM 5 will be withdrawn for students who subsequently enroll in BIOL/CHEM 8. Students who receive credit for BIOL/CHEM 9 may not subsequently enroll in CHEM 5. Pre-health students who complete BIOL/CHEM 8-9 will have fulfilled the following with respect to the pre-health requirements: one term of general chemistry with lab, and one term of general biology without lab.

Distribution: BIOL/CHEM 8, SCI; BIOL/CHEM 9, SLA. Prerequisite: MATH 3, or MATH 1 and MATH 2, or MATH 1 and CHEM 2. (First year students taking MATH 1 will be placed in CHEM 2); MATH 3 may be elected concurrently with BIOL/CHEM 8; however, MATH 3 as well as BIOL/CHEM 8 must be completed with a passing grade before enrolling in CHEM 9. Crosslisted as: BIOL 8. Offered: 13F: 10A; Laboratory: Arrange.

### **CHEM 9 - Chemical Principles and Biological Processes II (Identical to BIOL 9)**

Kull, Sloboda

The second term of a two-course sequence to cover principles and processes of general chemistry as applied to biochemistry and cell biology. Over the course of two terms, students will receive an introduction to the fundamental principles of chemistry (matter, elements, atoms, equilibria, acids and bases, enthalpy, thermochemistry, entropy, free energy, redox reactions, and electrochemistry) in the context of fundamental biological processes and systems (biopolymer structure, protein folding and denaturation, membranes and transport, receptor/ligand binding, metabolism and energy production). Upon completion of both CHEM 8 and 9, students will have fulfilled the prerequisites necessary for entry into CHEM 6 and any of the foundation level courses in Biology (BIOL 12-16). Successful completion of only the first term (BIOL/CHEM 8) will result in a SCI distributive credit but will not fulfill any prerequisite

requirements. BIOL 8 and BIOL 9 are the same as CHEM 8 and CHEM 9. For simplicity, and for clarity with respect to professional school applications, upon completion of this two-term sequence the student transcript will show BIOL 8 and CHEM 9, regardless of how students elected these courses at the time of registration. Enrollment is limited to 80 students. Students who have received credit for CHEM 5 taken at Dartmouth, or received transfer credit for CHEM 5, may not enroll in BIOL/CHEM 8. Students who have received pre-matriculation credit for CHEM 5 may not enroll in BIOL/CHEM 8 without permission of the Chemistry Department. Pre-matriculation credit for CHEM 5 will be withdrawn for students who subsequently enroll in BIOL/CHEM 8. Students who receive credit for BIOL/CHEM 9 may not subsequently enroll in CHEM 5. Pre-health students who complete BIOL/CHEM 8-9 will have fulfilled the following with respect to the pre-health requirements: one term of general chemistry with lab, and one term of general biology without lab.

Distribution: BIOL/CHEM 8, SCI; BIOL/CHEM 9, SLA. Prerequisite: MATH 3, or MATH 1 and MATH 2, or MATH 1 and CHEM 2. (First year students taking MATH 1 will be placed in CHEM 2); MATH 3 may be elected concurrently with BIOL/CHEM 8; however, MATH 3 as well as BIOL/CHEM 8 must be completed with a passing grade before enrolling in CHEM 9. Offered: 14W: 10A; Laboratory: Arrange.

### **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 credit for CHEM 5, if they have not already been granted such credit.

Distribution: SLA. Prerequisite: Satisfactory performance on the general chemistry proficiency test and credit for MATH 3 or equivalent. Supplemental course fee required. Offered: 13F, 14F: 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.

Distribution: SLA. 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. Offered: 14W, 15W: 11; Laboratory Tu or F 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.

Distribution: SLA. 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. Offered: 14S, 15S: 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.

Distribution: SLA. Prerequisite: CHEM 40 (or CHEM 76), and CHEM 41, or permission of the instructor. Supplemental course fee required. Offered: 13F, 14F: 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.

Distribution: SLA. 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. Offered: 13F, 14S, 14F, 15S: 11; Laboratory in fall term: Tu, W or Th 2:00-8:00 p.m. Laboratory in spring term: M or Tu 2:00-8:00 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.

Distribution: SLA. 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. Offered: 14W, 14X, 15W: 11; Laboratory in winter term: Tu, W or Th 2:00-8:00 p.m. Laboratory in summer term: M or Tu 2:00-8:00 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.

Distribution: SLA. Prerequisite: Permission of instructor and either a grade of at least B+ in CHEM 6 (or B in CHEM 10) or a passing score on the CHEM 6 credit test is required for CHEM 57. CHEM 57 (or CHEM 51 with permission of instructor) is a prerequisite to CHEM 58. Supplemental course fee required. Offered: 13F, 14F: 11; Laboratory: M 2:00-8:00 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.

Distribution: SLA. Prerequisite: Permission of instructor and either a grade of at least B+ in CHEM 6 (or B in CHEM 10) or a passing score on the CHEM 6 credit test is required for CHEM 57. CHEM 57 (or CHEM 51 with permission of instructor) is a prerequisite to CHEM 58. Supplemental course fee required. Offered: 14W, 15W: 11; Laboratory: M 2:00-8:00 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.

Distribution: TLA. Prerequisite: CHEM 51 or CHEM 57, or permission of the instructor. Supplemental course fee required. Offered: 14X: 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.

Distribution: SLA. Prerequisite: CHEM 51 or CHEM 57, or permission of the instructor. Supplemental course fee required. Offered: 14W, 15W: 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.

Distribution: SLA. 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. Offered: 14W, 15W: 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.

Distribution: SLA. 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. Offered: 14W, 15W: 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.

Distribution: SLA. Prerequisite: CHEM 75 or CHEM 40 with permission of the instructor, and CHEM 64, or permission of the instructor. Supplemental course fee required. Offered: 14S, 15S: 11; Laboratory M or Tu 2:00-6:00.

### **CHEM 87 - Undergraduate Investigation in Chemistry**

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.

Distribution: SCI. Prerequisite: CHEM 64, or permission of the instructor. Crosslisted as: CHEM 130. Offered: 15S: 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.

Distribution: SCI. Prerequisite: CHEM 64, and either CHEM 52 or CHEM 58, or permission of the instructor. Crosslisted as: CHEM 131. Offered: 13F: 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.

Distribution: SCI. Prerequisite: CHEM 64, and CHEM 41 or BIOL 40, or permission of the instructor. Crosslisted as: CHEM 132 and BIOC 132. Offered: 14S: 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.

Distribution: SCI. Prerequisite: CHEM 52 or CHEM 58, or permission of the instructor. Crosslisted as: CHEM 151. Offered: 14F: 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

Offered: 13F, 14F, 14W, 15W: Arrange.

### **CHEM 96.1 - Quantum Chemistry**

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 the empirical, semi-empirical, and ab-initio levels. Evaluation of such methods for studies of molecular geometry, conformational problems, thermochemical data, and spectroscopic parameters is presented. Other topics considered include the electronic structure of hydrogen bonded systems and of excited states. Methods which include the effects of electron correlation are briefly outlined.

Distribution: SCI. Prerequisite: MATH 13 and CHEM 76 or equivalent, or permission of the instructor. Crosslisted as: CHEM 101.1.

### **CHEM 96.2 - Statistical Thermodynamics**

Cantor

Elements of equilibrium statistical thermodynamics for classical and quantum mechanical systems, with applications to ideal gases, crystalline solids, imperfect gases and liquids.

Distribution: SCI. Prerequisite: MATH 13 and CHEM 76 or equivalent or permission of instructor. Crosslisted as: CHEM 101.2.

**CHEM 96.3 - Molecular Spectroscopy**

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. . Crosslisted as: CHEM 101.3. Offered: 13F: Arrange.

**CHEM 96.4 - Chemistry of Macromolecules**

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. Crosslisted as: CHEM 101.4.

**CHEM 96.7 - Introduction to Materials Chemistry**

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.

Distribution: SCI. Prerequisite: Background in Chemistry equivalent to CHEM 76 or Physics equivalent to PHYS 24 or Engineering equivalent to ENGS 24 or permission of instructor. . Crosslisted as: CHEM 101.7. Offered: 14W: Arrange.

**CHEM 96.8 - Chemical Kinetics**

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.

Distribution: SCI. Prerequisite: MATH 13 and CHEM 76 or equivalent or permission of the instructor. . Crosslisted as: CHEM 101.8.

**Classics - Classical Studies; Greek; Latin**

Chair: Roberta L. Stewart

Professors P. Christesen, M. R. Graver, R.L. Stewart, R. B. Ulrich, L. J. Whaley; Emeriti Professors E. Bradley, J. Rutter; Associate Professors H. P. Tell, M. Williamson; Assistant Professors P. Chaudhuri, J. Hruby; Senior Lecturer T. Pulju; Lecturers D. Riesbeck, A. Schwartz

Additional information regarding the Classics Department can be found at the World Wide Web location <http://www.dartmouth.edu/~classics/>

*To view Classical Studies courses, click here* (p. 158).

*To view Greek courses, click here* (p. 162).

*To view Latin courses, click here* (p. 163).

**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 2-5; one course selected from CLST 14-26.
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 2-5, 29-31; any course in Greek or Latin numbered 10 or higher (excluding GRK 11); COLT 10, PHIL 11.
3. One course in ancient history or archaeology selected from CLST 14-26.

**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, 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, 20-26); courses in Greek or Latin numbered 20 or higher; CLST 3 and CLST 12.
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, CLST 14, CLST 15, CLST 17-19.
2. Two courses in Classical archaeology selected from CLST 6, CLST 20-26.
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 2-5 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 and CLST 31 respectively).*

### **(New) Requirements for the Major in Classical Archaeology**

Class of 2015 and onward

Prerequisite: CLST 6, GRK 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 20-26.
3. Two courses from the Greek or Roman Foreign Study Programs (CLST 29, CLST 30, 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, CLST2 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).

### **(New) Requirements for the Modified Major in Classical Archaeology**

Class of 2015 and onward

Prerequisite: GRK *or* LAT 10, or equivalent.

Requirements:

1. Four courses selected from CLST 20-26.
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, CLST2 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 and CLST 31 respectively).*

### **(New) Requirements for the Minor in Classical Archaeology**

Class of 2015 and onward

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 20-23) 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 and CLST 31 respectively).*

### **(New) Requirements for the Major in Classical Studies**

Class of 2014 and onward

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 20-26; CLST 30.

3. Two courses in classical languages and literature selected from CLST 2-5, CLST 10, and CLST 12, exclusive of the courses selected as 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 (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).*

### **(New) Requirements for the Minor in Classical Studies**

Class of 2014 and onward

Prerequisite: One course selected from CLST 1-5; 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 (CLST 20-26; CLST 30).
3. Two courses in Classical languages and literature selected from: CLST 2-5, CLST 10 and CLST 12, 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 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 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. 155).

### CLST 1 - Antiquity Today: An Introduction to Classical Studies

Christesen (14W), Staff (15W)

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.

Distribution: Dist: LIT or INT; WCult: CI. Offered: 14W, 51W: 10.

### CLST 2 - The Tragedy and Comedy of Greece and Rome (Identical to Theater 10)

Riesbeck (14S), Williamson (15S)

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.

Distribution: Dist: ART; WCult: W. Crosslisted as: THEA 10. Offered: 14S: 2, 15S: 12.

### CLST 3 - Reason and the Good Life: Socrates to Epictetus

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.

Distribution: Dist: TMV; WCult: W. Offered: 14F: 11.

### CLST 4 - Classical Mythology

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.

Distribution: Dist: TMV; WCult: CI. Offered: 14X: 12.

### CLST 5 - The Heroic Vision: Epics of Greece and Rome

Schwartz

Why does epic poetry repeatedly depict heroes fighting against the gods? Whether Diomedes' rout of Aphrodite, Achilles' struggle against the river Xanthus, Capaneus' testing of the gods, or Hannibal's threat to Jupiter, classical literature has frequently taken theomachy ("god-fight") to be a central theme—a preoccupation continued in Christian epic of the Renaissance and seen even today in the bestselling novels of Philip Pullman. Concentrating on theomachic scenes in selected readings in translation, we will grapple with issues as varied as human free will, the nature of divinity, the complexities of martial force, the

fragility of political legitimacy, and the power and limitations of artistic expression. By the end of the class students will have gained a new perspective on some of the central works in the Western canon. Open to all classes.

Distribution: Dist: LIT; WCult: W. Offered: 13F: 2.

### **CLST 6 - Introduction to Classical Archaeology**

Hruby (13F), Ulrich (14F)

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.

Distribution: Dist: INT or ART; WCult: W. Offered: 13F, 14F: 10.

### **CLST 7 - First-Year Seminars in Classical Studies**

Offered: Consult special listings.

### **CLST 10 - Topics in Greek and Latin Literature**

Graver (14W), Tell (14S), McPeck (14S), Williamson (15S)

In 14W, *Rethinking the Divine*. While the stories of mythology were the heritage of all Greeks and Romans, some found that the myths of the gods did not express their conception of a divine being. Philosophers as early as the 6th century B.C.E. offered their own explanations for religious thought and their own alternative accounts of the divine nature: some skeptical, some idealistic, some merely peculiar. The class will read and discuss accounts by Plato, Epicurus, Cicero, Plutarch, and others. Graver.

In 14S, *Seeing Nature: How Aristotle and Darwin Understood Nature and Human Society* (Identical to COCO 2 and BIOL 10; described under COCO 2). Dist: TMV; WCult: W. Tell and McPeck.

In 15S, *Fictions of Sappho* (identical to COLT 67 and WGST 21.2 ; described under COLT 67). Dist: LIT; WCult: CI. Williamson.

Distribution: varies. Offered: 14W: 2A, 14S: 2, 15S: 3A.

### **CLST 11 - Topics in Greek and Roman Social and Economic History**

Stewart (14W), Ulrich (14W), Christesen (14S), Rutter (14S)

In 14W, *Roots of Feminism* (Identical to, and described under, WGST 15). Dist: SOC; WCult: CI. Stewart.

In 14W, *From Emperors as gods to God as Emperor: The Last Two Centuries of Rome*. This course looks at the art, archaeology, and history of the later Roman Empire, from Septimius Severus through Constantine. We begin by looking at features of the Roman Empire at its developed urban infrastructure; imperial administration; the intellectual and religious life of a pan-Mediterranean, Roman elite. We consider the internal and external challenges faced by the imperial state (military pressures at the frontiers, the growing Christian sect and its effect on traditional institutions, financial crises) and efforts to restore and maintain stability. Close examination of infrastructure in Roman Africa is used to illustrate the process of Romanization and the translation of Roman cultural forms (political, social, economic, legal, artistic, architectural, technological) at a local level. The juxtaposition of historical and archaeological sources allows students to develop an appreciation of disciplinary and interdisciplinary perspectives, as we consider the changed intellectual and experiential frameworks of classical and Christian world-views. Readings include Apuleius, *Golden Ass*; Aelius Aristides, "To Rome"; Diocletian's "Maximum Price Edict"; Justinian, *Digest* (selections); *The Biography of Perpetua*; *Scriptores Historiae Augustae*, "Elagabalus". Stewart and Ulrich.

In 14S, *Early Corinth and Sparta* (Identical to, and described under, COCO 5). Dist: ART or INT; WCult: W. Christesen and Rutter.

Distribution: varies. Crosslisted as: varies. Offered: 14F: 11, 14W: 10, 2, 15S: 10.

### **CLST 14 - Greek History: Archaic and Classical Greece (Identical to History 94.3)**

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.

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 94.3. Offered: 14W: 12.

**CLST 15 - Alexander the Great and the Macedonian Kings (Identical to HIST 94.4)**

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.

Distribution: Dist: SOC or INT; WCult: W. Crosslisted as: HIST 94.4. Offered: 14F: 2.

**CLST 17 - Roman History: The Republic (Identical to History 94.5)**

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.

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 94.5. Offered: 15W: 12.

**CLST 18 - History of the Roman Empire: Roman Principate to Christian Empire (Identical to HIST 94.6)**

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.

Distribution: Dist: INT or SOC; WCult: W. Crosslisted as: HIST 94.6. Offered: Not offered in the period 13F through 15S.

**CLST 19 - Methods and Theory in Ancient History (Identical to HIST 94.7)**

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.

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 94.7. Offered: 15S: 12.

**CLST 20 - Greek Prehistoric Archaeology: The Emergence of Civilization in the Aegean**

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.

Distribution: Dist: SOC; WCult: W. Offered: 13F: 12.

**CLST 21 - From Disaster to Triumph: Greek Archaeology from the Destruction of Mycenae to the Persian Wars**

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.

Distribution: Dist: SOC; WCult: W. Offered: 14W: 11.

### **CLST 22 - Greek Classical Archaeology: City-States and Panhellenic Sanctuaries**

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.

Distribution: Dist: ART; WCult: W. Offered: 15W: 11.

### **CLST 24 - Etruscan and Early Roman Archaeology: The Rise of Rome**

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.

Distribution: Dist: SOC; WCult: W. Offered: 15S: 11.

### **CLST 25 - Early Roman Imperial Archaeology: The First Emperors**

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.

Distribution: Dist: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **CLST 26 - Later Roman Imperial Archaeology: The Golden Age and Beyond**

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.

Distribution: Dist: ART; WCult: W. Offered: 14F: 12.

### **CLST 29 - Independent Study Project**

Ulrich, 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: 13F: D.F.S.P. (Italy).

**CLST 30.1 - Classical Art and Archaeology: Study Abroad (with CLST 30.2, 2 course credits)**

Ulrich (13F), Hruby (15S)

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.

Distribution: Dist: ART; WCult: W. Prerequisite: membership in the Foreign Study Program. Offered: 13F: D.F.S.P. (Italy), 15S: D.F.S.P. (Greece).

**CLST 30.2 - Classical Art and Archaeology: Study Abroad (with CLST 30.1, 2 course credits)**

Ulrich (13F), Hruby (15S)

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.

Distribution: Dist: ART; WCult: W. Prerequisite: membership in the Foreign Study Program. Offered: 13F: D.F.S.P. (Italy), 15S: D.F.S.P. (Greece) .

**CLST 31 - Ancient Literature and History: Study Abroad**

Stewart (13F), Christesen (15S)

Credit for this course is awarded to students who have successfully completed the work of the Dartmouth Foreign Study Program in Greece or Italy.

Distribution: WCult: W. Prerequisite: membership in the Foreign Study Program. Offered: 14F: D.F.S.P. (Italy), 15S: D.F.S.P. (Greece) .

**CLST 40 - Translation: Theory and Practice (Identical to COLT 19; Cross-listed at discretion of Department of Classics)**

Williamson (14S), Warren (15W)

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.

Distribution: Dist: LIT or INT; WCult: W . 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. Crosslisted as: COLT 19. Offered: 14S: 11, 15W: 12.

**CLST 85 - Independent Reading and Research**

Offered: All terms: Arrange.

**CLST 87 - Thesis**

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. 155).*

**GRK 1 - Introductory Greek**

Riesbeck (13F), Staff (14F)

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: 13F, 14F: 9.

**GRK 1-3 - Intensive Greek**

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: 14W, 15W: 9 and 2.

**GRK 3 - Intermediate Greek**

Riesbeck (14W), Staff (15W)

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: Greek 1, or equivalent. Offered: 14W, 15W: 9.

**GRK 10 - Readings in Greek Prose and Poetry**

Graver (13F), Christesen (14S), Staff (14F, 15S)

Readings in Greek prose and poetry at the intermediate level, typically including selections from Plato and/or Euripides.

Distribution: Dist: LIT; WCult: W (unless otherwise indicated). Prerequisite: GRK 3, or equivalent. Offered: 13F: 11, 14S: 12, 14F: 2A, 15S: 11.

**GRK 11 - Modern Greek I**

Kacandes

No previous knowledge of Greek is assumed. Never serves in partial satisfaction of the Distributive or World Culture Requirement.

Offered: 15W: 2A.

**GRK 20 - Homer**

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: GRK 10, or equivalent. Offered: 14S, 15S: 10.

**GRK 22 - The Lyric Age of Greece**

Staff

Distribution: Dist: LIT; WCult: W. Prerequisite: GRK 10, or equivalent. Offered: Not offered in the period from 13F through 15S.

**GRK 24 - Theatre**

Staff

A study of the tragedy and comedy of Classical Greece through detailed reading of at least one play of Aeschylus, Euripides, Sophocles, or Aristophanes.

Distribution: Dist: LIT; WCult: W. Prerequisite: GRK 10, or equivalent. Offered: 15W: 11.

**GRK 26 - Intellectual Enquiry in Classical Athens**

Graver

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. Dist: TMV; WCult: W.

Distribution: Dist: TMV; WCult: W. Prerequisite: GRK 10 or equivalent. Offered: 14W: 2.

**GRK 28 - Philosophy**

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.

Distribution: Dist: TMV; WCult: W. Offered: 13F: 11.

**GRK 29 - New Testament**

Staff

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.

Distribution: Dist: TMV; WCult: W. Prerequisite: GRK 10, or equivalent. Offered: 14F: 2A.

**GRK 30 - Special Topics in Greek Literature**

Staff

In 14X, *Comparative 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 "Tragicomedy" (a cross reading of Euripides and Plautus) and "The Poet and the City."

*Dist: LIT; WCult: W.*

Offered: 14X: 11.

**GRK 85 - Independent Reading and Research**

Offered: All terms: Arrange.

**GRK 87 - Thesis**

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. 155).*

**LAT 1 - Introductory Latin**

Bradley (13F), Riesbeck (13F), Hruby (14W), Staff (14F, 15W)

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: 13F: 9, 2, 14W: 9, 14F: 9, 2, 15W: 2 .

**LAT 3 - Intermediate Latin**

Chaudhuri (14W), Ulrich (14W), Schwartz (14S), Staff (15W, 15S)

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: 14W: 9, 2, 14S: 9, 15W: 9, 2, 15S: 9.

**LAT 10 - Readings in Latin Prose and Poetry**

Chaudhuri (14S), Staff (15S)

Readings in Latin prose and poetry at the intermediate level, typically including selections from Catullus, Cicero, Livy, or Ovid.

Distribution: Dist: LIT; WCult: W. Prerequisite: LAT 3, or equivalent. Offered: 14S: 9L. 15S: 2.

**LAT 15 - Literature and the Romans**

Graver (13F), Staff (14F)

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: LAT 3 or LAT 10, or equivalent preparation in secondary school. Offered: 13F, 14F: 9.

**LAT 20 - Vergil**

Staff

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: LAT 10 or equivalent. Offered: 15W: 10A.

**LAT 22 - Literature of the Republic**

([http://smartcatalogiq.com/sitecore/shell/Applications/Content%20Manager/Default.aspx?he=Content%20Editor&ic=People/16x16/cubes\\_blue.png&mo&pa=0&pa0=sitecore%253a%252f%252fmaster%252f%257b3402EA26-430C-4616-8179-6DAB823B741C%257d%253flang%253den%2526ver%253d2&pa1#](http://smartcatalogiq.com/sitecore/shell/Applications/Content%20Manager/Default.aspx?he=Content%20Editor&ic=People/16x16/cubes_blue.png&mo&pa=0&pa0=sitecore%253a%252f%252fmaster%252f%257b3402EA26-430C-4616-8179-6DAB823B741C%257d%253flang%253den%2526ver%253d2&pa1#))

Schwartz (13F), Staff (14F)

In this course we will read and prepare for performance a play of Plautus. The course goals are three: to develop the language skills to translate Plautus with accuracy, to learn Plautus' place within the ancient literary, dramatic tradition, and to understand the theatrical context for the performance of Roman drama.

Distribution: Dist: LIT; WCult: W. Prerequisite: LAT 10 or equivalent. Offered: 13F, 14F: 10A.

**LAT 24 - The Augustan Age**

Chaudhuri

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: LAT 10 or equivalent. Offered: 14W: 10A.

**LAT 26 - Literature of the Early Empire**

Schwartz

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: LAT 10 or equivalent. Offered: 14S: 10A.

**LAT 28 - Literature of the Later Empire and the Middle Ages**

Staff

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*.

Distribution: Dist: LIT; WCult: W. Prerequisite: LAT 10 or equivalent. Offered: 15S: 10A.

### **LAT 30 - Special Topics in Latin Literature**

Staff

In 14X, *Comparative 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 “Tragicomedy” (a cross reading of Euripides and Plautus) and “The Poet and the City.”

*Dist: LIT; WCult: W.*

Offered: 14X: 11.

### **LAT 85 - Independent Reading and Research**

Offered: All terms: Arrange.

### **LAT 87 - Thesis**

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.

## **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 2013 Fall through 2014 Summer are listed below; courses for later terms will be announced during 2014 winter term.

*To view College Courses courses, click here (p. 165).*

### **COCO - College Courses**

*To view College Courses information, click here (p. 165).*

#### **COCO 2 - Seeing Nature: How Aristotle and Darwin Understood Nature and Human Society**

McPeck, 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.

Distribution: Dist: TMV. WCult: W. Crosslisted as: CLST 10 and BIOL 10. Offered: 14S: 2.

#### **COCO 3 - Constructing History**

Carroll, Heck

In this age of mass media, we are bombarded with images and objects for which we must comprehend both the implicit and the explicit messages. Such messages are even more pervasive in the built environment. We are constantly confronted by surroundings that are meant to communicate such concepts as authority, security or virtue. To be unable to read the means by which a message was constructed is to skim the surface of what is possible. In our Coco course, Constructing History, we wish to cultivate the ability to read our cultural landscape by imparting the skills needed to understand the ideology and ideas found in images, architecture and events. We will present a series of four case studies from Western history. Those examples provide us with the perspective gained by distance that helps one to analyze how imperial rulers, national governments and individual builders co-opted or invented their messages by manipulating visual culture. Primary and secondary sources, as well as material culture, will form the basis of our group analysis.

Distribution: Dist: ART, WCult: W. Offered: 14W: 2A.

#### **COCO 5 - Early Corinth and Sparta: A Comparative Approach to the History and Archaeology of Two Major Greek City-States**

Christesen, Rutter

The Archaic period (c. 750 - 480 BCE) was a crucial era in Greek history. During this time Greeks confronted a series of demographic, political, social, and economic challenges and generated an array of responses that fundamentally changed the ways in which they lived, worked, and interacted. Much of what we now see as distinctive about Greek culture—democracy, stone temples, and nude athletics, to name but a few—first came into being between the mid-eighth and the early fifth centuries BCE.

This course focuses on Sparta and Corinth, two city-states that, despite their geographic proximity, followed notably different developmental trajectories during the Archaic period. Sparta conquered much of the southern Peloponnese and became a militarized society with an economy based almost entirely on agriculture. Corinth's territory was, compared to that of Sparta, minuscule, but it became a powerful and wealthy community through the foundation of numerous colonies and the exploitation of its location for commerce. Sparta was famed for its army, Corinth for its navy. Spartans were known for the

simplicity of their lifestyle and the almost rural character of their urban center, whereas Corinthians notoriously enjoyed luxuries of all kinds, were pioneers in the development of the Greeks' earliest large-scale stone temples, and converted their urban nucleus and its associated ports into the Archaic Greek mainland's principal trade hub. By comparing and contrasting Sparta and Corinth, we can develop a good sense of the Greek world during a period that has been aptly described as an "age of experiment".

Careful study of the development of Sparta and Corinth during the Archaic period requires making thorough use of methodologies taken from two different fields: archaeology and history. In simple terms, archaeology explores the past on the basis of material remains such as pottery and architecture, whereas history conducts its investigation of bygone eras by relying principally on written texts. This course draws heavily on both archaeological and historical methodologies. There is an ample collection of relevant material; Corinth and Sparta have both been the object of long-lasting programs of excavation that began in the late 19th and early 20th centuries, respectively, and both cities attracted considerable attention from ancient Greek authors.

The faculty members teaching this course, one an archaeologist and the other an historian, will make a consistent effort to familiarize you with how we might go about using material remains and texts to explore the development of Sparta and Corinth during the Archaic period. We will consider the different narratives that can be constructed by way of material remains on the one hand and texts on the other, as well as how those narratives may complement or alternatively contradict each other.

There are no pre-requisites for this course, nor do prospective students require any previous familiarity with the ancient Mediterranean world.

Distribution: Dist: INT or ART, WCult: W. Crosslisted as: CLST 11. Offered: 14S: 10.

### **COCO 6 - Autism: Science, Story, Experience**

Chaney S, Hudenko

What is autism? How do scientists, clinicians, and the public understand it? Can we separate the cultural myths of autism from the medical realities? How do individuals with autism experience the world differently, and how are their lives impacted by public perception of the condition? To address these questions, the course will be divided into three sections: First, students will learn key scientific theories of autism and how to critically evaluate them. Next, they will explore how cultural narratives of autism impact scientific and personal understanding. The course will conclude with a service learning experience, allowing students to experience first-hand the reality of individuals with autism.

Distribution: WCult: CI. Offered: 14S: 10A.

### **COCO 8 - Sonic Landscapes**

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.

Distribution: Dist: INT or ART, WCult: NW. Crosslisted as: Pending faculty approval. Offered: 14W, 10 A.

### **COCO 12 - Reading Artifacts**

What can objects tell us about the worlds in which they were made and used? What can scientific instruments tell us about science? About thinking? Beauty? Truth?

This course will investigate such questions via several disciplines. From Material Culture Studies, we will interrogate the cultural significance of individual objects by hands-on analysis. From Physics and Chemistry, we will explore the scientific significance of historic scientific instruments. Drawing on Museum Studies, we will ask why and how "old junk" gets preserved and then exhibited. With History, we will examine the spread of science at Dartmouth and more broadly in America. Dartmouth's King Collection of Historic Scientific Instruments, the third largest such collection in North America, will provide artifacts for the course. We will also visit Harvard's collection of instruments and work with staff at the Hood Museum and Rauner Special Collections. Students will write research papers and the class as a whole will create and install an exhibit of instruments from the King Collection.

Distribution: Dist: TAS. Offered: 14W: 10A.

## **Comparative Literature - Undergraduate**

Chair: Roxana Verona

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), 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), M. Swislocki (Emerita, Spanish and Portuguese), A. Tarnowski (French and Italian, Comparative Literature), A. Tillis (AAAS), M. Williamson (Classics, Comparative Literature); Assistant Professors P. Chaudhuri (Classics), S. Diaz, (Spanish and Portuguese), Y. Komska (German), S. Munoz (Spanish and Portuguese), J. Smolin (AMELL); Senior Lectures K. Milich (Liberal Studies), Lecturers P. Carranza (Spanish and Portuguese), S. Nozawa (AMELL) J. C. Smolin (Spanish and Portuguese); Visiting Professor M. Salgueiro

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. 168)

*To view Comparative Literature Graduate requirements, click here.* (p. 486)

*To view Comparative Literature Graduate courses, click here.* (p. 487)

### **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 CL 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: COLT 10.

Required courses: COLT 72, 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: COLT 72, 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: COLT 72, 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: COLT 72, 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. 166)

To view *Comparative Literature Graduate requirements*, [click here](#). (p. 486)

To view *Comparative Literature Graduate courses*, [click here](#). (p. 487)

#### **COLT 1 - Read the World**

Washburn (13F), Biron (14F)

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.

Distribution: Dist: LIT or INT; WCult: CI. Offered: 13F: 10A, 14F: 11.

#### **COLT 7 - First-Year Seminars**

Offered: Consult special listings.

#### **COLT 10 - What is Comparative Literature?**

Kopper (14W), Gemunden (14S), Milich (14X), Kritzman (15W)

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.

In 14W, *Strange Natives, Strange Women: The Uninvited Others of European Literature*. How have Europeans colonizers represented differences between themselves and the peoples they have conquered? How do perceived or imagined differences of ethnicity or gender arise from and help constitute the colonizers' own sense of cultural and national identity? We will explore these questions in literature and travel writings by authors such as: Bâ, Babel, Césaire, Conrad, Equiano, Euripides, Friel, Rhys, Rider Haggard, Shakespeare, and Tolstoy. Kopper.

In 14S, *Exile and Writing*. In this course we will read classic and contemporary authors from Europe, the United States, Latin America, Africa, and the Caribbean in order to study how they have reacted to the experience of exile in their poetry, short stories, novels, memoirs, letters, and journals. While this experience stands to a large degree for loss of culture, language and home, it has also mobilized productive forces. Exilic writings thus attest as much to what is gained (Salman Rushdie) as to what is lost in translation (Eva Hoffman). Our course will study the resilience of the political exile, the adventurousness of the voluntary expatriate, the adaptability of the émigré, and the restlessness of the nomad. *Dist: LIT or INT; WCult: W. Gemunden.*

In 14X, *Robbers, Pirates, Terrorists: Forms of Individual Resistance in Literature and Film*. Robin Hood, the archetypal, courteous and swashbuckling outlaw of the medieval era, has become an English folk hero. He robbed the rich to provide for the poor and fight against injustice and tyranny. From Robin Hood via actual and legendary robbers, pirates, and corsair in the 17<sup>th</sup> and 18<sup>th</sup> centuries, to present day pirates, terrorists and guerilla groups in Somalia, Latin America, Italy, Germany, and the U.S., individuals have always been involved in what they considered legitimate (though illegal) resistance against poverty, authority, patriarchy, feudalism, capitalism, and imperialism. Their rebellion (or criminal action?) evokes a question that has already been at the center of Aeschylus' *Orestes*: what legitimizes individual justice versus socially controlled jurisdiction; what distinguishes vigilantism from politics, or antinomianism from legalism? Starting from the political and 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 and outlaws in different cultural contexts, historical periods, and cultural genres such as novels, movies, dramas, diaries, and operas. *Dist: LIT; WCult: W. Milich.*

In 15W, *Male Friendship from Aristotle to Almodovar*. 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. *Dist: LIT; WCult: W.* Kritzman.

Distribution: varies. Offered: 14W: 12, 14S: 10A, 14X: 2A, 15W: 2A, .

### **COLT 18 - Literature and Other Media**

Offered: Not offered in the period from 13F through 15S.

### **COLT 19 - Translation: Theory and Practice**

Williamson (14S), Warren (15W)

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.

Distribution: LIT or INT; WCult: W. 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. Crosslisted as: CLST 40. Offered: 14S:11, 15W:12.

### **COLT 20 - The Middle Ages**

Offered: Not offered in the period from 13F through 15S.

### **COLT 21 - Topics in Medieval Literatures**

This course will focus on a specific topic, theme, or literary genre in the medieval period.

Offered: Not offered in the period from 13F through 15S.

### **COLT 22 - The Renaissance**

Offered: Not offered in the period from 13F through 15S.

### **COLT 23 - Topics in Early Modern Literatures**

Offered: Not offered in the period from 13F through 15S.

### **COLT 25 - The Enlightenment**

Offered: Not offered in the period from 13F through 15S.

### **COLT 26 - Romanticism**

Offered: Not offered in the period from 13F through 15S.

### **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.

Offered: Not offered in the period from 13F to 15S.

### **COLT 28 - Modernism**

Offered: Not offered in the period from 13F through 15S.

### **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.

Offered: Not offered in the period from 13F through 15S.

### **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.

Distribution: LIT. Offered: Not offered in the period from 13F through 15S.

### **COLT 33 - Modern Drama**

Distribution: Dist: ART or INT; WCult: W. Crosslisted as: THEA 18. Offered: Not offered in the period from 13F through 15S.

### **COLT 34 - Topics in Drama**

Kritzman

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, Koltès, Reza, and Ndiaye. Kritzman.

Crosslisted as: THEA 10. Offered: 14F: 2A.

### **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.

Offered: Not offered in the period from 13F through 15S.

**COLT 36 - The Novel I: Eighteenth and Nineteenth Centuries**

Offered: Not offered in the period from 13F through 15S.

**COLT 37 - The Novel II: The Modern Novel**

Offered: Not offered in the period from 13F through 15S.

**COLT 38 - Forms of Short Fiction**

Offered: Not offered in the period from 13F through 15S.

**COLT 39 - Topics in Narrative**

Canepa (13F), Kacandes (14W)

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.

In 13F, *The Literary Fairy Tale*. 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. Dist: LIT; WCult: W. Canepa.

In 14W, *Memoirs and the Work They Do (Identical to WGST 51.7 (p. 462))*. Memoir has been a popular genre in the United States, Latin America, Europe and elsewhere for at least the last twenty if not thirty years. In this course we will review the history of life writing forms to parse out misogyny and elitism. We will also learn how experts today understand life writing subgenres in print and other media, paying particular attention to experimentation and the fuzzy line between fiction and non-fiction. The focus of the course concerns how life writing is deployed in creating group identities, identities based on everything from addiction to victimhood, sexuality, ethnicity, and nationality. Texts include Harriet Wilson, *Our Nig*, Coetzee's *Boyhood*, Spiegelman's *Maus*, Alison Bechdel's *Fun Home*, Kacandes's *Daddy's War*, Modiano's *Dora Bruder*, Cho's *I'm the One that I Want*, and Wen Ho Lee's *My Country Versus Me*. Kacandes.

Distribution: varies. Crosslisted as: WGST 51.7 (14W).

Offered: 13F: 10, 14W: 10A.

**COLT 40 - Special Topics: Genres**

Nozawa (13F), Halasz (14F), Lawrence (15S)

This course will study texts from a generic perspective, concentrating on a particular genre or subgenre that stands outside the broad categories of poetry, drama and narrative.

In 13F, COLT 40.2, *The Culture of Anime and Manga* (Identical to and described under JAPN 61). Dist: LIT; WCult: W. Nozawa.

In 14F, *History of the Book* (Identical to ENGL 60). 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. Dist: LIT; WCult: W. Halasz.

In 15S, *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. Lawrence.

Distribution: varies. Crosslisted as: JAPN 61 (13F), ENGL 60 (14F). Offered: 13F: 10A, 14F: 2, 15S: 3A.

**COLT 41 - The Comic Tradition**

Offered: Not offered in the period from 13F through 15S.

**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.

Offered: Not offered in the period from 13F through 15S.

**COLT 45 - The Quest for Utopia**

Offered: Not offered in the period from 13F through 15S.

**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.

Offered: Not offered in the period 13F through 15S.

### **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.

Offered: Not offered in the period from 13F through 15S.

### **COLT 49 - Special Topics: Themes**

Reyes

In 13F, *From Hand to Mouth: Writing, Eating and the Construction of Gender* (Identical to WGST 53.2). 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. *Dist: SOC or INT; WCult: W.* Reyes.

Distribution: varies. Crosslisted as: WGST 53.2. Offered: 13F: 2 .

### **COLT 50 - Europe and its Cultural Others**

Offered: Not offered in the period from 13F through 15S.

### **COLT 51 - African Literatures**

Coly

This course will survey the texts and contexts of literatures, theories and criticisms from the distinctive cultures of East, Central, North, South and West Africa as well as the Caribbean. It will examine the evolution of literary forms as well as shifts of emphasis in issues and consciousness. Offered periodically, it will focus on genres, periods, authors, or geolinguistic categories such as anglophone, francophone, hispanophone, or lusophone.

In 14W and 15W, *Masterpieces of Literatures from Africa* (Identical to AAAS 51 and ENGL 53). 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*.

Distribution: LIT or INT; WCult: NW. Crosslisted as: ENGL 53, AAAS 51. Offered: 14W, 15W: 10A.

### **COLT 52 - Latin American Literatures**

Salgueiro (14W, 15W), Spitta and Gemunden (14S)

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.

In 14W and 15W, *Black Brazilian Women Writers* (Identical to AAAS 80.2 (p. 80), LACS 64, and WGST 47.5 (p. 462); described under AAAS 80.2). (p. 80)Dist: LIT. Salgueiro.

In 14S, *The New Latin American Cinema*. With the emergence of filmmakers such as Alejandro Iñárritu (México), Lucrecia Martel (Argentina), and José Padilha (Brazil), the last decade has seen a creative boom in Latin American cinema that includes both blockbusters to 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 present moment, as well the role film festivals (Havana Film Festival, Bafici/Buenos Aires) have played in promoting these films. Spitta, Gemunden.

Distribution: varies. Crosslisted as: varies. Offered: 14W: 3B, 14S: 2A, 15W: 3B.

### **COLT 53 - Middle Eastern Literature**

Offered: Not offered in the period from 13F through 15S.

### **COLT 54 - Jewish Literatures**

Offered: Not offered in the period from 13F through 15S.

### **COLT 55 - Asian Literatures**

Offered: Not offered in the period from 13F through 15S.

### **COLT 56 - Eastern European Literatures**

Komska

In 15W, *The "New Man" on the Moon: Science Fiction Under Socialism*. 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. Komska.

Distribution: varies. Offered: 15W: 10.

### **COLT 57 - Special Topics: Culture, Place, and Identity**

Tillis (13F), Warren (14W), Parati (14S), Aguado (15S)

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.

In 13F, *US Afro-Latino Literature and Contemporary Thought* (Identical to INTS 17, AAAS 64, and LATS 43, and described under AAAS 64). Distribution: LIT or INT; WCult: W. Tillis.

In 14W, *Global Medievalism* (Identical to INTS 17). This course explores various "myths" about the Middle Ages by confronting medieval representations of the world (travel narratives, maps, imaginative literature) with representations of the medieval in the current period of globalization. What notions of "planetary culture" shape narratives of the Crusades or Marco Polo's travels? What roles do the Middle or "Dark" Ages play in post-9/11 discourse? How does the medieval vacillate between prestige and barbarism? How are notions of time and space reconfigured through global medievalism? Dist: INT; WCult: CI pending. Warren.

In 14S, *From Dagos to Sopranos: Italian American Culture* (Identical to INTS 17 and FRIT 35) Yo! (from the Sicilian “Guagliò”) What does it mean to be an Italian American? This course looks at the history of Italian migration to the United States, and at novels written by Italian Americans (Pietro di Donato, John Fante, Helen Barolini, Louise De Salvo, Marianna de Marco Torgovnick). A number of films by Coppola, Scorsese, Turturro, Savoca, and Tarantino will be shown. Of course we will also work on the portrayal of Italian Americanness in “The Sopranos.” The last week of the course is devoted to the music by Italian Americans such as Sinatra and Madonna. Dist: LIT; WCult: CI. Parati.

In 15S, *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, Livi, Amery, Kis, Jelloun, Saramago and films by Resnais, Wajda, von Trotta, and Costa-Gavras. Distribution: LIT; WCult: CI. Aguado.

Distribution: varies. Crosslisted as: INTS 17. Offered: 13F: T3-6, 14W: 12, 14S: 2, 15S: 12.

### **COLT 60 - Literature and Music**

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.

Distribution: LIT or INT; WCult: W. Crosslisted as: MUS 13. Offered: 15W: 2A.

### **COLT 61 - Literature and the Visual Arts**

Offered: Not offered in the period from 13F through 15S.

### **COLT 62 - Literature and Film**

Gemünden

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.

In 14X, *Continental Strangers: European Exiles and Emigres in Hollywood, 1933-1950* (Identical to FILM 42). 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 narrative and images. *Dist: ART; WCult: CI.* Gemunden.

Distribution: varies. Crosslisted as: FILM 42 (14X).  
Offered: 14X: 3A.

### **COLT 63 - Literature and Politics**

Smolin

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.

In 14S, *Protest Literature in the Americas*. Can literature change the world? This course will explore this issue as we read protest literature from the United States and Latin America. Focusing on a wide range of social movements, we will compare the similarities and differences between struggles for rights and equality that have risen across the Americas. We will investigate how literary devices have been used to promote new visions of social change. Topics will include revolutions against colonial rule, abolition and emancipation, indigenous rights, feminist movements, gay liberation, anti-war protests, and contemporary denunciations of economic inequality. Authors may include Thomas Paine, José Martí, Tecumseh, Frederick Douglass, Elizabeth Cady Stanton, Graciliano Ramos, Reinaldo Arenas, and Barbara Ehrenreich. Smolin.

Offered: 14S: 2.

### **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.

Distribution: varies. Offered: Not offered in the period from 13F through 15S.

### **COLT 65 - Literature and Science**

This course will consider the intertwining of literature, science, and technology. We shall investigate the literary representation of scientific activity and the variety of ways in which literary and scientific modes of thought have diverged or come together.

Distribution: varies. Offered: Not offered in the period from 13F through 15S.

### **COLT 66 - Literature and Psychoanalysis**

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.

In 13F, *What is Psychoanalysis?* 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 Žižek. 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 Almodovar. *Dist: LIT or INT; WCult: W.* Kritzman.

Distribution: LIT or INT: WCult:W. Offered: 13F: 2A.

### **COLT 67 - Literature and Women's/Gender Studies**

Coly (14W), Washburn (14F), Williamson (15S)

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.

In 14W, *Colonial and Postcolonial Masculinities* (Identical to AAAS 67, ENGL 54.14, and WGST 52.1 (p. 463)). 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*, Laffiere'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. *Dist: LIT.* Coly.

In 14F, *Onnade, the Female Hand: Japanese Women Authors and the Literary Canon* (Identical to WGST 49.4 (p. **Error! Bookmark not defined.**)). 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 13<sup>th</sup> century until late 19<sup>th</sup> 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.

In 15S, *Fictions of Sappho* (Identical to CLST 10 and WGST 21.2 (p. 458)). 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. *Dist: LIT; WCult: CI.* Williamson.

Distribution: varies. Crosslisted as: varies. Offered: 14W: 2A, 14F: 12, 15S: 3A.

### **COLT 71 - History of Literary Criticism: The Western Tradition to 1900**

Offered: Not offered in the period from 13F through 15S.

### **COLT 72 - Contemporary Literary Criticism and Theory**

Warren

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.

In 13F and 14F, *Literary Theory: Entering the Conversation*. 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? *Dist: LIT; WCult: W.* Warren.

Distribution: varies. Offered: 13F, 14F: 12.

### **COLT 73 - Topics in Literary and Cultural Theory**

Kritzman (14W) Coly (15W)

This course will focus on a specific preoccupation of contemporary theory or on a particular theoretical movement.

In 14W, *Deconstruction and Culture*. The course will focus on deconstruction, how it works, and how it is difficult to define. We will examine it in a historical and cross-cultural perspective (French, the US, the UK, and Germany) and see how it functions in a variety of contexts: literary, aesthetic, philosophical and religious, feminist, ethical and social issues, and fashion. Attention will also be paid to critiques of deconstruction as well as to its future. Texts may be drawn from Derrida, Heidegger, Cixous, Nancy, Lacou-Labarthe, Kamuf, Ronnell, de Man, Hillis Miller, Rorty, Habermas and Searle. Kritzman.

Distribution: varies. Prerequisite: COLT 72. Offered: 14W: 10A, 15W: 2A.

### **COLT 79 - Independent Study**

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: 14W, 14S, 15W, 15S: Arrange.

### **COLT 80 - Advanced Seminar: Special Topics**

Offered: Not offered in the period from 13F through 15S.

### **COLT 85 - Senior Seminar in Research and Methodology**

Verona

Offered: 14W, 15W: Arrange.

### **COLT 87 - Thesis Tutorial**

Permission of the Chair is required.

Offered: 14S, 15S: Arrange.

## **Computer Science - Undergraduate**

Chair: Thomas H. Cormen

Professors C. J. Bailey-Kellogg, A. T. Campbell, M. Casey, 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, A. Chakrabarti, L. Fleischer; Assistant Professors G. Grigoryan, L. Torresani, X. Zhou; Senior Lecturer C. Heckman; Lecturers S. Haddadan, P. Hannaway, A. Molina-Markham; Research Professor L. Loeb; Research Assistant Professor S. L. Bratus; Adjunct Professors C.

Elliott, A. Gettinger, M. D. McIlroy, W. M. McKeeman, C. E. Palmer; Adjunct Assistant Professor O. Zhaxybayeva.

*To view the Computer Science Undergraduate courses, click here.* (p. 178)

*To view the Computer Science Graduate requirements, click here.* (p. 488)

*To view the Computer Science Graduate courses, click here.* (p. 491)

## 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 COSC 5, which is no longer offered; 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. Wherever COSC 10 is listed as a prerequisite, it may be replaced by COSC 8, which was offered for the last time in Fall 2011.

## 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 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 49; COSC 50 to 69; COSC 70 to 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.

### **Pregraduate Study in Computer Science**

Some graduate departments of Computer Science require applicants to take the Graduate Record Examination in Computer Science. This examination primarily covers material in COSC 1, COSC 10, COSC 30, COSC 31, COSC 39, COSC 50, COSC 51, COSC 57, COSC 58, COSC 59, COSC 60, and COSC 61, plus material in ENGS 31. Those considering graduate school should take many of these courses. Less emphasis is placed on material in other courses and the various advanced topics covered in COSC 49, COSC 69, and COSC 89 (although advanced topics are very good preparation for graduate study). Material from mathematics courses related to Computer Science may appear on the examination, though it is hard to recommend any particular mathematics course over the others. This examination is only one part of an application for graduate school. Letters of recommendation, particularly from professors who know you well through an advanced class or work on a project, usually are given more weight.

### **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 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 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 99 (Honors Thesis Research).

### **COSC - Computer Science - Undergraduate Courses**

*To view the Computer Science Undergraduate requirements, click here.* (p. 174)

*To view the Computer Science Graduate requirements, click here.* (p. 488)

*To view the Computer Science Graduate courses, click here.* (p. 178)

### **COSC 1 - Introduction to Programming and Computation**

Cormen (fall), Farid (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.

Distribution: TLA. Offered: 13F, 14S: 2.

### **COSC 2 - Programming for Interactive Audio-Visual Arts**

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.

Distribution: TLA. Crosslisted as: MUS 8. Offered: 14W: 2.

### **COSC 6 - Networks in Our Social, Technological, and Natural Worlds**

A course on how the social, technological, and natural worlds are connected, and how the study of networks sheds light on these connections. Topics include: how opinions, fads, and political movements spread through society; the robustness and fragility of food webs and financial markets; and the technology, economics, and politics of Web information and on-line communities.

Distribution: TAS. Prerequisite: Prerequisites: Basic probability (random variables, expectation, independence,

conditional probability); willingness to interpret and work with mathematical models as they arise in the course and relate these models to phenomena at a qualitative level. As such, any of MATH 10, ECON 10, GOVT 10, PSYC 10, SOCY 10, MATH 19, COSC 30, or MATH 20 would be fine, as would permission of the instructor. Offered: Not offered every year.

### **COSC 7 - First-Year Seminar in Computer Science**

Offered: Consult special listings.

### **COSC 10 - Problem Solving via Object-Oriented Programming**

Grigoryan (fall), Bailey-Kellogg (winter), Cormen (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.

Distribution: TLA. Prerequisite: COSC 1, ENGS 20, or placement through the Advanced Placement exam or the local placement exam. Offered: 13F, 14W, 14S: 10.

### **COSC 16 - Introduction to Computational Neuroscience (Formerly COSC 79)**

Granger

Identical to, and described under, PSYC 40.

Distribution: SCI. Prerequisite: One of PSYC 1, PSYC 6, BIOL 34, COSC 1, or ENGS 20. Crosslisted as: PSYC 40. Offered: 13F: 2A.

### **COSC 20 - Motion Study: Using Motion Analysis for Science, Art and Medicine (Formerly COSC 12)**

Loeb

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.

Distribution: TAS. Offered: Not offered every year.

### **COSC 22 - 3D Digital Modeling**

Loeb

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.

Distribution: TLA. Offered: 13F: 3A, 14S: Arrange.

### **COSC 24 - Computer Animation: The State of the Art (Formerly COSC 32)**

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.

Distribution: ART. Offered: 14W: 12.

### **COSC 27 - Projects in Digital Arts (Formerly COSC 42)**

Loeb

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.

Distribution: ART. Prerequisite: COSC 22 and COSC 24 plus one of the approved additional courses for the Digital Arts Minor. Offered: 14S: Arrange.

### **COSC 28 - Advanced Projects in Digital Arts (Formerly COSC 72)**

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**

Hannaway

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. Offered: 14W: Arrange.

### **COSC 30 - Discrete Mathematics in Computer Science (Formerly COSC 19)**

Jayanti (fall), Haddadan (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.

Distribution: QDS. Prerequisite: COSC 1, ENGS 20, or placement through the Advanced Placement exam or the local placement exam. Crosslisted as: ENGS 66. Offered: 13F: 2, 14W: 11.

### **COSC 31 - Algorithms (Formerly COSC 25)**

Jayanti (fall), Fleischer (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.

Distribution: QDS. 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. Offered: 13F, 14S: 10.

### **COSC 35 - Data Stream Algorithms**

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.

Distribution: QDS. Prerequisite: COSC 31 or permission of the instructor. Crosslisted as: COSC 135. Offered: Not offered every year.

### **COSC 39 - Theory of Computation**

Chakrabarti

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.

Distribution: QDS. 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. Offered: 14S: 11.

### **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. Crosslisted as: COSC 140. Offered: Not offered every year.

### **COSC 49 - Topics in Algorithms and Complexity (Formerly COSC 85)**

Jayanti

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.

Distribution: QDS. Prerequisite: Vary according to the topic. Consult with the instructor. Crosslisted as: COSC 149. Offered: 14S: Arrange.

### **COSC 50 - Software Design and Implementation (Formerly COSC 23)**

Campbell (winter), Palmer (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.

Distribution: TLA. Prerequisite: COSC 10. Offered: 14W, 14S: 12.

### **COSC 51 - Computer Architecture (Formerly COSC 37)**

Smith (spring), Staff (summer)

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.

Distribution: TAS. Prerequisite: COSC 1, ENGS 20, or placement through the Advanced Placement exam or the local placement exam. Offered: 14S: 10, 14X: 12.

### **COSC 55 - Security and Privacy (Formerly COSC 38)**

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.

Distribution: TAS. Prerequisite: COSC 50 and COSC 51, or instructor's permission. COSC 30 is recommended. Offered: 13F: 12.

### **COSC 56 - Digital Electronics (Formerly COSC 47)**

Taylor (spring), Hansen (summer)

Identical to, and described under, ENGS 31.

Distribution: TLA. Prerequisite: ENGS 20 or COSC 1. Crosslisted as: ENGS 31. Offered: 14S: 12, 14X: 9L; Laboratory.

### **COSC 57 - Compilers (Formerly COSC 48)**

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.

Distribution: TAS. Prerequisite: COSC 50 and COSC 51. Offered: Not offered every year.

### **COSC 58 - Operating Systems**

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.

Distribution: TAS. Prerequisite: COSC 50 and COSC 51. Offered: 13F: 11.

### **COSC 59 - Principles of Programming Languages (Formerly COSC 68)**

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.

Distribution: TAS. Prerequisite: COSC 10. COSC 30 and COSC 51 are recommended. Offered: Not offered every year.

### **COSC 60 - Computer Networks (Formerly COSC 78)**

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.

Distribution: TAS. Prerequisite: COSC 50 and COSC 51. COSC 30 is recommended. Offered: 14S: 2.

### **COSC 61 - Database Systems (Formerly COSC 33)**

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.

Distribution: TAS. Prerequisite: COSC 50 or equivalent, as approved by instructor. Offered: Not offered every year.

### **COSC 63 - Programming Parallel Systems**

Taylor

Identical to, and described under, ENGS 67.

Distribution: TLA. Prerequisite: ENGS 20 or COSC 30. Crosslisted as: ENGS 67. Offered: 13F: 2A.

### **COSC 65 - Smartphone Programming**

Campbell

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.

Distribution: TAS. Prerequisite: COSC 10. Crosslisted as: COSC 165, ENGS 69. Offered: 14S: 10.

### **COSC 69 - Topics in Computer Systems (Formerly COSC 88)**

Zhou (fall), Campbell, Smith (winter)

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.

Distribution: TAS. Prerequisite: Vary according to the topic. Consult with the instructor. Crosslisted as: COSC 169. Offered: 13F, 14W: Arrange.

### **COSC 70 - Numerical and Computational Tools for Applied Science (Formerly COSC 36)**

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.

Distribution: TAS. Prerequisite: COSC 1, ENGS 20 or equivalent; MATH 8 or equivalent; MATH 22 or MATH 24 or equivalent, as approved by the instructor. Crosslisted as: COSC 170. Offered: 14S: 2A.

### **COSC 71 - Numerical Methods in Computation (Formerly COSC 26)**

Shepherd

Identical to, and described under, ENGS 91.

Distribution: QDS. Prerequisite: COSC 1 or ENGS 20; ENGS 22 or MATH 23, or equivalent. Crosslisted as: ENGS 91 and MATH 26. Offered: 13F: 12.

### **COSC 73 - Computational Linguistics (Formerly COSC 9)**

Reddy

Identical to, and described under, LING 50 for 13F.

Distribution: QDS. Prerequisite: COSC 1 or instructor permission for a comparable quantitative course. Crosslisted as: LING 50. Offered: 13F: 12.

### **COSC 74 - Machine Learning and Statistical Data Analysis (Formerly COSC 34)**

Torresani

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.

Distribution: QDS. Prerequisite: COSC 1, COSC 3, or ENGS 20; MATH 22 or MATH 24. Crosslisted as: COSC 174. Offered: 14W: 10A.

### **COSC 75 - Introduction to Bioinformatics (Formerly COSC 43)**

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.

Distribution: TLA. Prerequisite: COSC 10. COSC 30 is recommended. Crosslisted as: COSC 175. Offered: 13F: 2A.

**COSC 76 - Artificial Intelligence (Formerly COSC 44)**

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.

Distribution: TAS. Prerequisite: COSC 10. COSC 30 is recommended. Crosslisted as: COGS 44. Offered: 14W: Arrange.

**COSC 77 - Computer Graphics (Formerly COSC 52)**

Staff

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.

Distribution: TAS. Prerequisite: COSC 10. Crosslisted as: COSC 177. Offered: 14S: 2A.

**COSC 81 - Principles of Robot Design and Programming (Formerly COSC 54)**

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.

Distribution: TLA. Prerequisite: COSC 10. Offered: Not offered every year.

**COSC 83 - Computer Vision (Formerly COSC 64)**

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.

Distribution: TAS. Prerequisite: COSC 1 or ENGS 20; COSC 70 or MATH 22. Crosslisted as: COSC 183. Offered: 13F: 10A.

**COSC 84 - Mathematical Optimization and Modeling (Formerly COSC 46)**

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.

Distribution: TAS. Prerequisite: COSC 1 or COSC 3 or ENGS 20; MATH 22 or MATH 24; or permission of the instructor. Crosslisted as: COSC 184. Offered: Not offered every year.

**COSC 86 - Computational Structural Biology**

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.

Distribution: TAS. Prerequisite: COSC 10 or permission of the instructor. Crosslisted as: COSC 186. Offered: 14S: 2A.

**COSC 89 - Topics in Applied Computer Science**

Grigoryan (winter), Bailey-Kellogg, Torresani (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.

Distribution: TAS. Prerequisite: Vary according to the topic. Consult with the instructor. Crosslisted as: COSC 189. Offered: 14W, 14S: Arrange.

**COSC 94 - Reading Course (Formerly COSC 80)**

Advanced undergraduates occasionally arrange with a faculty member a reading course in a subject not occurring in regular courses.

Offered: All terms: Arrange.

**COSC 98 - Senior Design and Implementation Project****Balkcom**

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. Unless the student takes COSC 99, this course must be taken in two terms, usually consecutively. Offered: 13F, 14W, 14S: 10A.

**COSC 99 - Honors Thesis Research (Formerly COSC 97)**

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. 185).

*To view International Studies requirements, click here* (p. 184).

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) and global health (The Global Health 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. 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, 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. 185).

*To view information on the John Sloan Dickey Center, click here* (p. 184).

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 (regular department/program offerings that meet the program's aims) approved by the Steering Committee (*Note: FSP or LSA courses not eligible for one's major or other minor may be eligible for the International Studies Minor, at the discretion of the Steering Committee.*)

INTS 15-18 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. 184).

To view information on the John Sloan Dicky Center, [click here](#) (p. 184).

#### **INTS 15 - Violence and Security**

W. Wohlforth (14W, 14F, 15W)

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.

Distribution: SOC or INT. Offered: 14W, 14F, 15W: 12.

#### **INTS 16 - Introduction to International Development**

Freidberg (13F), Fox (14W)

Distribution: Dist: SOC or INT; WCult:NW. Crosslisted as: GEOG 6. Offered: 13F: 10A 14W: 11.

#### **INTS 17 - Cultures, Places, and Identities**

Aguado (15S), Parati (14S), Tillis (13F), Warren (14W)

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.

- In 13F on T3-6, *US Afro-Latino Literature and Contemporary Thought* (Identical to COLT 57, AAAS 64, and LATS 43, and described under AAAS 64). Dist: LIT; INT; WCult: W. Tillis.
- In 14W at 12, *Global Medievalism* (Identical to COLT 57). Warren.
- In 14S at 2, *From Dagos to Sopranos: Italian American Culture* (Identical to COLT 57 and FRIT 35). Dist: LIT; CI. Parati.
- In 15S at 12, *Memories from the Dark Side: Political Repression in Europe* (Identical to COLT 57). Dist: LIT; CI. Aguado.

Distribution: Varies: see individual listing. Crosslisted as: COLT 57. Offered: 13F: T3-6, 14W: 12, 14S: 2, 15S: 12.

#### **INTS 18 - Global Health and Society**

Adams, Butterly (14W), Fox (14S)

Identical to, and described under, GEOG 2.

Distribution: INT or SOC. Crosslisted as: GEOG 2. Offered: 14W: 2A 14S: 11.

### **The Institute of Arctic Studies**

Director: Ross A. Virginia

Program Manager: Lee McDavid

A unit of the Dickey Center, the Institute of Arctic Studies was founded in 1989 in recognition of Dartmouth's distinguished history in 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 social, political and scientific issues of high latitude regions. 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 Applied Circumpolar Policy, a forum for connecting scientists, policy-makers and indigenous leaders on issues of climate, security, and development. The Institute's programmatic vision includes Canada,

Greenland, the Nordic countries, Russia, and the polar region of the south, Antarctica.

The Institute provides research and fellowship support to students interested in polar issues and guidance in selecting a course of study. Its undergraduate Stefansson Fellowship honors Dartmouth's distinguished Arctic explorer Vilhjalmur Stefansson by supporting student research in the polar regions. The Institute also sponsors seminars (see the Northern Studies University Seminar) and other public events to highlight the importance of northern and polar regions in world affairs and the global ecosystem.

An important initiative of the Institute is a National Science Foundation Integrative Graduate Education and Research Training (IGERT) program in Polar Environmental Change. The primary goal of this Ph.D. program is to train graduate students in earth sciences, ecology, and engineering in interdisciplinary approaches to the study of rapid climate change in polar regions. An essential part of this program is to foster an understanding of the social and ethical implications of research, the policy process, and the role of western science and traditional knowledge in decision making.

## Global Health Initiative

Program Coordinator: Lisa V. Adams, M.D.  
Program Manager: Jessica Friedman

The Dickey Center for International Understanding in collaboration with the Geisel School of Medicine has established the Dartmouth Global Health Initiative to create multidisciplinary, replicable programs in Global Health that can address the serious health concerns of the world and create opportunities for Dartmouth students, faculty and researchers to learn about and address current issues in global health. GHI programs build on areas of Dartmouth strengths and seek to increase awareness of global health issues and global health opportunities on campus through our courses, events, internships and student groups.

GHI supports both curricular and co-curricular opportunities for undergraduate, graduate and professional school students.

The curricular offerings available through GHI include:

- GEOG 2/ INTS 18: Global Health and Society (Winter, Spring)
- The Dickey Center for International Understanding offers a Global Health Certificate to all qualifying undergraduate students. The certificate recognizes knowledge and understanding of research methods, research ethics, and emerging issues in global health. Through a combination of coursework and a culminating capstone project, students explore a global health topic of their choice. The purpose of the certificate is to compliment curricular developments in Global Health at Dartmouth.

Co-curricular opportunities in global health include

support for student organizations that focus on global health issues such as the Dartmouth Coalition Global Health & Social Equity (DCGH) and the Dartmouth Humanitarian Engineering (DHE) based at the Thayer School of Engineering.

Internship and mentored-research fellowship opportunities are also available through GHI, and include the DarDar internship program in Dar es Salaam, Tanzania, internships at the Jane Goodall Institute in Kigoma, Tanzania and faculty-mentored global health fieldwork opportunities through the Global Health Initiative Fellowship program.

## 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).

*To view War and Peace Studies courses, click here* (p. 186).

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.

### WPS - War and Peace Studies Courses

*To view War and Peace Studies requirements, click here* (p. 186).

**WPS 1 - War and Peace in the Modern Age (Identical to, and described under, GOVT 50; also SSOC 1)**

Press

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**Earth Sciences - Undergraduate**

Chair: W. Brian Dade

Professors X. Feng, C. E. Renshaw; Professor Emeritus J. L. Aronson, Professor Emeritus R. W. Birnie, Professor Emeritus G. D. Johnson; Associate Professors W. B. Dade, M. Sharma, L. J. Sonder; Assistant Professors R. L. Hawley, M. A. Kelly, E. C. Osterberg, D. J. Renock; Research Associate Professor B. P. Jackson; Visiting Professor E. S. Posmentier; Visiting Assistant Research Professor E. E. Meyer; Research Instructors V. F. Taylor, N. R. Warner; Adjunct Professors S. Bonis, A. J. Friedland, F. J. Magilligan, R. A. Virginia; Adjunct Assistant Professor J. W. Chipman; Adjunct Instructor D. R. Spydell.

*To view Earth Sciences Undergraduate courses, click here.* (p. 188)

*To view Earth Sciences Graduate requirements, click here.* (p. 493)

*To view Earth Sciences Graduate courses, click here.* (p. 494)

**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.

**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); ENGG 37 (Introduction to Environmental Engineering) or ENGG 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.

*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).

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. 187)

*To view Earth Sciences Graduate requirements, click here.* (p. 493)

To view *Earth Sciences Graduate courses*, [click here](#). (p. 494)

### **EARS 1 - How the Earth Works**

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.

Distribution: SLA. Offered: 14S, 14F: 10; Laboratory (three hours weekly) M 1-4; Tu 9-12; Tu 2-5; W 2-5.

### **EARS 2 - Evolution of Earth and Life**

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.

Distribution: SCI. Offered: 14W: 11; one weekly hour discussion period.

### **EARS 3 - Elementary Oceanography**

Feng

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.

Distribution: SCI. Offered: 14S: 11.

### **EARS 4 - Dinosaurs (Identical to BIOL 6)**

Described under BIOL 6

Distribution: SCI. Crosslisted as: BIOL 6. Offered: Alternate Spring terms.

### **EARS 5 - Natural Disasters and Catastrophes**

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.

Distribution: SCI. Offered: 14X: 12.

### **EARS 6 - Environmental Change**

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.

Distribution: SCI. Offered: 14F: 11.

### **EARS 7 - First-Year Seminars in Earth Sciences**

Offered: 14W; Consult special listings.

### **EARS 8 - Geology of New England and Surrounding Regions (formerly EARS 21)**

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.

Distribution: SCI. Offered: 15S: 10A.

### **EARS 9 - Earth Resources**

Staff

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.

Distribution: SCI. Offered: 14W: 12.

#### **EARS 14 - Meteorology (formerly EARS 4)**

Osterberg

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.

Distribution: SLA. Offered: 14S: 2A; Laboratory: W 2:00-5:00.

#### **EARS 15 - Earth's Climate - Past, Present and Future**

Kelly

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.

Distribution: SLA. Offered: 14W: 10A; Laboratory: W 1:45-4:15.

#### **EARS 16 - Hydrology and Water Resources (formerly EARS 26)**

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.

Distribution: TLA. Offered: 14S: M, W 2:00-4:00; Laboratory: W 4:00-6:00 Offered alternate spring terms.

#### **EARS 17 - Analysis of Environmental Data (formerly EARS 36)**

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.

Distribution: QDS. Prerequisite: One course in Earth Sciences and MATH 3 or permission of instructors. Offered: 15W: 9L.

#### **EARS 18 - Environmental Geology (formerly EARS 28)**

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.

Distribution: TLA. Prerequisite: Introductory course in Earth Sciences or a related field course recommended. Offered: 13F, 14F: 10A; Laboratory: W 2:00-5:00.

**EARS 31 - Paleobiology**

Planavsky

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.

Distribution: SLA. Prerequisite: One introductory level science course or its equivalent or permission of the instructor. Offered: 14S: 11; Laboratory: ARR.

**EARS 33 - Earth Surface Processes and Landforms (Identical to, and described under, Geography 33)**

Magilligan

Distribution: SLA. Crosslisted as: GEOG 33. Offered: 14S: 12; Laboratory: W 3:00-5:00.

**EARS 35 - The Soil Resource (formerly EARS 79) (Identical to Environmental Studies 79)**

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.

Distribution: SLA. Prerequisite: ENVS 2 or one course from EARS 1-9 exclusive of EARS 7, or CHEM 5 and an advanced course from the environmental sciences or Earth Sciences; or permission of the instructor. Crosslisted as: ENVS 79. Offered: 14S: 12; Laboratory: ARR.

**EARS 37 - Marine Geology**

Osterberg

Distribution: SCI. Prerequisite: One of EARS 1-9 exclusive of EARS 7 or permission of the instructor. Offered: 13F; 11.

**EARS 38 - Sedimentary Systems (formerly EARS 60)**

Staff

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.

Distribution: SCI. Prerequisite: One of EARS 1-9 exclusive of EARS 7 or permission of the instructor. Offered: 15W: 2A Offered alternate winter terms.

**EARS 40 - Materials of the Earth (formerly EARS 34)**

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.

Distribution: SLA. Prerequisite: One of EARS 1-9 exclusive of EARS 7. CHEM 5 recommended. Offered: 14X, 15X: M, T, TH 2:00-3:05pm; Laboratory: T or TH 3:15-5:15pm; X-hour: W 4:15-5:15pm.

### **EARS 45 - Field Methods: Techniques of Structural and Stratigraphic Analysis**

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.

Distribution: SLA. Prerequisite: EARS 40. Must be taken concurrently with EARS 46 and EARS 47. Offered: 14F, 15F: D.F.S.P.

### **EARS 46 - Field Methods: Environmental Monitoring**

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.

Distribution: SLA. Prerequisite: EARS 40. Must be taken concurrently with EARS 45 and EARS 47. Offered: 14F, 15F: D.F.S.P.

### **EARS 47 - Field Methods: Resource and Earth Hazards Assessment**

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.

Distribution: SLA. Prerequisite: EARS 40. Must be taken concurrently with EARS 45 and 46. Offered: 14F, 15F: D.F.S.P.

### **EARS 51 - Mineralogy and Earth Processes**

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.

Distribution: SLA. Prerequisite: EARS 40 and CHEM 5 or permission of instructor. Offered: 14W: 11 Offered alternate winter terms.

### **EARS 52 - Structural Geology (formerly EARS 44)**

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.

Distribution: SLA. Prerequisite: EARS 40 or equivalent or permission of the instructor. Offered: 15S: 2; Laboratory: Arrange. Offered alternate spring terms.

### **EARS 58 - Sedimentary Petrology (formerly EARS 68)**

Planavsky

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.

Distribution: SLA. Prerequisite: EARS 40 or permission of instructor. Offered: 14W: 2A Laboratory: Arrange Offered alternate winter terms.

### **EARS 59 - Igneous and Metamorphic Petrology (formerly EARS 69)**

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.

Distribution: SLA. Prerequisite: EARS 40 or permission of instructor. Offered: 15S: 11; Laboratory: Arrange. Offered alternate spring terms.

### **EARS 62 - Geochemistry**

Jackson

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.

Distribution: SCI. Prerequisite: CHEM 6 or equivalent or permission of the instructor. Offered: 13F, 14F: 2A.

### **EARS 64 - Geophysics**

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.

Distribution: SLA. Prerequisite: MATH 3 or permission of the instructor. PHYS 3 (or PHYS 13) and MATH 8 are helpful but not required. Offered: 14S: 10; Laboratory: Arrange Offered alternate spring terms.

### **EARS 65 - Remote Sensing (Identical to Geography 51)**

Staff, 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.

Distribution: TLA. Prerequisite: One of EARS 1-9 exclusive of EARS 7 or GEOG 3. Crosslisted as: GEOG 51. Offered: 14W, 15W: 10A; Laboratory: W 1:00-2:55 or Th 1:00-2:55.

### **EARS 66 - Hydrogeology**

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.

Distribution: SCI. Prerequisite: MATH 3 or permission of the instructor. Offered: 15W: T, Th 8-10. Offered alternate winter terms.

### **EARS 67 - Environmental Geomechanics**

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.

Distribution: SCI. Prerequisite: MATH 23 or permission of the instructor. Offered: 14W: 10; Laboratory: ARR. Offered alternate winter terms.

### **EARS 70 - Glaciology**

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.

Distribution: SCI. Prerequisite: PHYS 3 and MATH 3, or equivalent. EARS 33 is recommended. Offered: 14S: 2A. Offered alternate spring terms.

### **EARS 71 - River Processes and Watershed Science (Identical to, and described under, Geography 35)**

Chipman

Distribution: SLA. Prerequisite: EARS 16 or EARS 33 or BIOL 23 or permission of the instructor. Crosslisted as: GEOG 35. Offered: 15S: 10; Laboratory: M 3-5. Offered alternate spring terms.

### **EARS 72 - Geobiology**

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.

Distribution: SCI. Prerequisite: CHEM 5 or permission of the instructor. EARS 31 or BIOL 16 recommended. Offered: 15W: 10.

### **EARS 73 - Environmental Isotope Geochemistry**

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.

Distribution: SLA. Prerequisite: CHEM 5 or permission of instructor. Offered: 15S: 10A; Laboratory: Arrange. Offered alternate spring terms.

### **EARS 74 - Soils and Aqueous Geochemistry**

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.

Distribution: SCI. Prerequisite: CHEM 5 and EARS 62 or equivalents, or permission of instructor. Offered: 14F: 10A. Offered alternate fall terms.

### **EARS 75 - Advanced Quaternary Paleoclimatology**

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.

Distribution: SCI. Prerequisite: EARS 15 or ENGS 172 or equivalent or permission of the instructor. Offered: 15S: 3A Offered alternate spring terms.

**EARS 76 - Contaminant Hydrogeology (Identical to Engineering Science 42)**

Renshaw

Water contamination is a widespread threat to the environment and to human health. This course includes a survey of physical, chemical, and biological processes by which both dissolved and multiphase contaminants are transported and transformed in subsurface and surface waters. Laboratory is used to illustrate phenomena and principles.

Distribution: TAS. Prerequisite: EARS 66 or permission of instructor. Crosslisted as: ENGS 42. Offered: 15S; 2A; Laboratory: Th 4:00-6:00. Offered alternate spring terms.

**EARS 77 - Environmental Applications of GIS (Identical to, and described under, Geography 59)**

Chipman

Distribution: TLA. Crosslisted as: GEOG 59. Offered: 14W: 11; Laboratory M 1:00-2:55 or Tu 1:00-2:55.

**EARS 79 - Special Topics**

Offered: Not offered in the period from 13F through 14S.

**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**

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.

Distribution: SLA. Prerequisite: Earth Science major and fourth-year standing. Offered: 14F, 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: Douglas O. Staiger

Vice Chair: Bruce I. Sacerdote

Professors P. M. Anderson, D. G. Blanchflower, E. V. Edmonds, W. A. Fischel, A. L. Gustman, D. A. Irwin, M. G. Kohn, N. P. Marion, N. Pavcnik, B. I. Sacerdote, A. A. Samwick, J. T. Scott, J. S. Skinner, C. M. Snyder, D. O. Staiger, S. F. Venti, J. Zinman, E. W. Zitzewitz; Associate Professors E. U. Cascio; J. D. Feyrer, E. F. P. Luttmer, E. T. Mansur; Assistant Professors T. L. Dinkelman, R. C. Johnson, E. G. Lewis, A. Moxnes, P. Novosad, S. G. Schaner, J. R. Schwartzstein, S. Sukhtankar; Visiting Professors A. Bar-Ilan, L. L. Kreicher, C. F. Zarnowski; Visiting Associate Professor D. Vollrath; Senior Lecturers E. S. Curtis, M. P. Doyle, M. B. Rose, C. J. Wheelan; Adjunct Assistant Professor C. H. Colla; Adjunct Associate Professor E. R. Meara

*To view Economics courses, click here* (p. 197).

**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): 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; 28-38 or 28-48 or 28-38-48 (72 or 075 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. With the permission of the vice chair, a student may substitute other courses to fulfill these requirements.

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, and 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 courses 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: 24-44 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: 24-44 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. 195).

#### **ECON 1 - The Price System: Analysis, Problems, and Policies**

The Staff

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.

Distribution: SOC. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 9, 10, 11, 12, 10A.

#### **ECON 2 - Economic Principles and Policies**

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.

Distribution: SOC. 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. Offered: 13F, 14S, 14F, 15S: 12.

### **ECON 7 - First-Year Seminars in Economics**

Offered: Consult special listings.

### **ECON 10 - Introduction to Statistical Methods**

Cascio, Meara, Schaner

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.

Distribution: QDS. Prerequisite: ECON 1 and MATH 3 (or MATH 1 + Math 2 or Math 8 or Math 9 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. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 9, 10.

### **ECON 20 - Econometrics**

Anderson, Dinkelman, 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.

Distribution: QDS. Prerequisite: ECON 10 and MATH 3 (or MATH 1 + MATH 2 or Math 8 or Math 9 or Math 11 or Math 12 or Math 13). Offered: 13F, 14W, 14S, 14F, 15W, 15S: 9, 10 .

### **ECON 21 - Microeconomics**

Colla, Doyle, Gustman, Luttmmer

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.

Distribution: SOC. Prerequisite: ECON 1 and MATH 3 (or MATH 1 + MATH 2 or Math 8 or Math 9 or Math 11 or Math 12 or Math 13). Offered: 13F, 14W: 9, 10, 11, 12 14S: 9, 10 14F, 15W: 9, 10, 11, 12 15S: 9, 10.

### **ECON 22 - Macroeconomics**

Feyrer, 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.

Distribution: SOC. Prerequisite: MATH 3 (or MATH 1 + MATH 2 or Math 8 or Math 9 or Math 11 or Math 12 or Math 13) and ECON 1. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 9, 10, 11, 12.

### **ECON 24 - Development Economics**

Edmonds, 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.

Distribution: Dist: SOC or INT; WCult: NW. Prerequisite: ECON 1 and ECON 10 or equivalent. Offered: 13F, 14S, 14F, 15S: 9, 10.

### **ECON 25 - Competition and Strategy**

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.

Distribution: SOC. Prerequisite: ECON 1 and MATH 3 (or MATH 1 + MATH 2), or permission of the instructor. Offered: 14W, 15W: 10A, 2A.

### **ECON 26 - The Economics of Financial Intermediaries and Markets**

Kohn, Kreicher, 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.

Distribution: SOC. Prerequisite: ECON 1. Offered: 13F, 14W, 14S, 14X, 14F, 15W, 15S: 12, 2.

### **ECON 27 - Labor Economics**

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.

Distribution: SOC. Prerequisite: ECON 1. Offered: 13F, 14F: 11.

### **ECON 28 - Public Economics**

Luttmer, Skinner, Wheelan

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.

Distribution: SOC. Prerequisite: ECON 1 and ECON 21, or permission of the instructor. Offered: 13F: 11, 12 14W: 10A 14S:12 14F: 11, 12 15W: 10A 15S: 12.

### **ECON 29 - International Finance and Open-Economy Macroeconomics**

Johnson

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.

Distribution: SOC or INT. Prerequisite: ECON 22 or permission of the instructor. Offered: 13F, 14W, 14S, 14 F, 15W, 15S: 9, 10.

### **ECON 35 - Games and Economic Behavior**

Offered: Not offered in the period from 13F to 14S.

### **ECON 36 - Theory of Finance**

Kreicher, Samwick, 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.

Distribution: SOC. Prerequisite: ECON 10, ECON 21, and ECON 26, or permission of the instructor. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 9, 10 .

### **ECON 38 - Urban and Land Use Economics**

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.

Distribution: SOC. Prerequisite: ECON 1. Offered: 13F, 14S, 14F, 15S: 11.

### **ECON 39 - International Trade**

Irwin, Pavcnik

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.

Distribution: SOC or INT. Prerequisite: ECON 1. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 9, 10.

### **ECON 44 - Topics in Developing Economics**

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.

Distribution: Dist: SOC or INT; WCult: NW. Prerequisite: ECON 20, ECON 21, and ECON 24. Offered: 14W, 15W: 10A, 2A.

#### **ECON 45 - Topics in Industrial Organization**

Mansur

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.

Distribution: SOC. Prerequisite: ECON 20, ECON 21 and ECON 25. Offered: 14S, 15S: 10A, 2A.

#### **ECON 46 - Topics in Money and Finance**

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.

Distribution: SOC. Prerequisite: ECON 20, ECON 22, and ECON 36. Offered: 14W, 14S, 15W, 15S: 10A, 2A, 10, 11, 12 .

#### **ECON 47 - Topics in Labor Economics**

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.

Distribution: SOC. Prerequisite: ECON 20 and ECON 27. Offered: 14W, 15S: 10A.

#### **ECON 48 - Topics in Public Economics**

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.

Distribution: SOC. Prerequisite: ECON 20, ECON 21 and ECON 28. Offered: 14W, 15W: 10A, 2A.

#### **ECON 49 - Topics in International Economics**

Marion, Moxnes

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.

Distribution: SOC or INT. Prerequisite: ECON 20, ECON 21, ECON 22, ECON 29 and ECON 39. Offered: 14W, 14S, 15W, 15S: 10A, 2A.

#### **ECON 72 - Law and Economics**

Offered: Not currently offered.

#### **ECON 75 - Environmental and Energy Economics**

Mansur

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.

Distribution: SOC. Prerequisite: ECON 1 and MATH 3.  
Offered: 13F, 14F: 11, 12.

### **ECON 76 - The Financial Crisis of the Noughties**

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.

Distribution: SOC or INT. Prerequisite: ECON 20, ECON 22 and ECON 26. Offered: 14W, 15S: 2A.

### **ECON 80 - Advanced Topics in Econometrics**

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.

Distribution: SOC. 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. Offered: 13F, 14F: 10A.

### **ECON 81 - Advanced Topics in Microeconomics**

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.

Distribution: SOC. 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. Offered: 14S, 15S: 2A.

### **ECON 82 - Advanced Topics in Macroeconomics**

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.

Distribution: SOC. 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.  
Offered: 14W, 15W: 10.

### **ECON 85 - Independent Study in Economics**

This course offers an opportunity for a student to do independent work under the direction of a member of the Department. It 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. 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: Arrange.

## **Education**

Chair: George L. Wolford

Associate Professor D. J. Coch; Assistant Professors S. H. K. Kang, D. J. M. Kraemer, M. T. Tine; Visiting Assistant Professor C. J. Ward; Lecturer R. W. Holcombe; Visiting Instructor S. Finer.

*To view Education courses, [click here](#) (p. 202).*

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 Human Development and Education minor is focused on human development and learning considered from multiple perspectives. It 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 minor is composed of six courses: the introductory course EDUC 1, the senior seminar EDUC 88, and four courses from: EDUC 15, EDUC 16, EDUC 50, EDUC 52, EDUC 56, EDUC 57, EDUC 58, EDUC 60, EDUC 62, and EDUC 64. A summary of specific requirements is available in the Education Department office and on the department website. Students interested in establishing a minor in Education should talk with a member of the department in order to design a course of study that meets the minor requirements.

Through the certification program (Teacher Education Program), undergraduates have the opportunity to become certified as a teacher at the elementary or secondary level. Students interested in teaching certification should read the requirements for certification in particular teaching fields, as described in the handout available in the Education Department office and on the department website, and talk with a member of the department 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 42-44 and EDUC 46-48, which are Credit/No Credit.

### EDUC - Education Courses

To view Education requirements, [click here](#). (p. 201)

#### EDUC 1 - The Learning Brain: Introduction to Child Development and Education

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.

Distribution: SOC. Offered: 13F, 14F: 10A.

#### EDUC 7 - First-Year Seminars in Education: Socioeconomic Status, Education, and Development

#### EDUC 9 - Experimental Courses in Education

Varies

In 13F at 10: *Individual Differences and Assessments*  
Individuals differ greatly in cognitive abilities, background knowledge, and subject matter proficiency. Should these differences be taken into account when teaching and assessing what a student has learned in the classroom? We will discuss the roles that individual differences play in the educational and cognitive development process, ways in which they can be measured using different forms of assessment, and interpretations of test scores that tell us about students' aptitude and academic achievement. Open to all classes.

Kraemer

In 14S at 2: *Cognition Applied Toward Education*  
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.

Kang

In 14S at 10A: *Autism: Science, Story, and Experience Identical to and described under COCO 6*.

Hudenko, Chaney

Crosslisted as: Autism: Science, Story, and Experience - COCO 6 and PSYC 44. Offered: Varies.

#### EDUC 11 - Methods of Development and Neuroscience Research in Education

Distribution: SOC.

#### EDUC 15 - History and Theory of Human Development and Learning

Ward

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.

Distribution: SOC. Offered: 13F: 10.

### **EDUC 16 - Educational Psychology**

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.

Distribution: SOC. Offered: 13F, 14F: 2.

### **EDUC 29 - Policy and Politics in American Education**

Holcombe

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.

Distribution: SOC. Offered: 14W, 15W: 10A.

### **EDUC 41 - Principles of Teaching and Learning in the Elementary School: Theory and Practice**

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.

Distribution: SOC. Prerequisite: EDUC 1 and 29, and permission of the instructor. To enable placement, applicants must submit a resume and cover letter by the first week of February. Offered: 14S, 15S: 3B.

### **EDUC 42 - Advanced Principles of Elementary Teaching**

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: 13F, 14F: MTh 4-6PM.

### **EDUC 43 - Practice Teaching I - Elementary**

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: 13F, 14F: Arrange.

### **EDUC 44 - Practice Teaching II - Elementary**

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: 13F, 14F: Arrange.

### **EDUC 45 - Principles of Teaching and Learning in the Secondary School: Theory and Practice**

Holcombe

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.

Distribution: SOC. Prerequisite: EDUC 1 and 29, and permission of the instructor. To enable placement, applicants must submit a resume and cover letter by the first week in February. Offered: 14S, 15S: 10A.

### **EDUC 46 - Advanced Principles of Secondary School Teaching**

Holcombe

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: 13F, 14F: MTh 4-6PM.

### **EDUC 47 - Practice Teaching I - Secondary**

Holcombe

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: 13F, 14F: 3B.

### **EDUC 48 - Practice Teaching II - Secondary**

Holcombe

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: 13F, 14F: Arrange.

### **EDUC 50 - The Reading Brain: Education and Development**

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.

Distribution: SOC. Offered: 14S, 15S: 9L.

### **EDUC 52 - The Mathematical Brain: Education and Development**

### **EDUC 56 - STEM and Education**

Kraemer

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.

Distribution: SOC. Offered: 14W, 15W: 2A.

### **EDUC 57 - Social and Emotional Development**

Ward, 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.

Distribution: SOC. Offered: 14S, 15S: 12.

### **EDUC 58 - Language Acquisition and Development**

Kang

How do infants acquire language so quickly and effortlessly? Why is it relatively difficult to learn a new language as an adult? This course will explore the biological bases that enable language acquisition, as well as the social, familial, and educational factors that contribute to language development from infancy to adolescence and beyond. We will examine both typical and atypical language development, and consider the implications of individual differences and language diversity for educational settings. Open to all classes.

Distribution: SOC. Offered: 14W, 15W: 10A.

### **EDUC 60 - Learning and Education Across Cultures**

Ward, 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.

Distribution: SOC. Offered: 14W, 15S: 2.

### **EDUC 62 - Adolescent Development and Education**

Kang

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.

Distribution: SOC. Offered: 14S, 15S: 10.

### **EDUC 87 - Thinking, Learning and Knowing in Education**

### **EDUC 88 - Human Development and Education**

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?

Distribution: SOC. Prerequisite: Permission of the Chair. Offered: 14W, 15W: 3A.

## **Engineering Sciences - Undergraduate**

Chair: Erland M. Schulson

Professors I. Baker, B. Cushman-Roisin, G. Cybenko, E. Garmire, T. U. Gerngross, R. J. Graves, 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; Professors Emeriti A. O. Converse, C. E. Hutchinson, F. E. Kennedy, H. J. Richter, B. U. O. Sonnerup, G. B. Wallis; Associate Professors M. E. Borsuk, H. J. Frost, K. E. Griswold, E. W. Hansen, J. E. Hill, M. Q. Phan, B. S. Trembly, U.G.K. Wegst; Assistant Professors M. E. Ackerman, S. G. Diamond, B. P. Epps, R. Halter, J. Liu, K. Odame, J. T. Stauth, D.W. Van Citters, V. Vaze; Senior Lecturers J. P. Collier, E. Fossum, A. Hartov, P. J. Hoopes, M. S. Laser, R. C. Lasky, C. G. Levey, V. V. May, V. F. Petrenko, P. J. Robbie, J. M. Rosen, S. G. Shepherd; Lecturers M. R. Albert, P. Bonfert-Taylor, A. Borsic, D. C. Cullen, K. Hoyt, R.W. Obbard, S. O. Peterson, A. Scherer, M.E. Testorf, J.D. Wilson.

*To view Engineering Sciences Undergraduate courses, [click here](#) (p. 212).*

*To view Engineering Sciences Graduate requirements, [click here](#) (p. 497).*

*To view Engineering Sciences Graduate courses, [click here](#) (p. 501).*

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 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 or COSC 5 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 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 and BIOL 11. COSC 1 and COSC 10 or COSC 5 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 elective<sup>1</sup> chosen from BIOL 40 or CHEM 41, or an engineering science course numbered 23 or above.

<sup>1</sup>*Students wishing to pursue the BE degree are advised to choose an Engineering Sciences course as their elective.*

A culminating experience is required<sup>2</sup>. 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.

<sup>2</sup>*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 (or PHYS 3 and PHYS 4\*), 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 20<sup>3</sup> and above may be taken under the Non-Recording Option.

*\*Must have been taken at Dartmouth, no AP credit is permitted.*

<sup>3</sup>*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.)

### **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. See Minor in Materials Science.

### **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 COSC 5 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 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 42, PHYS 68, PHYS 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.

<sup>4</sup>*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 89<sup>5</sup> (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.

<sup>5</sup>*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, BIOL 11 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<sup>(See footnote #5 above)</sup> (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 89<sup>6</sup> (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.

<sup>6</sup>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 or COSC 5 and COSC 8; 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, ENGS 63 (Not offered effective AY 2013-2014), COSC 51; Group B includes ENGS 26, ENGS 68, ENGS 92 (ENGS 63 and ENGS 92 also satisfy 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 89<sup>(See footnote #6 above.)</sup> (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 89<sup>7</sup> (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.

<sup>7</sup>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; Biological Sciences 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. Biological Sciences 21 or 51 (but not both), 22, 25, 53 (formerly 23); CHEM 51, CHEM 63; EARS 16 (formerly EARS 26), 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<sup>(See footnote #7 above.)</sup> (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 Environmental Sciences 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 or COSC 5; 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 89<sup>8</sup> (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.

<sup>8</sup>*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 or COSC 5; 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 (pending approval), 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 28, PSYC 40, PSYC 60, PSYC 64, 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<sup>(See footnote #8 above.)</sup> (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 or COSC 5; 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.
4. the modified major must also include a culminating experience, which may be a project or a thesis, ENGS 86, 88 or ENGS 89<sup>9</sup> (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.

<sup>9</sup>*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:

1. as prerequisites: MATH 3, MATH 8, and MATH 13; PHYS 13 and PHYS 14; plus ENGS 20 and CHEM 5;

2. 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);
3. for the studio art portion: SART 15 and SART 16, plus two upper level studio art courses.
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<sup>10</sup> (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.

<sup>10</sup>*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; this can be taken instead of one of the electives or as an additional course. 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 2013-2014 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, PHYS 13, PHYS 14, plus ENGS 20 and CHEM 5. COSC 1 and COSC 10 or COSC 5 can be substituted for ENGS 20. ENGS 91, ENGS 92 or ENGS 93 (formerly ENGS 103). 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; ENV5 30 and ENV5 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 24, PHYS 30, PHYS 41 and above (except PHYS 48); COSC 30, COSC 31, COSC 39, COSC 49, COSC 71, COSC 74
2. Engineering Common Core (3.5 courses required): ENGS 20 (counts as 0.5 course for B.E. credit) 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 39,

COSC 49, COSC 53, COSC 71 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.*

### ENGS - Engineering Sciences - Undergraduate Courses

To view Engineering Sciences Undergraduate requirements, [click here](#). (p. 205)

To view Engineering Sciences Graduate requirements, [click here](#). (p. 497)

To view Engineering Sciences Graduate courses, [click here](#). (p. 501)

### ENGS 1 - Everyday Technology

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.

Distribution: TLA. Offered: 14S, 15S: 11; Laboratory.

### ENGS 2 - Integrated Design: Engineering, Architecture, and Building Technology

May, Wilson

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.

Distribution: TAS. Offered: 14W, 15W: 10A.

### **ENGS 3 - Materials: The Substance of Civilization**

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.

Distribution: TAS. Offered: 14X: 10A, 2A.

### **ENGS 4 - Technology of Cyberspace**

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.

Distribution: TAS. Offered: 13F, 14F: 10A.

### **ENGS 5 - Healthcare and Biotechnology in the 21st Century**

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.

Distribution: TAS. Offered: 14S, 15S: 2A.

### **ENGS 6 - Technology and Biosecurity**

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.

Distribution: TAS. Offered: 14S, 15S: 2A.

### **ENGS 7 - First-Year Seminars in Engineering Sciences**

Offered: Consult special listings.

### **ENGS 8 - Materials in Sports Equipment**

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.

Distribution: TAS. Offered: 14S, 15S: 9.

**ENGS 9 - Lasers in Life**

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.

Distribution: TLA. Offered: 13F, 14F: 11.

**ENGS 10 - The Science and Engineering of Digital Imaging**

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.

Distribution: TAS. Offered: 14X: 10.

**ENGS 11 - Technologies in Homeland Security**

This course will provide students with an introduction to the current and emerging technologies used in homeland security and the practitioners who use them. Topics covered in class include personal protective equipment, physical and cyber security systems, communications and

information technologies, information assurance, WMD detection, robotics, simulation, exercise and training technologies. Students will gain a detailed understanding of the role technology plays in protecting the homeland. Enrollment limited to 50 students per section.

Distribution: TAS. Offered: Not offered in the period from 13F through 14S.

**ENGS 12 - Design Thinking**

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.

Distribution: TAS. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 10A.

**ENGS 13 - Virtual Medicine and Cybercare**

Rosen, Robbie

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.

Distribution: TAS. Offered: 13F, 14F: 2A.

**ENGS 14 - The Science and Engineering of Music**

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.

Distribution: TAS. Offered: 14W, 15W: 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.

Distribution: TAS. 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). Offered: All terms: Arrange.

### **ENGS 18 - System Dynamics in Policy Design and Analysis (formerly ENGS 51)**

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.

Distribution: TAS. Prerequisite: MATH 3. Offered: 14W, 15W: 2A.

### **ENGS 19 - Microchips in Everyday Life**

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.

Distribution: TLA. Offered: 14S, 15S: 3A.

### **ENGS 20 - Introduction to Scientific Computing**

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.

Distribution: TAS. Prerequisite: MATH 3 and prior or concurrent enrollment in MATH 8. Offered: 13F: 10 14W: 10 14S: 11 14F: 10 15W:10 15S: 11.

### **ENGS 21 - Introduction to Engineering**

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. Fall enrollment, limited to 50 students, Winter and Spring, enrollment limited to 64 students.

Distribution: TAS. Prerequisite: MATH 3 or equivalent. Offered: 13F, 14F: 10 14W, 15W: 10A 14S, 15S: 10A.

### **ENGS 22 - Systems**

Lynd (winter), Stauth (spring), 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. Fall and Spring, enrollment limited to 60 students, Winter enrollment, limited to 40 students.

Distribution: TLA. Prerequisite: MATH 13, PHYS 14, and ENGS 20. Offered: 14W: 9; Laboratory 14S: 9; Laboratory 14X: 10; Laboratory 15W: 9; Laboratory 15S: 9; Laboratory 15X: 10; Laboratory.

### **ENGS 23 - Distributed Systems and Fields**

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.

Distribution: TAS. Prerequisite: ENGS 22, or equivalent. Offered: 13F: 2 14W: 9 14S: 9 14F: 2 15W: 9 15S: 9.

### **ENGS 24 - Science of Materials**

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.

Distribution: TLA. Prerequisite: PHYS 14 and CHEM 5. Offered: 14W, 14S, 15W, 15S: 10; Laboratory.

### **ENGS 25 - Introduction to Thermodynamics**

Staff (Spring), Ackerman (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.

Distribution: TAS. Prerequisite: MATH 13, PHYS 13, ENGS 20 or COSC 5 or COSC 1 and COSC 10. Offered: 14S: 2 14X: 11 15S: 2 15X: 11.

### **ENGS 26 - Control Theory**

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.

Distribution: TAS. Prerequisite: ENGS 22. Offered: 13F, 14F: 9; Laboratory.

### **ENGS 27 - Discrete and Probabilistic Systems**

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.

Distribution: TAS. Prerequisite: MATH 8 and either ENGS 20 or COSC 5 or COSC 1 and COSC 10. PHYS 13 or CHEM 5 recommended. Offered: 13F, 14F: 10A.

**ENGS 30 - Biological Physics**

Blencowe

Distribution: SCI. 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. Crosslisted as: PHYS 30. Offered: 14S, 15S: 12.

**ENGS 31 - Digital Electronics**

Fossum (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.

Distribution: TLA. Prerequisite: ENGS 20 or COSC 5 or COSC 1 and COSC 10. Crosslisted as: COSC 56 (formerly 47). Offered: 14S: 12 14X: 9 15S: 12 15X: 9; Laboratory.

**ENGS 32 - Electronics: Introduction to Linear and Digital Circuits**

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.

Distribution: TLA. Prerequisite: ENGS 22, or equivalent background in basic circuit theory. Crosslisted as: PHYS 48. Offered: 14W, 15W: 11; Laboratory.

**ENGS 33 - Solid Mechanics**

Diamond, May (fall), 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.

Distribution: TLA. Prerequisite: MATH 13 and PHYS 13. Offered: 13F: 11 14X: 12 14F: 11 15W: Arrange 15X: 12; Laboratory.

**ENGS 34 - Fluid Dynamics**

Epps

A survey of fundamental concepts, phenomena, and methods in fluid mechanics and their application in engineering systems and in nature. Emphasis is placed on the development and use of the conservation laws for mass, momentum, and energy, as well as on the empirical knowledge essential to the understanding of many fluid-dynamic phenomena. Applications include fluid machinery as well as geophysical, environmental, and biomedical fluid flows.

Distribution: TLA. Prerequisite: ENGS 23 and ENGS 25 (ENGS 25 may be taken concurrently with ENGS 34), or equivalent. Offered: 14W, 15W: 9; Laboratory.

**ENGS 35 - Biotechnology and Biochemical Engineering**

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.

Distribution: TLA. Prerequisite: MATH 3, CHEM 3 or CHEM 5, BIOL 12 or BIOL 13 or permission. Offered: 13F, 14F: 9; Laboratory.

**ENGS 36 - Chemical Engineering**

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.

Distribution: TAS. Prerequisite: ENGS 22, ENGS 25; CHEM 5. Offered: 13F, 14F: 10A.

### **ENGS 37 - Introduction to Environmental Engineering**

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.

Distribution: TAS. Prerequisite: MATH 3 and CHEM 5, or equivalent, or permission. Offered: 13F, 14F: 11.

### **ENGS 41 - Sustainability and Natural Resource Management**

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.

Distribution: TAS. Prerequisite: MATH 13. Offered: 14S, 15S: 2A.

### **ENGS 42 - Contaminant Hydrogeology**

Staff

Identical to, and described under, EARS 76.

Distribution: TAS. Prerequisite: EARS 66 or permission of instructor. Crosslisted as: EARS 76/176. Offered: 15S: Arrange Offered in alternate years.

### **ENGS 43 - Environmental Transport and Fate**

Cushman-Roisin, 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.

Distribution: TAS. Prerequisite: MATH 13; ENGS 37 or permission. Offered: 14W: 11 Offered in alternate years.

### **ENGS 44 - Sustainable Design**

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

Distribution: TAS. Prerequisite: ENGS 21 and ENGS 22 or SART 65. Offered: 14S, 15S: 10A.

### **ENGS 51 - Dynamic Modeling of Technological, Social & Resource Systems**

Sullivan

Lumped element dynamic system modeling can be applied to a broad range of systems well beyond the physical systems emphasized in ENGS 22. This course considers examples in technological, social and resource systems. A mix of interactive lectures, case studies and projects is used to build skills in conceptualization, formulation, parameter estimation and analysis for systems with rich feedback structure. The course will examine capabilities and limitations of the resulting models for understanding and analyzing the dynamic interplay among technology, society, and resource systems. For example, technology impacts society in areas such as energy, communication, healthcare, food production, and environmental services. Society, in turn, impacts technology via processes such as consumer demand, public policy, and economic development. Natural, environmental, and human resources support and are impacted by both technology and society. Not open to students who have taken ENGS 18.

Distribution: TAS. Prerequisite: ENGS 022. Offered: 14S, 15S: 10A.

### **ENGS 52 - Introduction to Operations Research**

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.

Distribution: TAS. Prerequisite: MATH 8 and MATH 22 or equivalent. Offered: 15W: 10A.

### **ENGS 56 - Introduction to Biomedical Engineering**

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.

Distribution: TLA. Prerequisite: PHYS 13 and PHYS 14 (PHYS 14 may be taken concurrently). Offered: 14S, 15S: 2; Laboratory.

### **ENGS 57 - Intermediate Biomedical Engineering**

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.

Distribution: TAS. Prerequisite: ENGS 23 and ENGS 56 or equivalent. Offered: 15S: 10.

### **ENGS 60 - Introduction to Solid-State Electronic Devices**

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.

Distribution: TLA. Prerequisite: ENGS 23. Offered: 14W, 15W: 10A; Laboratory.

### **ENGS 61 - Intermediate Electrical Circuits**

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.

Distribution: TLA. Prerequisite: ENGS 32. Offered: 13F: 10A 14F: 10; Laboratory.

### **ENGS 62 - Microprocessors in Engineered Systems**

Taylor

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.

Distribution: TLA. Prerequisite: ENGS 20 and ENGS 31. Offered: 14W, 15W: 2A; Laboratory.

### **ENGS 63 - Introduction to VLSI Systems**

Stauth

This course provides an introduction to VLSI (very large scale integration) systems. It examines the physical structure and fabrication processes of transistors and interconnect technology, and surveys industry scaling trends. Students will learn electrical characteristics of VLSI circuit elements, and how to create schematics, layouts, and simulations of practical circuits. Discussion includes important aspects of state-of-the-art technology such as variation, leakage, and power limitations. A design project is required in which students demonstrate mastery of these concepts through the design and simulation of a complex VLSI circuit such as a static random-access memory.

Distribution: TLA. Prerequisite: ENGS 31. Offered: 13F: Arrange.

### **ENGS 64 - Cellular and Molecular Biomechanics**

Distribution: TAS. Prerequisite: ENGS 30 or equivalent. Offered: Not offered in the period from 13F through 13S.

### **ENGS 65 - Engineering Software Design**

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.

Distribution: TAS. Prerequisite: ENGS 20 or COSC 5 or COSC 1 and COSC 10. Offered: 15W: 3B.

### **ENGS 66 - Discrete Mathematics in Computer Science**

Jayanti (Fall), Haddadan (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 19 and may substitute for it in any requirement.

Distribution: QDS. Prerequisite: ENGS 20 or COSC 5 or COSC 1 and COSC 10 or advanced placement. Crosslisted as: COSC 30. Offered: 13F: 2, 14W: 11.

### **ENGS 67 - Programming Parallel Systems**

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.

Distribution: TLA. Prerequisite: ENGS 20 or COSC 50 (formerly COSC 23). Crosslisted as: COSC 63. Offered: 13F, 14F: 2A; Laboratory.

### **ENGS 68 - Introduction to Communication Systems**

Testorf

Prerequisite: Prior or concurrent enrollment in ENGS 22, ENGS 27 and ENGS 92 strongly recommended. Offered: 14W: 2.

### **ENGS 69 - Smartphone Programming**

Campbell

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.

Distribution: TAS. Prerequisite: COSC 10. Crosslisted as: COSC 65, COSC 165. Offered: 14S, 15S: 10.

**ENGS 71 - Structural Analysis**

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.

Distribution: TAS. Prerequisite: ENGS 20 or COSC 5 or COSC 1 and COSC 10 and ENGS 33. Offered: 14S, 15S: 9.

**ENGS 72 (formerly 140) (pending approval) - Applied Mechanics: Dynamics**

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.

Distribution: TAS. Prerequisite: ENGS 022. Offered: 14W, 14F: 9.

**ENGS 73 - Materials Processing and Selection**

Frost

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.

Distribution: TLA. Prerequisite: ENGS 24 and ENGS 33 or equivalent. Offered: 14S: 10A; Laboratory Offered in Alternate Years.

**ENGS 75 - Product Design**

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

Distribution: TAS. Prerequisite: ENGS 21 or ENGS 89. Offered: 14W, 15W: 2A.

**ENGS 76 - Machine Engineering**

Ray

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.

Distribution: TAS. Prerequisite: ENGS 21, ENGS 33, and proficiency with solid modeling software. Offered: 13F, 14F: 10A.

**ENGS 80 - Ethics and Engineering**

May not be used to satisfy A.B. major or B.E. degree requirements

Distribution: TMV. Prerequisite: Senior standing in the Engineering Sciences major, the Physical Sciences, or Philosophy; or permission. Offered: Not offered in the period from 13F through 13S.

**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**

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: 13F, 14F: 2A.

### **ENGS 90 - Engineering Design Methodology and Project Completion**

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: 14W, 15W: Arrange.

### **ENGS 91 - Numerical Methods in Computation**

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.

Distribution: QDS. Prerequisite: ENGS 20 or COSC 5 or COSC 1 and COSC 10; ENGS 22 or MATH 23, or equivalent. Crosslisted as: COSC 71. Offered: 13F, 14F: 12.

### **ENGS 92 - Fourier Transforms and Complex Variables**

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.

Distribution: QDS. Prerequisite: MATH 33 or ENGS 22 and ENGS 23 or the equivalent. Crosslisted as: PHYS 70. Offered: 13F, 14F: 2.

### **ENGS 93 - Statistical Methods in Engineering**

Lasky (winter), Vaze (spring)

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.

Distribution: QDS. Prerequisite: MATH 13 or equivalent. Offered: 14W: 11 14S: 12 15W: 11 15S: 12.

## **English**

Chair: Patricia McKee

Vice-Chair: Cynthia Huntington

Director of Creative Writing: Cynthia Huntington

Professors C. G. Boggs, L. E. Boose, J. V. Crewe, G. H. Gerzina, E. Hebert, C. Huntington, T. H. Luxon, P. McKee, C. Mathis, D. E. Pease, I. T. Schweitzer, P. W. Travis, B. E. Will; Associate Professors M. A. Chaney, S. D. Colbert, G. Edmondson, A. L. Evens, J. M. Favor, A. W. Halasz, A. L. McCann, T. O'Malley, M. C. Otter, S. A. M. Vásquez, M. F. Zeiger; Assistant Professors A. S. Bahng, B. Gamboa, B. P. Giri, J. Sharlet; Instructor A. Garrison; Senior Lecturer C. L. Tudish; Lecturers A. Jetter, J. Rabig.

*To view English courses, click here (p. 227).*

### **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, 2, 3). These courses may be used to satisfy the Course Group requirements.
3. One course must be a Junior Colloquium (ENGL 60-65). This course may also satisfy one of the Course Group requirements.
4. One course must be a Senior Seminar (70-75). This course can 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—a completed major card and worksheet—to their major advisor. The major advisor's signature constitutes admission to the major. 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, 81, or 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 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 (83,84,85) 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 83, 84, or 85. A writing sample is required with the application to 83, 84, and 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, 2, 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 60-65) 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 9-75 and 90-91. 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 English 98, the first of which counts as the Culminating Experience in the major. The second English 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 English 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 the University of Glasgow and one held in alternating years: Dublin (2013, 2015). 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

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### 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, 98.

Courses with no Course Group Assignment: 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).

## DEGREE REQUIREMENTS

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**I. Literature before the mid-seventeenth century (2 courses required): 1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 51, 61, 71.**

ENGL 1	Literary History I: Literature up to the mid-Seventeenth Century
ENGL 10	Anglo-Saxon and Scandinavian Epic and Saga
ENGL 11	Chaucer: "The Canterbury Tales"
ENGL 12	Chaucer's "Troilus and Criseyde" and Other Poems
ENGL 13	Medieval English Literature
ENGL 14	Renaissance Poetry
ENGL 15	Shakespeare
ENGL 16	Renaissance Drama
ENGL 17	Milton
ENGL 18	English Literature 1660-1714, Including Drama
ENGL 19	Early American Literatures: Conquest, Captivity, Cannibalism

ENGL 51	Special Topics in Course Group I: Medieval and Renaissance Literature
ENGL 61	Junior Colloquia in Course Group I
ENGL 71	Senior Seminars in Course Group I

**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.**

ENGL 29	American Fiction to 1900
ENGL 30/AAAS 34	Early Black American Literature
ENGL 52	Special Topics in Course Group II: Literature of the Late Seventeenth Century through the Nineteenth Century
ENGL 2	Literary History II: Literature from the mid-Seventeenth Century through the Nineteenth Century
ENGL 20	Age of Satire
ENGL 21	Reason and Revolution
ENGL 22	The Rise of the Novel
ENGL 23	Romantic Literature: Writing and English Society, 1780-1832
ENGL 24	Victorian Literature and Culture, 1837-1859
ENGL 25	Victorian Literature and Culture, 1860-1901
ENGL 26	The Nineteenth-Century British Novel
ENGL 27	American Poetry
ENGL 28	American Prose
ENGL 62	Junior Colloquia in Course Group II
ENGL 72	Senior Seminars in Course Group II

**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.**

ENGL 3	Literary History III: Literature in the Twentieth and Twenty-First Centuries
ENGL 31	Asian American Literature and Culture
ENGL 32/NAS 35	Native American Literature
ENGL 33/AAAS 35	Modern Black American Literature
ENGL 34	American Drama
ENGL 35	American Fiction: 1900 to World War II
ENGL 36	Contemporary American Fiction
ENGL 37	Contemporary American Poetry

ENGL 38	American and British Poetry: 1900-1960
ENGL 39	Modern British Drama
ENGL 40	British Fiction: 1900 to World War II
ENGL 41	British Fiction: World War II to the Present
ENGL 42/AAAS 65	Introduction to Postcolonial Literature
ENGL 43	Introduction to New Media
ENGL 53	Topics in Course Group III: Literature of the Nineteenth Century
ENGL 63	Junior Colloquia in Course Group III
ENGL 73	Senior Seminars in Course Group III

**IV. Criticism and Theory (1 course required): 45, 46, 47, 48, 54, 64, 74, COLT 72.**

ENGL 45	Introduction to Literary Theory
ENGL 46	Old and New Media
ENGL 47/LING 18	A History of the English Language
ENGL 48/AAAS 66/COLT 70	Critical Issues in Postcolonial Studies
ENGL 54	Topics in Theory in Course Group IV: Criticism and Theory
ENGL 64	Junior Colloquia in Course Group IV
COLT 72	Contemporary Literary Criticism and Theory
ENGL 74	Senior Seminars in Course Group IV

**Courses whose Course Group Assignment Varies:90, 91, 98.**

ENGL 90	English Study Abroad I
ENGL 91	English Study Abroad II
ENGL 98	Honors Course

**Courses with no Course Group Assignment:6, 7, 55, 65, 75, 80, 81, 82, 83, 85, 96, 97.**

ENGL 6	Narrative Journalism: Literature and Practice
ENGL 7	First-Year Seminars in English
ENGL 55	Open Topic
ENGL 65	Junior Colloquia without Course Group Designation
ENGL 75	Senior Seminars without Course Group Designation
ENGL 80	Writing and Reading Fiction
ENGL 81	Writing and Reading Creative Nonfiction
ENGL 82	Writing and Reading poetry
ENGL 83	Intermediate Workshop in Fiction

ENGL 85	Intermediate Workshop in Poetry
ENGL 86	Senior Workshop in Creative Writing
ENGL 96	Reading Course

**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 6	Narrative Journalism: Literature and Practice
ENGL 7	First-Year Seminars in English
ENGL 96	Reading Course

except by successful petition to the CDC.

## ENGL - English Courses

To view English requirements, [click here](#) (p. 223).

### Section I - Non-Major Courses

#### ENGL 6 - Narrative Journalism: Literature and Practice

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.

Distribution: LIT; WCult: W. Offered: 14S: 11 15S: Arrange.

#### 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

Halasz

This course will provide an overview of English Literature from the Anglo-Saxon period through the Middle Ages and into the seventeenth century.

Distribution: LIT; WCult:W. Course Group I. Offered: 13F:10, 14F Arrange.

#### ENGL 2 - Literary History II: Literature from the mid-Seventeenth Century through the Nineteenth Century

Garrison, Schweitzer

This course will provide an overview of British and American Literature during the seventeenth, eighteenth and nineteenth centuries.

Distribution: LIT; WCult:W Course Group II. Offered: 14W: 10, 15W Arrange.

#### ENGL 3 - Literary History III: Literature in the Twentieth and Twenty-First Centuries

This course will provide an overview of literature in the Anglophone world from the beginning of the twentieth century to the present.

Distribution: LIT; WCult:W. Course Group III. Offered: 14F; Arrange 15W; Arrange.

#### ENGL 10 - Anglo-Saxon and Scandinavian Epic and Saga

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.

Distribution: Dist: LIT; WCult: W. Course Group I. CA tags National Traditions and Countertraditions, Genre-narrative. Offered: 14S: Arrange.

#### ENGL 11 - Chaucer: "The Canterbury Tales"

Travis

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.

Distribution: Dist: LIT; WCult: W. Course Group I. CA tags Genre-poetry, Genders and Sexualities. Offered: 13F; Arrange, 14F; Arrange.

#### ENGL 12 - Chaucer's "Troilus and Criseyde" and Other Poems

Edmondson, Otter, Travis

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.

Distribution: Dist: LIT; WCult: W. Course Group I, CA tags Genre-poetry, Genre-narrative. Offered: 15W: Arrange.

### **ENGL 13 - Medieval English Literature**

Travis

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.

Distribution: DIST: LIT; WCult: W. Course Group I. CA tags Cultural Studies and Popular Culture, National Traditions and Countertraditions. Offered: 14W: Arrange 15S: Arrange.

### **ENGL 14 - Renaissance Poetry**

Halasz

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.

Distribution: Dist: LIT; WCult: W. Course Group I. CA tags Genders and Sexualities, Genre-poetry. Offered: 14W: Arrange.

### **ENGL 15 - Shakespeare**

Crewe, 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.

Distribution: Dist: LIT; WCult: W. Course Group I. CA tag Genre-drama. Offered: 13X: 10, 13F: 12, 14X: 10, 14F: 12, 15X: 10.

### **ENGL 16 - Renaissance Drama**

Boose

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.

Distribution: Dist: LIT; WCult: W. Course Group I. CA tags Genre-drama, Genders and Sexualities. Offered: 15W: Arrange.

### **ENGL 17 - Milton**

Luxon

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.

Distribution: Dist: LIT; WCult: W. Course Group I. CA tags Genre-poetry, Genders and Sexualities. Offered: 2013-2014 Not offered, may be offered 2014-2015.

### **ENGL 18 - English Literature 1660-1714, Including Drama**

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.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tag Genre-drama. Offered: Not offered in 2013-2014, may be offered 2014-2015.

### **ENGL 19 - Early American Literatures: Conquest, Captivity, Cannibalism**

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 America, Spanish and Latin America, French, and English. We will use primary sources in Rauner Library, culminating in an

assignment that helps us recover the “real” 18th century Dartmouth.

Distribution: LIT; WCult: W. Course Group I. CA tags Multicultural and Colonial/Postcolonial Studies, National Traditions and Countertraditions. Offered: 15S: Arrange.

### **ENGL 20 - Age of Satire**

Garrison

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.

Distribution: Dist: LIT; WCult: W. Course Group II, CA tag National Traditions and Countertraditions. Offered: 14W: 12.

### **ENGL 21 - Reason and Revolution**

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.

Distribution: Dist: LIT; WCult: W. Course Group II, CA tags National Traditions and Countertraditions, Genre-narrative. Offered: 14S: 10.

### **ENGL 22 - The Rise of the Novel**

Garrison, McCann

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.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tags National Traditions and Countertraditions, Genre-narrative. Offered: 15S: Arrange.

### **ENGL 23 - Romantic Literature: Writing and English Society, 1780-1832**

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.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tag National Traditions and Countertraditions. Offered: 13F: 10 15W: Arrange.

### **ENGL 24 - Victorian Literature and Culture, 1837-1859**

Gerzina

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.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tags Cultural Studies and Popular Culture, National Traditions and Countertraditions. Offered: 13X: 10.

**ENGL 25 - Victorian Literature and Culture, 1860-1901**

Gerzina, McCann

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.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tags Cultural Studies and Popular Culture, National Traditions and Countertraditions. Offered: 14F: Arrange.

**ENGL 26 - The Nineteenth-Century British Novel**

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*, Shelley's *Frankenstein*, Emily Brontë's *Wuthering Heights*, Charlotte Brontë's *Jane Eyre*, Thackeray's *Vanity Fair*, Dickens's *Bleak House*, George Eliot's *Middlemarch*, Mrs. Henry Wood's *East Lynne* and Thomas Hardy's *The Return of the Native*.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tags Genre-narrative, National Traditions and Countertraditions. Offered: 14W: 11 15W: 11.

**ENGL 27 - American Poetry**

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 will 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.

Distribution: LIT; WCult: W. Course Group II. CA tags Genre-poetry, National Traditions and Countertraditions. Offered: 15W: Arrange.

**ENGL 28 - American Prose**

Chaney

Readings of nonfiction narratives by such American writers as Benjamin Franklin, Ralph Waldo Emerson, Henry David Thoreau, Henry Adams, Gertrude Stein, Ernest Hemingway, and Jack Kerouac.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tags Genre-narrative, National Traditions and Countertraditions, Cultural Studies and Popular Culture. Offered: 14W: 11 15S: Arrange.

**ENGL 29 - American Fiction to 1900**

Boggs, Pease

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.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tags National Traditions and Countertraditions, Cultural Studies and Popular Culture. Offered: 14S: 12 15W: 11.

**ENGL 30 - Early Black American Literature**

Favor

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.

Distribution: Dist: LIT; WCult: W. Course Group II. CA tags National Traditions and Countertraditions, Cultural Studies and Popular Culture, Genre-narrative. Crosslisted as: AAAS 34. Offered: 13F: 10, 15S: Arrange.

### **ENGL 31 - Asian American Literature and Culture**

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.

Distribution: Dist: LIT; WCult: CI. CA tags National Traditions and Countertraditions, Multicultural and Colonial Postcolonial Studies, Cultural Studies and Popular Culture. Offered: 13F: 2A.

### **ENGL 32 - Native American Literature**

Benson

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.

Distribution: Dist: LIT; WCult: NW. Course Group III. CA tags National Traditions and Countertraditions, Multicultural and Colonial/ Postcolonial Studies. Crosslisted as: NAS 35. Offered: 14S: 11, 15S: Arrange .

### **ENGL 33 - Modern Black American Literature**

Colbert, Favor, Vásquez,

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.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags National Traditions and Countertraditions, Cultural

Studies and Popular Culture. Crosslisted as: AAAS 35. Offered: Not offered 2013-14; 15S: arrange.

### **ENGL 34 - American Drama**

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.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags National Traditions and Countertraditions, Genre-drama. Offered: 14S: 12 15S: Arrange.

### **ENGL 35 - American Fiction: 1900 to World War II**

Favor, Will

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.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags Genre-narrative, National Traditions and Countertraditions. Offered: 13X: 10 15W: arrange.

### **ENGL 36 - Contemporary American Fiction**

Will

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.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags Genre-narrative, National Traditions and Countertraditions. Offered: 14W: 11 15W: arrange.

### **ENGL 37 - Contemporary American Poetry**

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.

Distribution: LIT; WCult: W Course Group III. Offered: 14S;12, 15S Arrange.

**ENGL 38 - American and British Poetry: 1900-1960**

Zeiger, Vásquez

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.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags Genre-poetry, National Traditions and Countertraditions. Offered: Not offered 2013-14 15S: arrange.

**ENGL 39 - Modern British Drama**

Gamboa

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.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags Genre-drama, National Traditions and Countertraditions. Offered: 14F: Arrange.

**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.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags: Genre-narrative, National Traditions and Countertraditions, Cultural Studies and Popular Culture. Offered: Not offered in 2013-2014.

**ENGL 41 - British Fiction: World War II to the Present**

Giri

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, MacLavery, Ishiguro, Barker, Barnes, McKewan, Smith.

Distribution: Dist: LIT; WCult: W. Course Group III. CA tags Genre-narrative, National Traditions and Countertraditions. Offered: 13X:10A, 14F: Arrange.

**ENGL 42 - Introduction to Postcolonial Literature**

Giri

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.

Distribution: Dist: LIT or INT; WCult: NW. Course Group III. CA tags Genre-narrative, Multicultural and Colonial/Postcolonial Studies. Crosslisted as: AAAS 65. Offered: 14X: 2A, 15S: Arrange.

**ENGL 43 - Introduction to New Media**

Evans

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.

Distribution: Dist: ART. Course Group III. CA tags Cultural Studies and Popular Culture, Literary Theory and Criticism. Offered: 14W:2A, 15W: 2A.

**ENGL 45 - Introduction to Literary Theory**

Travis, Evans, Edmondson

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.

Distribution: Dist: LIT. Course Group IV. CA tag Literary Theory and Criticism. Offered: 13F: 12, 14S: 12, 14F: 12.

### **ENGL 46 - Old and New Media**

Evens, 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.

Distribution: Dist: LIT. Course Group IV. CA tags Cultural Studies and Popular Culture, Literary Theory and Criticism. Offered: Not offered 2013-14 15W: Arrange.

### **ENGL 47 - A History of the English Language**

Pulju

*Identical to and described under Linguistics 18.*

Course Group IV. CA tags Cultural Studies and Popular Culture, Literary Theory and Criticism, National Traditions and Countertraditions.

Distribution: Dist: QDS; WCult: W. . Crosslisted as: LING 18. Offered: 13F: 11 14F: 11.

### **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.

Distribution: Dist: LIT or INT; WCult: NW. Course Group IV. CA tags Multicultural/Colonial and Postcolonial Studies, National Traditions and Countertraditions, Literary Theory and Criticism. Crosslisted as: AAAS 66,

COLT 70. Offered: Not offered in 2013-14; may be offered in 2014-15.

### *Section III - Special Topics Courses*

These courses are offered periodically with varying content: one or more individual writers, a genre, a period, or an approach to literature not otherwise provided in the English curriculum. Requirements will include papers and, at the discretion of the instructor, examinations. Enrollment is limited to 30. Courses numbered 65-67 require prior work in the period (normally a course in the corresponding course group) or permission of the instructor. *Dist: LIT; WCult: Varies.*

### **ENGL 51 - Special Topics in Course Group I: Medieval and Renaissance Literature**

Otter

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.

#### **51.11 - In 14S, *Medieval Translations***

We will study translation in the Middle Ages and translations of the Middle Ages: medieval ideas of translation, translation practices in medieval England, and modern translations of medieval texts and ideas. Texts may include Old and Middle English translations of Boethius; romances like *Tristan and Havelok*; Chaucer and Wycliff as translators. Also, modern translations of *Beowulf* or *Sir Gawain*; and modern "translations" of medieval themes (e.g., chivalry). Final research project; shorter papers and translation exercises.

Otter.  
Distribution: LIT. Offered: 14S.

### **ENGL 52 - Special Topics in Course Group II: Literature of the Late Seventeenth Century through the Nineteenth Century**

Chaney, Gerzina

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.

#### **52.10 - In 13F at 11, *Vox Clamantis: Wilderness in 19th Century American Literature (formerly 66.10)***

Inspired by the motto of Dartmouth College, this course examines the trope 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.* Course Group II. CA tags Period study-II, National Traditions and Countertraditions.  
Chaney

#### **52.14 - In 14S at 2A, *The Brontës* (formerly 66.1)**

Charlotte, Emily and Anne Brontë are perhaps the most mythologized and analyzed family of writers in Britain. Their childhood in Haworth, the intensity of their novels, the relationship with their father and brother—all have been fodder for literary and biographical analysis, and spawned an entire industry of memorabilia, imitation and criticism. In this course we will do close readings of four Brontë novels (*Jane Eyre*, *Wuthering Heights*, *Villette*, *The Tenant of Wildfell Hall*), their juvenilia, some biographical selections, and a number of critical articles. No prerequisites.

*Dist: LIT; WCult: W.* Course Group II. CA tag Genre-narrative.  
Gerzina

Distribution: *Dist: LIT; WCult: Varies.* Offered: 13F 11, 14S 2A.

#### **ENGL 53 - Topics in Course Group III: Literature of the Nineteenth Century**

Varies

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. *Dist: LIT. WCult: Varies*

#### **53.10 - In 13F at 11, *Immigrant Women Writing in America* (formerly 62.10)**

*(Identical to WGST 47.1)*

In responding to the obstacles facing America's immigrants -- problems of dislocation, split identity, family disunity and claustrophobia, culture shock, language barriers, xenophobia, economic marginality, and racial and national oppression -- women often assume special burdens and find themselves having to invent new roles. They often bring powerful bicultural perspectives to their tasks of

survival and opportunity seeking, however, and are increasingly active in struggles for cultural expression and social and economic justice. We will examine the different conditions for women in a variety of immigrant groups in America, reading in several histories, anthologies of feminist criticism, interdisciplinary surveys, and relevant texts in critical theory, but ultimately focusing on the words, in autobiography and fiction, of women writers. We will read such works as Akemi Kikumura's *Through Harsh Winters: The Life of a Japanese Immigrant Woman*; Maxine Hong Kingston's *The Woman Warrior*; Bharati Mukerjee's *Darkness*; Sandra Cisneros's *The House on Mango Street*; Jamaica Kincaid's *Lucy*; and Kim Chernin's *In My Mother's House*.

*Dist: LIT; WCult: CI.* Course Group III, CA tags National Traditions and Countertraditions, Genders and Sexualities.

Zeiger

#### **53.11 - In 13F at 10A, *War and Gender* (formerly 62.11)**

*(Identical to WGST 42)*

Of all the cultural enterprises and big ticket myths in western history, probably none has been as strictly gendered as war. Traditionally, war has been constructed as powerfully gendered binary in which battle is posed as a nearly sacred and exclusively male domain through which young men are initiated into the masculine gender and the male bond. From the west's great classical war narrative of *The Iliad* onward, the feminine has, by contrast, been defined as that which instigates male-male conflict and that which wars are fought either to save or protect, be it a war to rescue Helen of Troy, to avenge the raped women of Kuwait whose plight was invoked as a cause for the 1991 Gulf War, one to protect the faithful (or faithless and betraying) wife at home, or a war to defend the ultimate national repository of the feminine ideal to be protected from the rapacious invasions of the enemy: America the Beautiful, mother land and virgin land. As a counterpart to the protection of the feminine imagined as belonging to one's own males, the narrative either tacitly or overtly allows a soldier to view the all "enemy" women as objects to be raped; and in the most recent wars of ethnic genocide of the 1990s onward, women in Bosnia, Rwanda, and Sudan have become no longer just incidental victims or "collateral damage," but the primary objects of enemy destruction. Starting with the Gulf War, however, the strict spatialization of the American war myth was at least challenged by the new presence of women on the war front, women as POWs, and in the present war in Iraq, women coming home maimed and in body bags; and women have now been integrated—whether successfully or not-- into all of the U. S. military accredited academies. With a special although not exclusive concentration on U.S. culture of the past century, this course will take a look at film, fiction, non fiction and biography, news media and online material, in tracing the strongly gendered myths and

narratives that are wrapped up in the cultural understanding of War.

*Dist: LIT; WCult: W.* Course Group III. CA tags Genders and Sexualities, Cultural Studies and Popular Culture, National Traditions and Countertraditions.

Boose

**53.20 - In 13F at 2A, *Indian Killers: Murder and Mystery in Native Literature and Film* (formerly 67.20)**

*(Identical to NAS 32)*

This course explores the abundance of crime fiction and murder mysteries created by Native American artists in recent decades. For some, the genre provides an imaginative space for avenging the offenses of colonization. For others, it offers a democratized landscape where all are equal, where American law is malleable, and where intelligence and subversion triumph. While most critics applaud these decolonizing efforts, we will examine their darker implications as well: do these narratives do real cultural work, or do they simply cash in on a thrill-seeking, stereotype-infested, pop-cultural industry? Do such works reveal that colonial violence will beget only more-and bloodier-violence? And in the end, who are its true victims?

*Dist: LIT; WCult: Cl.* Course Group III, CA tags National Traditions and Countertraditions, Multicultural and Colonial/Postcolonial Studies, Cultural Studies and Popular Culture.

Benson Taylor

**53.02 - In 14W at 12, *Toni Morrison* (formerly 67.11)**

*(Identical to AAAS 26)*

This course is an intensive study of Toni Morrison's major fictional works. We will also read critical responses by and about the author. Required texts may include *Sula*, *Song of Solomon*, *Beloved*, *Jazz*, *Paradise*, *Playing in the Dark*, and critical contributions by writers such as Barbara Smith and Paul Gilroy. Some of the central issues we will examine include alternative constructions of female community and genealogy, and representations of race, class, nationhood and identity.

*Dist: LIT; WCult: W.* Course Group III. CA tags National Traditions and Countertraditions, Genre-narrative.

Colbert

**53.16 - In 14W at 2A, *African Literatures: Masterpieces of Literature from Africa* (formerly 67.16)**

*(Identical to AAAS 51 and COLT 51)*

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*.

*Dist: LIT or INT; WCult: NW.* Course Group III. CA tags Cultural Studies and Popular Culture, National Traditions and Countertraditions, Multicultural and Colonial/Postcolonial Studies.

Coly

**53.17 - In 14W at 11, *The Graphic Novel* (formerly 67.17)**

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.

*Dist: LIT; WCult: W.* Course Group III. CA tags Cultural Studies and Popular Culture, Genre-narrative, Creative Writing.

Chaney

**53.21 - In 14W at 11, *Black Theater USA* (formerly 67.21)**

*(Identical to AAAS 31 and THEA 22)*

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.

*Dist: ART; WCult: Cl.* Course Group III. CA tags Genre-drama.

Colbert

Evens

**53.01 - In 14S at 10A, *The Black Arts Movement* (formerly 67.10)***(Identical to AAAS 81)*

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.

*Dist: LIT; WCult: W.* Course Group III. CA tags Popular Cultural and Cultural Studies, National Traditions and Countertraditions.

Rabig

**53.22 - In 14S at 10A, *Science Fiction Studies* (formerly 67)**

This class will examine the development of science fiction as literature, considering the distinctive characteristics of the genre. We will read critical perspectives on scifi that connect it to both modern and postmodern themes; we will think through the politics of scifi, focusing especially on its utopian and dystopian elements; we will articulate the many subgenres of scifi; we will investigate the unusually strong influence of the community of readers on the published texts in scifi. But primarily we will read representative examples, novels, stories, and even some films, from well-known classics to little-known and marginal texts. Authors may include John Campbell, Isaac Asimov, Ursula Le Guin, Arthur Clark, Philip Dick, Octavia Butler, William Gibson, James Tiptree, Jr., Stanislaw Lem, Yevgeny Zamyatin, Samuel Delaney, Bruce Sterling, Neal Stephenson, Greg Egan, Ted Chiang, and still others. The class will have an opportunity to shape the syllabus somewhat according to the preferences of enrolled students.

*Dist: LIT, pending faculty approval.* Course Group III. CA tags Cultural Studies and Popular Culture, Literary Theory and Criticism.

**53.23 - In 14S at 2A, *Caribbean Lyric and Literature* (formerly 67.1)***(Identical to AAAS 83.6 and LACS 66)*

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. 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. Furthermore, the course will explore shared cultural practices. For example, we will 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*.

*Dist: LIT; WCult: CI.* Course Group III. CA tags Multicultural and Colonial/Postcolonial Studies, Cultural Studies and Popular Culture.

Vasquez

**53.24 - In 14S at 2A, *Jewish American Literature: From its Inception to the Present* (formerly 67.6)***(Identical to JWST 21)*

The history of Jewish American literature is a history of many literatures. It reflects the broad variety of historical, political, social and cultural experiences that Jews from very different places and backgrounds 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. The course is divided into four parts: 1. *The Great Tide* (1880-1920) discerns the literary repercussions of Jewish immigration such as language (Yiddish, Hebrew, English), religion (Judaism, secularism), and politics (Zionism, democracy) in the writings of authors such as Antin, Cahan, Kallen, Lazarus, Leeser, Mayer Wise, and Yezierska. 2. *From Margin to Mainstream* (1920-1945), covers the cataclysmic interwar years, which evoked an intensive production of the literary and literal children of immigrants coming of age and

becoming an aesthetic and political force in debates about American modernism, among them Gertrude Stein and Henry Roth. 3. In the Years of Achievement and Ambivalence (1945-1970), the defining line of Jewish American writing altered dramatically. Jewish American literature's "ethnic stamp" marks and complicates the characters and perspectives created by Bellow, Ginsberg, Mailer, Malamud, Olsen, Paley, Singer and others with respect to debates about the Holocaust, the counterculture, or the civil rights, women's, and student movement. 4. Wandering and Return (1970 to the Present) will focus on the broad variety of modern and postmodern Jewish American writing. Questions of contemporary ethnic identity in a multicultural society as well as attempts to reconfigure historical perspectives on the Holocaust, the Rosenberg Case, or McCarthyism inform the writings of Doctorow, Lelchuk, Ozick, Philip Roth and others.

*Dist: LIT. WCult: CI.* Course Group III. CA tags National Traditions and Countertraditions, Multicultural and Colonial/Postcolonial Studies.

Milich

Distribution: Dist: LIT WCult: Varies. Offered: 13X,13F,14W,14S Times vary.

#### **ENGL 54 - Topics in Theory in Course Group IV: Criticism and Theory**

Varies

Courses offered periodically and with varying content in the fields of literary criticism and literary theory not otherwise provided in the English curriculum. Requirements will include papers and, at the discretion of the instructor, examinations. Enrollment is limited to 30. *Dist: Varies; WCult: Varies.*

#### **54.12 - In 14W at 2, *Cosmopolitanism* (formerly 63.12)**

Cosmopolitanism has been described as a way of thinking and working outside the boundaries of the local and the national, a way of living ethically "in a world of strangers." In recent years, in the work of writers as diverse as Jacques Derrida and Anthony Appiah, "cosmopolitanism" has emerged as a way of pushing forward, or even transcending, some of the theoretical impasses of postmodernism and some of the political impasses of multiculturalism. This course will focus on the idea of cosmopolitanism as it has been used (and perhaps abused) in contemporary theory, philosophy, politics, and aesthetics.

*Dist: LIT.* Course Group IV, CA tags National Traditions and Countertraditions, Multicultural and Colonial/Postcolonial Studies.

Will

#### **54.14 - In 14W at 10A, *Colonial and Postcolonial Masculinities* (formerly 63.14)**

*(Identical to AAAS 67, COLT 67, and WGST 52)*

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.

*Dist: LIT.* Course Group IV. CA tags Genders and Sexualities, National Traditions and Countertraditions, Multicultural and Colonial/Postcolonial Studies.

Coly

#### **54.15 - In 14W at 2, *History of the Book* (formerly 60.11)**

*(Identical to COLT 40)*

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 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 in the Book Arts workshop setting type.

*Dist: LIT, WCult: W.* Course Group IV. CA tags Literary Criticism and Theory, Cultural Studies and Popular Culture.

Halasz

#### **54.16 - In 14W at 10, *Literary Classics* (formerly 60.15)**

*Hamlet*, *Paradise Lost*, *Pride and Prejudice*, *Wuthering Heights*, *The Waste Land*: these texts are among the cornerstones of a literary canon the still exerts enormous influence even as it is intensely contested. How does a

play, a novel or a poem become a "literary classic"? In this course we will read a series of indisputably "great" texts in order to understand the complex forms of evaluation (aesthetic, political, moral and commercial) that both underpin and revise notions of canonicity. Drawing on theoretical work by Gauri Viswanathan, Pierre Bourdieu, Theodor Adorno and Pascale Casanova, we will also consider the varied institutional contexts (from the colonial civil service to the liberal arts classroom, from small presses to multinational publishers, from Masterpiece Theater to contemporary Bollywood) that govern these processes.

*Dist: LIT; WCult: W.* Course Group IV. CA tags Literary Theory and Criticism, National Traditions and Countertraditions.

McCann

Distribution: Dist: LIT WCult: Varies. Offered: 14W Times vary.

### **ENGL 55 - Open Topic**

Palmer, Zeiger

These courses are offered periodically with varying content: one or more individual writers, a genre, a period, an approach to literature not otherwise provided in the English curriculum. Requirements will include papers and, at the discretion of the instructor, examinations. Enrollment is limited to 30.

#### **55.14 - In 14W at 10, Native American Oral Traditional Literatures (formerly 60.14)**

Native American oral literatures constitute a little-known but rich and complex dimension of the American literary heritage. This course will examine the range of oral genres in several tribes. Since scholars from around the world are studying oral literatures as sources of information about the nature of human creativity, the course will involve examining major theoretical approaches to oral texts.

*Dist: LIT; WCult: NW.* No Course Group designation. CA tags Multicultural and Colonial/Postcolonial Studies, National Traditions and Countertraditions.

Palmer

#### **55.01 - In 14S at 11, Modern American Women Poets (formerly 62)**

*(Identical to WGST 47)*

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.

*Dist: LIT; WCult: W.* CA tags Genre-poetry, National Traditions and Countertraditions, Genders and Sexualities.

Zeiger

Distribution: Dist: LIT; WCult: varies. Offered: 14W:10 14S:11.

#### *Section IV-Junior Colloquia*

### **ENGL 61 - Junior Colloquia in Course Group I**

Varies

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.

Distribution: Dist: LIT, WCult: Varies, Course Group I. Prerequisite: Prerequisites: two completed major courses, or permission of the instructor. Offered: Not offered 2013-14; will be offered 2014-15.

### **ENGL 62 - Junior Colloquia in Course Group II**

Varies

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. *Dist: LIT; WCult: Varies.*

Distribution: Dist: LIT, WCult: Varies, Course Group II. Prerequisite: Prerequisites: two completed major courses, or permission of the instructor. Offered: Not offered 2013-14; will be offered 2014-15.

### **ENGL 63 - Junior Colloquia in Course Group III**

Varies

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.

Distribution: Dist: LIT, WCult: Varies, Course Group III. Prerequisite: Prerequisites: two completed major courses, or permission of the instructor. Offered: Not offered 2013-14; will be offered 2014-15.

#### **ENGL 64 - Junior Colloquia in Course Group IV**

Varies

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. *Dist: Varies; WCult: Varies.*

Distribution: Dist: Varies, WCult: Varies, Course Group IV. Prerequisite: Prerequisites: two completed major courses, or permission of the instructor. Offered: Not offered 2013-14; will be offered 2014-15.

#### **ENGL 65 - Junior Colloquia without Course Group Designation**

Varies

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.

Distribution: Dist: LIT, WCult: Varies, Course Group Designation: None. Prerequisite: Prerequisites: two completed major courses, or permission of the instructor. Offered: Not offered 2013-14; will be offered 2014-15.

#### *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 - Senior Seminars in Course Group I**

Varies

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.

#### **71.13 - In 14W at 21, *Gender and Power in Shakespeare: From Page to Stage* (formerly 70.13)**

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-inflicted? 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.

*Dist: LIT; WCult: W.* Course Group I. CA tags Genre-drama, Genders and Sexualities

Boose

Distribution: Dist: LIT, WCult: Varies, Course Group I. Offered: 14W 2A.

#### **ENGL 72 - Senior Seminars in Course Group II**

Varies

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. WCult: Varies.

#### **72.12 - In 13F at 12, *Gothic Fiction***

The so-called Gothic revival at the end of the eighteenth century dramatically changed the ways in which Europeans read and wrote fiction. While the supernatural orientation of the Gothic has often been read as a resistance to the culture of the Enlightenment, it is just as clear that Gothic writing from the late eighteenth and early nineteenth centuries became an important forum for innovative thinking about sexuality, psychology and the nature of political power. This course will examine some of the radical political and aesthetic possibilities inherent in the Gothic genre as it was conceived in this period. Readings may include work by Horace Walpole, William Godwin, Ann Radcliffe, Matthew Lewis, Charles Maturin, and Mary Shelley.

*Dist: LIT; WCult: W.* Course Group II. CA tags Genre-Narrative, National Traditions and Countertraditions.

McCann

**72.11 - 14S at 10A, *Jane Austen* (formerly 66.2)**

In this seminar we will consider Austen's place in the history of the novel and read her works in light of the fiction of some of her contemporaries. Discussions will focus on 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 within their families and class; her use of history; and her innovations in fictional narrative. We will read Northanger Abbey (written 1797, published 1818), Ann Radcliffe's *The Romance of the Forest* (1791), *Sense and Sensibility* (1811), *Pride and Prejudice* (1813), Sir Walter Scott's *Waverley* (1814), *Mansfield Park* (1814), and *Emma* (1816) together with Mary Shelley's *Frankenstein* (1818).

*Dist: LIT; WCult: W.* Course Group II.

McKee

Distribution: *Dist: LIT, WCult: Varies*, Course Group II.  
Offered: 14F 12; 15S 10A.

**ENGL 73 - Senior Seminars in Course Group III**

Varies

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. WCult: Varies*

**73.13 - In 13F at 11, *James Joyce* (formerly Eng. 72.13)**

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. Each student will be asked to write two papers.

*Dist: LIT; WCult: W.* Course Group III, CA tags Genre-narrative, Multicultural and Colonial/Postcolonial Studies

Huntington

**73.17 - In 14S at 3A, *Science, Fiction and Empire* (formerly 72.17)**

In this course we analyze the historical relationships between science and imperialism, exploration and discovery, conquest and the mining of natural resources. Engaging with postcolonial, feminist, and queer theory, we also read in the field of science and technology studies. Readings include not only a number of science fiction

novels, short stories, and films by people of color across the Americas, but also a broader set of "scientific fictions." For example, we read work by Afro-Caribbean-Canadian writer Nalo Hopkinson alongside postcolonial critiques of the so-called "digital divide." Similarly, we read the speculative fiction of Karen Tei Yamashita, a California native who also lived in Brazil and Japan, against the backdrop of U.S. imperialism in Latin America and the fictions of "development" used to rationalize such endeavors. African-American writers Octavia Butler and Samuel Delany offer helpful counter-texts to the history of medical experimentation on people of color in the U.S. and the homophobia of AIDS discourse in the 1980s. In essence, we look to the speculative fiction by people of color as examples of what Hopkinson has termed "postcolonial science fiction," which re-imagines science and technology in the service of transnational networks rather than Empire.

*Dist: LIT; WCult: CI.* Course Group III. CA tags National Traditions and Countertraditions, Multicultural and Colonial/Postcolonial Studies, Cultural Studies and Popular Studies.

Bahng

**73.20 - In 14S at 2, *Trench Modernism* (formerly 72.20)**

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.

*Dist: LIT; WCult: W.* Course Group III. CA tags Cultural Studies and Popular Culture, National Traditions and Countertraditions.

Will

Distribution: *Dist: LIT, WCult: Varies*, Course Group III.  
Offered: 14F 11; 15S 3A,2.

**ENGL 74 - Senior Seminars in Course Group IV**

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: Varies; WCult: Varies*

**74.19 - In 14W at 10A, *Black Women Writers* (formerly 72.19)**

(Identical to AAAS 88.4)

In this course we will examine significant literary

contributions of twentieth century Black women writers. While we will explore the social and historical contexts that inform the work of authors from a variety of nation states, we will also examine moments of continuity within a Black diasporic community. For example, our discussions will include analyses of the ways in which Western and non-Western influences are reflected in protagonists' use of language, their negotiation of different locales and in their construction of female communities. To this end, we will consider primary sources as well as critical responses to the poetry, plays, essays and novels of a variety of writers. Authors may include Ama Ata Aidoo, Louise Bennett, Maryse Condé, Edwidge Danticat, Zora Neale Hurston, Jamaica Kincaid, Toni Morrison and Gloria Naylor.

*Dist: LIT. WCult: CI.* Course Group IV. CA tags National Traditions and Countertraditions, Multicultural and Colonial and Postcolonial Studies, Genders and Sexualities.

Vasquez

Distribution: Dist: LIT, WCult: Varies, Course Group IV. Offered: 14W 10A.

### **ENGL 75 - Senior Seminars without Course Group Designation**

Varies

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; WCult: Varies.*

Distribution: Dist: LIT, WCult: Varies, Course Group Designation: None. Offered: Not offered in 2013-14; may be offered in 2014-15.

#### *Section VI - Creative Writing*

#### Intro Creative Writing Course

### **ENGL 80 - Writing and Reading Fiction**

Tudish, Hebert, O'Malley

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.

Distribution: Dist: ART. Offered: 13X: 10A, 13F: 2A, 14W: 7pm, 14S: 10A, 2A, 14X: Arrange, 14F: Arrange, 15W: Arrange, 15S: Arrange.

### **ENGL 81 - Writing and Reading Creative Nonfiction**

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. *Dist: ART*

Distribution: Art. Offered: 14W 10A.

### **ENGL 82 - Writing and Reading poetry**

Huntington, Mathis

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.

Distribution: Art. Offered: 14W 2A, 14F Arrange, 15W Arrange.

Intermediate Creative Writing Courses

### **ENGL 83 - Intermediate Workshop in Fiction**

O'Malley, Tudish, Hebert

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. Students must submit an application form (available in the English department office and on the department website) and a 5-8 page sample of their writing 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.

Distribution: Dist: ART. 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. Offered: 13F 10A, 14W 2A, 14S 10A, 14F: Arrange, 15W: Arrange, 15S: Arrange.

**ENGL 84 - Intermediate Creative Nonfiction**

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. Students must submit an application form (available in the English department office and on the department website) and a 5-8 page sample of their writing 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.

Distribution: Dist: ART. 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, 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. Offered: 14S:10A, 15W: Arrange.

**ENGL 85 - Intermediate Workshop in Poetry**

Mathis, Huntington

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. Students must submit an application form (available in the English department office and on the department website) and a 5-8 page sample of their writing 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.

Distribution: Dist: ART. 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. Offered: 14S 12; 15S: Arrange.

**Advanced Creative Writing Courses****ENGL 86 - Senior Workshop in Creative Writing**

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.

Distribution: Dist: ART. Prerequisite: ENGL 83 and ENGL 84, or ENGL 85. Offered: 13F 2A, 14F Arrange.

**ENGL 87 - Special Topics in Creative Writing**

O'Malley

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.

Distribution: Dist: ART. Prerequisite: Permission of the Director of Creative Writing. Offered: 14S 2, 15S Arrange.

**ENGL 89 - Creative Writing Project**

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.

Distribution: ART. Offered: All Terms: Arrange.

*Section VII - Foreign Study Courses***ENGL 90 - English Study Abroad I**

Schweitzer, Edmondson

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 Glasgow FSP, this will be a course of study in literature at the University of Glasgow. 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 and Dublin

Distribution: Dist: LIT; WCult: W. Offered: 13F: D.F.S.P. (Dublin, Glasgow), 14F: D.F.S.P. (Glasgow), 15F: D.F.S.P. (Dublin, Glasgow).

### **ENGL 91 - English Study Abroad II**

Schweitzer, Edmondson

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 Glasgow FSP, this will be a course of study in literature at the University of Glasgow. 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 and Dublin

Distribution: Dist: LIT; WCult: W. Offered: 13F: D.F.S.P. (Dublin, Glasgow), 14F: D.F.S.P. (Dublin), 15F: D.F.S.P. (Dublin, Glasgow).

### **ENGL 92 - English Study Abroad III**

Varies

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

Distribution: Glasgow Dist. Varies, Dublin Dist. LIT. Offered: 13F: D.F.S.P. (Dublin, Glasgow), 14F: D.F.S.P. (Glasgow), 15F: D.F.S.P. (Dublin, Glasgow).

### *Section VII - Independent Study and Honors*

#### **ENGL 96 - Reading Course**

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.)

Distribution: Varies. Offered: All terms: Arrange.

#### **ENGL 98 - Honors Course**

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.

Distribution: Varies. Offered: All terms Arrange.

## **Environmental Studies Program**

Chair: Anne R. Kapuscinski

Professors D. T. Bolger, A. J. Friedland, R. B. Howarth, A. R. Kapuscinski, R. A. Virginia; Associate Professor C. S. Sneddon; Assistant Professors M. Cox, N. J. Reo, D. G. Webster; Adjunct Professor B. D. Roebuck (Toxicology); Visiting Professor T. T. Williams; Visiting Assistant Professor C. A. Fox; Senior Lecturers T. S. Osborne, M. A. Poage; Adjunct Instructor S. P. Stokoe; Research Assistant Professor R. T. Jones.

*To view Environmental Studies courses, [click here](#) (p. 245).*

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, ENV50: 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) ENV5 2 or the equivalent (It is possible to substitute other course combinations for ENV5 2 on a two-for-one basis. The following may be combined with Biology 16: EARS 1, 6, ENV5 12 or GEOG 3. If BIOL 16 is taken as a partial substitute for ENV5 2, it may not be used as a prerequisite.); (b) ENV5

3 (It is possible to substitute other course combinations for ENV5 3 on a two-for-one basis.)

Core Courses (3 courses): Please choose one from each group

(a) Environmental Science: ENV5 20, ENV5 25 or ENV5 30;

(b) Economy and Environment: ENV5 55 or ENV5 56

(c) Environmental Governance: ENV5 61, ENV5 65 or ENV5 67

Critical Issues in Environmental Studies: ENV5 11; ENV5 12; ENV5 15; ENV5 17; ENV5 18; ENV5 28.

Elective Focus Courses (3 courses): Three related and relevant non-introductory (i.e., 10 or above) courses, at least one from ENV5.

Culminating Experience: ENV5 50, ENV5 84 or ENV5 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 ENV5 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 ENV5 50, ENV5 84, or conducting Honors Research (ENV5 91).

### The Environmental Studies Minor

Prerequisites (1): ENV5 2 or equivalent

Requirements (1): ENV5 3 or ENV5 11

Four other related non-introductory Environmental Studies Courses, two of which are normally from ENV5. Courses from outside ENV5 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 5.1: Pre-Colonial African History

AAAS 15/HIST 66: History of Africa since 1800

AAAS 19/HIST 5.8: Africa and the World

AAAS 40/WGST 34.2: Gender Identities and Politics 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 83.2: Food and the African World

AAAS 85.1: South African Literature in English

GEOG 6/INTS 16: Introduction to International Development

GOVT 42: Politics of Africa

HIST 6: Women & Gender in the African Diaspora

THEA 23/AAAS 54: Topics in African Theater and Performance

### ENVS - Environmental Studies Courses

To view Environmental Studies requirements, [click here](#) (p. 243).

#### ENVS 2 - Introduction to Environmental Science

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.

Distribution: SCI. Offered: 13F: 12, 14F: 11, 15W: 12.

#### ENVS 3 - Environment and Society: Towards Sustainability?

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.

Distribution: SOC. Offered: 14S, 14F: 12.

### **ENVS 7 - First-Year Seminars in Environmental Studies**

Offered: Consult special listings.

### **ENVS 11 - Humans and Nature in America**

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 disciplines 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 - and analyze closely those that seem characteristically "American." A final, multimedia project will test course ideas by gathering other Dartmouth students' stories about their relationship with the natural world and their attitudes about living "sustainably."

Distribution: Dist: LIT; WCult:W. Offered: 14W, 15W: 10.

### **ENVS 12 - Energy and the Environment**

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.

Distribution: TAS. Prerequisite: ENVS 2 or permission of the instructor. Offered: 14S, 15S: 10A.

### **ENVS 15 - Environmental Issues of the Earth's Cold Regions**

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).

Distribution: TAS. Prerequisite: ENVS 2 or ENVS 3 or permission of the instructor. Offered: 14S, 15S: 10.

### **ENVS 16 - Business and the Environment**

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.

Distribution: SOC or INT. Prerequisite: ENVS 2 or equivalent. Offered: 14F: 10.

### **ENVS 17 - Marine Policy**

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.

Distribution: SOC. Offered: 15F: 10.

### **ENVS 18 - Native Peoples in a Changing Global Environment**

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.

Distribution: Dist: TMV; WCult: NW. Prerequisite: NAS 8 or NAS 10 or NAS 25 or ENVS 1/11 or ENVS 2 or ENVS 3; or permission of instructor. Crosslisted as: Identical to NAS 18. Offered: 13F, 14F: 2.

### **ENVS 19 - Encountering Forests**

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.

Crosslisted as: Identical to NAS 19. Offered: 14S, 15S: OT - Field Trip Tu 2:00-6:00, Class Th 2:00-3:50.

### **ENVS 20 - Conservation of Biodiversity**

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.

Distribution: TAS. Prerequisite: ENVS 2 or BIOL 16, or permission of the instructor. Offered: 14W, 15W: 2.

### **ENVS 25 - Ecological Agriculture**

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.

Distribution: TLA. Prerequisite: ENVS 2 or BIOL 16 or permission of the instructor. Offered: 14X: 11, Laboratory Monday or Tuesday 2:00-5:00 p.m.

### **ENVS 28 - Global Environmental Health**

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.

Distribution: TAS. Prerequisite: ENVS 2 or BIOL 16 or permission of the instructor. Offered: 14S, 15S: 11.

### **ENVS 30 - Global Environmental Science**

Staff

This course examines human influences on the major global biogeochemical cycles (water, carbon, nitrogen, sulfur). The emphasis is on understanding cycling processes in terrestrial (and, to a lesser extent, aquatic) systems and how human activities (e.g., air pollution, deforestation, desertification, changes in biodiversity) can disrupt these cycles, changing the ability of our global environment to support life. Important feedbacks between biological and physical processes and their effects on the atmosphere are emphasized. The response of natural and managed ecosystems to changing climate and resource availability will be discussed along with prospects for the future. The course also examines international science policies and programs to limit human interference in global cycling processes.

Distribution: SCI. Prerequisite: MATH 3 or the equivalent, and CHEM 5, and ENVS 2, or the permission of the

instructor. Offered: This course is not offered 13F through 15S.

### **ENVS 39 - Natural Resources, Development, and the Environment**

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.

Distribution: SOC. Prerequisite: ENVS 2 or the equivalent, or permission of the instructor. Offered: 14X: 10A.

### **ENVS 40 - Foreign Study in Environmental Problems I**

Roebuck

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.

Distribution: SOC. Offered: 13F, 14F: D.F.S.P.

### **ENVS 42 - Foreign Study in Environmental Problems II**

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.

Distribution: INT. Offered: 13F, 14F: D.F.S.P.

### **ENVS 44 - Environment and Politics in Southeast Asia**

Sneddon (14W), Fox (15W)

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).

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: Identical to GEOG 44. Offered: 14W, 15W: 10A.

### **ENVS 45 - Colonialism, Development and the Environment in Africa and Asia**

Haynes

Identical to, and described under, HIST 75.

Distribution: Dist: INT or SOC; WCult: NW. Crosslisted as: HIST 75, AAAS 50. Offered: 15W: 12.

### **ENVS 50 - Environmental Problem Analysis and Policy Formulation**

Howarth/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.

Distribution: SOC. Prerequisite: ENVS 1/11, 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. Offered: 14S, 15S: 2.

### **ENVS 53 - Science for Sustainable Systems**

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.

Distribution: TAS. 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 41-44 or ENGS 51; or CHEM 63; or one of EARS 16-18, EARS 26, EARS 28, EARS 61, 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. Offered: Not offered 13F-14S.

### **ENVS 55 - Ecological Economics**

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.

Distribution: SOC. Prerequisite: ECON 1 or ECON 2; MATH 3 or the equivalent; ENVS 2 or ENVS 3; or permission of the instructor. Offered: 14W, 15W: 10.

### **ENVS 56 - Environmental Economics and Governance**

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.

Distribution: SOC. Prerequisite: ECON 1 or ECON 2 and MATH 3, or the equivalent, or permission of the instructor. Offered: 14S, 15S: 11.

### **ENVS 60 - Environmental Law**

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.

Distribution: SOC. Offered: 13F, 14F: 10.

### **ENVS 61 - Governing the Environment**

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.

Distribution: Dist: SOC. Prerequisite: ENVS 2 or ENVS 3 or permission of instructor. Offered: 13F, 14F: 11.

### **ENVS 65 - Global Environmental Politics**

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.

Distribution: INT. Offered: 14W, 15W: 11.

### **ENVS 67 - Political Ecology**

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.

Distribution: Dist: INT or SOC. Prerequisite: ENVS 3 or GEOG 1 or permission of instructor. Crosslisted as: Identical to GEOG 67. Offered: 15W: 10A.

### **ENVS 72 - Nature Writers**

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.

Distribution: Dist: LIT, WCult: W. Offered: 13F: 2A.

### **ENVS 79 - The Soil Resource**

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.

Distribution: SLA. Prerequisite: ENVS 2 or one course from EARS 1-EARS 9 exclusive of EARS 7, or permission of the instructor. Crosslisted as: Identical to EARS 35. Offered: 14S: 12; Laboratory: Arrange.

### **ENVS 80 - Seminar in Environmental Studies**

This course may be offered any term and the content varied according to the interests of the instructor. Seminars explore contemporary issues and problems in environmental science, environmental policy, and environmental topics from the humanities and social sciences. Seminars are primarily designed for juniors and seniors and generally require the permission of the instructor. Others may seek to apply by permission. Distributive varies.

In 14S at 3A, *Writing Our Way Home: The Writing That Sustains Us*. 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. *Dist. LIT.* Williams

In 14S at 2A, *Science and Policy of Rapid Environmental Change* (Identical to BIOL 148). 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. Culler/Virginia.

In 14W at 12, *Computational Toolbox for Environmental Sustainability*.

Fields related to ecology and the sustainable management of natural systems increasingly employ computational modeling. As the impetus to understand how our society can function more sustainably becomes more pressing, and the ability to gather data on natural and human systems explodes, basic scientific knowledge must be translated into actionable insights. The intersection of computing and the social and ecological sciences is an exciting growth area for researchers, students considering interdisciplinary graduate study, and future green-consultants. This course aims to provide an accessible introduction to some basic techniques useful in understanding a range of contemporary environmental issues in natural resource management (forestry, fisheries), conservation, biodiversity, invasive species, and including topics around the design of efficient systems (public transportation, greener energy/infrastructure, water resources etc).

Spencer.

### **ENVS 83 - Socio-Ecological Research Methods**

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.

Distribution: SOC. Prerequisite: ENVS 2 or ENVS 3 and MATH 10 or equivalent, or permission of instructor. Offered: 14S: 10A.

### **ENVS 84 - Seminar on Environmental Issues of Southern Africa**

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.

Distribution: WCult: NW. Offered: 13F, 14F: D.F.S.P.

### **ENVS 89 - Forest Biogeochemistry**

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.

Distribution: SCI. Prerequisite: ENVS 2 plus one additional science class in ENVS plus one related course in Ecology or EARS; or permission of the instructor. Offered: 14W: 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: Sienna R. Craig

2013-2014 Advisory Board Members: P. Argenti, I. Baker, N. E. Cochran, S. R. Craig, M. L. Guerinot, J. C. Horrell, J. M. Kopper, S. S. Levey, W. Lotko, D. Nierenberg, L. A. Swaine, R. A. Virginia, M. Zubkoff.

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) newsletter; 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 ethics bowl debate competition.

The Ethics Institute's administrative offices, library, and conference room are located in Haldeman Center, second floor.

## Ethics Minor

Research Associate 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](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:

#### **ETHICS MINOR**

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](http://www.dartmouth.edu/~ethics/programs/ethics_minor/index.html).

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.

#### **I. Prerequisite: Two courses conveying basic ethical theory. Options include:**

GOVT 6	Political Ideas
PHIL 8	Introduction to Moral Philosophy
PHIL 37	Ethical Theory
PHIL 38	Political and Social Philosophy
REL 11	Religion and Morality

**II. Three additional courses that form a coherent cluster or focus on an issue in or approach to applied and professional ethics. Among possible clusters are "Ethics in Biomedicine"; "Ethics, Law and Society"; or "Ethics and Public Policy." Other clusters are also possible. Students will identify an appropriate cluster in consultation with and with the approval of the Director of the Minor. Courses currently available for the minor:**

**For the following special topics courses, only the course titles below are allowed for the Ethics Minor:**

**Government 50, International Relations: Human Rights and International Relations**

**Philosophy 9, Topics in Applied Ethics: The Ethics of Food Choice and Food Policy**

**Philosophy 9, Topics in Applied Ethics: Reproductive Ethics**

**Philosophy 50, Special Topics in Philosophy: Relativism in Epistemology and Ethics**

**Philosophy 50, Special Topics in Philosophy: The Moral Obligation and Moral Responsibility**

**Philosophy 80, Advanced Seminar: Practical Reason, Action, and the Foundation of Ethics**

**Religion 19, Animal Rights in Religion, Film and Literature**

**Theater 10, Human Rights and Performance**

ANTH 17      The Anthropology of Health and Illness

ANTH 18      Introduction to Research Methods in Cultural Anthropology

ANTH 45	Asian Medical Systems
ANTH 55	Anthropology of International Health
ANTH 56	Introduction to Research Methods in Medical Anthropology
BIOL 4	Genes and Society
EDUC 29	Policy and Politics in American Education
EDUC 62	Adolescent Development and Education
ENGS 5	Healthcare and Biotechnology in the 21st Century
GEOG 6/INTS 16	Introduction to International Development (Identical to INTS 16)
GEOG 11	Qualitative Methods and the Research Process in Geography
GEOG 15	Food and Power
GEOG 16	Moral Economies of Development
GEOG 25	Social Justice and the City
GERM 13	Beyond Good and Evil
GOVT 50	Topics in International Relations
GOVT 61	Jurisprudence
GOVT 62	Theorizing Free Speech
GOVT 63	Origins of Political Thought: Render unto God or unto Caesar?
GOVT 64.1	Liberalism and Its Critics
GOVT 64.2	Modern Political Thought
GOVT 67	Civil Liberties Legal and Normative Approaches
GOVT 86.1	Multiculturalism
GOVT 86.18	Contemporary Readings on Justice
PBPL	Ethics and Public Policy
42/GOVT 60	
PHIL 9	Topics in Applied Ethics
PHIL 17	Phenomenology and Existentialism
PHIL	Feminism and Philosophy
22/WGST 46.1	
PHIL 24	Philosophy of Law
PHIL 25	Philosophy of Medicine
PHIL 50	Special Topics in Philosophy
PHIL 80	Advanced Seminar
REL 19	Special Topics in Religion-Introductory Level
REL 29	Kierkegaard and Existentialism
REL 53	Religion, Healing, and Medicine
RUSS 35	Dostoevsky and the Problem of Evil
SOCY 63	Trust in Society
GOVT 66.2	Constitutional Law, Development, and Theory
REL 37	Animal Rights in Religion, Film, and Literature
THEA 10	Special Topics in Theater

### III. A senior culminating project

This involves an independent study project with a faculty member offering a course or courses in the Ethics Minor (or other approved faculty member) on a topic related to the student's course cluster. The culminating project will normally involve a substantial paper (20-25 pages in length) on a topic related to the student's cluster courses.

PHIL 86                      Research in Philosophy for the Ethics Minor.

### French and Italian Languages and Literatures

Chair: Graziella Parati

Professors F. Beasley, L. A. Higgins, K. J. Jewell, L. D. Kritzman, D. P. LaGuardia, G. Parati, J. A. Rassias, R. M. Verona, K. L. Walker; Associate Professors N. L. Canepa, I. Chitoran, A. W. Tarnowski, J. K. Wine; Assistant Professors Y. Elhariry, L. Hollister, L. Marcellesi, C. K. Quaintance; Research Assistant Professor T. Convertini; Senior Lecturers A. C. Cone, D.-M. Decharme, A. Minardi, B. D. Mosenthal; Lecturers G. Nenciu, K. F. McConnell, S. Millsbaugh, J. Mullins.

*To view French courses, click here (p. 256).*

*To view French and Italian in Translation courses, click here. (p. 261)*

*To view Italian courses, click here (p. 262).*

### 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: French 8. Major programs consist of ten (minimum) or more courses above the level of FREN 8. Each major must include FREN 10 (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 French 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: Italian 3. All students wishing to major in Italian must have completed Italian 3 (on campus, through the L.S.A. program in Rome, or by placement) no later than the spring of their sophomore year. An Italian major consists of eight courses numbered Italian 8 or above. With the approval of the Italian Major Advisor, Italian 10 may be counted for credit toward the major twice, provided the course topics are different. The Honors major consists of nine courses, of which one must be Italian 89 (the thesis). Two of the three courses offered on the L.S.A.+ may be counted toward the major and the Honors major. During their senior year, as their culminating activity, Italian majors must take either Italian 88: Senior Independent Reading and Research or an upper-level Italian course (numbered Italian 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 three principal Romance languages (French, Italian, Spanish). 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 French 10 and one course from French 22, 23, 24, 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 French 78: Senior Major Workshop or, with special permission, an upper-level French course (numbered French 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. During their senior year, as their culminating activity, Romance Language majors (whose

primary language is Italian) must take either Italian 88: Senior Independent Reading and Research or an upper-level Italian course (numbered Italian 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: French 8. The French Studies Major consists of ten courses, with a minimum of six selected from FREN 10 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 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: Italian 3. The Italian Studies Major consists of ten courses, with a minimum of six selected from Italian 8 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 may count toward the major. During their senior year, as their culminating experience, Italian Studies Majors must take either Italian 88: Senior Independent Reading and Research or an upper-level Italian course (numbered Italian 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; 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. 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. French 10 may be counted toward the minor only once. Students who are exempted from French 8 may replace it with another advanced course. A maximum of one transfer course may count toward the minor.

### 2. *Minor in Italian.*

The minor in Italian consists of six courses above the level of ITAL 5. The minor must include ITAL 10. 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 courses offered on the Dartmouth L.S.A.+ in Italy may count toward the minor. A maximum of one transfer course may count toward the minor.

## 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 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.*, French 2 with the grade of B– or better, or equivalent preparation, and acceptance into the program; for *French L.S.A.+*, French 3 with the grade of B– or better, or equivalent preparation, and acceptance into the program; for *Italian L.S.A.*, Italian 2 or ARTH 12 with the grade of B or better, or equivalent preparation, and acceptance into the program; for *Italian L.S.A.+*, Italian 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, 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 (or have received credit for FREN 10 during Orientation week) with a grade of B or better. FREN 10 should be taken as immediately prior to the term in Paris as scheduling allows.

FREN 8 and FREN 10 may be completed on the L.S.A.+.

Students who have received exemption from FREN 8 AND credit for FREN 10 during Orientation Week must

take at least one French course at Dartmouth from among courses French 10 through French 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. 253).

#### **FREN 1 - Introductory French I**

The staff

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: 13F, 14F, 15W: 9L, 10 14W, 14S, 15S: 9L .

#### **FREN 2 - Introductory French II**

The staff

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: 13F, 14W, 14S, 14F, 15W, 15S: 9L, 10 .

#### **FREN 3 - Introductory French III**

The staff

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: 13F, 14W, 14S, 14F, 15W, 15S: 11, 12 14X: 9L 14W, 14S, 15W, 15S: D.L.S.A.

#### **FREN 5 - Language Study Abroad: Aspects of French Civilization**

The staff

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.

Distribution: WCult: W. Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program. Offered: 14W, 14S, 15W, 15S: D.L.S.A.

#### **FREN 6 - Language Study Abroad: Readings in French Literature**

The staff

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program. Offered: 14W, 14S, 15W, 15S: D.L.S.A.

#### **FREN 7 - First-Year Seminars in French Literature**

Offered: Consult special listings.

#### **FREN 8 - Exploring French Culture and Language**

The staff

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: FREN 3, or equivalent preparation. Offered: 13F: 10, 12 14W, 14S, 15W, 15S: 12 14F: 11, 12 14W, 14S, 15W, 15S: 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.

In 13F, 14F and 15S at 10, *The Heroic Heart*. 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. Tarnowski.

In 13F and 14F at 2, *The Anatomy of Passion*. A study of passion in French and francophone literature through the ages, as seen through texts and films. Readings may include works by Scève, Corneille, Laclos, Flaubert, Condé. Walker.

In 14W at 11, *Exotic Encounters*. What do French texts from the sixteenth to the twentieth century have to tell us about France's intellectual engagement with other cultures? In this course we will examine travel narratives, philosophical texts, correspondance, plays, and fictional texts that inscribe and reflect on such encounters. Authors may include among others: Montaigne, Madeleine de Scudéry, Lafayette, La Fontaine, François Bernier, Graffigny, Montesquieu, Voltaire, Sand, Staël, and Molière. Beasley.

In 14S at 10, *Laughing in French*. This course will explore the diverse facets of humor in French culture and analyze the forms and functions of humor through classical and contemporary texts and movies from the French-speaking world. Authors studied will include Rabelais, Molière, Voltaire, Baudelaire, Laferrière, Ribes, Boulet. Marcellesi.

In 14X at 10A, TBD.

In 15W at 11, *The Art of Conversation*. Many great literary and philosophical works were not composed by their authors in isolation but were the product of a dialogue with

their contemporaries, other texts, specific events, and other cultures. We will explore the concept of conversation and study its inscription in written texts from a variety of genres spanning the period from the middle ages to the twentieth century. Authors may include: Marie de France, Christine de Pizan, Villon, Montaigne, Descartes, Corneille, Sévigné, Lafayette, Voltaire, Rousseau, Montesquieu, and Graffigny, Sand, Césaire, and Yourcenar, among others. Beasley.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 3, or equivalent preparation. Offered: 13F, 14F: 10, 2 14W, 15W: 11 14X: 10A 14S, 15S: 10 14W, 14S, 15W, 15S: D.L.S.A.+.

### **FREN 12 - Advanced Writing and Speaking in French**

The staff

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.

Distribution: WCult: W. Prerequisite: Acceptance into the Dartmouth Advanced Language Study Abroad Program. Offered: 14W, 14S, 15W, 15S: D.L.S.A.+.

### **FREN 15 - Business French and the French Economy**

Distribution: WCult: W. Prerequisite: FREN 8, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

### **FREN 21 - Introduction to Francophone Literature and Culture**

14W Walker, 14F Elhariry

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.

Distribution: Dist: LIT; WCult: NW. Prerequisite: FREN 10, or permission of the instructor. Offered: 14W, 14F: 2.

### **FREN 22 - Introduction to French Literature I: the Middle Ages and the Renaissance**

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 14S, 15S: 12 .

### **FREN 23 - Introduction to French Literature II: Neoclassicism and the Eighteenth Century**

Beasley

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 13F: 12, 15W: 10.

### **FREN 24 - Introduction to French Literature and Culture III: Nineteenth Century**

14W: Verona, 14F: 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.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 14W: 12, 14F: 11.

### **FREN 25 - Introduction to French Literature and Culture IV: Twentieth and Twenty-First Centuries**

14S: Hollister, 15W: 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.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 14S: 11, 15W: 2.

### **FREN 29 - French Civilization: Study Abroad**

The staff

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.

Distribution: Dist: ART; WCult: W. Prerequisite: acceptance into the Foreign Study Program. Offered: 13F, 14W, 14S, 14F, 15W, 15S: D.F.S.P.

### **FREN 30 - French Literature: Study Abroad**

The staff

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: acceptance into the Foreign Study Program. Offered: 13F, 14W, 14S, 14F, 15W, 15S: D.F.S.P.

### **FREN 31 - The French Language: Study Abroad**

The staff

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.

Distribution: WCult: W. Prerequisite: acceptance into the Foreign Study Program. Offered: 13F, 14W, 14S, 14F, 15W, 15S: D.F.S.P.

### **FREN 35 - The French Language: Introduction to Linguistics and Rhetoric**

Wine

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.

In 13F, *Translations*. Translation enables us to navigate between languages and cultures, yet we often take it for granted. What is lost in translation? Should unfamiliar cultural elements be "translated" for the target audience or should translators deliberately "foreignize"? Do some writers improve in translation? We will explore these practical and theoretical issues and deepen our appreciation of the French language as we read, criticize, and do translations across a range of genres and contexts.

Distribution: Dist: SOC; WCult: W. Prerequisite: FREN 8 or FREN 10, or permission of the instructor. Offered: 13F: 12.

### **FREN 40 - French Literature: The Approach through Genre**

15S: Verona

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.

In 15S at 2A, *The French Gothic*. As the course will show, French Gothic is not only associated with tales of terror, dark settings and strange creatures, but it is also a critical term that questions excessive imagination, and exposes literary fabrications based on replaying of old elements in new contexts. We will discuss texts from Barbey d'Aureville, Maupassant, Verne, Villiers de L'Isle-Adam, Wilde, as well as artworks by Moreau, Redon and theoretical works by Freud, Baudrillard, Kristeva, Todorov.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 14X, 15S: 2A.

### **FREN 45 - French Literature: The Approach through Periodization**

13F: Beasley 14W, 14F: Tarnowski

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.

In 13F at 10, *Conversations with the the French Classics*. We will resurrect the conversations among men and women in seventeenth and eighteenth-century France. Questions include: What is the relationship between the individual and society? What roles do literature and philosophy play? What are women's and men's "natural" functions in society? What effect does contact with different cultures have on a society or the individual? Authors may include: Descartes, Corneille, Sévigné, Lafayette, Voltaire, Rousseau, Diderot, de Gouges, Montesquieu, and Graffigny, among others.

In 14W at 11, *Speaking in Ideals*. Whether they composed romances, adventure narratives, or treatises on good government, medieval authors often called on ideals – Truth, Justice, Love – to elevate the status of their literature, or mask its more subversive intentions. We will study the power of such allegory in a political context of civil and transnational conflict. Readings may include works by Jean Renart, Guillaume de Machaut, Jean Froissart, Christine de Pizan, Alain Chartier, and René d'Anjou.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 13F: 10, 14W: 11, 14F: 12.

### **FREN 50 - French Literature: Major Figures**

13F: Kritzman 14F: Marcellesi 15W: Kritzman 15S: LaGuardia

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.

In 13F at 10A, *Camus at One Hundred*. Recognized as one of the leading French writers of the twentieth century, Camus was a novelist, playwright, philosopher and journalist who opposed nihilism and delved deeping into the question of individual freedom. As a partisan of human rights Camus participated in the Resistance and engaged in the political debates of the day. We will explore issues such as the absurd, ethics, the death penalty,

decolonization and the debate about Marxism.

In 15W at 10A, *Commemorating a Centenaire: Barthes and literature*. Explores the theoretical concepts of Barthes from the 1950s to 1980 by examining the authors Barthes studied: Racine, La Bruyere, Sade, Balzac, Flaubert, Proust, Sollers, Kristeva and Barthes' own literary creations: *Fragments of a Lover's Discourse*, Barthes by Barthes, and *La Chambre Claire*.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 13F, 15W:10A 14F: 10 15S: 2.

### **FREN 53 - French Thought: Philosophical Issues**

Kritzman

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).

In 14W at 10A, *The Paris School of Existentialism*. Existentialism examines the question of the meaning of life and focuses on issues such as the absurdity of human existence, morality and ethics, love, death, sexuality, and religion. It studies how these topics impact on human psychology, politics, and gender. Readings will come from prominent French existentialist thinkers like Sartre, Beauvoir, Merleau-Ponty and Marcel. Texts will be drawn from plays, novels, short stories, and essays.

In 15F at 10A, *Figurations of the Self from Montaigne to Ben Jelloun*. Authors to be drawn from the following: Montaigne, Descartes, Pascal, Voltaire, Rousseau, Chateaubriand, Sartre, Beauvoir, Barthes, Foucault, Kristeva, Ben Jelloun.

Distribution: Dist: TMV; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 14W, 14F: 10A.

### **FREN 55 - French Culture and Politics**

Beasley

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.

In 15S at 12, *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, correspondance, novels, theatre, newspapers, fables, and the work of cultural historians.

Distribution: Dist: SOC; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 15S: 12.

### **FREN 60 - Gender and French Literature**

14S: Marcellesi

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).

In 14S at 10, *Desperate Housewives of the Eighteenth-Century: Women in Enlightenment France*. This course is a cultural and literary exploration of gender in Enlightenment France. Through works by both male and female thinkers, writers, and artists, we will look at the lives of eighteenth-century French women in the domestic and public spheres. We will explore gender construction and distinctions in the social, political, and intellectual arenas of pre-Revolutionary France. Readings include Charrière, Châtelet, Condorcet, Diderot, Epinay, Genlis, Gouges, Graffigny, Laclos, Mercier, Riccoboni, Rousseau, Voltaire.

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 14S: 10.

### **FREN 70 - Francophone Literature**

14S: Elhariry 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.

In 14S at 2A, *Wine, Prophets & Poetry: Islam in Contemporary French & Francophone Literature*. A trans (cultural/historical/linguistic) study of the points of intersection/divergence of Eastern/Western literary/cultural traditions in the works of three primary, contemporary authors: Khatibi, Meddeb, Stétié. Attunements to the political ramifications of translation, mysticism, globalization, immigration, nationalisms, revolutions, gender, sexuality. Chronological references to the Qur'an, Rabi'a al-'Adawiyya, Bistami, Abu Nuwas, al-Hallaj, Suhrawardi, Ibn 'Arabi, Ibn al-Farid, Rumi, La chanson de Roland, Villehardouin, Joinville, the French constitution,

Voltaire, Lamartine, Baudelaire, Hugo, Benjamin, Massignon, Bounoure, Djébar. Considerations of contemporary public intellectuals Jabès, Derrida, Said, Maalouf, Bachi, Kilito, Ramadan. Elhariry.

In 15W at 12, *Passages and Ambiguous Adventures: Colonial and Postcolonial Questions of Migration and Immigration*. 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.

Distribution: Dist: LIT; WCult: Varies. Prerequisite: FREN 10, or permission of the instructor. Offered: 14S: 2A 15W: 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.

Distribution: Dist: ART; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

### **FREN 78 - Senior Major Workshop: Methods in Reading, Writing and Cultural Analysis**

14W: Beasley 15W: LaGuardia

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.

Distribution: Dist: LIT; WCult: W. Offered: 14W: 10A 15W: 2A.

### **FREN 80 - French Literature and the Other Arts**

Verona

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.

In 14S at 2, *On Literature and Photography*. With the invention of the daguerrotype in 1839, it was inaugurated in France what Walter Benjamin was to call the age of mechanical reproduction. Since then, the photograph has become a seemingly natural part of our every day practices, closely connected with the literary discourse. This course studies the impact of photography on French literature by exploring its intersections with other genres, such as fiction and life-writing. Readings are chosen from the works of Mallarmé, Breton, Proust, Modiano, Tournier, Duras, Ernaux as well as from the works of Nadar, Zola, Atget, Cartier-Bresson, Man Ray, Brassai, Doisneau and Calle.

Distribution: Dist: ART; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: 14S: 2 .

### **FREN 81 - Seminar**

Distribution: Dist: LIT; WCult: W. Prerequisite: FREN 10, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

### **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.

### **FRIT - French and Italian in Translation Courses**

*To view French and Italian in Translation requirements, click here (p. 253).*

The following courses are taught in English.

### **FRIT 33 - Dante: The Divine Comedy**

14W: Millsbaugh

Dante's *Divine Comedy* offers an encyclopedic presentation of medieval ethics, philosophy and theology, a powerful political vision, and some of the most imaginative and beautiful poetry ever written. The poem redefined literature and language in Italy and throughout Europe. But why should we read the *Divine Comedy* today? What does Dante's poem have to teach modern readers? These are among the questions we will address as we accompany Dante's pilgrim on his journey through Hell, Purgatory, and Paradise. Readings and discussions will focus on prominent themes and characters and will seek to understand the *Comedy* in the context of its historical, political, and literary background.

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

Distribution: LIT; WCult: W. Offered: 14W: 10A. 14F: 12.

### **FRIT 34 - Renaissance Studies in Translation**

Quaintance

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.

In 15W, *Sex and Gender in the Italian Renaissance*. 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.

Distribution: LIT; WCult: W. Offered: 15W: 10A.

### **FRIT 35 - Modern Italian Culture and Society**

Parati

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.

In 14S at 2, *From Dagoes to Sopranos: Italian American Culture*.

Distribution: LIT; WCult: CI. Crosslisted as: COLT 57. Offered: 14S: 2.

### **FRIT 93 - Second Language Teaching and Learning: Theory and Practice**

Open to all students

Distribution: SOC. Offered: Not offered in the period from 13F through 15S.

### **ITAL - Italian Courses**

To view Italian requirements, [click here](#) (p. 253).

#### **ITAL 1 - Introductory Italian I**

The staff

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: 13F, 14W, 14F, 15W: 9L, 10 14S, 15S: 9L.

#### **ITAL 2 - Introductory Italian II**

The staff

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: 13F, 14F: 10 14W, 14S, 15W, 15S: 9L, 10 .

#### **ITAL 3 - Introductory Italian III**

The staff

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 qualifying placement. Offered: 13F, 14F: 9L, 10 14W, 14S, 14X, 15W, 15S: 10 13F, 14F: D.L.S.A.

### **ITAL 5 - Language Study Abroad: The Art and Culture of Rome**

The staff

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.

Distribution: Dist: ART; WCult: W. Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program. Offered: 13F, 14F: D.L.S.A.

### **ITAL 6 - Language Study Abroad: Literature**

The staff

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program. Offered: 13F, 14F: D.L.S.A.

### **ITAL 7 - First-Year Seminars in Italian Literature**

Offered: Consult special listings.

### **ITAL 8 - Exploring Italian Culture and Language**

14S, 15S: Convertini 14W, 14S, 15W, 15S: The staff

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: ITAL 3, or permission of the instructor. Offered: 14S, 15S: 12 14W, 14S, 15W, 15S: D.L.S.A.+.

### **ITAL 10 - Introduction to Italian Literature: Masterworks and Great Issues**

14W: Convertini

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.

In 14W, *The Culture of Food in Italian Literature, 1300-2013*. Food and flavors pervade Italian literature, expressing the historical hunger of a social class, the nourishment of the spirit, or simply the pleasure of the senses. Through various texts and genres from the Middle Ages to the present, we will examine the culture of food and its social and symbolic value through the centuries. Readings, class discussions and writing in Italian.

Distribution: Dist: LIT; WCult: W. Prerequisite: ITAL 3, or permission of the instructor. Offered: 14W, 14F: 12 14W, 14S, 15W, 15S: D.L.S.A.+.

### **ITAL 12 - Advanced Writing and Speaking in Italian**

The staff

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.

Distribution: WCult: W. Prerequisite: Acceptance into the Dartmouth Advanced Language Study Abroad Program. Offered: 14W, 14S, 15W, 15S: D.L.S.A.+.

### **ITAL 15 - Italian Cinema**

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.

Distribution: Dist: ART; WCult: W. Prerequisite: ITAL 3, or permission of the instructor. Offered: Not offered in the period 13F through 15S.

### **ITAL 21 - Early Italian Literature and Culture**

Distribution: Dist: LIT; WCult: W. Prerequisite: ITAL 10, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

### **ITAL 22 - Humanism and Renaissance**

Quaintance

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: ITAL 10, or permission of the instructor. Offered: 14S: 10A.

### **ITAL 23 - Seventeenth and Eighteenth-Century Italian Literature and Culture**

Canepa

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: ITAL 10, or permission of the instructor. Offered: 15W: 12.

### **ITAL 24 - Nineteenth-Century Italian Literature and Culture**

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: ITAL 8 or ITAL 10, or permission of the instructor. Offered: Not offered 13F through 15S.

### **ITAL 25 - Twentieth and Twenty-first Century Italian Literature and Culture**

Parati

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.

Distribution: Dist: LIT; WCult: W. Prerequisite: ITAL 8 or ITAL 10, or permission of the instructor. Offered: 13F: 2.

### **ITAL 81 - Seminar**

Canepa

In 13F and 15S, *Culture and/in Translation: Theory and Practice*. 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.

Distribution: Dist: LIT; WCult: W. Prerequisite: ITAL 8 or ITAL 10, or permission of the instructor. Offered: 13F, 15S: 12.

### **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, R. A. Wright; Associate Professors L. E. Conkey, J. L. Fluri, X. Shi, C. S. Sneddon; Assistant Professor S. L. Mollett, J.M. Winter; Visiting Assistant Professors L. Hachadoorian, C. A. Fox; Visiting Instructors P. S. Jackson, D. Paudel; Adjunct Professors J. R. Butterly, D. E. Lawson; Adjunct Assistant Professors L. V. Adams, E. M. Berke, J. W. Chipman.

*To view Geography courses, click here (p. 267).*

### **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 consisting of Nature-Society Geography Include:

6, 12, 13, 14, 15, 16, 18, 40, 42, 44, 48, 64

Courses consisting of Human-Social Geography include:

2, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 41, 43, 45, 47, 81, 82

Courses consisting of Physical Geography include:

4, 5, 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 9: Climate Change & Food Security  
 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 19: Gender, Space, and the Environment  
 GEOG 31: Plant and Animal Geography  
 GEOG 33: Earth Surface Processes and Landforms  
 GEOG 35: River Processes and Watershed Science

Critical Urban and Identity Studies:

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 27: Race, Identity and Rights: Geographic Perspectives on Law  
 GEOG 28: Immigration, Race, and Identity  
 GEOG 56: Mapping Health and Disease  
 GEOG 57: Urban Applications of GIS

**International Development:**

GEOG 6: Geographies of Development  
 GEOG 15: Food and Power  
 GEOG 16: Political Economy of Development  
 GEOG 17: Geopolitics of Third World Development  
 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 82: Independent Study in the Czech Republic

**Physical and Human Dimensions of Global Change:**

GEOG 3 The Natural Environment  
 GEOG 4 New England Landscapes and Environments  
 GEOG 5 Global Climate Change  
 GEOG 12 Wilderness, Culture and Environmental Conservation  
 GEOG 13 Population, Culture, and Environment  
 GEOG 14 Global Water Resources  
 GEOG 31 Forest Geography  
 GEOG 35/EARS 71 River Processes and Watershed Science

**Critical Urban and Identity Studies:**

GEOG 23 Power, Territoriality, and Political Geography  
 GEOG 24 American Landscapes and Cultures  
 GEOG 25 Social Justice and the City  
 GEOG 28/SOCY 48/LATS 40 Immigration, Race, and Ethnicity  
 GEOG 56/ECS 155 The Geographies of Health and Disease  
 GEOG 57 Urban Applications of GIS

**International Development:**

GEOG 6/INTS 16 Introduction to International Development (Identical to INTS 16)  
 GEOG 15 Food and Power  
 GEOG 16 Moral Economies of Development  
 GEOG 17 Geopolitics and Third World Development  
 GEOG 26/WGST 30 Women, Gender and Development  
 GEOG 41/WGST 37 Gender, Space and Islam  
 GEOG 43 Geographies of Latin America

GEOG 44/ENVS 44 Environment and Politics in Southeast Asia  
 GEOG 47 The Czech Republic in the New Europe  
 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. 265).*

#### **GEOG 1 - Introduction to Human Geography**

Fox

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.

Distribution: Dist: SOC or INT; WCult: CI. Offered: 13F, 14S 14F, 15W: 10.

#### **GEOG 2 - Global Health and Society**

Adams, Butterly (14W, 15W) Fox (14S, 15S)

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.

Distribution: INT or SOC. Crosslisted as: INTS 18.  
Offered: 14W, 15W: 2A; 14S, 15S: 2.

#### **GEOG 3 - The Natural Environment**

Magilligan

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.

Distribution: SLA. Offered: 13F: 11; Laboratory W 3:00-5:00 Th 2:00-4:00 or Th 4:00-6:00.

#### **GEOG 4 - New England Landscapes and Environments**

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.

Distribution: SCI. Offered: 14W: 10A.

#### **GEOG 5 - Global Climate Change**

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.

Distribution: SCI. Offered: 14S, 15S: 11.

#### **GEOG 6 - Introduction to International Development (Identical to INTS 16)**

Freidberg (13F), Fox (14W, 14F, 15S)

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.

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: INTS 16. Offered: 13F: 10A 14W, 15S: 10 14F: 2.

### **GEOG 7 - First-Year Seminars in Geography**

Offered: Consult special listings.

### **GEOG 9 - Climate Change and the Future of Agriculture**

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. *Pending faculty approval.*

Offered: 14W: 12 15W: 10.

### **GEOG 11 - Qualitative Methods and the Research Process in Geography**

Fluri

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.

Distribution: SOC. Offered: 13F: 10A 14F:12.

### **GEOG 12 - Wilderness, Culture and Environmental Conservation**

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.

Distribution: SOC. Offered: 15W: 9.

### **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.

Distribution: SOC or INT.

### **GEOG 14 - Global Water Resources**

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.

Distribution: SOC or INT. Offered: 15W: 11.

### **GEOG 15 - Food and Power**

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.

Distribution: Dist: SOC or INT; WCult: NW. Offered: 14S, 14F: 2A.

### **GEOG 16 - Moral Economies of Development**

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.

Distribution: Dist: SOC or INT; WCult: . Offered: 14S, 14F: 10A.

### **GEOG 17 - Geopolitics and Third World Development**

Sneddon

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.

Distribution: Dist: SOC or INT; WCult, NW. Offered: 14W, 15W: 2A.

### **GEOG 18 - Urbanization and the Environment**

Jackson

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.

Distribution: SOC or INT. Offered: 14S: 12.

### **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.

Distribution: Dist: SOC; WCult: CI.

### **GEOG 20 - Economic Geography and Globalization**

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.

Distribution: SOC. Offered: 13F: 12 14F: 10A.

### **GEOG 21 - The North American City**

Hachadoorian

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.

Distribution: Dist: SOC, WCult: . Offered: 14S: 11.

### **GEOG 22 - Urban Geography**

Hachadoorian (14W) Domosh (14X)

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.

Distribution: SOC. Offered: 14W: 10 14X: 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.

Distribution: Dist: SOC or INT; WCult: CI.

**GEOG 24 - American Landscapes and Cultures**

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.

Distribution: Dist: SOC; WCult: CI. Offered: 14X: 2.

**GEOG 25 - Social Justice and the City**

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.

Distribution: Dist: SOC; WCult: CI. Offered: 15S: 12.

**GEOG 26 - Women, Gender and Development**

Fluri

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: WGST 30. Offered: 15S: 2A.

**GEOG 28 - Immigration, Race, and Ethnicity**

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: LATS 40 and SOCY 48. Offered: 14W: 11 15W: 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.

**GEOG 31 - Forest Geography**

Conkey

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.

Distribution: SLA. Offered: 13F, 14F: 2A Laboratory-Field Tues. 2-6.

**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.

Distribution: SLA.

**GEOG 35 - River Processes and Watershed Science**

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.

Distribution: SLA. Crosslisted as: EARS 71. Offered: 15S: 10 Lab: Th 3:00-5:00.

**GEOG 41 - Gender, Space and Islam**

Fluri

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).

Distribution: Dist: SOC; WCult: CI. Crosslisted as: WGST 37.2. Offered: 13F: 2A.

**GEOG 42 - Environment and Development in South Asia**

Paudel

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.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: AMES 42.03. Offered: 13F: 11.

**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.

Distribution: Dist: INT or SOC; WCult: NW. Offered: 15S: 2.

**GEOG 44 - Environment and Politics in Southeast Asia**

Sneddon (14W) Fox (15W)

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.

Distribution: Dist: SOC or INT; WCult: NW. Crosslisted as: ENV5 44. Offered: 14W: 10A 15W: 12.

**GEOG 47 - The Czech Republic in the New Europe**

Mollett (14S), (Freidberg/Sneddon 15S)

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.

Distribution: Dist: SOC; WCult: W. 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 10, GEOG 11, GEOG 50, GEOG 51) is strongly recommended. Offered: 14S, 15S: 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, Mibility, Gender, Identity, and Tourism within the Middle East Region. Our inquiry will begin by discussing the social and political boarders, boundaries, and ideological constructions of what constitutes the changing boarders, boundaries and ideological constructions of what constitutes the changing boarders/boundaries of the "Middle East" as vernacular spatial descriptor.

**GEOG 49 - Gender and Geopolitics of South Asia**

In this course we will examine gender and the geopolitical in South Asia. This will include exploring national and transnational conceptions of gender, which are interested

by other social categories, and how gender relations are implicated and impacted by the geopolitical in this region. We will also analyze the ways in which various forms and functions of masculinity and femininity are constructed, controlled, and contested in different situational, social, economic, and political contexts. Open to all students.

Distribution: Dist: INT or SOC; WCult: NW. Crosslisted as: WGST 41.2. Offered: Not being offered in the period 13F- 15S.

### **GEOG 50 - Geographical Information Systems (GIS)**

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.

Distribution: TLA. Offered: 13F, 14S, 14F 15S, : 12 Lab: Mon 2:00- 4:00 or Tue 1:00-3:00.

### **GEOG 51 - Remote Sensing**

Chipman (14W) Hawley (15W)

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.

Distribution: TLA. Prerequisite: GEOG 3 or EARS 1, EARS 2, EARS 5, or EARS 6. Crosslisted as: EARS 65. Offered: 14W, 15W: 10A; Laboratory: W or Th 1:00-2:55.

### **GEOG 54 - Geovisualization**

Hachadoorian

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. Offered: 14W: 2A Lab: Mon 2:00-4:00 or Tu 12:00-2:00.

### **GEOG 56 - The Geographies of Health and Disease**

Shi, Berke

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.

Distribution: TAS. Crosslisted as: ECS 155. Offered: 14S, 15S: 10A Lab: ARR.

### **GEOG 57 - Urban Applications of GIS**

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.

Distribution: TLA. Prerequisite: GEOG 50. Offered: 13F, 14F: 2 Lab: Th 1:00-3:00.

### **GEOG 59 - Environmental Applications of GIS**

Chipman

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.

Distribution: TLA. Prerequisite: GEOG 50 or GEOG 51/EARS 65, or permission of the instructor. Crosslisted as: EARS 77. Offered: 15W: 11 Lab: M or Tu 1:00-3:00.

### **GEOG 67 - Political Ecology**

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.

Distribution: SOC or INT. Prerequisite: ENVS 3 or GEOG 1. Crosslisted as: ENVS 67. Offered: 15W: 10A.

### **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.

Distribution: SOC. Prerequisite: GEOG 1 or permission of the instructor.

### **GEOG 81 - Field Research in the Czech Republic**

Mollett (14S), (Freidberg/Sneddon 15S)

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 10, GEOG 11, GEOG 50, GEOG 51) is strongly

recommended. Fluri (13S), Mollett (12S). Offered: 14S, 15S: D.F.S.P. (Prague, Czech Republic).

### **GEOG 82 - Independent Study in the Czech Republic**

Mollett (14S), (Freidberg/Sneddon 15S)

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).

Distribution: Dist: SOC; WCult: W. Prerequisite: GEOG 1 or GEOG 3 and one course from 12-41 or permission of the instructor. Offered: 14S, 15S: 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**

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**

Domosh (13F), Wright (13F, 14F) Sneddon (14F)

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.

Distribution: SOC. Prerequisite: GEOG 1 or GEOG 3, two courses from GEOG 11, GEOG 50-GEOG 59, or permission of the instructor. Offered: 13F, 14F: 2A.

## German Studies

Chair: Ellis Shookman

Professors B. Duncan, G. Gemünden, I. Kacandes, E. R. Shookman; Associate Professors V. Fuechtner, K. Mladek, K. O. Kenkel (Emeritus); Assistant Professors Y. Komska, P. McGillen; Lecturer M. McGillen; Adjunct Lecturer E. Miller.

To view German Studies courses, [click here](#) (p. 274).

### Requirements for the Major

*Prerequisite* : Two of the following: GERM 6 or GERM 10.0; GERM 10.1, GERM 10.2, and GERM 10.3; 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:

*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 may be substituted.

*Requirements* : eight courses numbered above 13 (GERM 42-47, which are in 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.

*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* : ten courses total, six courses in the German Studies Department numbered above 13 (GERM 42-47, which are in 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.

### GERM - German Studies Courses

To view German Studies requirements, [click here](#) (p. 274).

### GERM 1 - Introductory German

Fuechtner Komska Shookman Kacandes Duncan  
McGillen, M McGillen, P

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.*

Offered: 13F: 9S, 10 14W: 9S 14S: 9S 14F: 9S, 10  
15W: 9S 15S: 9S.

### GERM 2 - Introductory German

Shookman McGillen, M Kenkel Komska  
Duncan

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: 13F: 9S 14W: 9L, 10 14S: 10 14F: 9S  
15W: 9S, 10 15S: 10.

### GERM 3 - Intermediate German

Duncan Miller

Continuation of German 2. A continued intensive study of basic grammar and vocabulary through readings, oral and written drills, composition exercises, conversation, and practice in the virtual laboratory. Completion of this course constitutes fulfillment of the language requirement. *Never serves in partial satisfaction of the Distributive or World Culture Requirement.*

Offered: 13F:10. 14S:10, D.L.S.A. 14F:10. 15S:10,  
D.L.S.A.

### GERM 5 - Aspects of German Culture

McGillen,P Komska Mladek

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.

Distribution: WCult: W. Prerequisite: Acceptance into the Dartmouth Language Study Abroad Program. Offered: 14S, 14X, 15S: D.L.S.A.

### GERM 6 - Readings in German Literature

McGillen, P Komska Mladek

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.

Distribution: LIT; WCult: W. Prerequisite: acceptance into the Dartmouth Language Study Abroad Program. Offered: 14S, 14X, 15S: D.L.S.A.

### **GERM 7 - First-Year Seminars in German Literature**

Komska McGillen,P

Consult special listings

Offered: 14W: 2A 15W: 10A.

### **GERM 10.0 - Intermediate German Language and Culture: Contemporary Germany**

McGillen,P Komska Mladek

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.

Distribution: WCult: W. Prerequisite: GERM 3, or equivalent. Offered: 14S, 14X, 15S: D.L.S.A.

### **GERM 10.1 - Intermediate German Language and Culture: To Be Young and German**

Komska Fuechtner

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 19<sup>th</sup> century, sexual awakenings in the early 20<sup>th</sup> century, authoritarian regimes of the mid- and late 20<sup>th</sup> 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.

Distribution: Dist: SOC. Cult: CI. Prerequisite: GERM 3, or equivalent. Offered: 13F: 9. 14F: 10A.

### **GERM 10.2 - Intermediate German Language and Culture: From God's Subjects to Global Citizens**

Kacandes McGillen,M

This course surveys 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

Distribution: Dist: TMV; WCult: W. Prerequisite: GERM 3, or equivalent. Offered: 14S:10 15W:12.

### **GERM 10.3 - Intermediate German Language and Culture: Understanding German Media**

McGilllen, 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.

Distribution: Dist: ART. W Cult: W. Prerequisite: GERM 3, or equivalent. Offered: 14W:9L 15S:11.

### **GERM 13 - Beyond Good and Evil**

Shookman Fuechtner

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.

Distribution: LIT; WCult: CI. Offered: 14S: 12 15S: 12.

### **GERM 29 - A Cultural Studies Approach to Contemporary Germany and Berlin**

Gemünden Kacandes

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.

Distribution: ART; WCult: CI or W. Prerequisite: acceptance into the Dartmouth Foreign Study Program. Offered: 13F: D.F.S.P. 14F: D.F.S.P.

### **GERM 30 - Studies in German History**

Gemünden Kacandes

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.

Distribution: SOC; WCult: W. Prerequisite: acceptance into the Dartmouth Foreign Study Program. Offered: 13F: D.F.S.P. 14:F D.F.S.P.

### **GERM 31 - Studies in German Theater**

Gemünden Kacandes

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.

Distribution: LIT; WCult: W. Prerequisite: acceptance into the Dartmouth Foreign Study Program. Offered: 13F: D.F.S.P. 14F: D.F.S.P.

### **GERM 42 - Topics in German Civilization (in English translation)**

McGillen, M Fuechtner

In 14X, *Modernism and the Avant-Garde: Frankfurt School Cultural Theory*. Writers of the Frankfurt School (Kracauer, Benjamin, Adorno, Horkheimer) have shaped our understanding of the impact of early 20<sup>th</sup>-century “modernism” in literature and the arts. Examining their cultural theory alongside avant-garde literature, art, film, and photography, the course will address the Frankfurt School’s understanding of mass culture in urban modernity; its insights into the nature of perception under the conditions of new technological media; and its reflections on the relationship between art and politics. Conducted in English. Open to all classes. McGillen, M

In 14F, *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 film makers. 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 be used to count toward a German Studies major or minor. Open to all Classes. Fuechtner

Distribution: LIT; WCult: W. Crosslisted as: JWST 51; WGST 67.1. Offered: 14X: 2A 14F: 2A.

### **GERM 43 - History and Theory of German Film (in English translation)**

Gemünden

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.]

Distribution: ART; WCult: CI. Crosslisted as: COLT 62, FILM 42. Offered: 14X: 3A.

### **GERM 44 - Topics in German Civilization (in English translation)**

Komska

In 14W, *Where the Wild Things Are: The Culture of Environmentalism in Germany*. Long before it became a twenty-first century buzzword, “sustainability” (*Nachhaltigkeit*) was a term coined and propagated by nineteenth-century German pioneers of nature conservation. For inspiration they drew not on political thought or science, but on works of art, philosophy, and literature where nature—especially the forest—loomed large. This course will focus on culture as a primary vehicle for Germany’s ecological consciousness through the nineteenth century, the Third Reich, the Cold War, and the present. Conducted in English. [By special arrangement, this course can count toward a German Studies major or minor. Open to all classes.]

Distribution: LIT; WCult: W. Offered: 14W: 10A.

### **GERM 45 - The Burden of the Nazi Past: World War, Genocide, Population Transfer, and Firebombing (in English translation)**

This course studies the main events of World War II and the different stages of processing that past in the post-1945 period. In an interdisciplinary and comparative fashion we take up selective controversies in order to understand the formation of postwar German identity, e.g., the Nuremberg, Frankfurt, and Eichmann trials, the Berlin

Jewish Museum and Holocaust memorial, Neonazism, and current efforts to remember German civilian casualties. Taught in English. By special arrangement, this course can count toward a German Studies major or minor. Open to all classes.

Distribution: LIT; WCult: CI. Crosslisted as: JWST 37.2 and COLT 64. Offered: not offered in 2014-15.

#### **GERM 46 - The German Novel (in English translation)**

*Alienation and Exile: Kafka and Brecht Address the Fate of Modern Humanity.* Franz Kafka (1883-1924) and Bertolt Brecht (1898-1956), the most influential prose writer and the most influential dramatist of the 20th century in the German language, examine the alienated and un-heroic modern human individual in her/his unhappy relationship to hostile social environments: dysfunctional families, impenetrable bureaucracies, heartless capitalist economies. Both use experimental techniques in form and content to shake their audiences out of their complacent worldviews and lazy habits of thought and feeling; both are darkly, mordantly, hilariously funny. Conducted in English. By special arrangement, this course can count toward a German Studies major or minor. Open to all classes.

Distribution: LIT; WCult: W. Offered: not offered 2014-15.

#### **GERM 47 - German Drama (in English translation)**

Offered: not offered 2014-15.

#### **GERM 61 - The Age of Goethe (1749-1832)**

Miller

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.

Distribution: LIT; WCult: W. Offered: 14F: 12.

#### **GERM 62 - Literature of the Romantic Period**

Offered: not offered 2014-15.

#### **GERM 64 - Literature of the Modern Period**

Offered: not offered 2014-15.

#### **GERM 65 - Topics in Twentieth-Century German Cultural Studies**

Kacandes McGillen,P

In 14W, *Major Transformations*. This seminar will introduce students to four major issues in German culture during the twentieth century: Großstadt, Gewalt und Antisemitismus; Stunde Null; Multikulturalismus; and Die Berliner Republik. Through primary readings in German and study of visual and musical materials, students will become familiar with the methods of cultural studies and with the use of different media to explore a topic, and will improve their spoken and written German. The course includes oral presentations of final paper topics. Conducted in German. Open to all classes. This course counts as the culminating experience for seniors majoring in German Studies, who will meet as a group during the x-hour.

In 15W, *Literature Meets Pulp Fiction: German Writers and the 19<sup>th</sup>-Century Media Market*. To be a writer in 19<sup>th</sup>-century Germany meant to interact with a thriving media market: for the first time, writers wrote for a mass readership and published in illustrated magazines, where their writings appeared together with pulp fiction and visual images. Reading works by Heine, Fontane, Stifter, and others, we will explore the complex aesthetic strategies with which they responded to this medial challenge. The course will refine key research methods in German Studies. Conducted in German. Open to all classes. This course counts as the culminating experience for seniors majoring in German Studies, who will meet as a group during the x-hour.

Distribution: LIT; WCult: W. Offered: 14W: 2A 15W: 2A.

#### **GERM 67 - German Drama**

Fuechtner

In 13F, *Drama Queens: Madness on Stage*. This course analyzes how dramatic literature captured significant changes in ideas on emotions, nerves and madness over the centuries. After a brief introduction into drama theory, we will read seminal works by German-language dramatists from the 18<sup>th</sup> through the 21<sup>st</sup> centuries such as Schiller, Büchner, Schnitzler, Brecht and Jelinek. The class will conclude with a public reading or performance. Conducted in German. Open to all classes.

Distribution: LIT; WCult: W. Offered: 13F: 10A .

#### **GERM 81 - Seminar**

Offered: Not offered during 2014-15.

#### **GERM 82 - Seminar- Religious Moments in German Literature**

Kermani, Navid

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.

Distribution: LIT; WCult: W. Offered: 14S TBA.

### **GERM 84 - Seminar**

Offered: Not offered during 2014-15.

### **GERM 85 - Independent Study**

All terms: Arrange

### **GERM 87 - Honors Thesis**

See German Honors Program

Offered: 14S: Arrange 15S: Arrange.

#### *Related Courses*

The Department encourages students to consider the following courses in related disciplines:

ARTH 43: Northern Renaissance Art  
 ARTH 51: Realism, Impressionism and Post-Impressionism  
 ARTH 53: Classic Modernism: Painting and Sculpture, 1900-1914  
 GOVT 41: European Politics  
 GOVT 64: Modern Political Thought  
 HIST 48: European Society in the Industrial Age  
 HIST 51: Modern European Intellectual History, 18th and 19th Centuries  
 HIST 52: Modern Germany, 1871-1990  
 HIST 65: Modern Europe: The Twentieth Century  
 MUS 10: Beethoven in Context  
 MUS 11: Opera  
 MUS 41: Mozart, the Man and His Music  
 PHIL 15: Modern Philosophy: Hume and Kant  
 PHIL 16: Modern Philosophy: Nineteenth Century Continental  
 PHIL 17: Phenomenology and Existentialism

#### **GERMANIA**

Germania, the German club, is open to all students interested in German language, literature and culture. Members meet for informal discussions and special events.

## **Government**

Chair: John M. Carey

Professors J. M. Carey, L. L. Fowler, M. C. Herron, D. P. Lacy, M. F. Mastanduno, J. B. Murphy, M. A. Sa'adah, ,

W. C. Wohlforth; Associate Professors J. Bafumi, L. Baldez, S. S. Bedi, D. J. Brooks, S. G. Brooks, Y. Horiuchi, J. M. Lind, J. R. Muirhead, D. G. Press, L. A. Swaine, D. A. Turner, B. A. Valentino, D. J. Vandewalle; Assistant Professors S. Chauchard, M. T. Clarke, K. Dropp, B. D. Greenhill, J. Horowitz, B. Nyhan; Visiting Professor B. Avishai, C. E. R. Bohmer, A. S. Yee; Visiting Lecturer A. J. Barry, M. Rudman, J. Sorens; Adjunct Assistant Professor C. H. Wohlforth; Research Professor R. D. Masters; Research Associate Professor R. G. Shaiko.

*To view Government courses, click here* (p. 280).

## **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 program (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. Members of the Department also assist the Rockefeller Center in the administration of a variety of special student internship programs.

### 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: Horowitz, 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: 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).

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.dartmouth.edu/~govt/> for further information, including updated course offerings.

## GOVT - Government Courses

*To view Government requirements, click here (p. 278).*

### Introductory Courses

#### GOVT 3 - The American Political System

Herron, Lacy

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.

Distribution: Dist: SOC; WCult: W. Offered: 13F: 11  
14F: 11 15W: 11.

#### GOVT 4 - Politics of the World

Carey, Horowitz

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.

Distribution: SOC or INT. Offered: 13F: 10 14W: 10  
14S: 10 14F: 10 15S: 10.

#### GOVT 5 - International Politics

S. Brooks, Sorens, Press, Yee, Valentino and 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.

Distribution: Dist: SOC or INT. Offered: 13F: 11, 12  
14W: 10, 12 14S: 10A, 11 14F: 10, 11 15W: 10, 11  
15S: 10A.

#### GOVT 6 - Political Ideas

Peritz, Murphy, Swaine, Clarke

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.

Distribution: Dist. TMV. Offered: 13F: 11 14W: 10A 14S: 2 14F: 11 15W: 10A.

### **GOVT 7 - First-Year Seminars in Government**

Offered: Consult special listings.

#### *Political Analysis*

### **GOVT 10 - Quantitative Political Analysis**

Horiuchi, Herron, Nyhan, Bafumi, Greenhill

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, SSOC 10, MSS 15 or 45, or SOCY 10 except by special petition.

Distribution: Dist. QDS. Offered: 13F: 10, 11 14W: 11 14S: 10 14F: 10 15W: 11 15S: 10, 11.

### **GOVT 18 - Introduction to Game Theory**

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.

Distribution: Dist. QDS. Prerequisite: MATH 3 or the equivalent. Offered: 14S: 11 14F: 11.

### **GOVT 19 - Topics in Political Analysis**

Varies

This course will enable regular or visiting faculty members to examine political topics not treated in the established curriculum. Subjects may therefore vary each time the course is offered.

In 14W and 15W at 12, *Advanced Political Analysis*. 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 these 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. *Dist QDS*, Lacy.

In 14S and 15S at 12, *Polling the Public in Politics and Business*. Political pollsters and marketing researchers devote a great deal of effort to discovering the views held by the public. In this course, we will explore the general techniques that survey researchers use to examine what the public thinks and compare how that information is used in politics versus the business realm. Along the way, we will examine the debate concerning the degree to which leaders should respond to the public. We will not only discuss the pertinent academic research, but will also design, conduct, and analyze a survey of our own as a class. Through a combination of theoretical and hands-on learning, students will leave the course with a firm understanding of how the public forms attitudes, how opinions can be measured, and how public views influence government and business decisions. *Dist SOC*, D. A. Brooks.

Not offered in 13-14 may be offered in 14-15, *Advanced Game Theory*. This course is a continuation of GOVT 18, Introduction to Game Theory. It will build on the material covered in the prior course and will cover Bayesian games, dynamic game of incomplete information, and repeated games. The emphasis in GOVT 19 will continue to be political science applications. (Note: the prerequisite for this course is GOVT 18 or permission of the instructor.) *Dist QDS*. Herron.

Distribution: Varies . Offered: 14W, 14S, 15W, 15S: 12.

#### *Upper-Level Courses that Cross-Subfields*

### **GOVT 20 - Topics Courses that Cross Subfields**

This course will enable regular or visiting faculty members to examine topics not treated in the established curriculum.

Subjects may therefore vary each time the course is offered. Dist. varies.

In 14W and 15W at 12. *Women and Politics*. (Identical to WGST 31.4) 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. *Dist: SOC; WCult: CI*. D.A. Brooks.

Crosslisted as: WGST 31.4.

### **GOVT 24 - Development in Emerging Economies.**

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.

Distribution: Dist. SOC or INT; WCult: NW. Offered: 15W: 11.

### **GOVT 25 - Problems of Political Development: India, South Africa and China**

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.

Distribution: Dist. SOC or INT; WCult: NW. Prerequisite: GOVT 4. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

### **GOVT 26 - Elections and Reform**

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.

Distribution: SOC. Offered: 15S: 9L.

*American Government*

### **GOVT 30 - Topics in American Government**

This course will enable regular or visiting faculty members to examine topics in American Government not treated in the established curriculum. Subjects may therefore vary each time the course is offered.

In 13F at 2A. *Leadership and Political Institutions* (Identical to PBPL 52). 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? *Dist: SOC. WCult: W*. Fowler.

In 13F at 10. *Politics, Policy and Knowledge Economy*. 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? *Dist: SOC*. Avishai. In 14W at 12. *The Federal Budget*. 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. *Dist: SOC. WCult: W.* Bafumi.

In 14S and 15S at 2A. *Political Misinformation and Conspiracy Theories.* 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. *Dist: SOC.* Nyhan

Distribution: Varies . Offered: 13F: 2A,10. 14W: 12. 14S: 2A. 15S: 2A.

### **GOVT 31 - Campaigns and Elections**

Lacy

This course examines two major areas of American politics: the behavior of voters in elections and the behavior of candidates in campaigns. The first few weeks of the course focus on the fundamental questions of voting behavior. Why do people vote in elections? Does Party affiliation mean anything to voters? Do issues matter in elections? Do candidate traits make a difference to voters? Which of these things matters most? Finally, do campaigns matter to election outcomes? This question motivates the second portion of the course. Campaign institutions such as debates, advertisements, media coverage, polls, nominations, voting rules, and financing are discussed. Potential reforms are debated.

Distribution: Dist: SOC; WCult: W. Prerequisite: GOVT 3 or permission of the instructor. Offered: 14S: 10A 15S: 10A.

### **GOVT 35 - The Presidency**

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: GOVT 3 or by permission of the instructor. Offered: 14W: 2. 15W: 2.

### **GOVT 37 - Public Opinion**

Nyhan

This course examines the connection between public opinion and political behavior, primarily in the contemporary American setting. The first part of the course focuses on the nature and origins of public opinion. The second part explores the links between public opinion and political behavior with particular attention paid to election outcomes, policy making, and issues of tolerance. Prerequisite: Government 3 or permission of the instructor.

Distribution: Dist: SOC; WCult: W. . Offered: Not offered in 2013-2014 may be offered in 2014-2015.

### *Comparative Politics*

### **GOVT 40 - Topics in Area Politics**

Varies

This course will enable regular or visiting faculty members to examine topics in Regional Politics not treated in the established curriculum. Subjects may therefore vary each time the course is offered.

In 14W at 2A. *Politics of India.* 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? *Dist: SOC, WCult: NW.* Chauchard.

Not offered in 2013-2014 may be offered in 2014-2015. *Islamist Politics of the Middle East.* The most dynamic political forces today in countries across the Middle East are Islamist parties and movements. In recent years, Islamists have, through elections, come to dominate the parliaments of Morocco, Tunisia, Egypt, Iraq and Kuwait. This course provides an overview of the key concepts underlying political Islam and the development of modern Islamic politics – from the founding of the Muslim Brotherhood through the Iranian Revolution to the present focus on the electoral process. We will also take an in-depth look at the role of political Islam in select countries in the Middle East. Barry.

In 14W and 15W at 10. *Politics of Japan: A Unique Democracy?* 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. *Dist: INT or SOC; WCult: NW.* Horiuchi.

In 15W at 2A. *The Arab Uprising.* 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. *Dist: INT or SOC; WCult: NW.* Vandewalle.

In 13F at 12. *Comparative Ethnic Politics.* 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. *Dist: INT or SOC WCult: CI.* Chauchard.

In 13F at 2. *Comparative Political Economy.* 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. Sorens.

In 13F at 10. *Democracy in Developing Countries.* 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. Chauchard.

In 14W and 15S at 10. *Democracy European Style.* 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? *Dist: INT or SOC WCult: W.* Sa'adah.

In 14W and 15W. *Global Public Opinion.* 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, particularly since September 11, 2001? 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 extensive readings and class discussions, students will learn important theories and empirical findings on global public opinion. Since most assigned papers are based on statistical analysis, students are expected to have taken a course on statistical methods (e.g., Government 10). Students who intend to apply statistical methods in conducting original research are encouraged to take this course. This course will also help students who intend to develop a research proposal for the Honors program. Horiuchi

In 14S at 12. *Nation and State-Building in the Middle East*. Sa'adah

Distribution: Varies. . Offered: 13F:10, 12, 2. 14W:10, 2A. 15W:10, 2A. 15S:10.

### **GOVT 42 - Politics of Africa**

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.

Distribution: Dist: SOC or INT; WCult: NW. Prerequisite: GOVT 5 is strongly recommended but not required. Offered: 14S: 2 15S: 3A.

### **GOVT 44 - Globalization and Global Development**

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.

Distribution: Dist: INT or SOC; WCult: NW. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

### **GOVT 46 - Politics of the Middle East and North Africa**

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.

Distribution: Dist: SOC or INT; WCult: NW. Prerequisite: GOVT 4, or permission of the instructor. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

### **GOVT 47 - The Arab-Israeli Conflict (Comparative Politics or International Relations)**

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.

Distribution: Dist: SOC or INT; WCult: NW. Prerequisite: GOVT 4, or permission of the instructor. Offered: 14W, 14X: 12.

#### **GOVT 49.1 - Latin American Politics and Government**

Carey

This course is an introduction to the political development and the current context of politics in Latin America. It combines material on historical and theoretical topics with material on the current politics of specific countries, particularly in the Andean region, which has experienced particularly turbulent politics in recent years. The central theme of the course is to evaluate the performance and stability of democracy in Latin America. We consider the impact of political culture, economic development, representative institutions, and the legacies of authoritarian and revolutionary regimes on the contemporary politics of the region.

Distribution: Dist: SOC or INT; WCult: NW. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

#### **GOVT 49.2 - State and Society in Latin America**

Baldez

Identical to LACS 32

Distribution: Dist: SOC; WCult: NW. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

#### **GOVT 49.3 - Latin American Politics: Cuba**

L. Baldez

Identical to LACS 33

Distribution: Dist: SOC or INT. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

#### **GOVT 49.4 - Sex and the State in Latin America (Identical to LACS 52 and WGST 31.1)**

Baldez

The basis of their gender identity? What strategies do they choose and why? What is the relation between women's movements and the state? How are international factors relevant? What impact have these movements had in terms of cultural change, policy outcomes and activists' lives? How do right-wing movements compare with left-wing ones? Readings will focus on a range of countries throughout the region.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: LACS 52 and WGST 31.1. Offered: 14S, 15S: 2.

#### **GOVT 49.5 - Protest and Parties in Latin America**

L. Baldez

This course will examine the conditions that prompt people 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

Distribution: Dist: SOC or INT. WCult: NW. Crosslisted as: LACS 53. Offered: 14S, 15S: 11.

#### *International Relations*

#### **GOVT 50 - Topics in International Relations**

Coggins, Lind, Press, Greenhill, Rezvani and Valentino

This course will enable regular or visiting faculty members to examine topics in International Relations not treated in the established curriculum. Subjects may therefore vary each time the course is offered.

In 13F and 14F at 11. *Human Rights and International Relations*. 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? *Dist. SOC or INT*. Greenhill

In 14W and 15W at 10A. *The Rise of China*. 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. *Dist: SOC or INT; WCult: NW*. Lind.

In 13F and 15F at 2A, *Nuclear Weapons: Physical and Strategic Effects*. 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. *Dist. SOC or Int. Press.*

In 15S at 2, *Consequences of Globalization*. 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. *Dist. SOC or INT. Greenhill.*

Not offered in 2013-2014; may be offered in 2014-2015, *War and Peace in the Modern Age* (Identical to SSOC 1 and WPS 1). 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. *Dist. SOC. Press.*

Distribution: Varies. Offered: 13F: 11, 2A. 14W: 10A. 14F: 11. 15W: 10A. 15S: 2. 15F: 2A.

### **GOVT 52 - Russian Foreign Policy**

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.

Distribution: Dist: SOC or INT; WCult: W. Prerequisite: GOVT 4 or GOVT 5; GOVT 42 is recommended. Open only to sophomores, juniors, and seniors. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

### **GOVT 53 - International Security**

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.

Distribution: Dist: SOC or INT. Prerequisite: GOVT 5 or permission of instructor. Offered: 13F, 15F: 10A.

### **GOVT 54 - United States Foreign Policy**

Yee

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.

Distribution: Dist: SOC. WCult: W. Prerequisite: GOVT 5 or permission of the instructor. Offered: 14S: 10.

### **GOVT 56 - International Relations Theory**

Yee

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.

Distribution: Dist. SOC or INT. Prerequisite: GOVT 5, or permission of the instructor. Offered: 14W: 11.

### **GOVT 57 - International Relations of East Asia**

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.

Distribution: Dist: SOC or INT; WCult: NW. Offered: 13F, 14F: 2A.

### **GOVT 58 - International Political Economy**

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.

Distribution: Dist. SOC or INT. Prerequisite: GOVT 5 and ECON 29 or ECON 64, or permission of the instructor. Offered: 14W: 11.

### **GOVT 59 - Foreign Policy and Decision Making**

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.

Distribution: INT or SOC. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

### *Political Theory and Public Law*

### **GOVT 60 - Topics in Political Theory or Public Law**

Turner, Bohmer, Swaine

This course will enable regular or visiting faculty members to examine topics in Political Theory or Public Law not treated in the established curriculum. Subjects may therefore vary each time the course is offered.

In 13F and 14F at 10. *Ethics and Public Policy (Identical to PBPL 42)*. 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? *Dist. TMV, WCult: W.* Swaine.

In 13F at 12. *Indigenous Nationalism: Native Rights and Sovereignty (Identical to NAS 36)*. 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. *Dist. SOC or INT WCult. NW.* Turner.

In 14S at 2A. *Wittgenstein and Political Thought*. 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. Turne.

In 14S at 10. *Immigration Law, Asylum and Politics*. This course examines the topic of immigration and asylum from a political, social, legal and public policy perspective. As a nation of immigrants, much of our self-identity is bound up in the idea that we are forever the "unfinished" nation. What does this mean? How are our views and policies on immigration different from those of other nations with different identities and histories? How do we address the problems of security and the need (both in law and philosophy) to provide a safe haven to those who seek asylum from persecution elsewhere? *Dist. SOC*. Bohmer.

In 15S at 11. *Ethics, Everyday Life and Law*. 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. *Dist. TMV* Muirhead.

Distribution: Varies. See descriptions above. Crosslisted as: Varies. Offered: 13F: 10, 12 14S: 10, 2A 14F: 10 15S: 11.

### **GOVT 61 - Jurisprudence**

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.

Distribution: Dist. TMV. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

### **GOVT 62 - Theorizing Free Speech**

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.

Distribution: Dist: SOC; WCult: W. Offered: 14W: 2 14S: 11.

### **GOVT 63 - Origins of Political Thought: Render unto God or unto Caesar?**

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?

Distribution: Dist. TMV. Prerequisite: GOVT 6, or course work in ancient Greek philosophy. Offered: Not offered in 2013-2014; may be offered 2014-2015.

### **GOVT 64.1 - Liberalism and Its Critics**

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.

Distribution: Dist. TMV. Offered: 14F: 2.

### **GOVT 64.2 - Modern Political Thought**

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.

Distribution: Dist. TMV. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

### **GOVT 65 - American Political Thought**

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.

Distribution: Dist: TMV; WCult: W. Offered: 14F: 2A.

### **GOVT 66.2 - Constitutional Law, Development, and Theory**

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.

Distribution: Dist: SOC; WCult: W. Offered: 13F, 14F: 2A.

### **GOVT 66.3 - Democratic Theory**

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?

Distribution: Dist: TMV; WCult: W. Offered: 15S: 2.

### **GOVT 67 - Civil Liberties Legal and Normative Approaches**

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.

Distribution: Dist: WCult: W. Offered: 14W: 12 14S: 2.

### **GOVT 68 - Gender and Law**

Bohmer

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: GOVT 3 or a law course strongly recommended. Crosslisted as: WGST 32.1. Offered: 14S: 9L.

### **GOVT 69 - Native Americans and the Law**

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.

Distribution: Dist: SOC; WCult: NW. Crosslisted as: NAS 50. Offered: 14S: 10A.

*Advanced Courses*

### **GOVT 80 - Readings in Government**

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 - Seminar courses that bridge two or more subfields**

Distribution: Varies. Offered: Varies.

**GOVT 81.1 - Advanced Game Theory**

Herron

Offered: 15S:11.

**GOVT 81.2 - Memory, Nationalism, and War. (Comparative or International Relations)**

Lind

Distribution: Dist. SOC or INT. Offered: 13F, 14F: 10A.

**GOVT 81.3 - Economic Growth and Reform in the Emerging Economies. (Comparative or International Relations)**

Vandewalle

Distribution: Dist: SOC or INT; WCult: NW. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 81.5 - Left and Right : Party Spirit and Ideology in American Politics**

Muirhead

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 81.7 - Political Mythbusters: Testing Common Claims about Politics**

Y. Horiuchi

Offered: 14S, 15S: 10A.

**GOVT 81.21 - Democracy in America: Tocqueville and His Critics(American Politics and Theory/Law)**

Murphy

Distribution: Dist: SOC; WCult: W. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 83 - Seminars in American Government**

**GOVT 83.2 - Politics and Markets**

Fowler

Distribution: Dist. SOC, WCult: W. Offered: 13F: 10A.

**GOVT 83.4 - Myths and Realities in Public Policy Solutions**

Bafumi

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 83.5 - The Media and Advertising in American Politics**

D. Brooks

Distribution: Dist: SOC; WCult: W. Offered: 14W, 15W: 11.

**GOVT 83.6 - Political Communication**

D. Brooks

Distribution: Dist: SOC; WCult: W. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 83.12 - Gender and American Politics**

L. Baldez

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 83.16 - Voting Irregularities and Issues in Electoral Reform**

Herron

Distribution: Dist: SOC; WCult: W. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 83.17 - The American Voter through Time**

Bafumi

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 83.19 - American Political Behavior**

Lacy

Distribution: Dist: SOC; WCult: W. Offered: 14S, 15S: 2A.

**GOVT 83.20 - Law and Political Institutions**

Lacy

Distribution: Dist: SOC; WCult: W. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 83.21 - Experiments in Politics**

Nyhan

Distribution: Dist. QDS. Offered: 14S, 15S: 10A.

**GOVT 84 - Seminars in Comparative Politics**

**GOVT 84.2 - Ethnicity and Representation**

Chauchard

Distribution: Dist. SOC; WCult: CI. Offered: 14W: 10A.

**GOVT 84.6 - Identity and Power in the Americas**

Baldez

Crosslisted as: LACS 80. Offered: 14W: 2A.

**GOVT 84.9 - Political Responses to Capitalism**

Sa'adah

Distribution: Dist. SOC or INT. Offered: 14S: 3A.

**GOVT 84.11 - Democracy and Accountability in Latin America**

Carey

Distribution: SOC. Crosslisted as: LACS 77. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 84.12 - Gender and American Politics**

L. Baldez

Distribution: SOC. Offered: Not offered in 2013-2014, may be offered in 2014-2015.

**GOVT 84.23 - Politics of Peace in the Middle East**

Sa'adah

Distribution: INT or SOC. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 84.26 - Conflict and Peacebuilding in Multiethnic States**

Horowitz

Distribution: Dist. SOC or INT. Offered: 14F: 3A.

**GOVT 85 - Seminars in International Relations**

**GOVT 85.1 - Diplomacy**

Barry

Distribution: Dist. SOC. Offered: 13F: 2A.

**GOVT 85.2 - Leadership and Grand Strategy**

W. Wohlforth

Distribution: Dist. SOC or INT. Offered: 14W: 3A 14F: 2A.

**GOVT 85.4 - International Relations Theory**

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 85.8 - US Security Policy in the 21st Century**

S. Brooks

Distribution: Dist. SOC or INT. Offered: 13F 14S 14F 15S: 3A.

**GOVT 85.10 - State Making and State Breaking**

Sorens

Offered: 14S: 2A.

**GOVT 85.11 - Nation-Building**

Nyhan

Distribution: Dist. SOC or INT. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 85.12 - Military Statecraft in International Relations**

Press

Distribution: SOC or INT. Crosslisted as: PBPL 82.1. Offered: 14W 14F: 3A.

**GOVT 85.13 - Chinese Foreign Policy**

Yee

Offered: 14S: 12.

**GOVT 85.16 - The Causes and Prevention of Genocide and Mass Killing**

Valentino

Offered: 13F 14F: 10A.

**GOVT 85.18 - 'Smart Diplomacy,' the National Security Enterprise, and Shaping the US - Middle East Policy**

Rudman

Offered: 13F: 2A.

**GOVT 85.21 - International Law and Institutions**

Greenhill

Distribution: Dist. SOC or INT. Offered: 13F 14F: 3A.

**GOVT 85.22 - Techniques of Statecraft**

Distribution: Dist. INT or SOC. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 85.23 - Unipolarity and US Security**

S. Brooks

Distribution: Dist. INT or SOC. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 85.26 - International Law**

W. Wohlforth

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 86 - Seminars in Political Theory and Public Law****GOVT 86.1 - Multiculturalism**

Swaine

Distribution: Dist. SOC; WCult: CI. Offered: 15W: 2A.

**GOVT 86.2 - Political Speech**

Muirhead

Distribution: Dist. SOC, WCult. W. Offered: 14F: 3B.

**GOVT 86.3 - Contemporary Political Thought**

Swaine

Distribution: Dist. TMV. Offered: 14W: 2A.

**GOVT 86.7 - Morality of Capitalism**

Muirhead

Offered: 15S: 3A.

**GOVT 86.15 - Tocqueville and His Critics**

Murphy

Distribution: Dist: TMV; WCult: W. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 86.16 - Contemporary Aboriginal Politics in Canada**

Turner

Distribution: Dist: SOC; WCult: CI. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 86.18 - Contemporary Readings on Justice**

Bedi

Distribution: Dist. TMV. Offered: 13F 14F: 3A.

**GOVT 86.20 - Ideology and Intellectuals**

Clarke

Distribution: Dist: SOC; WCult: W. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 86.22 - Rousseau**

Clarke

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**GOVT 86.24 - Machiavelli**

Clarke

Distribution: Dist: TMV; WCult: W. Offered: 14S: 2A.

**GOVT 86.26 - Great Trials in History**

Murphy

Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**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: 13F, 14F: 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: 13F, 14F: London F.S.P.

**GOVT 92 - Seminar**

Horowitz

In 13F, Ethnic Politics in Europe and the Developing World. Seminar taught by the faculty adviser. (This course counts as a seminar for the major or minor).

Offered: 13F: London F.S.P.

**GOVT 93 - Internship Essays**

Bafumi

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.)

Distribution: SOC. Offered: 14S 15S: Washington D.C. O.C.P.

**GOVT 94 - Myths and Realities in Public Policy Solutions**

Bafumi

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.

Distribution: Dist: SOC; WCult:W. Offered: 14S 15S: Washington D.C. O.C.P.

### **GOVT 95 - The Size and Scope of the United States Government**

Bafumi

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.

Distribution: Dist: SOC: WCult: W. Offered: 14S 15S: Washington D.C. O.C.P.

### **GOVT 98 - Honors Research (This course counts as a seminar course for the major or minor.)**

Clarke, Valentino

Offered: 13F, 14F: 3B.

### **GOVT 99 - Honors Thesis (This course counts as a mid-level course and not as a seminar course for the major or minor.)**

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: 14W, 15W Arrange.

## **History**

Chair: Walter Simons

Vice-Chair: Douglas Haynes (13X, 14S); David Lagomarsino (13F, 14W)

Professors R. E. Bonner, C. G. Calloway, P. K. Crossley, M. H. Darrow, D. E. Haynes, 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, T. Padilla, G. R. Trumbull IV; Assistant Professors E. E. Greenberg, R. R. Johnson, S. J. Link, P. P. Musselwhite, R. J. Rickford, N. Sackeyfio, S.

Suh, Z. Turkyilmaz; Visiting Professor A. V. Koop, L. K. Little; Visiting Associate Professor S. D. Finkel; Visiting Assistant Professor J. M. Miller; Senior Lecturer R. W. Edsforth.

*To view History courses, click here (p. 297).*

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
  - a. 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.

- b. 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:

- a. one course in the history of the United States and Canada (such courses are designated *Major Dist: US & CAN* in the course listing below);
- b. one course in the history of Europe (designated *Major Dist: EUR* in the course listing below);
- c. two courses in the histories of Africa, Asia, Latin America & Caribbean (designated *Major Dist: AALAC* in the course listing below);
- d. 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:*

1. At least five History courses must be taken in residence at Dartmouth College, one of them being HIST 96.
2. HIST 7 (First-Year Seminar) and HIST 99 (Honors Thesis) may not be counted toward the Standard Major.
3. Students may not include more than two of the following courses: HIST 1, HIST 2 or HIST 3.
4. 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.
5. Major GPA is figured on *all* History courses taken.

6. 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).
7. Entering first-year students may receive up to two unspecified credits in History that can be applied toward the degree requirement of 35 courses. One unspecified credit each can be obtained for up to two of the following: (1) a score of 5 on the CEEB Advanced Placement (AP) test in American history, (2) a score of 5 on the AP test in European history, (3) a score of 5 on the AP test in World history, (4) a score of 6 or 7 on the Higher Level International Baccalaureate (IB) exam, or (5) a grade of A on the British A-Level exam. History majors may not apply pre-matriculation credits toward their fulfillment of major requirements. 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:

- United States and Canada (such courses are designated *Major Dist: US & CAN* in the course listing below);
- Europe (designated *Major Dist: EUR* in the course listing below);
- Africa, Asia, Latin America & Caribbean (designated *Major Dist: AALAC* in the course listing below);
- 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:

- The minimum number of courses as specified in (A), (B), (C) and (D) under the requirements for the Standard or Modified Majors.
- 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).
- 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:

- Field of Concentration
  - 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.
  - 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:

- United States and Canada (such courses are designated *Major Dist: US & CAN* in the course listing below);
- Europe (designated *Major Dist: EUR* in the course listing below);
- Africa, Asia, Latin America & Caribbean (designated *Major Dist: AALAC* in the course listing below);
- 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

**The following courses fulfill the Department's Interregional requirement.**

HIST 5.8/AAAS 19	Africa and the World
HIST 8	Body Parts, Body Wholes: An Introduction to the Comparative History of Medicine
HIST 26	The Vietnam War
HIST 54	The Russian Empire

HIST 57	Scientific Revolutions and Modern Society
HIST 61	Britain and the Atlantic World, 1480-1780
HIST 62	The First World War
HIST 82/LACS 82	Popular Struggle, Political Change and U.S. Intervention in Central America
HIST 94.1	War and Peace: A Global History
HIST 94.3/CLST 14	Greek History: Archaic and Classical Greece (Identical to, and described under, Classical Studies 14)
HIST 94.5/CLST 17	Roman History: The Republic (Identical to, and described under, Classical Studies 17)
HIST 94.7/CLST 19	Methods and Theory in Ancient History (Identical to, and described under, Classical Studies 19)
HIST 4.1	The Crusades
HIST 4.2/REL 33	Christians, Jews, and Muslims in the Age of the Crusades
HIST 9.3	The Global Thirties: Economics and Politics
HIST 9.2	The Making of the Modern World Economy
HIST 10	What is History?
HIST 53	World War II: Ideology, Experience, Legacy
HIST 58/JWST 37.1	History of the Holocaust
HIST 94.2	Science, Technology and Culture in the Nuclear Age
HIST 94.4	Alexander the Great and the Macedonian Kings (Identical to, and described under, Classical Studies 15)
HIST 94.6/CLST 18	History of the Roman Empire: Roman Principate to Christian Empire (Identical to, and described under, Classical Studies 18)
HIST 94.8/JWST 10	History and Culture of the Jews: The Classical Period (Identical to, and described under, JWST 10)
HIST 94.9/JWST 11	History and Culture of the Jews: The Modern Period (Identical to, and described under, JWST 11)

## HIST - History Courses

To view History requirements, [click here](#) (p. 294).

### HIST 1 - Turning Points in American History

Bonner

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN; <1700 <1800. Offered: 14W: 10 14X:12.

### HIST 2 - Histories of America since the Civil War

The course examines how historians have constructed some of the most important narratives of modern American history. Students learn how the assumptions of historians and the questions scholars ask about the past shape and give meaning to the historical narratives they produce. Three different narratives will be interrogated: white supremacy; economic progress; and creation of a global "superpower." Students read primary sources and secondary sources, view films, and meet in lectures and discussion sections.

Distribution: SOC; WCult: W. Major Dist: US & CAN. Offered: Not offered in the period from 13F through 15S.

### HIST 3 - Europe in Medieval and Early Modern Times

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.

Distribution: SOC; WCult: W. Major Dist: EUR; <1700, <1800. Offered: 13F, 14F: 9.

### HIST 4.1 - The Crusades

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.

Distribution: INT or SOC; WCult: CI. Major Dist: INTER; <1700, <1800. Offered: Not offered in the period from 13F through 15S.

**HIST 4.2 - Christians, Jews, and Muslims in the Age of the Crusades**

MacEvitt

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.

Distribution: TMV; WCult: W. Major Dist: INTER; <1700 <1800. Offered: 13F: 2A.

**HIST 5.1 - Pre-Colonial African History**

Sackeyfio

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC; <1700, <1800. Crosslisted as: AAAS 14. Offered: 14W: 2A 14X: 10A 15S: 12.

**HIST 5.2 - Introduction to the Modern Middle East**

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.

Distribution: INT or SOC; WCult: NW. Major Dist: AALAC. Offered: 14W: 10 14F: 10.

**HIST 5.3 - The History of China since 1800**

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC. Offered: 13F, 14F: 11.

**HIST 5.4 - Introduction to Korean Culture**

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.

Distribution: SOC; WCult: CI. Major Dist: AALAC. <1800. Offered: 13F, 14F: 2A .

**HIST 5.5 - The Emergence of Modern Japan**

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.'

Distribution: SOC; WCult: NW. Major Dist: AALAC. Offered: 13F, 14F: 10A.

**HIST 5.6 - Pre-Columbian and Colonial America (Identical to LACS 10)**

Distribution: Dist: SOC; WCult: NW. Major Dist: AALAC; <1700, <1800. Crosslisted as: LACS 10. Offered: Not offered in the period from 13F through 15S.

**HIST 5.8 - 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.

Distribution: INT or SOC; WCult: NW. Major Dist: INTER. Crosslisted as: AAAS 19. Offered: 14F: 3B.

**HIST 5.9 - 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.

Distribution: SOC; WCult: NW. Major Dist: AALAC.  
Offered: 15S: 12.

**HIST 6 - Experimental Courses in History**

Goldthree, Suh, Turkyilmaz, Finkel, Johnson, Christesen and Rutter.

In 14W at 11 (Section 1), *North Korea, Origins and Transition*. (Identical to AMES 21.04). 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. *Dist: SOC, WCult: NW. Suh.*

In 14W at 12 (Section 2), *A History of Russian and Eastern European Jewry*. (Identical to, and described under, JWST 34). *Dist: SOC; WCult: CI. Major Dist: EU. Finkel.*

In 14W at 2 (Section 3), *Caribbean History, 1898 to the Present*. (Identical to, and described under, AAAS 83.4). *Dist: SOC or INT; WCult: NW. Goldthree.*

In 14S at 10A (Section 1), *Nationalism and State Building in the Middle East*. Studying different conceptualizations of nation, nationalism, and citizenship in the Arab, Iranian, Palestinian-Israeli and Kurdish-Turkish cases, this course will explore the historical and social developments associated with post-imperial modern state-building in the Middle East since First World War. Readings will introduce students to major theories of nationalism and nation-building in order to examine contested ideas and claims regarding territory, communal identity, language, origin, and history in this dynamic region and situate it within global context. Major Dist: AALAC. Turkyilmaz.

In 14S at 11 (Section 2), *Women and Gender in the African Diaspora*. (Identical to AAAS 88.2 and WGST 38.2). 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. *Dist: SOC or INT; WCult: CI. Major Dist: INTER. Johnson.*

In 14S at 12 (Section 3), *The International History of Human Rights*. In this course, students will study the history of human rights in the modern era, tracing the idea of the "Rights of Man" from the time of the Enlightenment; the uneasy coexistence of democracy and slavery; 19<sup>th</sup> century humanitarian movements, including abolitionism; the internationalization of humanitarianism and the Red Cross; the socialist challenge to "liberal" human rights; and the development of the international human rights movement per se since World War II. *Dist: SOC or INT; WCult: W. Major: EU. Finkel.*

In 14S at 11 (Section 4), *Early Sparta and Corinth: A Comparative Approach to the History and Archaeology of Two Major Greek City-States*. (Identical to, and described under, COCO 5). *Dist: INT or ART; WCult: W. Christesen and Rutter.*

In 14S at 12 (Section 5), *Nationalism and Revolution in the Caribbean*. (Identical to, and described under, AAAS 86). *Dist: SOC or INT; WCult: NW. Goldthree.*

In 15W at 12, *Nationalism and State-Building in the Middle East*.

In 15W at 12, *Caribbean History, 1898 to the Present*.

In 15W at 11, *North Korea, Origins and Transitions*.

In 15S at 12, *Nationalism and Revolution in the Caribbean*.

Offered: 14W: 2, 11, 12 14S: 10A, 11, 12 15W: 11, 12 15S: 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**

Suh

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.

Distribution: SOC or INT; WCult: NW. Major Dist: INTER. Offered: 13F: 11 14F: 10A.

### **HIST 9.1 - Empires and Colonies in North America, 1500-1763**

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.

Distribution: SOC or INT; WCult: W. Major Dist: INTER. Offered: 14W: 2.

### **HIST 9.3 - The Global Thirties: Economics and Politics**

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.

Distribution: SOC or INT; WCult: W. Major Dist: INTER. Offered: 14S: 2.

### **HIST 10 - What is History?**

Butler 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.

Distribution: SOC; WCult: W. Major Dist: INTER. Butler and Miller. Offered: 13F, 14F: 10A.

### **HIST 11 - The Age of the American Revolution**

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN; <1800. Offered: 13F: 2.

### **HIST 12 - The American Civil War**

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN. Offered: 14S: 12 14X: 10.

### **HIST 13 - History of New England**

The course focuses primarily on developments within New England but involves some discussion of the region's historical relationship with the rest of the United States and with Canada. Specific topics include the logic of regionalism, the origins of the six New England states, town founding, the dynamics of economic change, immigration and ethnicity, education (both public and private), regional literature, historic preservation, and patterns of community development. The course covers the entire history of the region and concludes with a section on 'New England Today.'

Distribution: SOC; WCult: W. Major Dist: US & CAN; <1800. Offered: Not offered in the period from 13F through 15S.

### **HIST 14 - The Invasion of America: American Indian History, Pre-Contact to 1830**

Calloway

This course surveys the history of the American Indians from contact with Europeans to c. 1830. 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.

Distribution: SOC; WCult: NW. Major Dist: US & CAN; <1700, <1800. Crosslisted as: NAS 14. Offered: 13F: 10.

### **HIST 15 - American Indians and American Expansion, 1800 to 1924**

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.

Distribution: SOC; WCult: NW. Major Dist: US & CAN. Crosslisted as: NAS 15. Offered: 14S, 15S: 9L.

### **HIST 16 - Race and Slavery in US History**

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN; <1800. Crosslisted as: AAAS 12. Offered: 15S: 10.

### **HIST 17 - Black America since the Civil War**

Rickford

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN. Crosslisted as: AAAS 13. Offered: 14S: 11.

### **HIST 18 - United States Political History in the Nineteenth Century**

Bonner

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN. Offered: 14S, 15S:10.

### **HIST 19 - United States Political History in the Twentieth Century**

Orleck.

This course defines and examines major themes in the development of twentieth century American politics. There are two versions of this course. In 14W: This lecture course explores politics, the presidency, and national policy-making in the twentieth century. Special attention will be paid to the evolution of parties, how individual presidents have defined the powers of the presidency, and to the different ways that modern presidents have responded to changing external demands for national leadership in times of prosperity and peace, economic depression, domestic upheaval, and war. Open to all classes.

Distribution: SOC; WCult: W. Major Dist: US & CAN. Offered: 14W: 2 14F: 2.

### **HIST 20 - American Thought and Culture to 1865**

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.

Distribution: TMV; WCult: W. Major Dist: US & CAN; <1800. Offered: 14W, 15W: 10 .

### **HIST 21 - Modern American Thought and Culture**

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.

Distribution: TMV; WCult: W. Major Dist: US & CAN. Offered: 13F: 10.

**HIST 22 - Civil Rights in the United States in the 20th Century**

Rickford

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.

Distribution: SOC; WCult: CI. Major Dist: US & CAN.  
Offered: 14W: 12.

**HIST 23 - American History since 1980**

Rickford, Edsforth.

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN.  
Offered: 14S: 2 14X: 11.

**HIST 24 - The Cold War and American Life**

J. Miller

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN.  
Offered: 13F: 2 15S: 12.

**HIST 25 - The United States and the World**

J. Miller, Johnson, E. Miller

This sequence of three courses surveys the history of the United States' relations with the world from the colonization of North America to the present. In addition to examining war, diplomacy and U.S. foreign policy, these courses will also explore the many ways in which Americans' dealings with other nations have been shaped by economic, social and cultural interactions. Key themes

include empire, race, citizenship, revolution, modernization and globalization. Open to all classes.

25.1 (14S at 12), *The United States and the World from the Colonial Era to 1865*. 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.

25.2 (13F at 11), *The United States and the World, 1865-1945*. 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. J. Miller.

25.3 (15S at 10), *The United States and the World since 1945*. 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. E. Miller and J. Miller.

Distribution: SOC or INT; WCult: W; Major Dist: US & CAN. Offered: 13F: 11 14S: 12 15S: 10.

**HIST 26 - The Vietnam War**

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.

Distribution: SOC or INT; WCult: W. Major Dist: INTER.  
Offered: 14W: 11, 2 15S: 2.

**HIST 27 - Gender and Power in American History from the Colonial Period to the Civil War**

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN; <1800. Crosslisted as: WGST 23.1. Offered: 15W: 12.

### **HIST 28 - American Women's History, Civil War to the Present**

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN. Crosslisted as: WGST 23.2. Offered: 14W: 2.

### **HIST 29 - Women and American Radicalism Left and Right**

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.

Distribution: SOC; WCult: CI. Major Dist: US & CAN. Crosslisted as: WGST 26.2. Offered: Not offered in the period from 13F through 15S.

### **HIST 31 - Latinos in the United States: Origins and Histories**

Distribution: SOC; WCult: W. Major Dist: INTER. Offered: Not offered in the period from 13F through 15S.

### **HIST 32 - The Life, Death and Rebirth of Great American Cities**

Orleck

This course examines key moments in the histories of four diverse American cities: New York, New Orleans, Las Vegas and Los Angeles: two old and two new cities, two cities that grew organically over centuries, with deep resources and deep problems, and two glitzy cities that

grew too rapidly, booming and crashing over the half century after World War II. Students will research, write and present urban history projects on a city of their choosing.

Distribution: SOC; WCult: W. Major Dist: INTER. Offered: 13F: 12 15W: 2A.

### **HIST 34 - Building America: An Architectural and Social History**

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. Open to all classes.

Distribution: ART; WCult: W. Major Dist: US & CAN; <1800. Crosslisted as: ARTH 52. Offered: Not offered in the period from 13F through 15S.

### **HIST 35 - The Creation of 'America' in the Age of Jefferson**

Heck

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN; <1800. Offered: Not offered in the period from 13F through 15S.

### **HIST 36 - Health Care in American Society: History and Current Issues**

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN.  
Offered: 13F: 11.

### **HIST 37 - Black Radical Tradition in America**

Rickford

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.

Distribution: SOC; WCult: W. Major Dist: US & CAN.  
Crosslisted as: AAAS 24. Offered: 14W: 11.

### **HIST 38 - American Odysseys: Lewis and Clark, Indian Country, and the New Nation (Identical to, and described under, Native American Studies 38)**

Calloway

Distribution: SOC; WCult: W. Major Dist: US & CAN;  
<1700, <1800. Crosslisted as: NAS 38. Offered: 14W,  
15W: 2.

### **HIST 39 - Twentieth Century Native American History (Identical to, and described under, Native American Studies 16)**

Parker

Distribution: SOC; WCult: NW. Major Dist: US & CAN.  
Crosslisted as: NAS 16. Offered: 14W: 11.

### **HIST 40 - Foreign Study Program: London in History**

Kremer

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.

Distribution: SOC; WCult: W. Major Dist: EUR.  
Prerequisite: membership in the Foreign Study Program.  
Offered: 13F, 14F: D.F.S.P.

### **HIST 41 - Foreign Study Program: History Study Abroad**

Kremer

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."

Prerequisite: membership in the Foreign Study Program.  
Offered: 13F, 14F: D.F.S.P.

### **HIST 42 - Gender and European Society from Antiquity to the Reformation**

Distribution: TMV; WCult: CI. Major Dist: EUR; <1700,  
<1800. Crosslisted as: WGST 22.1. Offered: 15W: 12.

### **HIST 43 - European Intellectual and Cultural History, 400-1300**

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.

Distribution: TMV; WCult: W. Major Dist: EUR; <1700, <1800. Offered: 14W: 12.

#### **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.

Distribution: SOC; WCult: W. Major Dist: EUR; <1700, <1800. Offered: 15S: 11.

#### **HIST 45 - Early Modern Europe (1300-1650)**

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.

Distribution: SOC; WCult: W. Major Dist: EUR; <1700, <1800. Offered: 13F, 15W: 12.

#### **HIST 46 - Spain in the Golden Age**

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.

Distribution: SOC; WCult: W. Major Dist: EUR; <1700, <1800. Offered: 14F: 2.

#### **HIST 47 - The French Revolution and Napoleon**

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.

Distribution: SOC; WCult: W Major Dist: EUR; <1800. Offered: 14S, 15S: 11.

#### **HIST 48 - European Society in the Industrial Age**

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.

Distribution: SOC; WCult: CI. Major Dist: EUR. Offered: 13F, 14X: 10.

#### **HIST 49 - Early Modern England, 1485-1780**

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.

Distribution: SOC; WCult: W. Major Dist: EUR; <1700, <1800. Offered: 14S, 14F: 10.

#### **HIST 50 - Modern Britain, 1780 to Present**

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.

Distribution: SOC; WCult: W. Major Dist: EUR. Offered: 13F: 12 15S: 10.

### **HIST 51 - Modern European Intellectual History**

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. Open to all classes.

Distribution: TMV; WCult: W. Major Dist: EUR; <1800. Offered: 15W: 11.

### **HIST 52 - Modern Germany: 1871-1990**

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.

Distribution: SOC; WCult: W. Major Dist: EUR. Offered: 15S: 10.

### **HIST 53 - World War II: Ideology, Experience, Legacy**

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.

Distribution: INT or SOC; Major Dist: EUR; <1800. Offered: 15W: 2.

### **HIST 54 - The Russian Empire**

After a review of Kievan and Muscovite antecedents, the course surveys the history of Russia from the Time of Troubles to the beginning of the twentieth century. Special emphasis will be placed on the role of the Russian autocrat, on the institution of serfdom, and the development of the 19th century intelligentsia. Intended to precede, but not

prerequisite to, HIST 55. Open to sophomores, juniors, and seniors.

Distribution: SOC; WCult: W. Major Dist: INTER; <1700, <1800. Offered: Not offered in the period from 13F through 15S.

### **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.

Distribution: SOC; WCult: W. Major Dist: EUR. Offered: Not offered in the period from 13F through 15S.

### **HIST 56 - Twentieth-Century Russia**

Finkel

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.

Distribution: SOC; WCult: W. Major Dist: EUR. Offered: 14W: 10.

### **HIST 57 - Scientific Revolutions and Modern Society**

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.

Distribution: TMV; WCult: W. Major Dist: INTER; <1800. Offered: 14X: 12.

### **HIST 58 - History of the Holocaust**

Distribution: SOC; WCult: W. Major Dist: INTER. Crosslisted as: JWST 37.1. Offered: Not offered in the period from 13F through 15S.

**HIST 61 - Britain and the Atlantic World, 1480-1780**

This course focuses on Atlantic society, economy, politics and culture shaped by the nature of maritime life in early modern times. Topics include: British voyages of trans-Atlantic exploration; the effects of trans-Atlantic contacts on communal life and settlement patterns; navies, merchant seamen, and pirates; the slave trade; life in port towns and coastal villages; the lore and creative traditions of Anglo-American maritime culture; and the impact of European competition on the British vision of an Anglo-Atlantic world. Open to all classes.

Distribution: SOC or INT; WCult: W. Major Dist: INTER; <1700, <1800. Offered: 14F: 2A.

**HIST 62 - The First World War**

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.

Distribution: SOC; WCult: W. Major Dist: INTER. Offered: 14S, 15S: 9.

**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.

Distribution: TMV; WCult: W. Major Dist: EUR. Offered: Not offered in the period from 13F through 15S.

**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.

Distribution: SOC; WCult: W. Major Dist: EUR. Offered: Not offered in the period from 13F through 15S.

**HIST 65 - Modern Europe: The Twentieth Century**

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.

Distribution: SOC or INT; WCult: W. Major Dist: EUR. Offered: 14W: 11.

**HIST 66 - History of Africa since 1800**

Sackeyfio

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC. Crosslisted as: AAAS 15. Offered: 14S: 12 15S: 10.

**HIST 67 - The History of Modern South Africa**

Sackeyfio

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC. Crosslisted as: AAAS 46. Offered: 14S: 10 14X: 2A.

**HIST 68 - History of North Africa from the Arrival of Islam to the Present**

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC.  
Crosslisted as: AAAS 52. Offered: 14F: 10A.

### **HIST 69 - Islam in Africa**

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.

Distribution: SOC; WCult: CI; Major Dist: AALAC.  
Crosslisted as: AAAS 53. Offered: 15W: 10A.

### **HIST 70 - On the Margins of the Ottoman Empire: Heresy, Desire and Slavery**

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, which idealized certain groups, life-styles and practices as desirable while stigmatizing others as marginal and dangerous. Drawing on scholarly discussions, primary and secondary sources, legal texts, and case studies, this course examines anxieties, contradictions, conflicts that defined the societal margins of the Ottoman Empire. Open to all classes.

Distribution: INT or SOC; WCult: CI. Major Dist: AALAC. Offered: Not offered in the period from 13F through 15S.

### **HIST 71 - Conflict and Violence in the Middle East**

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.

Distribution: SOC or INT. Major Dist: AALAC. Offered: 14W: 2 14F: 12.

### **HIST 72 - Late Imperial China in Global Context**

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC;  
<1700, <1800. Offered: 14S, 15S: 11.

### **HIST 74 - Intellectual History of East Asia**

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.

Distribution: TMV; WCult: NW. Major Dist: AALAC;  
<1700, <1800. Offered: 14W: 2A 15W: 10A.

### **HIST 75 - Colonialism, Development, and the Environment in Africa and Asia**

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.

Distribution: INT or SOC; WCult: NW. Major Dist: AALAC. Crosslisted as: ENV5 45 and AAAS 50. Offered: 15W: 12.

### **HIST 76 - The History of Modern South Asia**

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.

Distribution: SOC or INT; WCult: CI. Major Dist: AALAC. Offered: 14S, 15S: 10.

### **HIST 77 - Imperialism in Modern East Asia**

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-Prosperty Sphere. Open to all classes.

Distribution: SOC or INT; WCult: NW. Major Dist: AALAC. Offered: 14W: 2A 15S: 10A.

### **HIST 78 - Christianity in Korea**

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.

Distribution: TMV, WCult: NW. Major Dist: AALAC; <1700 <1800. Crosslisted as: AMES 21.05. Offered: 14S: 11.

### **HIST 79 - Postwar Japan: From Occupied Nation to Economic Superpower**

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC. Offered: 14W: 10A 15S: 2A.

### **HIST 81 - From Coca to Cocaine: Drug Economies in Latin America**

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.

Distribution: INT or SOC; WCult: NW; Major Dist: AALAC. Crosslisted as: LACS 57. Offered: 14S, 15S: 12.

### **HIST 82 - Popular Struggle, Political Change and U.S. Intervention in Central America**

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.

Distribution: SOC; WCult: NW. Major Dist: INTER. Crosslisted as: LACS 82. Offered: Not offered in the period from 13F through 15S.

### **HIST 83 - Twentieth-Century Latin America**

Padilla

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC. Offered: 13F: 11.

### **HIST 86 - Slavery and Emancipation in Latin America and the Caribbean (Identical to, and described under, African and African American Studies 60)**

Goldthree

Distribution: INT or SOC; WCult: NW. Major Dist: AALAC. Crosslisted as: AAAS 60 and LACS 58. Offered: 14W: 10 15S: 12.

### **HIST 87 - Culture and Identity in Modern Mexico**

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.

Distribution: SOC; WCult: NW. Major Dist: AALAC. Crosslisted as: LACS 76. Offered: 13F: 2.

**HIST 94.1 - War and Peace: A Global History**

Edsforth

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.

Distribution: Dist: INT or TMV; WCult: W. Major Dist: INTER. Offered: 14S, 15S: 11.

**HIST 94.2 - 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.

Distribution: Dist: INT. Major Dist: INTER. Offered: Not offered in the period from 13F through 15S.

**HIST 94.3 - Greek History: Archaic and Classical Greece (Identical to, and described under, Classical Studies 14)**

Christesen

Distribution: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800. Crosslisted as: CLST 14. Offered: 14W: 12.

**HIST 94.4 - Alexander the Great and the Macedonian Kings (Identical to, and described under, Classical Studies 15)**

Christesen

Distribution: Dist: SOC or INT; WCult: W. Major Dist: INTER; <1700, <1800. Offered: 14F: 2.

**HIST 94.5 - Roman History: The Republic (Identical to, and described under, Classical Studies 17)**

Distribution: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800. Crosslisted as: CLST 17. Offered: 15W: 12.

**HIST 94.6 - History of the Roman Empire: Roman Principate to Christian Empire (Identical to, and described under, Classical Studies 18)**

Distribution: Dist: INT or SOC; WCult: W. Major Dist: INTER; <1700, <1800. Crosslisted as: CLST 18. Offered: Not offered in the period from 13F through 15S.

**HIST 94.7 - Methods and Theory in Ancient History (Identical to, and described under, Classical Studies 19)**

Distribution: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800. Crosslisted as: CLST 19. Offered: 15S: 12.

**HIST 94.8 - History and Culture of the Jews: The Classical Period (Identical to, and described under, JWST 10)**

Heschel

Distribution: Dist: SOC; WCult: W. Major Dist: INTER; <1700, <1800. Crosslisted as: JWST 10. Offered: 14S: 2A.

**HIST 94.9 - History and Culture of the Jews: The Modern Period (Identical to, and described under, JWST 11)**

Heschel

Distribution: Dist: SOC; WCult: CI. Major Dist: INTER; <1800. Crosslisted as: JWST 11. Offered: 14X: 11.

**HIST 96 - Colloquia and Seminars.**

Open with written permission of the instructor to sophomores, juniors and seniors. For details concerning individual seminars consult the Department. The seminars are listed here by term; section numbers follow the decimals.

96.1 Seminar: *Race, Ethnicity and Immigration in U.S. History*

13F: 2. WCult: W. Major Dist: US & CAN.  
Orleck.

96.2 Colloquium: *Introduction to Global Methods*

13F: 3A. Dist: SOC or INT; WCult: NW. Major Dist: INTER. Crossley.

96.3 Seminar: *Napoleon and His Enemies*

13F: 10A. Dist: SOC; WCult: W. Major Dist: EUR, <1800. Darrow.

96.4 Seminar: *Africa in the African-American Mind (Identical to AAAS 90)*

13F: 3A. Dist: SOC; WCult: W. Major Dist: US & CAN. Rickford.

96.1 Seminar: *Pen and Ink Witchcraft: Native American History Through Treaties (Identical to NAS 81)*

14W: 2A. Dist: SOC; WCult: W. Major Dist: US & CAN; <1800. Calloway.

- 96.2 Seminar: *Topics in Islamic Africa*  
14W: 3B. Dist: SOC; WCult: NW. Major Dist: AALAC. Trumbull.
- 96.3 Seminar: *Approaches to American Intellectual and Cultural History*  
14W: 10A. Dist: TMV; WCult: W. Major Dist: US & CAN. Butler.
- 96.4 Seminar: *American Civil War as Global Event*  
14W: 2A. Dist: SOC; WCult: W. Major Dist: US & CAN. Bonner.
- 96.1 Seminar: *Colonialism and Culture in Asia and Africa*  
14S: 3A. Dist: SOC; WCult: NW. Major Dist: INTER. Haynes.
- 96.2 Seminar: *Empires, Imperialism and the United States*  
14S: 10A. WCult: W; Major Dist: INTER. E. Miller.
- 96.3 Seminar: *Topics in British History*  
14S: 2A. Dist: SOC; WCult: W. Major Dist: EUR. Estabrook.
- 96.4 Seminar: *Latin American Rebels*  
14S: 3A. Dist: SOC; WCult: NW. Major Dist: AALAC. Padilla.
- 96.1 Seminar: *Napoleon and His Enemies*  
14X: 10A. Dist: SOC; WCult: W. Major Dist: EUR, <1800. Darrow.
- 96.1 Seminar: *Approaches to American Intellectual and Cultural History*  
14F: 10A. Dist: TMV; WCult: W. Major Dist: US & CAN.
- 96.2 Colloquium: *Introduction to Global Methods*  
14F: 3A. Dist: SOC or INT; WCult: NW. Major Dist: INTER.
- 96.3 Seminar: *Topics in Modern Japanese History*  
14F: ARR. Dist: SOC; WCult: NW. Major Dist: AALAC.
- 96.1 Seminar: *Topics in Modern Middle Eastern History*  
15W: 2A. WCult: NW. Major Dist: AALAC.
- 96.2 Seminar: *Pen and Ink Witchcraft: Native American History Through Treaties* (Identical to NAS 81)  
15W: 2A. Dist: SOC; WCult: W. Major Dist: US & CAN; <1800.
- 96.3 Seminar: *Race, Ethnicity and Immigration in U.S. History*  
15W: 10A. WCult: W. Major Dist: US & CAN.

96.4 Seminar: *Empires, Imperialism and the United States*  
15W:2A. WCult: W. Major Dist: INTER.

96.5 Seminar: *Topics in British History*  
15W: 2A. Dist: SOC; WCult: W. Major Dist: EUR.

96.6 Seminar: *Research in Early Modern Europe*  
15W: 3A. Dist: SOC; WCult: NW. Major Dist: EUR; <1700 <1800.

96.1 Seminar: *Nazism: Culture, Society, War*  
15S: 10A. Major Dist: EUR.

96.2 Seminar: *Medieval Rulership*  
15S: 10A. WCult: W. Major Dist: EUR; <1700 <1800.

96.3 Seminar: *Latin American Rebels*  
15S: 3A. Dist: SOC; WCult: NW. Major Dist: AALAC.

### **HIST 97 - Independent Study**

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

13F, 14F: 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. Kremer

Prerequisite: membership in the Foreign Study Program.

### **HIST 98 - Honors Seminar**

Ericson

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: 13F: 10A 14F: 2A.

## HIST 99 - Thesis

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: 14W, 14S, 15W, 15S: Arrange.

## Humanities

Director: Monika C. Otter

To view Humanities courses, [click here](#) (p. 312).

### HUM - Humanities Courses

To view Humanities requirements, [click here](#) (p. 312).

#### HUM 1 - Dialogues with the Classics

Biron, Crewe, Otter

An introduction to some of the classics of Western Literature and the ways in which later writers have engaged with them. Readings may include Homer's *Iliad*, Apuleius's *Golden Ass*, Dante's *Divine Comedy*, Shakespeare's *Troilus and Cressida*, Cervantes' *Don Quichote*, Shelley's *Frankenstein*, Eliot's "Waste Land," Brecht's *Mother Courage*, and selected short texts by Borges. 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: 13F: 12.

#### HUM 2 - Dialogues with the Classics

Biron, Crewe, Otter

A continuation of Humanities 1. Readings may include Homer's *Odyssey*, Aristophanes' *Frogs*, *The Song of Roland*, *Sir Gawain and the Green Knight*, selected essays by Montaigne, Goethe's *Faust*, selected poems by Dickinson, Kafka's *Metamorphosis* and Stoppard's *Arcadia*. The course alternates between lectures and discussion sections, with emphasis on students' class participation and essay writing. Enrollment limited to 48 first-year students.

Distribution: Dist: LIT; WCult: W. Prerequisite: HUM 1, or the permission of the course director. Offered: 14W: 12.

## Jewish Studies

Chair: Ehud Benor

Professors S. Ackerman (Religion), L. H. Glinert (AMELL), S. Heschel (Religion), I. Kacandes (German), L. D. Kritzman (French), T. H. Luxon (English), P. M. McKee (English), A. Orleck (History), I. T. Schweitzer (English); 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 Professors L. Grinberg, E. Seroussi; 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. 312).

### 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. 312).

**JWST 4 - Religion of Israel: The Hebrew Bible (Old Testament)**

Ackerman

Identical to, and described under, REL 4.

Distribution: Dist: TMV; WCult: W. Crosslisted as: REL 4. Offered: 14F: 2.

**JWST 6 - Introduction to Judaism**

Benor

Identical to, and described under, REL 6.

Distribution: Dist: TMV; WCult: W. Crosslisted as: REL 6. Offered: 13F, 14F: 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**

Heschel

A survey of the history and culture of the Jews from the post-Biblical period to the Middle Ages.

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 94.8. Offered: 14S:2A.

**JWST 11 - History and Culture of the Jews II: The Modern Period**

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: HIST 94.9. Offered: 14X: 11.

**JWST 16 - Introduction to Hebraic and Israeli Culture**

Glinert

Identical to HEBR 10 and AMES 17; described under HEBR 10.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: HEBR 10 and AMES 17; described under HEBR 10. Offered: 14S, 15S: 10A.

**JWST 21 - Jewish American Literature**

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. Dist: LIT; WCult: CI. Milich.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: ENGL 53. Offered: 14S: 2A.

**JWST 21.2 - Modern Jewish American Women Writers**

Zeiger

Identical to ENGL 53 and WGST 51.5. 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, Yezierska, Stock, Stein, Olsen, Rukeyser, Paley, Ozick, Rich, Piercy, Levertov, Gluck, Goldstein, Wasserstein, Goodman, Klepfisz, Feinberg, Chernin.

Distribution: Dist: LIT, WCult: CI. Crosslisted as: ENGL 53, WGST 51.5. Offered: Not offered in the period from 13F through 15S.

**JWST 22 - Jews and Hollywood**

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.

Distribution: Dist: ART; WCult: W. Crosslisted as: FILM 47. Offered: 13F: 2A.

**JWST 22.2 - Jews in American Culture: The New York Intellectuals**

Milich

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.

Distribution: Dist: LIT; WCult: W. Crosslisted as: formerly ENGL 72, awaiting new number. Offered: 15S:2.

**JWST 22.3 - From Fanny to the Nanny: Jewish Women and Humor (Identical to WGST 56.7)**

Bronski

Distribution: Dist: LIT; WCult: CI. Crosslisted as: WGST 56.7. Offered: Not offered in the period from 13F through 15S.

**JWST 24.1 - The Hebrew of the Bible**

Ben-Yehuda

Identical to, and described under, HEBR 51.

Distribution: Dist: LIT; WCult: NW. Crosslisted as: HEBR 51. Offered: 14W, 15W: Arrange.

**JWST 24.2 - Rabbis, Rogues, and Schlemiels: Jewish Humor and Its Roots**

Glinert

Identical to, and described under, HEBR 63.

Distribution: Dist: LIT; WCult: W. Crosslisted as: HEBR 63. Offered: 14X, 14F: 2A.

**JWST 24.3 - Midrash: How the Rabbis Interpreted the Bible**

Glinert

Identical to, and described under, HEBR 62.

Distribution: Dist: LIT; WCult: NW. Crosslisted as: HEBR 62. Offered: Not offered in the period from 13F through 15S.

**JWST 24.4 - Struggle and Rebirth in Hebrew and Yiddish Literature**

Glinert

Identical to, and described under, HEBR 61.

Distribution: Dist: LIT; WCult: NW. Crosslisted as: HEBR 61. Offered: Not offered in the period from 13F through 15S.

**JWST 26 - European Jewish Intellectuals**

Kritzman

Identical to, and described under, COLT 70.

Distribution: Dist: LIT; WCult: W. Crosslisted as: COLT 70. Offered: Not offered in the period from 13F through 15S.

**JWST 27 - The Jewish Family**

Kritzman

Identical to, and described under, COLT 46.

Distribution: LIT. Crosslisted as: COLT 46. Offered: Not offered in the period from 13F through 15S.

**JWST 27.3 - Islam and Judaism: Europe's Orientalist Visions**

Heschel, McKee

Distribution: Dist: LIT; WCult: CI. Offered: Not offered in the period from 13F through 15S.

**JWST 33 - American Jewish History**

Orleck

Distribution: Dist: SOC; WCult: CI. Crosslisted as: HIST 6. Offered: Not offered in the period from 13F through 15S.

**JWST 34 -**

Finkel

In 14W, *History of Russian and Eastern European Jewry*. This course is an introduction to the rich history of Russian and Eastern European Jewry from the late 18th century to the present day. Students will study the migration of Ashkenazi Jews; the changing manner in which tsarist Russia dealt with the "Jewish problem;" how Jews adapted to repression in the Pale of Settlement; the importation of Haskalah into Russia; intensified repression and pogroms; the emergence of diverse political movements at the *fin de siecle*; and the development of a rich secular literature in Hebrew, Yiddish, and Russian. We will examine the fate of Eastern European Jewry, including anti-Jewish violence of the Great War and the Russian Civil War; involvement of radical Jewish intellectuals in the Soviet experiment; the ambivalence of Russian Jews to the new Soviet order; the re-emerging anti-Semitism of the Stalin years; and the Holocaust in Nazi-occupied Eastern Europe.

Distribution: SOC; WCult: CI. Offered: 14W:12.

**JWST 36 -**

MacEvitt (13F)

In 13F, *Christians, Jews, and Muslims in the Age of the Crusades*.

Identical to REL 33 and HIST 4.2 (p. 298); described under REL 33.

*Dist: TMV.* MacEvitt.

Distribution: varies. Crosslisted as: REL 33. Offered: 13F:2A.

**JWST 37.1 - History of the Holocaust**

Heschel

Identical to HIST 58

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 58. Offered: Not offered in the period from 13F through 15S.

**JWST 37.2 - Burden of the Nazi Past: World War, Genocide, Population Transfer, and Firebombing**

Kacandes

Identical to COLT 64 and GERM 45.

Distribution: Dist: LIT; WCult: CI. Crosslisted as: COLT 64, GERM 45. Offered: Not offered in the period from 13F through 15S.

**JWST 37.3 - Representing the Holocaust: History, Memory, and Survival**

Identical to COLT 64

Distribution: Dist: INT; WCult: W. Offered: Not offered in the period from 13F through 15S.

**JWST 41 - Art and Archaeology of Israel: From Prehistory to the Roman Period**

Kangas

Identical to ARTH 17.1. 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.

Distribution: Dist: ART; WCult: NW. Crosslisted as: ARTH 17.1. Offered: 15W: 11.

**JWST 41.2 - Synagogue and Church: Archaeology of Roman Palestine**

Kangas

Identical to ARTH 16.

Distribution: Dist: ART; WCult: W. Offered: Not offered in the period from 13F through 15S.

**JWST 41.3 - Cities of the Biblical World**

Kangas

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.

Distribution: Dist: ART; WCult: NW. Offered: Not offered in the period 13F through 15S.

**JWST 42 - Film, Fiction and the Arab-Israeli Conflict**

Glinert

Identical to, and described under, HEBR 61

Distribution: Dist: LIT; WCult: CI. Crosslisted as: HEBR 61. Offered: 14F: 10A, 15S: 2A.

**JWST 51 - Freud: Psychoanalysis, Jews, and Gender (Identical to Women's and Gender Studies 67.1 and German 42)**

Fuechtner

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: WGST 67.1 and GERM 42. Offered: Not offered in the period 13F through 15S.

**JWST 52 - Judaism, Sexuality, and Queerness**

Bronski

Distribution: Dist: TMV; WCult: CI. Crosslisted as: WGST 65.1. Offered: Not offered in the period from 13F through 15S.

**JWST 53 - Gender and Judaism**

Bronski

Distribution: Dist: TMV; WCult: CI. Crosslisted as: WGST 33.3. Offered: Not offered in the period from 13F through 15S.

**JWST 55 - Performing National Identities: Representations of Blacks and Jews in U.S. Culture**

Schweitzer

Distribution: Dist: LIT; WCult: CI. Crosslisted as: ENGL 67 and AAAS 84. Offered: Not offered in the period from 13F through 15S.

**JWST 56 - Women in Islam and Judaism**

Heschel and Amirpur

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.

Distribution: Dist: TMV; WCult: CI. Crosslisted as: REL 19, WGST 44.2. Offered: 14S: 10A.

### **JWST 57 - Ethnomusicology**

Seroussi and Levin

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.

Distribution: Dist: ART; WCult: NW. Crosslisted as: MUS 45. Offered: 14W: 2A.

### **JWST 58 - Jewish Views of Islam**

Heschel

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.

Distribution: Dist: TMV; WCult: CI. Crosslisted as: REL 74. Offered: Not offered in the period 13F through 15S.

### **JWST 60 - Judaism in Late Antiquity: The Rabbinic Revolution**

Benor

Identical to, and described under, REL 21.

Distribution: Dist: TMV; WCult: W. Crosslisted as: REL 21. Offered: Not offered in the period from 13F through 15S.

### **JWST 61 - Modern Judaism**

Heschel

Distribution: Dist: TMV; WCult: W. Crosslisted as: REL 22. Offered: Not offered in the period from 13F through 15S.

### **JWST 62 - Jewish Mysticism**

Benor

Identical to, and described under, REL 23.

Distribution: Dist: TMV; WCult: W. Crosslisted as: REL 23. Offered: 15S: 2 .

### **JWST 63 - Jewish Philosophers of Religion**

Benor

Identical to, and described under, REL 24.

Distribution: Dist: TMV; WCult: W. Crosslisted as: REL 24. Offered: Not offered in the period from 13F through 15S.

### **JWST 68 - Topics in Sociology (pending approval)**

Grinberg

In 14W, *Israeli Society: Structure, Institutions, Identities and Dynamics*. Grinberg.

In 14W, *Sociology of the Israeli-Palestinian Conflict*. Grinberg.

Distribution: varies. Offered: 14W:10, 12.

### **JWST 70 - The Jew in the Protestant Imagination: The Merchant of Venice**

Heschel, McKee

Distribution: Dist: LIT, WCult: W. Crosslisted as: ENGL 65 and REL 74. Offered: Not offered in the period from 13F through 15S.

### **JWST 70.3 - Orientalism and Origins of Religion**

Heschel

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.

Identical to and described under REL 81.

Distribution: TMV. Crosslisted as: REL 81. Offered: Not offered in the period from 13F through 15S.

### **JWST 72 - History of Heaven**

Wright

Distribution: TMV. Crosslisted as: REL 57. Offered: Not offered in the period from 13F through 15S.

### **JWST 74.2 - The Jewish Jesus**

Lanfer

It is certain that Jesus of Nazareth lived in the first century C.E. and that his followers interpreted his life and death as harbingers of a new age. However, recent scholarship has made clear that Jesus was fully embedded in the Judaism of his time: the Jewish diversity of the period and Jewish resistance to the Roman Empire. This course will describe the life of Jesus the Jew prior to the early Church's interpretation of Jesus as Christ.

Distribution: TMV. Crosslisted as: REL 57. Offered: Not offered in the period from 13F through 15S.

### **JWST 80 - History of Holocaust Historiography**

Heschel

Distribution: Dist: SOC; WCult: W. Crosslisted as: HIST 95. Offered: Not offered in the period from 13F through 15S.

### **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.

#### *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

## **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 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 L. Baldez (LALACS, Government), R. E. Biron (Spanish and Portuguese), M. K. Coffey (Art History), R. A. Covey (Anthropology), R. A. Franconi (Spanish and Portuguese), A. Gómez (Spanish and Portuguese), T. Padilla (History), I. Reyes (Spanish and Portuguese), A. D. Tillis (AAAS); Assistant Professors S. Díaz (Spanish and Portuguese), R.N. Goldthree (AAAS); L. Gutiérrez Nájera (LALACS, Anthropology), S. L. Mollett (Geography), S. A. M. Vásquez (English); Senior Lecturer D. J. Moody (Spanish and Portuguese); Lecturers R. Herr (LALACS), J. G. Smolin (LALACS); Visiting Assistant Professor C. Gómez

(LALACS), Lecturer A. P. Hernández (LALACS, WGST, 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. 320).*

*To view Latino Studies courses, click here (p. 323).*

### **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

### Courses with a central focus on Latin America, Latino and the Caribbean offered by various departments.

These classes count toward the LACS/LATS major.

AAAS Caribbean History: 1898 to the Present

83.4/HIST 6 Afro-Latin American Literature in Translation

AAAS 85.2 Maya Indians Under Mexican and Guatemalan Rule

ANTH 35 Legacies of Conquest: Latin America

ANTH 37 Globalization from Above and Below

ANTH 44 Special Topics in the History of Art

ARTH 16 Psychology, Society and Literature: The Family

COLT 46 Latin American Literatures

COLT 52 Latin American Politics and Government

GOVT 49.1 Readings in Government

GOVT 80 Latinos in the United States: Origins and Histories

HIST 31 Spain in the Golden Age

HIST 46 The Portuguese-Speaking World and its Literatures and Cultures:

PORT 20 The Definition of an Identity

PORT 35 Advanced Studies in Brazilian Culture and Society

PORT 36 Studies in Contemporary Brazilian Literature

### Portuguese Courses listed below: count when main content is Brazil

PORT 60 The Portuguese-Speaking World: Literature and Culture by Period

PORT 61 The Portuguese-Speaking World: Genre

PORT 62	Film Media, Performance, and the Arts in the Portuguese-Speaking World
PORT 63	Special Topics. Literary and Cultural Productions of the Portuguese-Speaking World
PORT 80	Seminar
SPAN 33	Argentine Civilization: Society, Culture and Politics in Argentina
SPAN 35	Studies in Spanish-American Literature and Culture

**Spanish Courses listed below: count when main content is Latin American/Latino**

SPAN 45	Regional/National/Trans-Atlantic Approaches to Hispanic Studies
SPAN 50	Gender and Sexuality in Hispanic Studies
SPAN 55	Hispanic Literature, Culture, and Politics
SPAN 60	Race and Ethnicity in Hispanic Studies
SPAN 63	Hispanic Film Studies

**LACS - Latin American and Caribbean Studies Courses**

To view Latin American and Caribbean Studies requirements, [click here](#) (p. 317).

**LACS 1 - Introduction to Latin America**

Baldez

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.

Distribution: SOC; WCult: NW. Offered: not offered in 13F through 14X.

**LACS 4 - History, Culture and Society: The Many Faces of Latin America**

Buéno, Walker (14W)

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.

Distribution: LIT; WCult: NW. Crosslisted as: AAAS 16. Offered: 14W: 10A .

**LACS 7 - First Year Seminars in Latin American, Latino and Caribbean Studies**

Herr

*Consult special listings*

Offered: 14W: 2A.

**LACS 10 - Pre-Columbian and Colonial America**

*(Identical to HIST 5.6)*

Crosslisted as: HIST 5.6. Offered: Not offered in the period from 13F through 15S.

**LACS 23 - Testimonial and Truth in Latin America**

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.

Distribution: Dist: LIT, WCult: NW. Offered: 14S: 10A.

**LACS 30 - Topics Course in the Humanities**

Herr

LACS 30, in 13F at 12, *Latin American Science Fiction: Post Human Bodies and Neoliberal Dystopias in Latin American Literature* . Robots, cyborgs and aliens have long served science fiction authors as tropes to reflect on contemporary social and political matters. Although a marginal genre in Latin American literature, science fiction has provided authors and filmmakers with a unique format

to treat the notions of gender, race and identity as well as dictatorship and economic inequality, especially within the context of a society increasingly dominated by a neoliberal model.

Distribution: LIT; WCult: NW. Offered: 13F: 12.

### **LACS 42 - The Aztecs**

Nichols

*(Identical to Anthropology 21)*

Distribution: SOC; WCult: NW. Crosslisted as: ANTH 21.  
Offered: 15W: 12.

### **LACS 43 - Olmecs, Maya, and Toltecs: Ancient Civilizations of Mesoamerica**

Nichols

*(Identical to Anthropology 22)*

Distribution: SOC; WCult: NW. Crosslisted as: ANTH 22.  
Offered: 13F, 14F: 12.

### **LACS 44 - The Incas**

Covey

*(Identical to Anthropology 23)*

Distribution: SOC; WCult: NW. Crosslisted as: ANTH 23.  
Offered: 15W: 11.

### **LACS 48 - Mexican Muralism**

Coffey

*(Identical to Art History 16)*

Distribution: ART; WCult: CI. Crosslisted as: ARTH 16.  
Offered: Not offered 13X through 14X.

### **LACS 50 - Topics**

See description

LACS 50.1, in 14S at 2A, *Afro-Diasporic Dialogues in Latin America and the U.S. (Identical to AAAS 90.3)*

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." Goldthree

LACS 50.2, in 13F at 2A, *Race, Power and Development in Global Haiti (Identical to AAAS 88.5 and ANTH 50.4)*

Although often cast as marginal in Western thought, Haiti holds a central place in the history of the modern world. This course examines the tension between Haiti's worldly significance and current predicament by drawing on studies of Haiti within the anthropology of the "Black Atlantic," or African diaspora, and globalization studies. Students will acquire an historical understanding of Haitian society and culture and an enriched perspective on the country's social problems. Independent research is required. (AREA)

Kivland

Offered: See description.

### **LACS 52 - Sex and the State in Latin America**

Baldez

This course examines the ways in which gender and sexuality are relevant to politics in Latin America. Traditional norms governing relations between men and women persist in the region, yet men's and women's efforts to challenge fiercely repressive regimes, deeply entrenched norms of *machismo*, and extreme poverty defy conventional gender stereotypes. Latin American women's movements are among the most creative and highly mobilized in the world. Gay rights have made tremendous and rapid progress. Under what conditions do gender-based movements like these emerge and what impact do they have on politics? How do norms of masculinity and femininity shape politics and how are those norms shaped by interaction with the state? The cases we study and the countries on which we focus will vary each time the course is offered.

Distribution: SOC; WCult: NW. Crosslisted as: GOVT 49.4 and WGST 31.1. Offered: 14S: 2.

### **LACS 53 - Protests and Parties in Latin America**

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.

Distribution: SOC or INT; WCult: NW. Crosslisted as: GOVT 49.5. Offered: Not offered 13F through 14X.

**LACS 54 - Nationalism and Revolution in the Caribbean**

Goldthree

*(Identical to, and described under; African and African American Studies 86 and History 6)*

Distribution: SOC or INT; WCult: NW. Crosslisted as: AAAS 86 and HIST 6. Offered: 14W: 2.

**LACS 57 - From Coca to Cocaine: Drug Economies in Latin America**

Padilla

*(Identical to History 81)*

Distribution: INT or SOC; WCult: NW. Crosslisted as: HIST 81. Offered: 14S: 12.

**LACS 58 - Slavery and Emancipation in Latin America and the Caribbean**

Goldthree

*(Identical to African and African American Studies 60 and History 86)*

Distribution: INT or SOC; WCult: NW. Crosslisted as: AAAS 60, HIST 86. Offered: 14W: 10.

**LACS 59 - Caribbean History 1898 to the present**

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.

Distribution: INT or SOC; WCult: NW. Crosslisted as: AAAS 83.4, Hist. 6.2, WGST 47. Offered: 14S: 2.

**LACS 60 - War and Representation in 19th Century Latin American Culture**

Díaz

*(Identical to Comparative Literature 63)*

Distribution: LIT. Crosslisted as: COLT 63. Offered: Not offered in the period from 13X through 14X.

**LACS 63 - Afro-Brazilian Diasporic Literature in the Americas**

Smolin

*(Identical to Comparative Literature 52 and African and African American Studies 83)*

Distribution: LIT; WCult: CI. Crosslisted as: COLT 52 and AAAS 83.1. Offered: Not offered in the period from 13X through 14X.

**LACS 64 - Black Brazilian Women Writers**

Salgueiro

*(Identical to AAAS 80.2 (p. 80), COLT 52.2, and WGST 47.5 (p. 462))*

Distribution: LIT. Crosslisted as: AAAS 80.2, COLT 52.2, WGST 47.5. Offered: 14W: 3B.

**LACS 66 - Caribbean Lyric and Literature**

*(Identical to ENGL 53.23 and AAAS 83.6)*

Distribution: LIT; WCult: CI. Crosslisted as: ENGL 53.23 and AAAS 83.6. Offered: 14S: 2A, 15S.

**LACS 76 - Culture and Identity in Modern Mexico**

Padilla

*(Identical to History 87)*

Distribution: SOC; WCult: NW. Crosslisted as: HIST 87. Offered: 13F: 2.

**LACS 77 - Democracy and Accountability in Latin America**

Carey

Distribution: SOC. Crosslisted as: GOVT 84.11. Offered: Not offered from 13F through 14X.

**LACS 78 - Twentieth Century Art from Latin America**

Coffey

*(Identical to Art History 75)*

Distribution: ART; WCult: W. Crosslisted as: ARTH 75. Offered: 14S: 10.

**LACS 80 - Seminar**

Baldez

*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?

Distribution: SOC or INT; WCult: NW . Offered: 14W: 2A.

### **LACS 82 - Popular Struggle, Political Change and U.S. Intervention in Central America**

Padilla

*(Identical to, and described under, History 82)*

Distribution: SOC; WCult: NW. Crosslisted as: HIST 82. Offered: Not offered between 13F and 14X. .

### **LACS 89 - Independent Study**

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**

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**

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. 317).*

### **LATS 3 - Introduction to Latino Studies**

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 .

Distribution: SOC; WCult: CI. Offered: Not offered in 13X through 14S.

### **LATS 5 - Complexities of Latino Identity**

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.

Distribution: SOC; WCult: W. Crosslisted as: SOCY 44. Offered: 13X: 10A, 14X.

### **LATS 7 - First Year Seminar in Latino Studies**

*Consult Special Listings*

### **LATS 35 - Topics Course in Latino Studies**

### **LATS 40 - Immigration, Race and Ethnicity**

Wright

*Identical to and described under, Geography 28*

Distribution: Dist: SOC; WCult: CI. Crosslisted as: GEOG 28 and SOCY 48. Offered: 14W: 11, 15W: 10A.

### **LATS 41 - Representations of/from Latinos in the Media and the Arts**

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.

Distribution: ART. Offered: 14S: 12.

### **LATS 43 - U.S. Afro-Latino Literature**

Tillis

*Identical to, and described under, African and African American Studies 64*

Distribution: DIST: INT or LIT; WCult: W. Crosslisted as: AAAS 64, COLT 57 and INTS 17. Offered: 13F: Tues. 3-6.

### **LATS 44 - Crossing Over: Latino Roots and Transitions**

Gutiérrez Nájera

This course focuses on the experiences of Mexican, Puerto Rican, Dominican, Cuban, and Central American American migrants living in the U.S. 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 doing so, 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.

Distribution: SOC; WCult: CI. Crosslisted as: ANTH 33. Offered: 13F: 12.

### **LATS 45 - Comparative Perspectives on the US-Mexican Borderlands**

Gutiérrez Nájera

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 dialectics. We will consider several analytical perspectives relevant to anthropology including: gender, identity, resistance, economics, globalization, migration, and the politics of everyday life.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: ANTH 34. Offered: 14W: 12.

### **LATS 51 - Beyond Sex, Drugs, Rock and Roll: Radical Latinos in the 60's**

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: COLT 52. Offered: Not offered 13F through 14X.

### **LATS 89 - Independent Study**

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**

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**

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 and Gender Studies), A. S. Bahng (English), R. Bergland (Women's and Gender Studies), C. G. Boggs (English, Women's and Gender Studies), S. J. Brison (Philosophy), M. A. Bronski (Women's and Gender Studies), A. A. Coly (African and African American Studies, Comparative Literature), M. Desjardins (Film Studies), G. Dietze (Women's and Gender Studies), M. R. Dietrich (Biological Sciences), V. Fuechtner (German), M. R. Graver

(Classics), K. J. Jewell (French and Italian), C. H. MacEvitt (Religion), K. F. Milich (Liberal Studies), G. Munafo (Women's and Gender Studies), A. Orleck (History), I. Reyes (Spanish and Portuguese), I. T. Schweitzer (English, Women's and Gender Studies), S. Swayne (Music), P. W. Travis (English), B. E. Will (English), M. Williamson (Classics), M. F. Zeiger (English).

## LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES REQUIREMENTS

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 and Gender Studies. Related courses are frequently cross-listed with WGST, and may be found in other departments and programs, such as:

### Cross-listed Courses

AAAS 40/WGST 34.2	Gender Identities and Politics in Africa
ANTH 31/WGST 36.1	Gender in Cross-Cultural Perspective
ARTH 16	Special Topics in the History of Art
COLT 67	Literature and Women's/Gender Studies
JWST 52	Judaism, Sexuality, and Queerness
REL 31/CLST 11/WGST 43.2	Sex, Celibacy, and the Problem of Purity: Asceticism and the Human Body in Late Antiquity
WGST 18	Introduction to Lesbian, Gay, Bisexual, and Transgender Studies
WGST 19.1	Queer Marriage, Hate Crimes, and Will and Grace: Contemporary Issues in LGBT Studies
WGST 19.2	Sexuality, Identity, and Legal Theory
WGST 21.2/CLST 10/COLT 67	Fictions of Sappho
WGST 31.2	Power to the People: Black Power, Radical Feminism and Gay Liberation
WGST 33.3	Gender and Judaism
WGST 34.3	The Masculine Mystique
WGST	Sociology of Gender

34.4/SOCY 79

WGST 35.2

WGST

52.1/AAAS

67/COLT

67/ENGL 54

WGST

53.2/COLT 49

WGST 53.3

WGST

53.4/ENGL 72

WGST

56.1/FILM 46

WGST 56.2

WGST 56.7

WGST 61.1

WGST 61.2

WGST 65.2

WGST

65.3/FILM 47

WGST 66.1

WGST

67.1/GERM

42/JWST 51

Gender Blending: Motifs of Androgyny  
Colonial and Postcolonial Masculinities

Hand to Mouth: Writing, Eating, and the Construction of Gender  
He, She, or It: Reconstructing Gender in Science Fiction  
Woolfenstein

Television and Histories of Gender  
Beatniks, Hot Rods, and the Feminine Mystique: Sex and Gender in 1950s Hollywood Films  
From Fanny to the Nanny: Jewish Women and Humor  
Reproductive Rights and Technologies  
Plagues and Politics: The Impact of AIDS on U. S. Society  
Queer Poetries  
Queers, Queens, and Questionable Women: How Hollywood Films Shaped Post WWII LGBT Politics  
Sexuality and Science  
Freud, Psychoanalysis, Jews, and Gender

## 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 and Cognitive Science

Chair: David A. Peterson

Professors B. Duncan (German), H. Farid (Computer Science), L. H. Glinert (AMELL), R. H. Granger (Psychology), H. C. Hughes (Psychology), J. H. Moor (Philosophy), B. P. Scherr (Russian), P. W. Travis (English), L. J. Whaley (Linguistics and Classics); Associate Professors D. Balkom (Computer Science), I.

Chitoran (Linguistics and French and Italian), C. K. Donahue (Linguistics), D. A. Garretson (Russian), J. V. Kulvicki (Philosophy), D. A. Peterson (Linguistics), A. L. Roskies (Philosophy), P. U. Tse (Psychology); Assistant Professors, J. N. Stanford (Linguistics); Senior Lecturer T. J. Pulju (Linguistics), Visiting Professor T. Ernst; Lecturer Sean Madigan, Neukom Fellow Sravana Reddy.

Although the fields of linguistics and cognitive science are closely related, the course of study for each varies, and they comprise separate majors. Whether their interest is in linguistics or cognitive science, all students should consult with a member of the steering committee well in advance in order to plan a program that best suits their needs and interests.

To view *Linguistics courses*, [click here](#) (p. 328).

To view *Cognitive Science courses*, [click here](#) (p. 327).

### Linguistics

Individuals who pursue a *major* in linguistics should take ten courses beyond the prerequisites, which are LING 1 and a solid competence in a foreign language (this latter requirement may be met by taking two courses in a language beyond the first-year level). Linguistics majors are also urged to study a second 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 two additional courses in the 20s (LING 20, LING 21, LING 23, LING 24, LING 25, LING 26, LING 27)
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 87)
  - b. taking an advanced seminar in linguistics (LING 80)
  - c. carrying out a one or two term independent study project (LING 85)
5. Depending on the number of courses taken under (b) and (c), up to four other courses, either from the Linguistics offerings or selected from the list below, *in consultation with an adviser*. Note that some of these courses are more suitable to those with an interest in formal linguistics, and others for those with an interest in natural languages or language and culture. Certain courses not listed here, such as advanced seminars in various departments, may also be counted toward the major with permission of the Chair: ANTH 9; COSC 39; FREN 35; MATH 39, MATH 69; PHIL 6, PHIL

26, PHIL 32, PHIL 33, PHIL 34; PSYC 51 (if special topic is relevant to linguistics); RUSS 48; SPAN 40.

For the class of 2016 onward:

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.

### 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)

- 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 Linguistics and 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. Those concentrating in Cognitive Science will take COGS 86 the first term and COGS 87 the second; special majors in Linguistics take the 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. 328) courses

### COGS - Cognitive Science Courses

To view Cognitive Science requirements, [click here](#) (p. 325).

#### COGS 2 - Cognition

Meng, Susilo

Identical to, and described under, PSYC 28.

Distribution: SOC. Prerequisite: PSYC 1 or PSYC 6 or COSC 1. Crosslisted as: PSYC 28. Offered: 14W, 14S: 2.

#### COGS 11 - Topics in Cognitive Science

Roskies

In 13F, *Philosophy of Cognitive Science* (Identical to PHIL 50). This course will cover the classical foundations of cognitive science, and some of the more recent developments in the field. We will start with a historical look at the cognitive sciences, then will explore philosophical views about the relationship between the mind and the physical world, and the computational theory of mind. In the second half of the course we will examine alternative approaches to mind, including connectionist views and theories of embodiment and dynamical systems. The last part of the course will touch on topics only now being recognized as relevant to cognitive science, such as emotion and consciousness.

Distribution: TMV. Crosslisted as: PHIL 50 (13F).  
Offered: 13F:11.

### **COGS 26 - Philosophy and Computers**

Moor

Identical to, and described under, PHIL 26.

Distribution: TAS. Crosslisted as: PHIL 26. Offered: 14S, 15S: 10.

### **COGS 44 - Artificial Intelligence**

Balkcom

Identical to, and described under, COSC 76.

Distribution: TAS. Prerequisite: COSC 10. COSC 30 is recommended. Crosslisted as: COSC 76. Offered: 14W: ARR.

### **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.

## **LING - Linguistics Courses**

To view Linguistics requirements, [click here](#) (p. 325).

### **LING 1 - Introductory Linguistics**

Peterson (13F), Pulju (14W), Staff (14S, 15W, 15S), Stanford (14F)

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.

Distribution: QDS. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 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: 14W, 15W: D.F.S.P. (New Zealand).

### **LING 10 - Language Acquisition**

Distribution: SOC. Offered: Not offered in the period from 13F through 15S.

### **LING 11 - Topics in Linguistics**

Pulju (13F), Glinert (13F), Staff (14X), Whaley 15W)  
In 13F, *Languages of China* (Identical to CHIN 63). Survey of the history of language in China, and the current linguistic situation. Topics will include: geographical and genealogical classification of languages in China; the phonological and grammatical systems of representative languages; the reconstruction of Old Chinese; ways of writing both Sinitic and non-Sinitic languages; language as a marker of ethnic identity; and past and present language policies, both governmental and non-governmental.  
*Dist: SOC; WCult: NW.* Pulju.

In 13F, *Discourse Culture and Identity in Asia and the Middle East* (Identical to, and described under, AMEL 17).  
*Dist: SOC or INT; WCult: CI.* Glinert.

In 15W, *Language Revitalization* (Identical to NAS 40). 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.

*Dist: SOC; WCult: CI.* Whaley.

Distribution: varies. Crosslisted as: varies. Offered: 13F: 10A, 2A, 13X:2A, 15W:2.

### **LING 17 - Sociolinguistics**

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.

Distribution: *Dist: SOC; WCult: CI.* Offered: 14W: 2A, 15S:10A.

### **LING 18 - History of the English Language**

Pulju (13F), Staff (14F)

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.

Distribution: SOC. Crosslisted as: ENGL 47. Offered: 13F, 14F: 11.

### **LING 20 - Experimental Phonetics**

Stanford

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.

Distribution: TAS. Prerequisite: LING 1. Offered: 14S: 12.

### **LING 21 - Introduction to Phonology**

Staff

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.

Distribution: QDS. Prerequisite: LING 1. Offered: 15S: 2.

### **LING 22 - Syntax**

Staff

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.

Distribution: QDS. Prerequisite: LING 1. Offered: 13F, 14F: 2.

### **LING 23 - Semantics and Pragmatics**

Staff

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.

Distribution: QDS. Prerequisite: LING 1. Offered: 15W: 10.

### **LING 24 - Discourse Analysis**

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.

Distribution: SOC. Prerequisite: LING 1. Offered: 14S: 11.

### **LING 25 - Typology**

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.

Distribution: SOC. Prerequisite: LING 1. Offered: 15S: 11.

### **LING 26 - Morphology**

Peterson

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.

Distribution: QDS. Prerequisite: LING 1. Offered: 15W: 11.

### **LING 27 - Historical Linguistics**

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.

Distribution: QDS. Prerequisite: LING 1 or LING 18. Offered: 14W: 10.

### **LING 35 - Field Methods**

Stanford (13F), Peterson (14F)

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.

Distribution: QDS. Prerequisite: LING 21 and one other course in the 20s. Offered: 13F: 2A, 14F: 10A.

### **LING 50 - Special Topics in Linguistics**

Reddy (13F)

In 13F, *Computational Linguistics* (identical to COSC 73). 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.

*Dist: QDS. Reddy*

Distribution: Varies. Prerequisite: COSC 1 or instructor permission for a comparable quantitative course.

Crosslisted as: COSC 73. Offered: 13F:12.

### **LING 54 - Foreign Study in Linguistics**

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.

Distribution: SOC. Prerequisite: LING 1 and one other Linguistics course in the 20s. Offered: 14W, 15W: D.F.S.P. (New Zealand).

### **LING 80 - Seminar in Linguistics**

Stanford (14S, 15S)

In 14S, *Dialectology*. This course provides an in-depth study of dialectology, focusing on geographic variation, dialect maps, linguistic geography, boundaries, dialect diffusion, perceptual dialectology, lexical differences, sociophonetic variation, and human constructs of place, culture, age cohorts, ethnicity, identity, and community. Course readings examine the latest research as well as classic studies. Going beyond the classroom, we also experience real-life dialectology by developing a class project together: We conduct new fieldwork in New England and analyze the results together. *Dist: SOC. Stanford.*

Prerequisite: Prerequisite: two or more 20s-level LING courses, or permission of instructor. . Offered: 14S: 2A, 15S: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

#### Courses

The following courses, offered by departments of language and literature, are taught in English and are open to all students without prerequisite, the literary readings being done in English translation.

CLST 1	Antiquity Today: An Introduction to Classical Studies
CLST 2/THEA 10	The Tragedy and Comedy of Greece and Rome (Identical to Theater 10)
CLST 3	Reason and the Good Life: Socrates to Epictetus
CLST 4	Classical Mythology
CLST 5	The Heroic Vision: Epics of Greece and Rome
GERM 42/JWST 51/WGST 67.1	Topics in German Civilization (in English translation)
GERM 43/COLT 62/FILM 42	History and Theory of German Film (in English translation)
GERM 45/JWST 37.2/COLT 64	The Burden of the Nazi Past: World War, Genocide, Population Transfer, and Firebombing (in English translation)
GERM 46	The German Novel (in English translation)
LACS 4/AAAS 16	History, Culture and Society: The Many Faces of Latin America
NAS 34/ENGS 60	Native American Oral Tradition Literatures
NAS 35/ENGL 45	Native American Literature
RUSS 31	Transgressive Novels: Masterpieces of Russian Fiction
RUSS 32	Twentieth Century Russian Literature: Revolution, Terror, and

RUSS 35	Art Dostoevsky and the Problem of Evil
RUSS 36	"The Seer of the Flesh": Tolstoy's Art and Thought
RUSS 38	Special Topics in Russian Literature

For a complete description of each course, look under the appropriate department heading (see also Comparative Literature, Humanities, Religion and Theater listings).

## 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 electives 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, C. D. Lahr, C. B. Pomerance, D. Rockmore, T. R. Shemanske, D. I. Wallace, D. L. Webb, D. P. Williams, P. Winkler; Associate Professors A. H. Barnett, S. Elizalde, R. C. Orellana, S. D. Pauls, C. J. Sutton, J. D. Trout, J. Voight; Assistant Professor E. van Erp; Research Instructors M. Cho, Z. Daugherty, F. Dorais, A. Gillman, P. Herbrich, O. Prosper; Visitors J. Bourke, S. Diesel, M. Kozek, F. Luca, S. J. Somersille; Adjunct Professor E. Demidenko; Adjunct Associate Professor B. F. Cole.

*To view Mathematics Undergraduate courses, click here.* (p. 337)

To view *Mathematics Graduate requirements*, click here. (p. 519)

To view *Mathematics Graduate courses*, click here. (p. 520)

## 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,” “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 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 50.

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](http://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 50

### 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.

### 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 50 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 50 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 50; and two courses chosen from among BIOL 21/BIOL 51, BIOL 39, BIOL 47, BIOL 59, COSC 75, and ENGS 41.

### 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 24, 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 41, PHYS 42, PHYS 43, PHYS 44, PHYS 47, PHYS 66, PHYS 72, PHYS 75, PHYS 77, PHYS 91.

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 50), 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.

*Required Courses (5 courses):* MATH 60 or both Math 20 and Math 50, 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; PBS 40/COSC 79, PBS 46; PHYS 30, PHYS 43; COSC 58, COSC 75, COSC 79, COSC 81; CHEM 41, CHEM 75; ENGS 30, ENGS 35, ENGS 114. Students may substitute for the additional course either in biology, chemistry, economics, sociology, environmental sciences, computer science, physics, or PBS 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 50, 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.

### 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 50, 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 14 (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), 39 (Computational Molecular Biology), 47 (Human Genomics), 50 (Evolutionary Genomics), 75 (Genomic Circuitry).

Biostatistics & Experimental Design: BIOL 22 (Methods in Ecology), 29 (Biostatistics), 59 (Advanced Biostatistics).

Ecology: BIOL 21/51 (Population Ecology), 27 (Animal Behavior), 58 (Advanced Community Ecology), 60 (Evolutionary Ecology).

Molecular & Cellular Biology: BIOL 38 (Experimental Genetic Analysis), 40 (Biochemistry), 45 (Molecular Biology), 66 (Molecular Basis of Cancer), 69 (Cell Signaling), 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 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.

### **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 50, 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; PBS 40/COSC 79, PBS 46; PHYS 30, PHYS 43; COSC 58, COSC 75, COSC 79, 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 PBS, 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. 331)

To view *Mathematics Graduate requirements*, click [here](#). (p. 519)

To view *Mathematics Graduate courses*, click [here](#). (p. 520)

### MATH 1 - Calculus with Algebra

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.

Distribution: QDS. Offered: 13F: 11, 12 14F: Arrange.

### MATH 2 - Calculus with Algebra and Trigonometry

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.

Distribution: QDS. Prerequisite: MATH 1, or permission of the Department. Offered: 14W: 11, 2 15W: Arrange.

### MATH 3 - Introduction to Calculus

The staff, Daugherty, Diesel, (fall), Diesel, the staff (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.

Distribution: QDS. Offered: 13F: 10, 11, 12, 2 14W: 10, 11 14F, 15W: Arrange.

#### **MATH 4 - Applications of Calculus to Medicine and Biology**

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.

Distribution: QDS. 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. Offered: 14S: 2 15S: Arrange.

#### **MATH 5 - Exploring Mathematics**

Kozek (Fall)

In 13F, *Numb3rs in Lett3rs & Films: Mathematics in Literature and Cinema*. This course explores the connection between mathematics and the written/theatric creative arts - a connection that is both rich and deep. Students will read fiction and watch films in which mathematics concepts provide the framework or play a pivotal role within the creative piece. Students will also study the mathematical topics related to these works in order to better understand the author's intent. Lessons might include mathematical lectures, hands-on group activities, problem sets, class discussions of readings and viewings, written responses and major expository papers. *QDS*

Distribution: QDS. Prerequisite: High School Mathematics and Writing 5. Offered: 13F: 10 14F, 15W: Arrange.

#### **MATH 7 - First-Year Seminar in Mathematics**

Offered: Consult special listing.

#### **MATH 8 - Calculus of Functions of One and Several Variables**

Bourke, Dorais (fall), Herbrich, Diesel (winter), The staff (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.

Distribution: QDS. Prerequisite: MATH 3 or equivalent. Offered: 13F: 10, 11, 12 14W: 11, 12, 2 14S: 10, 11 14F, 15W, 15S: Arrange.

#### **MATH 9 - Calculus of Functions of One and Several Variables, Honors Section**

Open to interested students qualified to take MATH 8.

Distribution: QDS. Offered: Not offered in the period from 13F through 15S.

#### **MATH 10 - Introductory Statistics**

Somersille

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.

Distribution: QDS. Offered: 14S: 10, 2 15S: Arrange.

#### **MATH 11 - Multivariable Calculus for Two-Term Advanced Placement First-Year Students.**

Hanlon Shemanske, the staff

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.

Distribution: QDS. Offered: 13F: 9L, 11, 12, 2 14F: Arrange.

### **MATH 12 - Calculus Plus**

Elizalde

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.

Distribution: QDS. Offered: 13F: 10 14F: Arrange.

### **MATH 13 - Calculus of Vector-Valued Functions**

Shemanske (fall), Cho, Webb, Prosper (winter), Diesel, Gillman (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.

Distribution: QDS. 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. Offered: 13F: 10 14W: 10, 11, 2 14S: 10, 12 14F, 15W, 15S: Arrange.

### **MATH 17 - An Introduction to Mathematics Beyond Calculus**

Winkler (fall), Orellana (winter), Gordon (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.

Distribution: QDS. Prerequisite: MATH 8, or placement into MATH 11. Offered: 13F: 10 14W: 11 14S: 2 15W, 15S: Arrange.

### **MATH 20 - Discrete Probability**

The staff (fall), The staff (spring)

Basic concepts of probability are introduced in terms of finite probability spaces and stochastic processes having a finite number of outcomes on each experiment. The basic theory is first illustrated in terms of simple models such as coin tossing, random walks, and casino games. Also included are Markov chain models and their applications in the social and physical sciences. The computer will be used to suggest and motivate theoretical results and to study applications in some depth. There is an honors version of this course: see MATH 60.

Distribution: QDS. Prerequisite: MATH 8. Offered: 13F: 2 14S: 10 13X, 14F, 15S: Arrange.

### **MATH 22 - Linear Algebra with Applications**

van Erp (fall), Luca, the staff (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.

Distribution: QDS. Prerequisite: MATH 8. Offered: 13F: 2 14S: 10, 11, 12 14X, 14F, 15S: Arrange.

### **MATH 23 - Differential Equations**

Gordon, Cho (fall), Bourke, Cho (winter), Wallace, 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.

Distribution: QDS. Prerequisite: MATH 13. Offered: 13F: 10, 2 14W: 11, 12 14S: 10, 12 14F, 15W, 15S: Arrange.

### **MATH 24 - Linear Algebra**

Groszek (winter), Dorais (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.)

Distribution: QDS. Offered: 14W: 10 14S: 10 15W, 15S: Arrange.

### **MATH 25 - Number Theory**

Wallace

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.

Distribution: QDS. Prerequisite: MATH 8. Offered: 13F: 10A 14F: Arrange.

### **MATH 26 - Numerical Methods in Computation (Identical to, and described under, ENGS 91; also COSC 26)**

Distribution: QDS. Prerequisite: COSC 1 or ENGS 20; ENGS 22 or MATH 23, or equivalent. Offered: See ENGS 91 or COSC 26.

### **MATH 27 - Advanced Calculus and Dynamics in Biology and Medicine**

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.

Distribution: QDS. 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. Offered: 14S: 2 15S: Arrange.

### **MATH 28 - Introduction to Combinatorics**

Winkler

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.

Distribution: QDS. Prerequisite: MATH 8. Offered: 14W: 12 15W: 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.

Distribution: QDS. Prerequisite: None, but the student must be willing to learn to work abstractly and to read and write proofs. Offered: 15S: Arrange.

### **MATH 30 - Introduction to Linear Models**

Demidenko

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.

Distribution: TAS. Prerequisite: MATH 10, another elementary statistics course, or permission of the instructor. Offered: 13F: 2.

### **MATH 31 - Topics in Algebra**

The staff

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.

Distribution: QDS. Prerequisite: MATH 22. Offered: 13F: 12 14X, 14F: Arrange.

**MATH 32 - The Shape of Space**

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.

Distribution: QDS. Prerequisite: MATH 22 or MATH 24. Offered: 14W: 12.

**MATH 33 - Mathematics in the Sciences and Engineering**

Distribution: TAS. Prerequisite: MATH 23. Offered: Not offered in the period from 13F through 15S.

**MATH 35 - Real Analysis**

Groszek

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.

Distribution: QDS. Prerequisite: MATH 13 and permission of the instructor, or MATH 22. Offered: 14W: 11 15W: Arrange.

**MATH 36 - Mathematical Models in the Social Sciences**

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.

Distribution: TAS. Prerequisite: MATH 13, MATH 20. Crosslisted as: M&SS 36. Offered: 13F: 11 14F: Arrange.

**MATH 38 - Graph Theory**

Elizalde

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.

Distribution: QDS. Prerequisite: MATH 22 (or COSC 55 and permission of the instructor). Offered: 14S: 10 15S: Arrange.

**MATH 39 - Logic**

Distribution: QDS. Prerequisite: one of MATH 22, MATH 28, and MATH 29, or PHIL 6 by permission of the instructor. Offered: Not offered in the period from 13F through 15S.

**MATH 40 - Topics in Applied Probability**

Distribution: QDS. Prerequisite: MATH 13 and MATH 20, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

**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.

Distribution: QDS. Prerequisite: MATH 22 or permission of the instructor, and MATH 23. Offered: 15W: Arrange.

**MATH 43 - Functions of a Complex Variable**

Williams

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.

Distribution: QDS. Prerequisite: MATH 13. Offered: 14S: 10 15S: Arrange.

**MATH 46 - Introduction to Applied Mathematics**

Gillman

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.

Distribution: TAS. Prerequisite: MATH 22 and MATH 23, or permission of the instructor. Offered: 14S: 2 15S: Arrange.

### **MATH 50 - Probability and Statistical Inference**

Somersille

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.

Distribution: QDS. Prerequisite: MATH 13 and MATH 20, or permission of the instructor. Offered: 14W: 2 15W: Arrange.

### **MATH 53 - Chaos!**

Gillman

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.

Distribution: QDS. Prerequisite: MATH 22 and MATH 23, or permission of the instructor. Offered: 13F: 2.

### **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.

Distribution: QDS. Prerequisite: MATH 13 and MATH 22. Offered: 14X: Arrange.

### **MATH 56 - Computational and Experimental Mathematics**

Barnett

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.

Distribution: QDS. Prerequisite: MATH 22 or MATH 24, COSC 1 or ENGS 20, or permission of the instructor. Offered: 14S: 10A 15S: Arrange.

### **MATH 60 - Probability (Honors Section of MATH 20)**

Winkler

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.

Distribution: QDS. Prerequisite: MATH 13, or permission of the instructor. Offered: 14S: 11.

### **MATH 63 - Real Analysis**

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. Students may not take both MATH 35 and 63 for credit.

Distribution: QDS. Prerequisite: MATH 22 or MATH 24, or MATH 13 and permission of the instructor. Offered: 14W: 11 15W: 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 logic, 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.

Distribution: QDS. Prerequisite: MATH 24, or MATH 22 and permission of the instructor. Offered: 15S: Arrange.

### **MATH 68 - Algebraic Combinatorics**

Elizalde

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.

Distribution: QDS. Prerequisite: MATH 28 and MATH 31, or MATH 71, or permission of the instructor. Offered: 13F: 11.

### **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.

Distribution: QDS. 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. Offered: 15W: Arrange.

### **MATH 70 - Topics in Mathematical Statistics**

Demidenko

This course will develop one or more topics in the area of mathematical statistics. We will also learn to work with real-world data through the use of R and other (statistical) packages. Possible topics include multivariate statistical analysis; time-series analysis; the EM algorithm and its applications, other optimization algorithms in statistics; sufficient statistics and optimality in statistics, asymptotic

optimality of estimators and tests; elements of nonparametric and Bayesian statistics, bootstrap, robust statistics; analysis of binary and categorical data, logistic and Poisson regression, nonlinear regression, and the Gauss-Newton algorithm.

Distribution: QDS. Prerequisite: MATH 50. Offered: 14S: 12 15S: Arrange.

### **MATH 71 - Algebra**

The staff

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.

Distribution: QDS. Prerequisite: MATH 22 or MATH 24. Offered: 13F: 10 14F: 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.

Distribution: QDS. 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. Offered: 15S: Arrange.

### **MATH 73 - Measure Theory and Complex Analysis**

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.

Distribution: QDS. Prerequisite: MATH 43 and MATH 63 or a basic course in real analysis and an undergraduate complex analysis course or permission of the instructor. Crosslisted as: MATH 103, Analysis A. Offered: 13F: 12 14F: Arrange.

### **MATH 74 - Algebraic Topology**

Webb

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.

Distribution: QDS. Prerequisite: MATH 31/ MATH 71 and MATH 54 or their equivalents, or permission of the

instructor. Crosslisted as: MATH 114. Offered: 14S: 11  
15S: Arrange.

### **MATH 75 - Applied Topics in Number Theory and Algebra**

Pomerance

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.

Distribution: QDS. Prerequisite: MATH 25 or MATH 22/ MATH 24 or MATH 31/ MATH 71, or permission of the instructor. Offered: 14S: 11.

### **MATH 76 - Topics in Applied Mathematics**

Prosper

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.

Distribution: QDS. Prerequisite: MATH 22, MATH 23, or permission of the instructor. Offered: 14W: 10 15W: Arrange.

### **MATH 81 - Abstract Algebra**

Shemanske

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.

Distribution: QDS. 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. Crosslisted as: MATH 111. Offered: 14W: 10 15W: Arrange.

### **MATH 86 - Mathematical Finance I**

Somersille

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.

Distribution: QDS. Prerequisite: MATH 20 and MATH 50, or MATH 60; MATH 23; and COSC 1 or the equivalent. Offered: 13F: 10 14F: 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**

Dorais

A study of selected topics in logic, such as model theory, set theory, recursive function theory, or undecidability and incompleteness. Offered in alternate years.

Distribution: QDS. Prerequisite: MATH 39 or MATH 69. Offered: 14W: 2.

### **MATH 96 - Mathematical Finance II**

Sutton

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

Distribution: QDS. Prerequisite: MATH 86. Offered: 14S: 2.

### **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. This listing covers 100-level offerings for 2010 fall through

2011 spring only. Courses marked with an asterisk (\*) are not offered in this period.

Offered: Not offered in the period from 13F through 15S.

## Mathematics and Social Sciences

Professors J. L. Campbell (Sociology), P. C. Christesen (Classics), T. H. Cormen (Computer Science), E. Demidenko (Medical School), B. Duncan (German), E. V. Edmonds (Economics), A. J. Friedland (Environmental Studies), D. P. Lacy (Government), J. H. Levine (Mathematics and Social Sciences), D. Rockmore (Mathematics, Computer Science), B. I. Sacerdote (Economics), S. W. Smith (Computer Science), C. M. Snyder (Economics); Associate Professors S. R. Craig (Anthropology), S. D. Pauls (Mathematics); Assistant Professors S. D. Dobson (Anthropology); Senior Lecturer J. F. Pfister (Psychological and Brain Sciences); Professors Emeriti H. S. Alverson (Anthropology), K. A. Korey (Anthropology), R. D. Masters (Government), R. Z. Norman (Mathematics and Social Sciences), L. Polansky (Music).

Mathematics and Social Sciences (MSS) is an undergraduate honors major combining mathematical training with one or more of the social sciences. From the social sciences, MSS is for students interested in Anthropology, Economics, Education, Geography, History, Political Science, or Sociology, as a quantitative science. From mathematics, MSS is for students interested in statistics, data analysis, mathematics, or computer sciences directed toward application in social science.

*To view Mathematics and Social Sciences courses, click here.* (p. 345)

### The Major in Mathematics and Social Sciences

*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 Mathematics 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 Mathematics and Social Sciences, Mathematics and Social Sciences 88.

Where needed topics are not available in the existing curriculum, students may petition for special study under Mathematics and Social Sciences 88. Mathematics and Social Sciences 88 may be taken for credit more than once.

For further details, consult the Program Chair.

We call attention to the following courses which include some of the more quantitative and mathematical courses in the curriculum of various social science disciplines: ANTH 41--Human Evolution, ENGS 18--Principles of System Dynamics, ENGS 52--Introduction to Operations Research, Philosophy 27--Philosophy of Science, Psychology 21--Perception, Psychology 28--Cognition. Also, Economics courses are quantitative in nature and the advanced sequential courses quite highly so. Mathematics and Social Sciences students are encouraged to speak with the professors of the courses that are of substantive interest to the student in order to ascertain whether the mix of quantitative technique and substantive economic issues is right for the student.

### MSS - Mathematics and Social Sciences Courses

*To view Mathematics and Social Sciences requirements, click here* (p. 345).

#### M&SS 15 - Introduction to Data Analysis

Levine

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.

Distribution: QDS. Prerequisite: MATH 3 or higher, or permission. Offered: 13F, 14S, 14F, 15S: 9L.

#### M&SS 36 - Mathematical Models in the Social Sciences

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.

Distribution: TAS. Prerequisite: MATH 13, MATH 20. Crosslisted as: MATH 36. Offered: 13F: 11 14F: Arrange.

**M&SS 41 - Analysis of Social Networks**

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. Instructor permission required. Levine.

Distribution: QDS. Offered: 13F, 14F: Arrange.

**M&SS 43 - Mathematical Psychology**

Prerequisite: PSYC 1 and MATH 3. Permission required. Offered: Not offered in the period from 13F through 15S.

**M&SS 45 - Data Analysis**

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.

Distribution: QDS. Offered: 14S, 15S: Arrange.

**M&SS 46 - Models of Voting and Decision Making**

Offered: Not offered in the period from 13F to 15S.

**M&SS 80 - Seminars in Mathematics and Social Sciences**

Offered: All terms: Arrange.

**M&SS 88 - Topics in Mathematics and the Social Sciences**

Offered: All terms: Arrange.

**Medieval and Renaissance Studies**

Steering Committee: J. L. Carroll (Art History); N. Cernigliaro (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](http://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; Associate Professor W. J. Summers; Assistant Professor S. Topel; Senior Lecturers T. E. Atherton, N. V. Boyer, L. G. Burkot, M. L. Cassidy, J. Diamond, R. P. Duff, 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, N. Davis, J. Dunlop, J. Halloran, T. M. Stoll, Adjunct Associate Professor H. F. Shabazz; Adjunct Assistant Professor F. L. Haas.

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. 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.

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## Music Major

*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).

### *Requirements:*

1. MUS 21, MUS 22, MUS 23 (core sequence).
2. Seven additional courses, of which five or more must be numbered 24 or above including at least one course in the Department of Music's Individual Instruction Program (Music 53-58) and one course that represents the Non-Western Cultures category within the World Cultures Requirement— in the present year, these courses include MUS 4, MUS 45, MUS 50 (section 4), and MUS 51.  
MUS 1 and MUS 7 may not be used to fulfill the elective requirement. Courses in the Individual Instruction Program (MUS 53-58) and Music Performance Laboratory Program (Music 50) may collectively fill no more than three of the seven elective slots that comprise the major. Students who wish to enroll in additional terms of Individual Instruction or Performance Laboratory are welcome to do so, but these terms may not be counted toward the major. Music 87 may count as an elective but may not be used as a substitute for the Individual Instruction Program requirement.
3. Culminating Experience: participation in the Department of Music's colloquium series during the senior year.
4. Demonstration of proficiency on keyboard instruments either by enrollment through audition in MUS 53 (individual piano lessons) or by passing a keyboard proficiency exam administered by the department. Students who do not intend to enroll in MUS 53 are expected to pass the keyboard proficiency exam no later than the end of the term in which they complete MUS 23 or spring term of their third year, whichever comes first.

## Modified Major

*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).

*Required courses:* Six music courses exclusive of the prerequisite, together with four courses from another department. The six music courses must include at least one course from the core sequence (MUS 21, MUS 22,

MUS 23) and one course involving musical performance or composition. MUS 1 and MUS 7 may not be used to fulfill the modified major.

## 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).

### *Requirements:*

1. MUS 21, MUS 22, MUS 23 (core sequence).
2. Three additional courses beyond the core sequence, including at least one course in the Music Department's Individual Instruction Program (MUS 53-58), of which two must be numbered 24 or above. 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**

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#### *Introductory Courses*

#### **MUS 1 - Beginning Music Theory**

TBA, 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 13F, the course will focus on popular music theory and in 14S, on jazz theory, composition, and improvisation.

Distribution: ART; WCult: W. Prerequisite: None.  
Offered: 13F, 14S, 15S: 11 14X: 10.

#### **MUS 2 - The Music of Today**

Dong

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.

Distribution: ART; WCult: W. Prerequisite: None.  
Offered: 14W, 14F: 11.

#### **MUS 3 - American Music**

Summers, TBA

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.

Distribution: ART; WCult: W. Prerequisite: None.  
Offered: 14S, 15S: 11.

#### **MUS 4 - Global Sounds**

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.

Distribution: ART; WCult: NW. Prerequisite: None.  
Crosslisted as: AMES 30. Offered: 13F, 15W: 10A.

#### **MUS 5 - History of Jazz**

Haas

This course examines jazz from its origins to the present, 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.

Distribution: Dist: ART; WCult: W. Prerequisite: None.  
Crosslisted as: AAAS 39. Offered: 14W, 15W: 10A.

#### **MUS 6 - Masterpieces of Western Music**

Summers, TBA

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.

Distribution: ART; WCult: W. Prerequisite: No previous knowledge of music is assumed. Offered: 14W, 15W: 12.

#### **MUS 7 - First-Year Seminar**

Offered: Consult special listings.

#### **MUS 8 - Programming for Interactive Audio-Visual Art**

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.

Distribution: TLA. Prerequisite: None. Crosslisted as: COSC 2. Offered: 14W, 15W: 2.

### **MUS 9 - Music and Technology**

TBA

This course concerns the impact of technology and its aesthetic and social implications on composers, performers, and listeners. Course work focuses on elementary acoustics, sound synthesis, recording media, music distribution, new musical instruments, and music software. Assignments include extensive listening and a final project.

Distribution: TAS. Prerequisite: None. Offered: 13F, 14F: 10A .

### **MUS 10 - Lives and Works of the Great Composers**

O'Neal, TBA

In 13F, *Brahms, Berlioz and the Romantic Imagination*. This course focuses on the music, writing, and lives of two pivotal composer-conductors at the apex of 19th-century romanticism in Western Europe: Johannes Brahms (1833-1897, Germany) and Hector Berlioz (1803-1869, France). Origins of romanticism, musical influences, genres and compositional styles, performance practices and conducting careers will be explored. Course work includes listening, viewing, reading and critical writing assignments. Guest artists will perform in class, and attendance at selected Hopkins Center concerts will be required. No prerequisite or music background is necessary.

Distribution: ART; WCult: W. Prerequisite: None. Offered: 13F, 14W: 2.

### **MUS 11 - Introduction to Opera**

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.

Distribution: ART; WCult: W. Prerequisite: None. Offered: 14S: 2A.

### **MUS 12 - Music, Ceremony, Ritual, and Sacred Chant**

Levin

Distribution: ART; WCult: NW. Prerequisite: None. Offered: Not offered in 2013-2015.

### **MUS 13 - Literature and Music**

Kopper

*Identical to, and described under, COLT 60.*

Distribution: LIT or INT; WCult: W. Prerequisite: No particular musical background or technical knowledge of music required. Crosslisted as: COLT 60. Offered: 15S: 2A.

### **MUS 14 - Music and Science**

Casey

This course, identical to Music 102, 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.

Distribution: ART; WCult: W. Prerequisite: Permission of the instructor. Crosslisted as: MUS 102. Offered: 15W: Arrange.

### **MUS 15 - Music and Mathematics**

Offered: Not offered in 2013-2015.

### **MUS 16 - Music and Image**

Levin, Casas

Not offered in the period 13F - 15S.

Distribution: ART; WCult: NW. Prerequisite: None. Offered: Not offered in the period 13F-15S.

**MUS 17 - Interdisciplinary Studies (Pending Faculty Approval)**

Levin (Music), Casal (Film and Media 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.

In 14W, Music 17.1, *Sonic Landscapes. Identical to COCO 8 and FILM 47.3.*

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. Dist: ART; WCult: NW (Pending Faculty Approval)

Distribution: Varies. Prerequisite: None. Crosslisted as: Identical to COCO 8 and FILM 47.3. Offered: 14W, 15W: 10A.

*Theory and Composition***MUS 20 - Introduction to Music Theory**

Duff

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.

Distribution: ART; WCult: W. Prerequisite: The ability to read music in two or more clefs, or permission of the instructor. Offered: 13F, 14W, 14F, 15S: 10.

**MUS 21 - Melody and Rhythm**

Swayne, Duff

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.

Distribution: ART; WCult: W. Prerequisite: MUS 20, or Music Department-approved exemption from MUS 20. Offered: 13F, 14S, 14F, 15S: 10.

**MUS 22 - Harmony and Rhythm**

Topel

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.

Distribution: ART; WCult: W. Prerequisite: MUS 20 or Music Department-approved exemption from MUS 20. Offered: 14W, 15W: 10.

**MUS 23 - Timbre and Form**

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.

Distribution: ART; WCult: W. Prerequisite: MUS 21 and MUS 22. Offered: 14S, 15S: 10.

**MUS 30 - Composition Seminar**

Topel, TBA

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 multimedia, 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.

In 14W: Contemporary Concert Music.

In 14S: Songwriting.

Distribution: ART; WCult: W. Prerequisite: MUS 21 or MUS 22. MUS 30 may be repeated once for credit.

Offered: 14W: 2A 14S: 10A.

### **MUS 31 - Digital Music Composition**

Stoll

The course is intended for students who demonstrate a serious interest in creative work with digital music. The study of relevant acoustics, equipment design and function, and the analysis of examples of electronic music are covered in weekly class meetings. In addition, students are given weekly individual instruction and are provided with regular hours for work in the studio.

Distribution: TAS. Prerequisite: MUS 20 or exemption from MUS 20. Offered: 14S, 15S: 2A.

### **MUS 32 - Improvisation**

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.

Distribution: ART; WCult: W. Prerequisite: MUS 1 or exemption from MUS 1. Offered: 14W, 15S: 2.

### **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.

Distribution: Dist: ART; WCult: W. Prerequisite: MUS 21 or MUS 22. Offered: Not offered in 2013-2015.

### **MUS 34 - Advanced Sound Design**

Topel

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.

Distribution: TAS. Offered: 13F, 14F: 2A.

### *Music History Courses*

### **MUS 40 - Topics in Music History**

Swayne

In 14S, The Piano. From shortly after its creation in 1700 to the present day, the piano has occupied a central role in the cultural, socioeconomic, political, and musical life of women and men throughout the world. This class will examine these lives from the perspectives of literature and film, engineering, political science, history, anthropology, and music. Readings include *Vanity Fair*, films include *The Pianist*, and events include a visit to the Steinway factory in Astoria, Queens.

Distribution: ART; WCult: W. Prerequisite: None.

Offered: 14W, 15S: 2A.

### **MUS 41 - Composer Seminar**

Distribution: ART; WCult: W. Prerequisite: MUS 21 or MUS 22, or permission of the instructor. Offered: Not offered in 2013-2015.

### **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.

Distribution: ART; WCult: W. Prerequisite: MUS 21 or MUS 22, or permission of the instructor. Offered: Not offered in 2013-2015.

### **MUS 45 - Ethnomusicology**

Levin (14W, 15W), Seroussi (14W)

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.

Distribution: ART; WCult: NW. Prerequisite: None.  
Crosslisted as: AMES 45. Offered: 14W, 15W: 2A.

#### *Performance Courses*

### **MUS 50 - Performance Laboratories**

Ogle, Davis, Haas, Diamond

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.

The following performance laboratories are offered in 2013-2014:

Chamber Music (section 1). 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. *Dist: ART; WCult: W.*

Contemporary Music (section 2). 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. *Dist: ART; WCult: W*

Jazz Improvisation (section 3). 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. *Dist: ART; WCult: W*

Indonesian Gamelan (section 4). An introduction to performing music for gamelan, the orchestra of gongs, xylophones, and other percussion instruments indigenous to Indonesia but now found in many parts of the world. No previous experience on gamelan instruments is necessary. Priority is given to music majors and minors. *Dist: ART; WCult: NW*

Distribution: Varies. Offered: 13F, 14W, 14S, 14F, 15W, 15S: Arrange (Sections 1, 2, 3, 4); 14X, 15X: Arrange (Section 1 only).

### **MUS 51 - Oral Tradition Musicianship**

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.

Distribution: ART; W.Cult: NW. Prerequisite: None.  
Offered: 13F, 14W, 14S, 14F, 15W, 15S: 2A.

### **MUS 52 - Conducting**

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.

Distribution: ART. Prerequisite: MUS 20, or permission of the instructor. Offered: 14X, 15X: 2.

#### *Individual Instruction Program - IIP*

Student selection is at the discretion of the instructor. In case the instructor's load cannot accommodate student demand, priority will be given (in the following order) to music majors (including modified majors) and minors, students participating in Performance Labs (MUS 050), and members of the Hopkins Center Music Ensembles.

One course credit is offered for the combined three terms of instruction and will be granted only after successful completion of all three terms of study. The course is included as part of a student's official course load only in the first term; a grade is given upon completion of the final term. *All courses in this sequence (MUS 053-058) are offered only on a graded basis; under College regulations the policy must be announced prior to each initial term.* A student may repeat the course if satisfactory progress has been made, within the conditions stated following this description. *Dist: ART.*

Students not accepted into a course in instrumental or vocal instruction may make private arrangements for study with teachers on the staff of Dartmouth College, at the discretion of the instructor, or they may study off-campus with teachers in the area. No academic credit will be given for off-campus study and the fee is the responsibility of the student.

*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 - Keyboard Individual Instruction: Classical and Jazz Piano.**

Offered: All terms except summer: Arrange.

**MUS 54 - Woodwind Individual Instruction: Flute, Oboe, Clarinet, Bassoon, Saxophone**

Offered: All terms except summer: Arrange.

**MUS 55 - Brass Individual Instruction: Trumpet, French Horn, Trombone, Tuba**

Offered: All terms except summer: Arrange.

**MUS 56 - String Individual Instruction: Violin, Viola, 'Cello, Bass Viol, Electric Bass, Classical and Electric Guitar**

Offered: All terms except summer: Arrange.

**MUS 57 - Voice Individual Instruction**

Offered: All terms except summer: Arrange.

**MUS 58 - Percussion Individual Instruction**

**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.

Distribution: ART. Prerequisite: MUS 53 and permission of the instructor. Offered: All terms except summer: Arrange.

**MUS 61 - Studies in Musical Performance: Woodwinds**

(see details under MUS 60)

Distribution: ART. Prerequisite: MUS 54 and permission of the instructor. Offered: All terms except summer: Arrange.

**MUS 62 - Studies in Musical Performance: Brass**

(see details under MUS 60)

Distribution: ART. Prerequisite: MUS 55 and permission of the instructor. Offered: All terms except summer: Arrange.

**MUS 63 - Studies in Musical Performance: Strings**

(see details under MUS 60)

Distribution: ART. Prerequisite: MUS 56 and permission of the instructor. Offered: All terms except summer: Arrange.

**MUS 64 - Studies in Musical Performance: Voice**

(see details under MUS 60)

Distribution: ART. Prerequisite: MUS 57 and permission of the instructor. Offered: All terms except summer: Arrange.

**MUS 65 - Studies in Musical Performance: Percussion**

(see details under MUS 60)

Distribution: ART. Prerequisite: MUS 58 and permission of the instructor. Offered: All terms except summer: Arrange.

*Foreign Study Courses*

**MUS 70 - Perspectives in Music Performance**

Pinkas, TBA

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.

Distribution: ART. Prerequisite: MUS 20. Offered: 14S, 15S: D.F.S.P., London.

**MUS 71 - The History of Music in England**

Pinkas

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.

Distribution: Dist: ART; WCult: W. Prerequisite: MUS 20. Offered: 14S, 15S: D.S.F.P., London.

*Independent Research Courses*

**MUS 82 - Special Study in History, Musicology, Ethnomusicology.**

Distribution: ART. Offered: Permission of the instructor.

**MUS 83 - Special Study in Composition and Theory.**

Distribution: ART. Offered: Permission of the instructor.

**MUS 84 - Special Study in Performance.**

Distribution: 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)**

Distribution: ART. MUS 87 may count as an elective but may not be used as a substitute for the Individual Instruction Program. Offered: 14S, 15S: D.F.S.P., London.

**MUS 88 - Honors**

Offered: All terms: Arrange.

*Courses Folder*

**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), Assistant Professor A. Parker (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. 355).

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:*

Native American Studies 8: Perspectives in Native American Studies

*One Class in Literature and Languages:*

Native American Studies 31,32,34,35,41,or 47

*One Class in History and Culture:*

Native American Studies 10,14,15,16,18,19,42 or 43

*One Class in Governance and Sovereignty:*

Native American Studies 25,36. or 50

*A Culminating Experience course:*

Native American Studies 81

*Five Electives:*

Native American Studies 10,11,14,15,16,18,19,22,25

Native American Studies

30,31,32,34,35,36,37,38,40,41,42,43,45,46,47,48,49,50

Native American Studies 80

Native American Studies 85 (permission required)

Native American Studies 86 (permission required)

Native American Studies 87 (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

### **One Prerequisite:**

NAS 8 Perspectives in Native American Studies

### **Four Elective Courses**

### **A Culminating Experience course:**

NAS 81/HIST Senior Seminars in Native American Studies (also see NAS 96 45)

## **NAS - Native American Studies Courses**

*To view Native American Studies requirements, click here (p. 354).*

### **NAS 7 - First-Year Seminars in Native American Studies**

Angela Parker

First Year Seminar: TBA

Offered: Consult special listings.

### **NAS 8 - Perspectives in Native American Studies**

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.

Distribution: SOC; WCult: CI. Offered: 14S: 12.

### **NAS 10 - Peoples and Cultures of Native North America**

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.

Distribution: SOC; WCult: NW. Crosslisted as: ANTH 4. Offered: 13F: 11.

### **NAS 11 - Ancient Native Americans**

Nichols

*(Identical to and described under Anthropology 11)* Open to all classes.

Distribution: SOC; WCult: NW. Crosslisted as: ANTH 11. Offered: 14W: 10.

### **NAS 14 - The Invasion of America: American Indian History Pre-Contact to 1830**

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.

Distribution: SOC; WCult: NW. Crosslisted as: HIST 14. Offered: 13F: 10 14F: 10.

**NAS 15 - American Indians and American Expansion: 1800 to 1924**

Calloway

This course surveys the historical experiences of Indian peoples in the United States from 1800 to the Citizenship Act of 1924 (with, this year, attention to major developments from 1924 to the present). It will trace the consistent themes and shifting strategies of United States Indian policy but the main purpose is to understand the experiences, survivals and revivals of Native American communities in the face of American expansion and massive external pressures.

Distribution: SOC; WCult: NW. Crosslisted as: HIST 15. Offered: 14S, 15S: 9L.

**NAS 16 - 20th Century Native American History**

Parker

Serving as the final course in a three-quarter survey of Native American history, this class reviews Native history from the late 19th century to the present, focusing on the interplay between large institutions and structures – such as federal and state governments, or the US legal system – and the lived, local experience of tribal communities. The major themes followed throughout the course of the term include: historical narrative (and what it justifies or explains), place and space (how local and national entities define territories), and indigeneity (indigenous identity).

Distribution: Dist: SOC; WCult: NW. Crosslisted as: HIST 39. Offered: 14W: 11.

**NAS 18 - Native Peoples in a Changing Global Environment**

Reo

This course is about indigenous peoples' relationships to land and natural resources and the threats that rapid environmental changes pose to indigenous societies. We explore these topics by discussing readings and through written assignments. We apply conceptual frameworks to analyze multiple dimensions of complex socio-cultural and ecological issues. We practice critical reflection of our own perspectives and assumptions about the course topics as well as the perspectives held by others.

Distribution: Dist.: TMV; WCult: NW. Prerequisite: NAS 8 or NAS 10 or NAS 25; or permission of instructor. Crosslisted as: ENVS 18. Offered: 13F: 2.

**NAS 19 - Encountering Forests: Ecosystems, Natural Resources and the Power of Place**

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. Crosslisted as: ENVS 19. Offered: 14S, 15S: 2A (field trips Tu 2:00-6:00 p.m.).

**NAS 22 - Native American Lives**

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.

Distribution: SOC; WCult: CI. Offered: 14W: 2.

**NAS 25 - Indian Country Today**

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.

Distribution: SOC; WCult: NW. Offered: 13F: 12.

**NAS 30 - Special Topics in Native American Studies**

Dan Wildcat

In Fall 2013, NAS 30, *Native and Western Views of Nature and Change*. This course undertakes a critical examination of the idea of nature within Western, i.e., Western European Civilization, and native or indigenous tribal People's *worldviews*. The idea of *nature* figures so prominently in Western thought it can hardly be taken for granted. However, to a large extent, the idea of nature is seldom

critically examined; indeed, many indigenous North American languages do not even have a word for nature as a distinct category of reality. Using a comparative approach, this course will explore the substantial and practical implications that result from commitment to various conceptions of nature. In the process of this comparison, we will explore a reconstruction of various indigenous ideas of nature.

Distribution: Dist. TMV; WCult; NW. Offered: 13F: 10A.

### **NAS 31 - Indians in American Literature**

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.

Distribution: Dist: Lit; WCult: W. Offered: 13F: 10A.

### **NAS 32 - Indian Killers: Murder and Mystery in Native American Literature and Film**

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.

Distribution: Dist. LIT; WCult: CI. Crosslisted as: ENGL 53.20. Offered: 13F: 2A.

### **NAS 33 - Indigenous Communities and the Environment**

Parker

At the same time as indigenous identity has been linked to an 'aboriginal' association with a land base – usually in opposition to settler colonists – the relationship between indigenous communities and their lived environment has alternately been attacked, undermined, or romanticized by non-Natives. This course challenges this by exploring the concrete and lived relationship between indigenous communities and the environment in a thematic survey. Using books, articles, and documentary films, students are asked to consider the following questions during each unit:

1. How is indigenous identity expressed in relation to the physical environment?
2. What are the concrete, physical, and lived relationships between indigenous communities and the places and spaces in which they live?
3. How do changes in the physical environment impact indigenous communities and identities?
4. What forms of activism or action do indigenous individuals and communities undertake in order to protect, preserve, or revitalize their relationships with their physical environment? What has the most impact and why?

Distribution: Dist. SOC; WCult: NW. Offered: 14S: 10A.

### **NAS 34 - Native American Oral Tradition Literatures**

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 hermetical challenges. This course will include some contemporary theoretical approaches to orality and the metaphysics of the voice to unpack some of these questions.

Distribution: LIT; WCult: NW. Crosslisted as: ENGL 60.14. Offered: 14W: 10.

### **NAS 35 - Native American Literature**

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.

Distribution: LIT; WCult: NW. Crosslisted as: ENGL 45. Offered: 14S: 11.

**NAS 36 - Indigenous Nationalism: Native Rights and Sovereignty**

Turner

The recently ratified United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) has changed the face of international Indigenous politics. In this course, we will examine and compare contemporary Indigenous politics in Canada, New Zealand, and Australia (with the occasional glance to the United States). In these four "settler" states, Indigenous peoples de facto possess some form of political recognition. In Canada, the rights of Aboriginal peoples are explicitly protected in the Canadian Constitution; in New Zealand, the political relationship between the Maori and European newcomers (Pakeha) is governed by the renewed principles of the 1840 Treaty of Waitangi; and, the Australian state now recognizes the legal existence of Native title in Australian law.

Distribution: SOC or INT; WCult: NW. Crosslisted as: GOVT 60. Offered: 13F: 12.

**NAS 37 - Alaska: American Dreams and Native Realities**

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.

Distribution: SOC; WCult: CI. Crosslisted as: ANTH 47. Offered: 14W: 2A.

**NAS 38 - American Odysseys: Lewis and Clark, American Indians, and the New Nation**

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.

Distribution: Dist. Soc; WCult: NW. Crosslisted as: HIST 38. Offered: 14W: 2.

**NAS 40 - Language Revitalization**

Whaley

*(Identical to LING 11)*

Distribution: Dist: SOC; WCult: CI. Crosslisted as: LING 11. Offered: 14W: 2.

**NAS 41 - Native American Literature and the Law**

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 Sophomores, Juniors and Seniors.

Distribution: Lit; WCult: CI. Offered: 14W: 9L.

**NAS 42 - Gender Topics in Native American Life**

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: WGST 40.1. Offered: 13F: 2.

**NAS 43 - Indigenous Peoples and Oil**

Parker

The extraction and development of oil resources is one of the central issues driving U.S. geopolitical policy in the late 20th and early 21st centuries. As the U.S. government engages in covert and overt overseas incursions in order to secure oil supply, we have also reevaluated our domestic supply priorities. Both of these dynamics-as well as the work by multinational oil companies to continually explore and develop/exploit new sources-have led to fraught negotiations between states, multinational corporations, and indigenous populations across the globe. This course explores the long history of such past and present negotiations using books, articles, and documentary films.

Distribution: Dist.:SOC;WCult: NW. Offered: 13F: 9L.

**NAS 45 - American Indian Intellectuals**

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.

Distribution: TMV; WCult: NW. Offered: 14S: 12.

**NAS 46 - Methods in Native Studies**

Parker

Native American Studies is an interdisciplinary academic field that draws from disciplines such as literature, history, law, anthropology, gender studies, philosophy, and political science in its effort to study the contemporary and historical status of indigenous people in the United States and the Americas. Native American Studies scholars since the 1970s have developed a field which includes indigenous knowledge sources. This course provides an introduction to both the diversity of and cohesive principles that unite Native American Studies research methods

Distribution: Dist: SOC;WCult: NW. Offered: 14S: 2.

**NAS 47 - Contemporary Native American Poetry**

Palmer

Open to all classes.

Distribution: Dist: Lit, WCult: CI. Crosslisted as: ENGL 67.13. Offered: Not offered in the period from 13F through 14S.

**NAS 48 - Indians and European Political Thought: 1492-1832**

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.

Distribution: TMV; WCult: W. Offered: 13F: 10A.

**NAS 49 - The Land of the Totem Poles: Native Peoples of the Northwest Coast**

Kan

Open to all classes.

Distribution: SOC; WCult: NW. Crosslisted as: ANTH 25. Offered: Not offered in the period from 13F through 15S.

**NAS 50 - Native Americans and the Law**

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. Open to sophomores, juniors and seniors.

Distribution: SOC; WCult: NW. Crosslisted as: GOVT 69. Offered: 14S: 10A.

**NAS 80 - Advanced Seminars in Native American Studies**

Palmer

In 14S, Bear Clan Texts. 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 mythopoeics, 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. Open to Juniors and Seniors, and to others with written permission of the instructor.

Distribution: LIT; WCult: NW. Offered: 14S: 10A.

### **NAS 81 - Senior Seminars in Native American Studies (also see NAS 45)**

Calloway

In 14W, 15W at 2A, *Pen and Ink Witchcraft: Native American History in Treaties* (Identical to HIST 96). 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. Dist. INT, TMV; WCult: NW. Calloway.

Distribution: SOC; WCult: NW. Crosslisted as: HIST 96.5. Offered: 14W, 15W: 2A.

### **NAS 85 - Independent Study in Native American Studies**

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**

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**

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 three Neuroscience advisors.

### Prerequisites - (6 Courses)

1. PSYC 6 Introduction to Neuroscience *or* BIOL 34 Neurobiology
2. PSYC 10 Experimental Design, Methodology, and Data Analysis Procedures *or* BIOL 29 Biostatistics  
*Any 4 of the following 11 courses:*  
MATH 3 Introduction to Calculus  
MATH 4 Applications of Calculus to Medicine and Biology  
MATH 8 Calculus of Functions of One and Several Variables  
CHEM 5 General Chemistry  
CHEM 6 General Chemistry  
PHYS 3 General Physics I  
PHYS 4 General Physics II  
ENGS 20 Introduction to Scientific Computing  
COSC 1 Introduction to Programming and Computation  
COSC 10 Problem Solving via Object-Oriented Programming  
COSC 31 Algorithms (Formerly COSC 25)

### Required – (8 courses including 4 core courses and 4 electives)

#### Core Courses

1. PSYC 45 Behavioral Neuroscience
2. PSYC 65 Systems Neuroscience with Laboratory
3. PSYC 21 Perception, or PSYC 27 Cognitive Neuroscience (pending faculty approval), or PSYC 28 Cognition (cross-listed with COGS2).
4. PSYC 46 Cellular and Molecular Neuroscience, or BIOL 12 Cell Structure and Function, or BIOL 13 Gene Expression and Inheritance

#### Electives

Four electives from the list below or other courses as approved on an annual basis by the Neuroscience Steering

Committee. Of the four electives taken for neuroscience major credit two of them must be at the 40s level or higher.

Four electives from the approved list on the PBS website, <http://www.dartmouth.edu/~psych/undergrad/major-in-neuroscience.html>.

With permission of the Neuroscience Steering Committee, other courses that are appropriate given the student's area of specialization may be taken for credit.

#### Notes:

1. Students who elect to take the BIOL 12/13 sequence to satisfy their cellular/molecular neuroscience requirement can take PSYC 46 as one of the four elective credits.
2. Whichever course is taken to satisfy the PSYC 21/28 requirements, the other course may be taken for elective credit.
3. Multiple offerings of PSYC 50, PSYC 51, PSYC 52, and PSYC 80 courses of the same number may be taken as long as they cover different topics.
4. You can only get major credit for taking PSYC 6 or BIOL 34, but not both.
5. Students who take PHSL 150 or PEMM 211 should register for PSYC 90 and have permission of the instructor.
6. PSYC 6 and PSYC 10 and BIOL 34 cannot be taken as an NRO, or elective, or required course, or culminating experience.
7. Courses that are taken as part of another major or minor cannot be used as elective courses for Neuroscience.
8. At the beginning of each academic year, the Neuroscience Steering Committee will announce which courses qualify for elective and culminating experience credit.
9. Students will not be allowed to earn credit for both PSYC 26 and PSYC 45.

#### Culminating experience (1 course)

(Cannot be used to satisfy the electives requirement)

Any one of the three courses listed below OR any approved psyc 80's seminar, see approved on the PBS website, <http://www.dartmouth.edu/~psych/undergrad/major-in-neuroscience.html>.

- BIOL 74 Advanced Neurobiology
- PSYC 90 Independent Neuroscience Research
- PSYC 91 Honors Neuroscience Research

#### Electives

With permission of the Neuroscience Steering Committee, other courses that are appropriate given the student's area of specialization may be taken for credit.

Notes:

1. Students who elect to take the BIOL 12/13 sequence to satisfy their cellular/molecular neuroscience requirement can take PSYC 46 as one of the four elective credits.
2. Whichever course is taken to satisfy the PSYC 21/28 requirements, the other course may be taken for elective credit.
3. Multiple offerings of PSYC 50, PSYC 51, PSYC 52, and PSYC 80 courses of the same number may be taken as long as they cover different topics.
4. You can only get major credit for taking PSYC 6 or BIOL 34, but not both.
5. Students who take PHSL 150 or PEMM 211 should register for PSYC 90 and have permission of the instructor.
6. PSYC 6 and PSYC 10 and BIOL 34 cannot be taken as an NRO.
7. Courses that are taken as part of another major or minor cannot be used as elective courses for Neuroscience.
8. At the beginning of each academic year, the Neuroscience Steering Committee will announce which courses qualify for elective and culminating experience credit.
9. Students will not be allowed to earn credit for both PSYC 26 and PSYC 45.

## **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.

### **Prerequisites (Choose 1 course):**

PSYC 1	Introductory Psychology
PSYC 6	Introduction to Neuroscience
BIOL 34	Neurobiology

### **Required courses: (Choose 2 courses) (Prerequisites as shown)**

PSYC 46	Cellular and Molecular Neuroscience
BIOL 34	Neurobiology
BIOL 12	Cell Structure and Function
PSYC 65	Systems Neuroscience with Laboratory
PSYC 45	Behavioral Neuroscience

The electives are similar to the elective courses described for the Neuroscience major. One of the three electives must be at the 50s level or higher.

### **Other Issues:**

Required and Elective courses cannot count toward both the major and minor.

## **Philosophy**

Chair: Susan J. Brison

Professors A. R. Allen, J. H. Moor, A. L. Roskies; Associate Professors S. J. Brison, J. V. Kulvicki, S. S. Levey, C. J. Thomas; Assistant Professors D. Plunkett, T. Rosenkoetter, K. Walden; Senior Lecturer A. E. Bumpus; Visiting Lecturer E. Mason; Lecturers S. Aldea, A. S. P. Walden; Adjunct Professor C. E. Heckman.

*To view Philosophy courses, click here (p. 364).*

## **The Major**

1. Prerequisites:
  - a. PHIL 1 or PHIL 2
  - b. PHIL 3 (or PHIL 6 if not used to satisfy requirements of the major)
2. Requirements: Eight philosophy courses beyond the prerequisites including:
  - a. Two from PHIL 11, PHIL 12, PHIL 13, PHIL 14, PHIL 15, PHIL 16, and PHIL 17
  - b. One from PHIL 30, PHIL 31, PHIL 32, PHIL 33, PHIL 34, and PHIL 35
  - c. One from PHIL 8, PHIL 37, and PHIL 38
  - d. One advanced seminar, PHIL 80, which serves as the culminating experience in the major

MATH 39 (or MATH 69) may be counted toward the major.

The following is a suggested major for those students contemplating graduate studies in philosophy: PHIL 6, PHIL 8, PHIL 11, PHIL 13, PHIL 14, PHIL 15, PHIL 16, PHIL 30, PHIL 31, PHIL 34 or PHIL 35, and PHIL 37; selected seminars. It is strongly recommended that students contemplating graduate studies in philosophy enroll in the Honors Program.

## **The Modified Major**

1. Prerequisites:
  - a. PHIL 1 or PHIL 2

- b. PHIL 3 (or PHIL 6 if not used to satisfy requirements of the modified major)
2. Requirements: Six philosophy courses beyond the prerequisites including:
    - a. One from PHIL 11, PHIL 12, PHIL 13, PHIL 14, PHIL 15, PHIL 16, and PHIL 17
    - b. One from PHIL 30, PHIL 31, PHIL 32, PHIL 33, PHIL 34, and PHIL 35
    - c. One from PHIL 8, PHIL 37, and PHIL 38
    - d. One advanced seminar, PHIL 80, which serves as the culminating experience in the modified major
  3. Four courses not in Philosophy that must be at a non-introductory level, have a substantial philosophical content, and contribute to a reasonably connected program of study. These courses must be approved in writing by the Chair of the Department of Philosophy.

### **Minors in Philosophy**

#### **Minor in Philosophy**

1. Prerequisites:
  - a. PHIL 1 or PHIL 2
  - b. PHIL 3 (or PHIL 6 if not used to satisfy requirements of the minor)
2. Requirements: Six philosophy courses beyond the prerequisites including:
  - a. One from PHIL 11, PHIL 12, PHIL 13, PHIL 14, PHIL 15, PHIL 16, and PHIL 17
  - b. One from PHIL 30, PHIL 31, PHIL 32, PHIL 33, PHIL 34, and PHIL 35
  - c. One from PHIL 8, PHIL 37, and PHIL 38
  - d. One advanced seminar in Philosophy

#### **Minor in History of Philosophy**

1. Prerequisites:
  - a. PHIL 1 or PHIL 2
  - b. PHIL 3 (or PHIL 6 if not used to satisfy requirements of the minor)
2. Requirements: Six philosophy courses beyond the prerequisites including:  
Four courses from PHIL 8, PHIL 11, PHIL 12, PHIL 13, PHIL 14, PHIL 15, PHIL 16, PHIL 17, and PHIL 80 (if the seminar topic is within the history of philosophy)

#### **Minor in Moral Philosophy**

1. Prerequisites:
  - a. PHIL 1 or PHIL 2

- b. PHIL 3 (or PHIL 6 if not used to satisfy requirements of the minor)
2. Requirements: Six philosophy courses beyond the prerequisites including:
    - a. PHIL 8 and PHIL 37
    - b. Two courses from PHIL 9, PHIL 21, PHIL 22, PHIL 24, PHIL 25, PHIL 38, and PHIL 80 (if the seminar topic is within moral philosophy)

#### **Minor in Epistemology and Metaphysics**

1. Prerequisites:
  - a. PHIL 1 or PHIL 2
  - b. PHIL 3 (or PHIL 6 if not used to satisfy requirements of the minor)
2. Requirements: Six philosophy courses beyond the prerequisites including:
  - a. PHIL 30 and PHIL 31
  - b. Two from PHIL 13, PHIL 14, PHIL 15, PHIL 16, PHIL 26, PHIL 27, PHIL 28, PHIL 29, PHIL 34, PHIL 35, and PHIL 80 (if the seminar topic is within epistemology and metaphysics)

#### **Minor in Logic and Philosophy of Science**

1. Prerequisites:
  - a. PHIL 1 or PHIL 2
  - b. PHIL 3
2. Requirements: Six philosophy courses beyond the prerequisites including:
  - a. PHIL 6 and PHIL 27
  - b. Two from PHIL 26, PHIL 32, PHIL 33, PHIL 34, MATH 39 or MATH 69, and PHIL 80 (if the seminar topic is within logic and philosophy of science)

#### **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 or minor but transfer credit cannot be used to satisfy the advanced seminar requirement.

#### **Foreign Study**

Each year the Department of Philosophy offers about fifteen students the opportunity to spend a fall term at the University of Edinburgh, Scotland. While there they will take a course in philosophy taught by a Dartmouth faculty member (Philosophy 50). In addition, each student will take 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. However, preference will be given to those students who have completed more philosophy courses. A member of the University of Edinburgh philosophy faculty will offer a course at Dartmouth in the summer term. Students going to Edinburgh should consider taking this course. Normally, 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 to participate in the junior year Honors Program 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.* Students are required to spend one term, but may elect to spend two terms, in a Junior Honors Seminar prior to submission of a thesis proposal for departmental approval. These seminars meet on an average of four times per term, and each student will prepare a short paper for each meeting. The Junior Honors Seminar should be completed by the end of the spring term of the junior year.

*Preparation and Submission of Thesis Proposal.* After successful completion of a Junior Honors Seminar, the student should secure a thesis director and then write a proposal in consultation with the director. After the proposal is approved by the director, it will be submitted to the Philosophy 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 term prior to thesis writing.

*Thesis Writing.* A student must write a two-term thesis, for which one or two course credits may be received. Only one such course credit may be used in satisfying major requirements. The minimum length for a two-term thesis is seventy-five pages. Four bound copies of the thesis, one on acid-free bond paper, must be submitted. A thesis written

during the fall and winter must be submitted by the first day of the spring term. A thesis completed during the spring term must be submitted by the seventh Monday of the spring term. An oral defense will be scheduled shortly thereafter.

### **PHIL - Philosophy Courses**

*To view Philosophy requirements, click here (p. 362).*

#### **PHIL 1 - Introduction to the Problems of Philosophy**

The staff

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. Open to all classes.

Distribution: TMV. Offered: 13F, 14F; 2 14W, 14F; 10 14S, 15S; 12.

#### **PHIL 2 - Introduction to Philosophical Classics**

The staff

An examination of classic texts by such philosophers as Plato, Descartes, Hume, and Nietzsche. Lectures will concentrate on the philosophical systems constructed by these thinkers emphasizing their attempt to develop total world views. Open to all classes.

Distribution: TMV. Offered: Not offered in the period from 13F through 15S.

#### **PHIL 3 - Reason and Argument**

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.

Distribution: TMV. Offered: 13F, 14F; 2.

#### **PHIL 6 - Logic and Language**

The staff

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.

Distribution: QDS. Offered: 14W, 14S, 15W, 15S: 9S.

### **PHIL 7 - First-Year Seminars in Philosophy**

Offered: Consult special listings.

### **PHIL 8 - Introduction to Moral Philosophy**

The staff

A study of the main types of ethical theories from Plato to the pragmatists and existentialists. Attention will be paid to the relevance of major historical positions to contemporary issues. Open to all classes.

Distribution: TMV. Offered: 14W: 12 15W: 11 .

### **PHIL 9 - Topics in Applied Ethics**

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.

In 13F at 10, *Reproductive Ethics*. Bumpus.

In 14S at 11, *Reproductive Ethics*. Bumpus.

In 14X at 3B, *Environmental Ethics*. Plunkett.

Distribution: TMV. Offered: 13F: 10 14S: 11 14x: 3B.

### **PHIL 11 - Ancient Philosophy**

Thomas

A study of the origins of Western philosophical thought as it emerges in ancient Greece. Focus will be on such questions as: What is the fundamental nature of reality? Is knowledge possible? What is the nature of the soul? What is human happiness? Are there objective truths about moral and political values? Are all events causally determined? Do human beings have free will? Ought we to fear death? Although the focus of the course will alternate from year to year, the figures treated may include: Presocratics,

Socrates, Plato, Aristotle and later Greek philosophers (Epicureans, Stoics and Sceptics).

Distribution: TMV; WCult: W. Prerequisite: One course in Philosophy, or permission of the instructor. Offered: 13F, 14F: 10.

### **PHIL 12 - Medieval Philosophy**

Prerequisite: One course in Philosophy, or Religion, or Classics, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

### **PHIL 13 - Modern Philosophy: Continental Rationalism**

Levey

A study of early modern philosophy in the Continental rationalist tradition of the seventeenth and early eighteenth centuries. Focus is on the major works of Descartes, Spinoza and Leibniz, with some attention to responses from their contemporaries (e.g., Arnauld, Gassendi, Mersenne). Central themes include substance, matter, mind, the laws of nature, space and time, God, truth, necessity and contingency.

Distribution: TMV; WCult: W. Prerequisite: One course in Philosophy, or permission of the instructor. Offered: 14W: 11 15W: 12.

### **PHIL 14 - Modern Philosophy: British Empiricism**

Rosenkoetter

A study of early modern philosophy in the British empiricist tradition of the seventeenth and early eighteenth centuries. Focus is on the major works of Locke, Berkeley, and Hume, though possibly with attention to some others (e.g., Bacon, Hobbes, Reid). Central themes include substance, perception, secondary qualities, cognition, meaning, causation, identity, and reality.

Distribution: TMV; WCult: W. Prerequisite: One course in Philosophy, or permission of the instructor. Offered: 15S: 2.

### **PHIL 15 - Modern Philosophy: Hume and Kant**

Walden

An in-depth introduction to the theoretical and practical philosophies of David Hume and Immanuel Kant. Topics include: Hume's scepticism about induction and the law of cause and effect; Kant's effort to "save" metaphysics from Hume's sceptical attack; Kant's account of the a priori forms (space and time, the categories) by means of which we construct our experience; his attempt to save freedom from Hume's compatibilism; his grounding of practical philosophy in the idea of transcendental freedom.

Distribution: TMV; WCult: W. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 13F:11.

**PHIL 16 - Modern Philosophy: Nineteenth Century Continental**

Plunkett

This course begins with a review of some of the central implications of Kant's *Critical Philosophy*, both for the theory of knowledge and for practical philosophy. It then considers reactions to Kant from fellow idealists, such as Hegel; materialists such as Feuerbach and Marx; and anti-rationalists such as Kierkegaard and Nietzsche.

Distribution: TMV; WCult: W. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14S: 2.

**PHIL 17 - Phenomenology and Existentialism**

Aldea

A study of German and French philosophy from the first half of the twentieth century. The emphasis is usually on Husserl, Heidegger, Merleau-Ponty, Sartre, and de Beauvoir. Major themes of the course include subjectivity, freedom, responsibility, and the nature of social relationships.

Distribution: TMV; WCult: W. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14W: 12 14F: 10.

**PHIL 18 - Contemporary Continental Philosophy**

Allen

A study of recent themes in continental philosophy. Discussion will focus on such philosophical movements as critical theory, structuralism, poststructuralism, contemporary psychoanalytic theory, and French feminist theory. The emphasis will be on such philosophers as Derrida, Foucault, Lacan, Deleuze, Habermas, Levinas, and Irigaray.

Distribution: TMV; WCult: W. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14S, 15S:11 .

**PHIL 20 - Philosophy and Literature**

This course will examine several philosophical theories that formulate criteria of aesthetic and literary value, and will test them by applications to specific works of literature. Readings and discussions will focus on definitions and analyses of tragedy developed by such philosophers as Plato, Aristotle, Hegel, and Nietzsche. Assignments will also include dramatic works by ancient Greek and contemporary American playwrights.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

**PHIL 21 - Philosophy of Human Nature**

A consideration of philosophic problems concerning human nature including such topics as the nature of emotion and reason, the philosophical implications of depth psychology, and the basis of human values.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

**PHIL 22 - Feminism and Philosophy**

Allen

This course examines the relationship between feminism and philosophy. The focus is on such questions as: Is the Western philosophical canon inherently sexist? How should feminist philosophers read the canon? Are Western philosophical concepts such as objectivity, reason, and impartiality inherently masculinist concepts? The course may focus on either the ways in which feminists have interpreted great figures in the history of philosophy (e.g., Plato, Aristotle, Descartes, Hume, Kant, Nietzsche), or on the ways in which feminists have rethought basic concepts in core areas of philosophy (e.g., epistemology, ethics, metaphysics, political philosophy, philosophy of science), or both. Open to all classes.

Distribution: TMV; WCult: CI. Crosslisted as: WGST 46.1. Offered: 15S: 2.

**PHIL 23 - Philosophy of Art**

Kulvicki

This course focuses on points of contact between philosophy and the arts. The course examines and attempts to develop theories of artistic representation, of expression in art and elsewhere, of the nature of metaphor and its role in art criticism, and of the nature of art. These matters are approached via works in the various arts and the writings of philosophers.

Distribution: ART. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14W, 15W: 2.

**PHIL 24 - Philosophy of Law**

Plunkett

This course examines such topics as the concept of law, the dispute between natural law theorists and legal positivists, the relations between law and morality, criminal responsibility and legal punishment, and rights of the individual against the state. Attention will be paid to the relevance of legal theory to contemporary legal controversies.

Distribution: TMV; WCult: W. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14S: 11 15W: 2.

**PHIL 25 - Philosophy of Medicine**

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.

Distribution: TMV. Offered: 14W: 11.

**PHIL 26 - Philosophy and Computers**

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.

Distribution: TAS. Prerequisite: One Philosophy course, one Cognitive Science course, one Computer Science course, or permission of the instructor. Crosslisted as: COGS 26. Offered: 14S, 15S: 10.

**PHIL 27 - Philosophy of Science**

Kulvicki

This course examines the philosophical assumptions of both the natural and the social sciences. Topics discussed include the distinction between science and non-science, the nature and types of scientific explanation, the structure and function of scientific laws and theories, the problems and paradoxes of confirmation and disconfirmation, the role of mathematics and models of science, the basis for probability and induction, and the relationship between science and values.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 15W: 10.

**PHIL 28 - Philosophy of Religion**

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

**PHIL 29 - Philosophy of Mathematics**

Levey

A study of philosophical issues in the foundations of mathematics. What is mathematics about? What, if anything, makes the propositions of mathematics true? What is the nature of the "objects" studied in mathematics (numbers, functions, groups, etc.)? Do they exist

independently of the mind? Is there really an infinite, and if so, what is it? What is the nature of mathematical knowledge? How is that knowledge even possible for us? Those are the kinds of questions that will occupy us in this class. Readings will be selected from classic and contemporary sources on such topics as the concept of number, the theory of sets, the nature of proof and truth in mathematics, the relationship between our grasp of higher mathematics and our grasp of simple counting, and the many disputes between "realism" and "anti-realism" about mathematics.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14F: 12.

**PHIL 30 - Theory of Knowledge**

Kulvicki

Questions considered in this course are: What is knowledge? How and to what extent is knowledge possible? An investigation of such topics as skepticism and certainty, knowledge of the self, sense-perception and an external world, memory and the past, and thoughts and feelings of others.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14S: 10 14F: 11.

**PHIL 31 - Topics in Metaphysics**

Thomas

This course will focus on one or more central topics in metaphysics, possibly including the question of God's existence, the possibility of free will, personal identity, the nature of actions and intentions, space and time, change, the infinite, universals, truth, necessity, abstract objects, and the nature of the self. This course may be taken more than once for credit with permission of the instructor.

In 14W at 12, *Space and Time*. Thomas.

In 15W at 11, *Realism and AntiRealism*. Thomas.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14W: 12 15W: 11.

**PHIL 32 - Intermediate Logic**

Moor

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.

Distribution: QDS. Prerequisite: PHIL 6, or MATH 39 or MATH 69, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

### **PHIL 33 - Philosophy of Logic**

Prerequisite: PHIL 3 or PHIL 6, or MATH 39 or MATH 69, or permission of the instructor. Offered: Not offered in the period from 13F through 15S.

### **PHIL 34 - Philosophy of Language**

Levey

The study of language is one of the defining features of contemporary philosophy. This course examines classic issues and ideas in the philosophy of language as they are articulated across the twentieth century and into the twenty-first. We shall investigate the nature of language, relationships between language and thought, and the application of theories of language to philosophical problems. The focus will be on theories of reference and meaning as they are developed by philosophers such as Frege, Russell, Quine, Kripke, Wittgenstein, and Grice. Specific topics may include fiction, counterfactual conditionals, past-tense statements, indexicals, truth, and vagueness.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 13F: 12 15S: 10.

### **PHIL 35 - Philosophy of Mind**

Kulvicki

In this course, we will consider different views of the relationship between mind and brain, from Dualism to contemporary versions of Materialism and Functionalism. We will consider whether any materialist view of the mind can adequately account for consciousness. We may also look into the nature of mental representation and into epistemological questions such as whether we are the ultimate authorities on our own thoughts and whether we can have knowledge of other minds. Other possible topics include split-brain patients, personal identity, and animal minds.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14S: 12 15W: 10.

### **PHIL 37 - Ethical Theory**

Walden

This course will be primarily concerned with such questions as: What is morality? Are there universal values? Why should one be moral? We will discuss the responses to them by several contemporary philosophers. The application of ethical theory to some contemporary issues also will be considered.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 13F: 2 15S: 11.

### **PHIL 38 - Political and Social Philosophy**

Allen

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. In different years the focus of the course may concentrate on different philosophers, for example, the emphasis may be on historical philosophers or on contemporary philosophers. The philosophers covered will include some of the following: Plato, Hobbes, Locke, Mill, Rousseau, Marx, Rawls, Habermas.

Distribution: TMV. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 14S: 2.

### **PHIL 50 - Special Topics in Philosophy**

In 13F, DFSP, *Free Will and Responsibility*. Moor.

In 13F, 50.1 at 11 (Identical to COGS 11), *Philosophy of Cognitive Science*. Roskies.

In 13F, 50.2 at 10A, *Relativism in Epistemology and Ethics*. Plunkett.

In 14S at 10A, *Husserl and Frege: Exploring the Analytic-Continental Divide*. Aldea.

In 14X at 10A, *Race, Gender, and the Nature of Social Identity*. Plunkett.

In 14X at 2A, *TBA*. Visiting Edinburgh Professor.

In 14F, DFSP, *Is there a Universal Right to Free Speech?* Brison.

In 14F at 10A, *Ethics and the Arts*. Walden.

In 15S at 10A, *TBA*. Roskies.

Distribution: TMV; WCult: Varies. Prerequisite: One Philosophy course, or permission of the instructor. Offered: 13F, 14F: D.F.S.P. 13F: 11 13F, 14S, 14X, 14F, 15S: 10A 14X: 2A.

### **PHIL 60 - Foreign Study in Philosophy I**

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 Edinburgh.

Distribution: TMV. Prerequisite: Two courses in Philosophy. Offered: 13F, 14F: D.F.S.P.

### **PHIL 61 - Foreign Study in Philosophy II**

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 Edinburgh.

Distribution: TMV. Prerequisite: Two courses in Philosophy. Offered: 13F, 14F: D.F.S.P.

### **PHIL 80 - Advanced Seminar**

This course may be offered in any term and the content varied from year to year according to the interests of the students and the availability of teaching staff. 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.

In 13F at 10A, *Unity and Infinity in Leibniz*. Levey.

In 14W at 2A, *Errors and Illusions*. Thomas.

In 14S at 2A, *Free Speech and Conflicts of Rights*. Brison.

In 14F at 2A, TBA. Rosenkoetter.

In 15W at 2A, TBA. Moor.

In 15S at 2A, TBA. Roskies.

Distribution: TMV. Offered: 13F:10A 14W, 14S, 14F, 15W, 15S: 2A .

### **PHIL 86 - Research in Philosophy for the Ethics Minor.**

Donovan

The purpose of Philosophy 86 is to allow students pursuing the Ethics Minor to complete their senior culminating project. The culminating project involves an independent study, resulting in a substantial paper (20-30 pages in length), on a topic related to the student's cluster courses. 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 majors who are participating in the senior year of the Honors Program.

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

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### 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

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 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

Year	Fall	Winter	Spring
First	MATH 3	MATH 8 PHYS 13	(MATH 13) PHYS 14
Subsequently	(MATH 13) PHYS 19	MATH 23 PHYS 24	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.

### **The Modified Physics Major**

A modified physics major may be desirable for students interested in a broad range of scientific careers, medicine, the health professions, public policy, or journalism for example. 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.

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 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 42, PHYS 68, PHYS 91; PHYS 73 or ENGS 131; PHYS 66 or ENGS 120; PHYS 44 or ENGS 140. The other two electives<sup>1</sup> 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.

<sup>1</sup>*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*

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 (ENGS 89 (formerly ENGS 190)\*

must be taken as part of the two-course design sequence ENGS 89/ ENGS 90 (formerly ENGS 190/ ENGS 290); 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.

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).

### **Requirements for the Major in Astronomy**

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 astronomy are required to take a minimum of eight courses in physics and astronomy, including: ASTR 15, ASTR 25, ASTR 61, PHYS 19, 24, one elective from ASTR 74, ASTR 75, ASTR 81 and two electives from PHYS 41, PHYS 43, PHYS 44, PHYS 74. Students taking PHYS 15 and PHYS 16 may substitute a third elective for PHYS 19. In addition to the minimum course requirements for an astronomy major, it is recommended that students interested in pursuing a graduate degree in astronomy or astrophysics should take the following courses: PHYS 41, PHYS 42, PHYS 43 and PHYS 44. Students interested in observational astronomy should take PHYS 48 (Electronics: Introduction to Linear and Digital Circuits) while those interested in theory should take ENGS 20 (Introduction to Computer Science with Applications in Engineering). 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.

There are seven introductory astronomy courses intended for students with different mathematical and scientific backgrounds and interests:

Elementary courses for students with little or no science or mathematics background: ASTR 1 (spring), ASTR 2 (summer, fall), ASTR 3 (summer, fall), and ASTR 4 (spring). Note that ASTR 2 and ASTR 3 differ only in that

ASTR 3 includes a laboratory. ASTR 1, ASTR 2/ ASTR 3, and ASTR 4 overlap very little in subject matter; any combination of these courses may be taken in any order.

Introductory course for students with some knowledge of calculus and physics: ASTR 15 (spring).

Introductory courses for advanced physics students, who need not have previous background in astronomy: ASTR 61 (fall), ASTR 74 (winter).

Students desiring observing experience at the observatory on Kitt Peak, Arizona, which Dartmouth operates with the University of Michigan, Ohio State University, Columbia University and Ohio University should plan to take ASTR 81 and/or ASTR 87.

## 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 24 and above, and/or astronomy courses numbered 15 and above, at least one of which must be numbered above 40.

### 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 24, 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 41, PHYS 42, PHYS 43, PHYS 44, PHYS 47, PHYS 66, PHYS 72, PHYS 75, PHYS 77, PHYS 91.

MATH 31 or MATH 71, MATH 63, MATH 42, MATH 43, MATH 53, MATH 54, 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.

## Advanced Placement

The first-year program for a student who has received advanced placement in mathematics and qualifies for PHYS 15-16 might be as follows:

Fall	Winter	Spring
MATH 8	MATH 13	MATH 23
PHYS 15	PHYS 16	PHYS 24

## 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. This is generally done before the beginning of the senior year. 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**

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### **ASTR 1 - Exploration of the Solar System**

Chaboyer (spring), Fesen (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.

Distribution: SLA. Offered: 14S: 11 14X: 10 15S: 11.

### **ASTR 2 - Exploring the Universe**

Hickox (fall), Fesen (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.

Distribution: SCI. Offered: 13F: 11 14X: 11 14F: 11.

### **ASTR 3 - Exploring the Universe, with Laboratory**

Hickox (fall), Fesen (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.

Distribution: SLA. Offered: 13F: 11 14X: 11 14F: 11.

### **ASTR 4 - The Development of Astronomical Thought**

Distribution: SCI. Offered: Not offered in the period from 13F through 15S.

### **ASTR 7 - First-year Seminars in Astronomy**

Offered: Consult special listings.

### **ASTR 15 - Stars and the Milky Way**

Hickox

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.

Distribution: SCI. Prerequisite: An introductory physics course (or permission of instructor) and MATH 3. Offered: 14S, 15S: 10A.

### **ASTR 25 - Galaxies and Cosmology**

Hickox

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.

Distribution: SCI. Prerequisite: PHYS 14 or permission of the instructor. Offered: 14W, 15W: 10A.

### **ASTR 61 - Observational Techniques in Astronomy**

Chaboyer

The fundamental techniques of observational astronomy. Topics include detectors, photometry, spectroscopy, data acquisition and analysis.

Distribution: SLA. Prerequisite: ASTR 2, ASTR 3 or ASTR 15. Offered: 13F: 3A Offered in alternate years.

#### **ASTR 74 - Astrophysics**

A study of modern astrophysics for the advanced physics undergraduate or graduate student who may or may not have previous background in astronomy. The overall theme of the course is the creation of the elements-from the big bang to the current epoch. Physical processes in stellar interiors, stellar evolution, and nucleosynthesis will be emphasized. No student may receive credit for both ASTR 74 and ASTR 115.

Distribution: SCI. Prerequisite: PHYS 43 and ASTR 2, ASTR 3 or ASTR 15, or permission of instructor. Offered: 15W: 12 Offered in alternate years.

#### **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.

Distribution: SCI. Prerequisite: PHYS 19 and ASTR 25 or the equivalent, or permission of the instructor. Offered: 14F: 12 Offered in alternate years.

#### **ASTR 81 - Special Topics in Astronomy**

Advanced study of a topic in observational astronomy, culminating in a one- to two-week observing session at the observatory in Arizona.

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**

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#### **PHYS 1 - Understanding the Universe: From Atoms to the Big Bang, with Laboratory**

Alexander, 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.

Distribution: SLA. Offered: 14S, 15S: 12.

#### **PHYS 2 - Understanding the Universe: From Atoms to the Big Bang**

Alexander, Kremer

No student may receive credit for both Physics 1 and Physics 2. Identical to PHYS 1, but without the laboratory.

Distribution: SCI. Offered: 14S, 15S: 12.

#### **PHYS 3 - General Physics I**

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.

Distribution: SLA. Prerequisite: MATH 3. Offered: 13F: 12 14X: 11 14F: 12; Laboratory: Arrange .

#### **PHYS 4 - General Physics II**

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.

Distribution: SLA. Prerequisite: PHYS 3. Offered: 14W, 14S, 15W, 15S: 12; Laboratory: Arrange.

#### **PHYS 5 - Physics for Future Leaders**

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.

Distribution: TAS . Offered: 14W: Arrange.

### **PHYS 7 - First-year Seminars in Physics**

Offered: Consult special listings.

### **PHYS 13 - Introductory Physics I**

LaBelle (fall), Rimberg (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.

Distribution: SLA. Prerequisite: MATH 3 and MATH 8 (at least concurrently). Offered: 13F, 14W, 14F, 15W: 10, 11; Laboratory: Arrange.

### **PHYS 14 - Introductory Physics II**

Caldwell (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.

Distribution: SLA. Prerequisite: PHYS 13 and MATH 8, or permission of the instructor. Offered: 14W: 10 14S: 10, 11 15W: 10 15S: 10,11; Laboratory: Arrange.

### **PHYS 15 - Introductory Physics I, Honors Section**

Millan

PHYS 15, PHYS 16 and PHYS 24 are an alternative sequence to PHYS 13, PHYS 14, PHYS 19 and PHYS 24 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 Schrodinger equation in one spatial dimension. One laboratory period per week.

Distribution: SLA. Prerequisite: MATH 8 or MATH 9 concurrently, and permission of the instructor. Offered: 13F, 14F: 10; Laboratory: Arrange.

### **PHYS 16 - Introductory Physics II, Honors Section**

Gleiser

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.

Distribution: SLA. Prerequisite: PHYS 15 or permission of the instructor. Offered: 14W, 15W: 10; Laboratory: Arrange.

### **PHYS 19 - Introductory Physics III**

Mueller

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, diffraction and polarization. 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 introduced in one spatial dimension.

Distribution: SCI. Prerequisite: PHYS 14 and MATH 13, or permission of the instructor. Offered: 13F, 14F: 9; Laboratory: Arrange.

### **PHYS 24 - Quantum Physics of Matter: An Introduction**

Mueller (winter), Wright (spring)

The theme of this course is the application of the principles of physics to the structure of matter on various scales. The Schrödinger equation is discussed in three spatial dimensions, with emphasis on the description of hydrogenic wavefunctions. Spin and the Pauli exclusion principle. Applications may include many-electron atoms, molecules, solids, nuclei and elementary particles.

Distribution: SCI. Prerequisite: PHYS 16, or PHYS 19, or PHYS 14 and PHYS 15, or permission of the instructor. Offered: 14W, 14S, 15W, 15S: 10.

### **PHYS 30 - Biological Physics**

Blencowe

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.

Distribution: SCI. 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. Crosslisted as: ENGS 030. Offered: 14S, 15S: 12.

### **PHYS 41 - Electricity and Magnetism**

Lynch

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.

Distribution: SCI. Prerequisite: PHYS 14 or PHYS 16; MATH 23; or permission of the instructor. Offered: 14W, 15W: 10.

### **PHYS 42 - Introductory Quantum Mechanics**

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.

Distribution: SCI. Prerequisite: PHYS 24 and MATH 23, or permission of the instructor. Offered: 14X: 10A.

### **PHYS 43 - Statistical Physics**

Rimberg

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.

Distribution: SCI. Prerequisite: PHYS 16 or PHYS 19; or permission of the instructor. Offered: 13F, 14F: 9.

### **PHYS 44 - Mechanics**

Millan

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.

Distribution: SCI. Prerequisite: PHYS 16 or PHYS 19; MATH 23, or permission of the instructor. Offered: 14S, 15S: 11.

### **PHYS 47 - Optics**

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.

Distribution: SLA. Prerequisite: PHYS 14 or 16 and MATH 13, or permission. Offered: 13F, 14F: 11.

### **PHYS 48 - Electronics: Introduction to Linear and Digital Circuits**

Odame

Identical to, and described under, ENGS 32

Distribution: TAS. Prerequisite: PHYS 14 or PHYS 16 or ENGS 22, or equivalent background in basic circuit theory. Crosslisted as: ENGS 032. Offered: 14W, 15W: 11; Laboratory.

### **PHYS 66 - Relativistic Electrodynamics**

LaBelle

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; basic elements of general relativity.

Distribution: SCI. Prerequisite: PHYS 41 or ENGS 23 and PHYS 44. Offered: 14S: 10 Offered in alternate years.

### **PHYS 68 - Introductory Plasma Physics**

Hudson

The physics of ionized gases with emphasis on the theory of waves and instabilities. Includes introduction to magnetohydrodynamics and kinetic theory of plasmas.

Distribution: SCI. Prerequisite: PHYS 41 or ENGS 23. Offered: 13F, 14F: 10.

### **PHYS 70 - Fourier Transforms and Complex Variables**

Testorf

Identical to, and described under, ENGS 92

Distribution: QDS. Prerequisite: MATH 46 or ENGS 22, ENGS 23, or the equivalent. Crosslisted as: ENGS 092. Offered: 13F, 14F: 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.

Distribution: SCI. Prerequisite: PHYS 42. Offered: 15S: 10 Offered in alternate years.

**PHYS 73 - Introductory Condensed Matter Physics**

Blencowe

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.

Distribution: SCI. Prerequisite: PHYS 42 and PHYS 43; PHYS 43 may be taken concurrently. Offered: 13F, 14F: 12.

**PHYS 74 - Space Plasma Physics**

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.

Distribution: SCI. Prerequisite: PHYS 66 or 68, or permission of the instructor. Offered: 14S: 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.

Distribution: QDS. Prerequisite: PHYS 19 or MATH 22 or MATH 23. Offered: 15S: Arrange Offered in alternate years.

**PHYS 76 - Methods of Experimental Physics**

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.

Distribution: SLA. Prerequisite: PHYS 24. Offered: 14S, 15S: 2A.

**PHYS 77 - Introduction to General Relativity and Gravitation**

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.

Distribution: SCI. Prerequisite: PHYS 44 and PHYS 41. Offered: 13F: 12 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 - 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.

Prerequisite: permission of the Chair. Offered: All terms: Arrange.

**PHYS 91 - Intermediate Quantum Mechanics**

Alexander

Formalism of quantum mechanics, operator methods and transformation theory. Measurement theory and uncertainty relations. Position and momentum representation. The harmonic oscillator and ladder operators. Introduction to path integrals. Perturbation methods: WKB, time-independent and time-dependent perturbation theory. Interaction of matter and radiation and selection rules. Symmetries and conservation laws.

Distribution: SCI. Prerequisite: PHYS 42. Offered: 14W, 15W: 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.

Distribution: SCI. Prerequisite: PHYS 41-44, and ASTR 25 (recommended). Offered: 15W: 11 Offered in alternate years.

## 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. Gullidge, 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 - Undergraduate

Chair: Jay G. Hull

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, T. P. Wheatley; Assistant Professor, J. B. Freeman, J. D. Kralik, M. Meng, W. M. Shim, K.S. Smith, A. Soltani; Senior Lecturer J. F. Pfister; Visiting Associate Professor R. B. Adams, J. L. Scheiner, J. White; Visiting Assistant Professor Adjunct Professor R. A. Maue, J. D. Sargent, M. J. Sateia; Adjunct Associate Professor M. G. Funnell; Adjunct Assistant Professor Mark J. Detzer, W. L. Hudenko; Research Professor P. Cavanagh, R. Elliott, R. E. Kleck; Research Associate Professor M. I. Gobbini, V. A. Reed; Research Assistant Professor in the Dartmouth Brain Imaging Center Y. C. Wu.

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. 380)

*To view Psychological and Brain Sciences Graduate requirements, click here.* (p. 537)

*To view Psychological and Brain Sciences Graduate courses, click here.* (p. 537)

### 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, specifically: ECON 10, GOVT 10, MATH 10 and SOCY 10. AP statistics (Math10) 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 Psychological and Brain Sciences. 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, PSYC22, PSYC 26 or PSYC 28. 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) (see detailed requirements and deadlines on the Department web page). On occasion, by advanced planning and approval only, one of the seven electives may be taken from other related departments. 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 we require for the major.

### **The Modified Major**

The Psychology major cannot be modified. Students who wish to have Psychology as the secondary part of a Modified Major (e.g., Biology Modified with Psychology) 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. The Psychological and Brain Sciences Department offers two fellowships for students who are interested in becoming involved in research projects: the *Benjamin G. Benner '69 Undergraduate Research Support Fellowship*, and the *Lincoln Filene Undergraduate Fellowship in Human Relations*. The fellowships are usually awarded to students to support research activities during a leave term that could serve as a foundation for honors research. Most often this is the summer preceding the student's senior year. Information about the fellowships and the application process may be obtained from the Department office or web page.

An honors student must fulfill course requirements of the major and the following additional requirements.

1. The completion of 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. The Honors Thesis will entail an independent and individual project. Furthermore, the thesis project must be read and approved by the Thesis Committee.
2. Honors students will present their research to departmental faculty and interested others during the latter part of the spring term of their senior year.
3. By the last class day of the fifth week of the winter term preceding the completion of the thesis, all honors students must submit a prospectus of their thesis to their advisor and 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.

### **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. 378)

*To view Psychological and Brain Sciences Graduate requirements, click here.* (p. 537)

*To view Psychological and Brain Sciences Graduate courses, click here.* (p. 537)

### **PSYC 1 - Introductory Psychology**

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.

Distribution: SOC. Offered: 13F, 14W, 14S, 14F, 15W, 15S: 10.

### **PSYC 6 - Introduction to Neuroscience**

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.

Distribution: SCI. Offered: 13F,14W: 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**

Hull, 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.

Distribution: QDS. Prerequisite: PSYC 1 or 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, GEOG 10, GOVT 10, MATH 10, MSS 15 or MSS 45, PSYC 10, or SOCY 10 except by special petition. Cannot be taken concurrently with PSYC 11. Offered: 13X:10; 13F, 14S:9L; 14X: 10; 14F,15S.

### **PSYC 11 - Laboratory in Psychological Science.**

The staff

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.

Distribution: SLA. Prerequisite: PSYC 1 or PSYC 6 and PSYC 10. Cannot be taken concurrently with PSYC 10. Offered: 13X: 2, 13F, 14S: 12; 14X:2 14S, 15S:12 Laboratory.

### **PSYC 21 - Perception**

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.

Distribution: SCI. Prerequisite: PSYC 1 or PSYC 6. Offered: 14S, 15S:11 .

### **PSYC 22 - Learning**

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 led to our current understanding of the behavioral and biological substrates of learning.

Distribution: SOC. Prerequisite: PSYC 1 or PSYC 6.  
Offered: 14S: 2.

### **PSYC 23 - Social Psychology**

Hull

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.

Distribution: SOC. Prerequisite: PSYC 1. Offered: 14W, 15W: 11.

### **PSYC 24 - Abnormal Psychology**

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.

Distribution: SOC. Prerequisite: PSYC 1. Offered: 13F, 14F: 9L.

### **PSYC 25 - Developmental Psychology**

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.

Distribution: SOC. Prerequisite: PSYC 1. Offered: 13X: 2A.

### **PSYC 26 - Physiological Psychology**

Cramer

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.

Distribution: SCI. Prerequisite: PSYC 1. Offered: 14W, 15W: 12.

### **PSYC 28 - Cognition**

Meng, Susilo

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: Psychology 1 or 6 or Computer Science 5. Dist: SOC. **THIS COURSE CONTENT WILL BE CHANGED BEFORE THE COURSE IS TAUGHT. PLEASE CONSULT THE PBS WEBSITE FOR AN UPDATE AT A LATER TIME.**

Distribution: SOC. Crosslisted as: COGS 2. Offered: 14W, 14S: 2.

### **PSYC 40 - Introduction to Computational Neuroscience**

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.

Distribution: SCI. Prerequisite: One of : PSYC 1, PSYC 6, BIOL 34, COSC 4, COSC 5 or Engineering 20. Crosslisted as: COSC 16. Offered: 14F, 15F: 2A.

### **PSYC 43 - Emotion**

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. Offered: 14W: 2A.

#### **PSYC 44 - Psychology and Organizations**

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.

Distribution: SOC. Prerequisite: PSYC 1. Offered: 13F: 9L.

#### **PSYC 45 - Behavioral Neuroscience**

Clark

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.

Distribution: SCI. Prerequisite: PSYC 6 or BIOL 34. Offered: 13F, 14W, 14F, 15W: 10A.

#### **PSYC 46 - Cellular and Molecular Neuroscience**

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.

Distribution: SCI. Prerequisite: PSYC 6 or BIOL 34. Offered: 14S, 15S: 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. *Dist: SCI.*

#### **In 13F at 11, Neuroethology**

A rose smells sweet, and rotting food smells bad -- to you, but not to a fly. The neural mechanisms that cause such differences reflect the conditions under which each species evolved. By comparing the nervous systems of many animal species we will discover the conditions under which each species evolved. By comparing the nervous systems of many animal species we will discover the conditions and constraints that led to the neural mechanisms of species typical behaviors, including our own. Prerequisite: PSYC 1 or PSYC 6. Kralik.

#### **13F at 2A, Sleep and Sleep Disorders.**

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. In 13W at 10, Neuroethology. A rose smells sweet, and rotting food smells bad---to you, but not to a fly. The neural mechanisms that cause such differences reflect the conditions under which each species evolved. By comparing the nervous systems of many animal species we will discover the conditions and constraints that led to the neural mechanisms of species typical behaviors, including our own. Prerequisite: PSYC 1 or PSYC 6. *Dist: SCI. Sateia.*

#### **In 14W at 12, Neuroscience of Mental Illness.**

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. Students who have taken Psyc24 (Abnormal Psychology) must consult with the instructor prior to registering for the course. Prerequisite: PSYC 6 or PSYC 26 or BIOL 34.

*Dist: SCI*. Funnell.

**In 14W at 10, Decision making: linking behavior to brain**

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. PSYC 1 or PSYC 6. Soltani.

**In 14S at 10, Neuroscience of Motivation**

This course will explore how the brain controls different motivated behaviors. Topics will include hunger and thirst, fear and aggression, and sex and affiliation. We will learn about some historical perspectives of motivation as well as modern neuroscience work showing how areas of the brain like the limbic system might contribute to motivations. We will also touch on how dysfunction in these brain areas can give rise to pathologies of motivation like addiction or obesity. Prerequisite: one of the following: PSYC 6, PSYC 26, PSYC 45, BIOL 34. Smith.

**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. *Dist: SOC*.

**In 13F at 11, Face Perception**

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. Prerequisites: PSYC 1 or PSYC 6. Gobbin.

**In 13F at 2, Mind and Brain.**

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.

*Dist. SOC*. Meng.

**In 14W at 2A, The Neuroscience of the mind-body problem: neural bases of consciousness, free will and mental causation**

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. Prerequisites: PSYC 6 or one of the following: 21, 26, or 28.

Tse.

**In 14S at 2, Attention**

In our everyday environment, a massive amount of information pours into our sensory organs, but only a small subset of it reaches awareness. What determines how much information is passed on to higher levels of processing? In this course, we will explore this classic question of capacity limits on human information processing with particular emphasis on the role of

attention. Through lectures and discussions, we will examine the cognitive and neural mechanisms of attention. Prerequisite: Psychology 1 or 6.

Shim

### **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.

**In 14S at 12, Evolutionary Psychology.** In this course we examine the human mind and behavior from a broad evolutionary perspective. We start by covering the main principles of evolution and Darwin's most extraordinary insight: the evolution of all species from a single, common ancestor. Then we make the important causal connection to our minds by building up from genes to mind and brain. Next, we look at the influence of evolution on our cognitive, social and emotional processes. Limitations in our cognitive processing, and universals in social and emotional processing provide evidence for evolved adaptations. We next consider how sex and reproductive strategies influence male and female behavior in a variety of species, including humans. Throughout the course, we will consider how the most enigmatic and compelling of human qualities, such as love, aggression, morality and modern culture, are influenced by our evolutionary history. Prerequisites: PSYC 1 or 6. *Dist. SCi.* Kralik.

**In 14S at 9L, Developmental Psychopathology.** 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. Prerequisites: PSYC 1 and 24, 25, or 59. *Dist. SOC.* Scheiner.

### **PSYC 53 - Issues in Social Psychology**

Courses with this number consider several important sub-fields of social psychology. Material is treated at an intermediate level on a set of issues that are not covered in Psychology 23. Selection of issues is left to the discretion of the instructor, but specific emphasis is given to individual and group attitudes, modes of interpersonal communication, and behavior control in humans and animals. *Dist: SOC.*

### **In 13F at 3B, Social Neuroscience**

This course will provide an overview of the rapidly growing field of social neuroscience. We will consider

primarily how social processes are implemented at the neural level, but also how neural mechanisms help give rise to social phenomena and constrain culture. Many believe that the large expansion of the human brain evolved due to the complex demands of dealing with social others—competing or cooperating with them, deceiving or empathizing with them, understanding or misjudging them. What kind of "social brain" has this evolutionary past left us with? In this course, we will review current theories and methods guiding social neuroscience and recent research examining the brain basis of social processes, including theory of mind; empathy; emotion; reading faces, bodies, and voices; morality; among others. Overall, this course will introduce students to the emerging field of social neuroscience and its multi-level approach to understanding the brain in its social context. Prerequisites: PSYC 1 or PSYC 6. Freeman.

### **In14S at 2, Social Perception.**

In a fleeting glance, we can identify a person, infer their emotional state, determine their gender, estimate their age, assess their attractiveness, and surmise the focus of their thoughts. Social perception is fundamental to social interaction in humans as well as other animals. This course will examine social perception in humans and other species and in doing so will touch on issues including functional specialization and neurocognitive development and evolution. Faces have received much of the attention in social perception and we'll spend significant time on face perception, but we'll also cover body perception, biological motion perception, voice perception, and some of the various types of social perception in non-human animals. We will draw on a range of approaches including psychophysics, neuropsychology, single-cell recording, transcranial magnetic stimulation, fMRI, and twin studies. Prerequisites: PSYC 1 or PSYC 6. *Dist: SOC.* Duchaine.

### **In 14S at 10A, Adolescent Risk Behaviors**

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. Prerequisites: PSYC 1. Sargent.

### **PSYC 54 - 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. *Dist: SOC.*

#### **In 14W at 3A, Health Psychology.**

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. Prerequisites: PSYC 1 or 6. Detzer.

#### **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

Distribution: SOC. Offered: 14W: 9L.

#### **PSYC 60 - Principles of Human Brain Mapping with fMRI**

Shim

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.

Distribution: TLA. Prerequisite: Permission through the department website. Offered: 14W: 2A.

#### **PSYC 63 - Experimental Study of Social Behavior**

Heatherton

This course deals with the ways in which social psychologists collect data to answer questions about motivation, social cognition, and interpersonal behavior. Theoretical issues and methodological problems are dealt with in class discussions, laboratories, and small group research projects on selected topics.

Distribution: SOC. Prerequisite: Permission through the department website. Offered: 14S: 11.

#### **PSYC 65 - Systems Neuroscience with Laboratory**

Maue, Taube

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.

Distribution: SLA. Prerequisite: One of the following three: (PSYC 6, PSYC 26, BIOL 34). Offered: 13F (2 sections), 14S: 10.

#### **PSYC 80 - Seminar in Psychology In 14W at 10A, Neuroscience of Reward.**

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 and permission through the department website.  
Smith.

**In 14S at 10A, Neuroeconomics.**

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. Permission through the department website.  
Soltani.

**PSYC 83 - Seminar Courses**

**In 13F at 2A, *Affective Neuroscience*.**

This course will explore the very latest approaches and findings in the field of emotion research. The emphasis will be on understanding the research strategies that affective neuroscientists use to address the role of emotion in our daily lives. We will see that affective neuroscience is a highly interdisciplinary field that draws from basic, cognitive and social neuroscience to emerge as a distinct field in its own right. We will read and discuss the most current research findings in the field and if our discussions lead us to unanswered questions, we may even do a bit of original research ourselves. Prerequisite: PSYC 43. Permission through the department website.  
Whalen.

**In 14W at 2A, *Non-Verbal Aspects of Social Interaction*.**

The seminar will focus on the nonverbal and paraverbal dimensions of human communication. Particular attention will be given to research which has examined the role of gaze behavior, facial expressions of emotion and appearance cues in social relationships. Video records of social interaction will be used to demonstrate and illustrate the various ways in which nonverbal behaviors play an important role in interpersonal dynamics. A mid-term exam, a seminar paper and participation in class discussions are the mechanisms through which the student's mastery of the seminar materials is assessed. Permission through the department website.  
Kleck.

**In 14W at 3B, *Person Perception*.**

Whether it be a first date, a job interview, or simply walking down the street, the brain is constantly extracting information from other people's sensory cues. This course

will provide an introduction to the psychology and neuroscience of person perception. As such it will explore a basic contradiction. At first blush, seeing and understanding people can seem so intuitive that it does not require any scientific description. In fact, however, the kind of computations the brain must make to accomplish it is astounding and complex. We will consider person perception processes through a multidisciplinary approach, one that incorporates research, methods, and theories across social psychology and the cognitive, vision, and neural sciences. We will also look at social, cultural, and contextual influences on processing others' facial, vocal, and bodily cues. We will pay particular attention to how we use this information to sort others into categories (e.g., gender, race, age), and infer their emotions, intentions, and personalities. Permission through the department website.  
Freeman.

**In 14S at 2A, *Ability, Giftedness, Genius, Ambition: the Psychology of High Achievement*.**

This course will consider the nature and nurture of mental abilities, the different kinds of these, both general and special, and their social and economic implications. It will also examine abilities at the level of giftedness, particularly the meaning and development of giftedness in its many forms; and important aspects of personality and temperament, such as achievement orientation, conscientiousness, energy, openness, stability, and leadership that contribute to great accomplishment. Permission through the department website.  
Elliott.

**PSYC 85 - Seminar Courses**

**In 13F at 2A, *Top-Down Processing and Plasticity in the Brain*.**

Information in early sensory cortex has been traditionally viewed as rudimentary and hard-coded. However, research has shown that activity in early sensory cortex is not fixed but changes with experience, and does not hold raw sensory data but often representations modulated by top-down influences, such as attention and interpretation. In this course, we will consider how the functional organization of the human brain changes with experience. We will also explore the variety of higher-level information that can be found at early stages of processing. A mid-term exam and a seminar paper will be required. Permission through the department website.  
Shim.

**In 14S at 10A, *Cognitive Neuroscience Seminar: Development, Learning and Disorders***

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. Permission through the department website. Meng.

### **PSYC 86 - Seminar Courses**

#### **In 13F at 10A, *Neuroscience Seminar and Annual Meeting.***

This seminar will explore topics and issues that are on the cutting edge in the field of neuroscience. The specific topics selected for discussion will be identified from the published list of Symposia and Lectures scheduled the upcoming Annual Meeting of the Society for Neuroscience in November 2013. In the first part of the term students will read background material and discuss the selected topics. Students will then accompany the instructor to the Annual Meeting. This meeting is held every fall over the course of 5 days and is a gathering of over 30,000 scientists from around the world, who are conducting cutting-edge neuroscience research. Students will attend symposium and data presentations on the topics discussed in the course and those of personal interest. Upon returning from the meeting, the class will present and discuss the research presented at the meeting. Prerequisites PSYC 6 or BIOL 34; and PSYC 26 or PSYC 45. Permission through the department website. Bucci.

#### **In 14W at 2A, *Higher-level Cognition.***

"What a piece of work is a man, how noble in reason, how infinite in faculty?" To answer Shakespeare's question is to understand higher-level cognition. Cognition balances our instincts with thoughtfulness and tempers impulsivity with patience. Cognition allows us to plan over long time horizons, to solve novel and seemingly intractable problems, and to rise above the concrete experiences of our daily lives to thrive in a world of analogy, metaphor and imagination. In this course, we study problem-solving, planning, reasoning, insight, decision-making, symbolic processing, and virtually instant learning. We explore whether these are distinct processes, what they allow us to accomplish, and how they may interact with other brain functions, such as emotions, to create nobility in reason and infinity in faculty. Permission through the department website. Kralik.

### **PSYC 88 - Independent Research**

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 Neuroscience majors to engage in independent laboratory research under the direction of a neuroscience faculty member. This course is suitable to use for your culminating experience, but cannot be used to fulfill the elective requirement for the Neuroscience major. Students may take up to two terms of independent research. Students are required to write a final report of their research. Prerequisite: Psychology 6, and 10. See Neuroscience listing on the Psychological and Brain Sciences website.

Offered: All terms: Arrange.

### **PSYC 91 - Honors Neuroscience Research**

This course is designed to enable especially qualified Neuroscience majors, usually seniors, to engage in independent laboratory research under the direction of a neuroscience faculty member. Students must take at least two terms of Psychology 91. A student must have a minimum grade point average of 3.30 in the major and 3.00 overall to enroll and must enroll by the Fall term of the senior year. The honors thesis will be evaluated by a two-person thesis committee approved by the Neuroscience Steering Committee. Thesis committee members must be identified prior to the student signing up for Psychology 91. The thesis committee must include a regular faculty member of the Department of Psychological and Brain Sciences. The other individual must have an active academic appointment at Dartmouth. A prospectus of proposed research is due by the end of the Fall term for approval by the Neuroscience Steering Committee. The student is expected to submit a written thesis, give a public presentation and pass an oral examination administered by the thesis committee. The thesis committee will make recommendations to the Neuroscience Steering Committee regarding the awarding of Honors or High Honors. A 60s level course is strongly recommended. Students should check well in advance with their faculty advisor for additional prerequisites. A completed Checklist for Honor's Thesis form along with the signed permission for the advisor on the Checklist form should be submitted to the PBS Department office. The Neuroscience Steering Committee will evaluate and approve the application. See Psychological and Brain Sciences website for the Checklist form. Prerequisite: Psychology 6, and 10.

Offered: All terms: Arrange.

## **The Nelson A Rockefeller Center for Public Policy**

### **The Nelson A Rockefeller Center for Public Policy**

Director: Andrew Samwick

Deputy Director: Sadhana Hall; Senior Fellow and Associate Director: Ron Shaiko

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 M. D. Cravens; and T. J. Ruback; Adjunct Professor H. G. Welch.

To view *Public Policy* courses, [click here](#) (p. 393).

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, PBPL 10, SOCY 10, Mathematics and Social Sciences 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 40-49

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. 392).

**PBPL 5 - Introduction to Public Policy**

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.

Distribution: Dist: SOC; WCult: W. Offered: 14W, 15W: 10.

**PBPL 7 - Leadership in Foreign Policy Decision-making**

Ruback

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 10 - Statistical Analysis for Public Policy**

Cravens

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.

Distribution: QDS. Offered: Not offered in the period from 13F through 15S.

### **PBPL 20 - Contemporary Issues in American Politics and Public Policy**

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.

Distribution: Dist: SOC; WCult:W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 26 - Health Policy and Clinical Practice**

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?

Distribution: Dist: SOC; WCult: W. Offered: 15S: 10.

### **PBPL 28 - Courts and Public Policy**

Laws, Glick

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 40 - Economics of Public Policymaking**

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.

Distribution: Dist: SOC; WCult: W. Offered: 14X, 15X: 10A.

### **PBPL 41 - Writing and Speaking Public Policy**

Kalish

Writing and Speaking Public Policy is a hands-on experience, designed for students planning for a career in leadership, government, and public policy. The course uses politics, law, popular culture, psychology, history, and theater, as well as public policy, to draw out fundamental persuasive principles and techniques. It will provide models of successful policy campaigns ... as well as those that suffered from some fatal flaws. We will start to explore barriers to effective communication and work with some tools for surmounting them.

Distribution: Dist: ART; WCult: W. Prerequisite: PBPL 5 or permission from the Instructor. Crosslisted as: WRIT 41. Offered: 14S, 15S: 2A.

### **PBPL 42 - Ethics and Public Policy**

Swaine

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.

Distribution: Dist: TMV; WCult: W. Prerequisite: PBPL 5. Crosslisted as: GOVT 60.01. Offered: 13F, 14F: 10.

### **PBPL 45 - Introduction to Public Policy Research**

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: A course employing mathematical reasoning or statistical methods (e.g. ECON 10 or GOVT 10). Offered: 13F, 14F: 10A.

### **PBPL 47 - Foundations of Leadership**

Ruback

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."

Distribution: Dist: SOC; WCult: W. Offered: 14S, 15S: 2A.

### **PBPL 48 - Policy Analysis and Local Governance**

Post

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: PBPL 5. Offered: Not offered in the period from 13F through 15S.

### **PBPL 51 - Leadership in Civil Society**

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 52 - Leadership and Political Institutions**

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 explores 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?

Distribution: Dist: SOC; WCult: W. Crosslisted as: GOVT 30. Offered: 13F: 2A.

### **PBPL 81.2 - Lawyers and Public Policy**

Bohmer

Distribution: Dist: SOC; WCult: W. Crosslisted as: GOVT 81.4. Offered: Not offered in the period from 13F through 15S.

### **PBPL 81.3 - Urban Politics and Public Policymaking**

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 81.5 - Poverty and Public Policy in the United States**

Hollister

Distribution: Dist: SOC; WCult: W. Crosslisted as: SOCY 55. Offered: Not offered in the period from 13F through 15S.

### **PBPL 81.7 - Secrecy and Lying in Politics, Law and Society**

Eickelman

Distribution: SOC. Crosslisted as: ANTH 16. Offered: 13F: 10A.

### **PBPL 81.8 - Economics of Education Policy**

Chaudhury

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

**PBPL 81.9 - Politics and Markets**

Fowler

Distribution: Dist: SOC; WCult: W. Crosslisted as: GOVT 83.2. Offered: 13F: 10A.

**PBPL 82.1 - Military Statecraft in International Relations**

Press

Distribution: SOC or INT. Crosslisted as: GOVT 85.12. Offered: 14W, 14F: 3A.

**PBPL 82.2 - Ideas, Politics and Crisis**

Campbell

Crosslisted as: SOCY 67. Offered: 13F, 14F: 11.

**PBPL 82.5 - International Law and Transnational Policymaking**

Distribution: SOC or INT; Hurt. Crosslisted as: GOVT 85.25. Offered: Not offered in the period from 13F through 15S.

**PBPL 82.6 - Law, Rights, and Public Policy in Education**

Glick

Distribution: SOC; WCult: W. Crosslisted as: GOVT 83.8. Offered: Not offered in the period from 13F through 15S.

**PBPL 82.7 - Consumer Debt, Bankruptcy, and Economic Policy**

Laws

Distribution: SOC; WCult: W. Crosslisted as: GOVT 83.7. Offered: Not offered in the period from 13F through 15S.

**PBPL 84.2 - Health Policy Reform**

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.

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

**PBPL 84.4 - Immigration and Security Policy at the U.S.-Mexico Border**

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.

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

**PBPL 85 - Global Policy Leadership: Economic Reform in India**

Wheelan

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.

Offered: 13F: 2A.

**PBPL 91 - Independent Study in Public Policy**

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.

**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 M. D. Cravens; and T. J. Ruback; Adjunct Professor H. G. Welch.

*To view Public Policy courses, click here* (p. 393).

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, PBPL 10, SOCY 10, Mathematics and Social Sciences 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 40-49

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. 392).

#### **PBPL 5 - Introduction to Public Policy**

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.

Distribution: Dist: SOC; WCult: W. Offered: 14W, 15W: 10.

#### **PBPL 7 - Leadership in Foreign Policy Decision-making**

Ruback

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 10 - Statistical Analysis for Public Policy**

Cravens

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.

Distribution: QDS. Offered: Not offered in the period from 13F through 15S.

### **PBPL 20 - Contemporary Issues in American Politics and Public Policy**

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 26 - Health Policy and Clinical Practice**

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?

Distribution: Dist: SOC; WCult: W. Offered: 15S: 10.

### **PBPL 28 - Courts and Public Policy**

Laws, Glick

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 40 - Economics of Public Policymaking**

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.

Distribution: Dist: SOC; WCult: W. Offered: 14X, 15X: 10A.

### **PBPL 41 - Writing and Speaking Public Policy**

Kalish

Writing and Speaking Public Policy is a hands-on experience, designed for students planning for a career in leadership, government, and public policy. The course uses politics, law, popular culture, psychology, history, and theater, as well as public policy, to draw out fundamental persuasive principles and techniques. It will provide models of successful policy campaigns ... as well as those that suffered from some fatal flaws. We will start to explore barriers to effective communication and work with some tools for surmounting them.

Distribution: Dist: ART; WCult: W. Prerequisite: PBPL 5 or permission from the Instructor. Crosslisted as: WRIT 41. Offered: 14S, 15S: 2A.

### **PBPL 42 - Ethics and Public Policy**

Swaine

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.

Distribution: Dist: TMV; WCult: W. Prerequisite: PBPL 5. Crosslisted as: GOVT 60.01. Offered: 13F, 14F: 10.

### **PBPL 45 - Introduction to Public Policy Research**

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: A course employing mathematical reasoning or statistical methods (e.g. ECON 10 or GOVT 10). Offered: 13F, 14F: 10A.

### **PBPL 47 - Foundations of Leadership**

Ruback

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."

Distribution: Dist: SOC; WCult: W. Offered: 14S, 15S: 2A.

### **PBPL 48 - Policy Analysis and Local Governance**

Post

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.

Distribution: Dist: SOC; WCult: W. Prerequisite: PBPL 5. Offered: Not offered in the period from 13F through 15S.

### **PBPL 51 - Leadership in Civil Society**

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 52 - Leadership and Political Institutions**

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 explores 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?

Distribution: Dist: SOC; WCult: W. Crosslisted as: GOVT 30. Offered: 13F: 2A.

### **PBPL 81.2 - Lawyers and Public Policy**

Bohmer

Distribution: Dist: SOC; WCult: W. Crosslisted as: GOVT 81.4. Offered: Not offered in the period from 13F through 15S.

### **PBPL 81.3 - Urban Politics and Public Policymaking**

Hachadon

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **PBPL 81.5 - Poverty and Public Policy in the United States**

Hollister

Distribution: Dist: SOC; WCult: W. Crosslisted as: SOC Y 55. Offered: Not offered in the period from 13F through 15S.

### **PBPL 81.7 - Secrecy and Lying in Politics, Law and Society**

Eickelman

Distribution: SOC. Crosslisted as: ANTH 16. Offered: 13F: 10A.

### **PBPL 81.8 - Economics of Education Policy**

Chaudhury

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

**PBPL 81.9 - Politics and Markets**

Fowler

Distribution: Dist: SOC; WCult: W. Crosslisted as: GOVT 83.2. Offered: 13F; 10A.

**PBPL 82.1 - Military Statecraft in International Relations**

Press

Distribution: SOC or INT. Crosslisted as: GOVT 85.12. Offered: 14W, 14F; 3A.

**PBPL 82.2 - Ideas, Politics and Crisis**

Campbell

Crosslisted as: SOCY 67. Offered: 13F, 14F; 11.

**PBPL 82.5 - International Law and Transnational Policymaking**

Distribution: SOC or INT; Hurt. Crosslisted as: GOVT 85.25. Offered: Not offered in the period from 13F through 15S.

**PBPL 82.6 - Law, Rights, and Public Policy in Education**

Glick

Distribution: SOC; WCult: W. Crosslisted as: GOVT 83.8. Offered: Not offered in the period from 13F through 15S.

**PBPL 82.7 - Consumer Debt, Bankruptcy, and Economic Policy**

Laws

Distribution: SOC; WCult: W. Crosslisted as: GOVT 83.7. Offered: Not offered in the period from 13F through 15S.

**PBPL 84.2 - Health Policy Reform**

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.

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

**PBPL 84.4 - Immigration and Security Policy at the U.S.-Mexico Border**

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.

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

**PBPL 85 - Global Policy Leadership: Economic Reform in India**

Wheelan

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.

Offered: 13F; 2A.

**PBPL 91 - Independent Study in Public Policy**

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, N. K. Frankenberry, R. M. Green, S. Heschel; Associate Professors R. Baum, E. Z. Benor, C. H. MacEvitt, R. Ohnuma, G. Raz, A. K.

Reinhart; Assistant Professor E. Pérez; Visiting Professors T. Lim; Senior Lecturer C. Randall.

To view Religion courses, [click here](#) (p. 398).

### 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 20.1 through REL 20.5).
3. At least two courses from the Intermediate series on Religion (REL 21 through REL 79).
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

Only Introductory level courses with a grade of NR resulting from use of the Non-Recording Option may be counted for the religion major, modified major, or minor.

### Transfer Credit

No more than three transfer courses, which may include REL 70, 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.

### 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.

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.

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.

*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. 396).

### *Elementary Course*

#### **REL 1 - Patterns of Religious Experience**

The staff

A comparative study of some of the basic patterns of religion. The course will focus upon such themes as religious experience, myths of creation, stories of religious founders and heroes, the origin and resolution of human suffering, and the structure and meaning of religious community and ritual. Source material for these themes will be taken from the literary and artistic resources of the following religious traditions: Buddhism, Christianity, Hinduism, Islam, and Judaism. Open to all classes.

Distribution: TMV or INT. Offered: 13F, 14W, 14F, 15W: 11.

### *Introductory Courses*

#### **REL 2 - Religion in the Modern World**

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.

Distribution: TMV or INT. Offered: 14X: 12.

#### **REL 3 - Modern Religious and Anti-Religious Thinkers**

Frankenberry

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.

Distribution: Dist: TMV; WCult: W. Offered: 13F: 10 15S: 11.

#### **REL 4 - Religion of Israel: The Hebrew Bible (Old Testament)**

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.

Distribution: Dist: TMV; WCult: W. Crosslisted as: JWST 4. Offered: 14F: 2.

#### **REL 5 - Early Christianity: The New Testament**

Ackerman and MacEvitt

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.

Distribution: Dist: TMV; WCult: W. Offered: 14W: 2.

**REL 6 - Introduction to Judaism**

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.

Distribution: Dist: TMV; WCult: W. Crosslisted as: JWST 6. Offered: 13F, 14F: 12.

**REL 7 - First-Year Seminars in Religion**

Offered: Consult special listings.

**REL 8 - Introduction to Islam**

Reinhart

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: AMES 8. Offered: 14X: 10.

**REL 9 - Hinduism**

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: AMES 9. Offered: 14S: 11.

**REL 10 - The Religions of China**

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: AMES 10. Offered: 14W: 10.

**REL 11 - Religion and Morality**

Green

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.

Distribution: TMV. Offered: 14W: 10A.

**REL 12 - Religion in Early America**

Balmer

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.

Distribution: Dist: TMV; WCult: W. Offered: 14F: 10A.

**REL 13 - Religion in Modern America**

Balmer

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.

Distribution: Dist: TMV; WCult: W. Offered: 14W, 15W: 10A.

**REL 14 - Introduction to African Religions**

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: Identical to AAAS 18. Offered: 14S, 15S: 2A.

**REL 15 - The Christian Tradition**

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.

Distribution: Dist: TMV; WCult: W. Offered: Not offered in the period from 13F through 15S.

**REL 16 - Modern Islam**

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: AMES 15. Offered: 14S: 12 15S: 10.

**REL 17 - African Religions of the Americas**

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.

Distribution: Dist: TMV or INT; WCult: CI. Crosslisted as: AAAS 83.5. Offered: 13F: 2.

**REL 18 - Indian Buddhism**

An introductory survey of the Buddhism of South Asia from its beginnings in the 6<sup>th</sup> century B.C.E. to its eventual demise in the 12<sup>th</sup> 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.

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**REL 19 - Special Topics in Religion-Introductory Level**

Baum

The contents of this course will vary from term to term. Open to all classes.

In 13F at 10A, *Women, Religion, and Social Change in Africa* (Identical to AAAS 42 and WGST 44.3 (p. 461)). 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. *Dist: TMV; WCult: NW.*

In 14S at 10A (Identical to AAAS 87.3), *Race, Religion, & Gender in North & South Sudan.* Baum.

In 14S at 10A (Identical to JWST 56 and WGST 44.2 (p. 461)), *Women in Islam and Judaism.* Open to all. *Dist: TMV; WCult: CI.* Heschel and Amirpur.

In 14F at 2A, *West African Religions.* Baum.

Distribution: Dist: TMV (except when otherwise noted). WCult: Varies. Offered: 13F, 14S: 10A 14F: 2A.

*Theories in the Study of Religion Courses*

**REL 20.1 - Classic Works in the Study of Religion**

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.

Distribution: TMV. Offered: Not offered in the period from 13F through 15S.

### **REL 20.2 - Magic, Science, and Religion**

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.

Distribution: SOC. Offered: 14W: 2 15W: 12 .

### **REL 20.3 - Reason and Religious Belief**

Frankenberry

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.

Distribution: TMV. Offered: 13F: 12.

### **REL 20.4 - 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.

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

### *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.

Distribution: TMV; WCult: W. Crosslisted as: JWST 60. Offered: Not offered in the period from 13F through 15S.

### **REL 23 - Jewish Mysticism**

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.

Distribution: Dist: TMV; WCult: W. Crosslisted as: JWST 62. Offered: 15S: 2.

### **REL 24 - Jewish Philosophers of Religion**

Benor

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.

Distribution: Dist: TMV; WCult: W. Crosslisted as: JWST 63. Offered: 14S: 2.

### **REL 25 - Islamic Mysticism (Sufism)**

Reinhart

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.

Distribution: Dist: TMV; WCult: NW. Offered: 14S: 10.

### **REL 26 - Islam in America**

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.

Distribution: Dist: TMV; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **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.

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

### **REL 28 - Topics in the Study of Islam**

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.

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

### **REL 29 - Kierkegaard and Existentialism**

Green

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.

Distribution: Dist: TMV; WCult: W. Offered: 14S: 2A.

### **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.

Distribution: Dist: TMV; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **REL 31 - Sex, Celibacy, and the Problem of Purity: Asceticism and the Human Body in Late Antiquity**

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.

Distribution: Dist: TMV; WCult: W. Crosslisted as: WGST 43.2 and CLST 11.2. Offered: Not offered in the period from 13F through 15S.

### **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.

In 14S at 11, *Christianity in Korea*, identical to AMES 21.05 and HIST 78. 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. DIST: TMV; WCult: NW. Suh.

In 15S at 10A, *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. DIST: TMV; WCult: W. Randall.

Distribution: Dist: TMV; WCult: W (unless otherwise noted). Crosslisted as: In 14S at 11, Christianity in Korea, identical to AMES 21.05 and HIST 78. Offered: 14S: 11 15S: 10A.

### **REL 33 - Christians, Jews, and Muslims in the Age of the Crusades**

MacEvitt

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.

Distribution: Dist: TMV; WCult: W. Crosslisted as: HIST 4.2 and JWST 36. Offered: 13F: 2A.

### **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.

Distribution: Dist: TMV; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **REL 35 - Religion and Science**

Frankenberry

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.

Distribution: TMV. Offered: 15S: 2.

### **REL 36 - New Directions in American Religious Thought**

This course explores a distinctively American tradition of religious thought that developed outside of the strictly doctrinal or theological thinking of churches, synagogues, and mosques. Readings range from the religious writings of the classical pragmatists, including Peirce, James, Santayana, and Dewey, to neopragmatists, such as Richard Rorty, and prophetic pragmatists, such as Cornel West, and their critics. Topics include the character of religious experience, divinity and nature, the problem of evil, and the meaning of truth. Open to sophomores, juniors, and seniors.

Distribution: Dist: TMV; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **REL 37 - Animal Rights in Religion, Film, and Literature**

Randall

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.

Distribution: Dist: TMV; WCult: W. Offered: 14W, 15W: 10A.

### **REL 38 - Spiritual Autobiography**

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.

Distribution: Dist: TMV;. Offered: 15W: 2A.

### **REL 39 - Magic, Madwomen, and Mystics**

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.

Distribution: Dist: TMV; WCult: W. Offered: 14S: 10A.

#### **REL 40 - Topics in the Religions of India**

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.

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

#### **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.

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

#### **REL 42 - Goddesses of India**

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.

Distribution: Dist: TMV; WCult: NW. Crosslisted as: WGST 43.4. Offered: 14S: 2.

#### **REL 46 - Daoism: Transformations of Tradition**

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.

Distribution: Dist: TMV; WCult: NW. Offered: 13F: 10.

#### **REL 47 - Buddhism in China**

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.

Distribution: Dist: TMV; WCult: NW. Offered: 14W: 2.

#### **REL 48 - Body and Sex in Chinese Religions**

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 3<sup>rd</sup> 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.

Distribution: Dist: TMV; WCult: NW. Offered: 15W: 10.

#### **REL 49 - Topics in East Asian Religions**

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.

Distribution: Dist: TMV; WCult: NW. Offered: Not offered in the period from 13F through 15S.

**REL 51 - The Virgin of Guadalupe: From Tilma to Tattoo**

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.

Distribution: Dist: TMV; WCult: CI. Crosslisted as: LATS 35 and WGST 44.5. Offered: Not offered in the period from 13F through 15S.

**REL 52 - Religion and Music in Cuba**

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.

Distribution: Dist: TMV; WCult: CI. Crosslisted as: LACS 30.4. Offered: Not offered in the period from 13F through 15S.

**REL 53 - Religion, Healing, and Medicine**

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.

Distribution: Dist: INT or SOC; WCult: CI. Offered: 14W: 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.

Distribution: Dist: TMV; WCult: NW. Offered: 15W: 12.

**REL 56 - Women and the Bible**

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.

Distribution: Dist: TMV; WCult: CI. Crosslisted as: Identical to WGST 43.3. Offered: 15W: 2.

**REL 57 - Readings in the Biblical Tradition**

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.

Distribution: TMV. Offered: Not offered in the period from 13F through 15S.

**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.

Distribution: TMV. Offered: Not offered in the period from 13F through 15S.

**REL 60 - Reformations: Protestant and Catholic**

Randall

This course examines the theological, social, psychological, and cultural motors driving change within the institutional church during the 16<sup>th</sup> and early 17<sup>th</sup> 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.

Distribution: Dist: TMV; WCult: W. Offered: 13F: 10A.

### **REL 61 - Religion and the Civil Rights Movement**

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: AAAS 82. Offered: Not offered in the period from 13F through 15S.

### **REL 62 - Religion, Politics, and the Presidency**

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.

Distribution: Dist: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

### **REL 70 - Foreign Study in Religion I**

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.

Distribution: TMV. Prerequisite: Two courses in Religion. Offered: 13F, 14F: D.F.S.P.

### **REL 71 - Foreign Study in Religion II**

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.

Distribution: TMV. Prerequisite: Two courses in Religion. Offered: 13F, 14F: D.F.S.P.

### **REL 74 - Special Topics in Religion-Intermediate Level**

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.

In 13F, D.F.S.P., *The English Bible*. In this course, we will study first the coming of the Bible to England,

concentrating particularly on the Bibles associated with the great Saint Cuthbert of southern Scotland/northern England: the Lindisfarne Gospels and the Saint Cuthbert Gospel. Second, we will study the history of the rendering of the Bible into English, culminating with the 1611 translation commissioned by King James VI of Scotland/James I of England. A field trip to Lindisfarne and Durham Cathedral is included. Ackerman.

In 14F, D.F.S.P., *Harry Potter, Myth, Magic, and Religion*. This course explores themes in the history of religions addressed in J.K. Rowling's *Harry Potter* series (written in Edinburgh), emphasizing the cross-cultural bases for featured practices, symbols, and characters. Classes are organized according to the Hogwarts staff's areas of specialization, including magic; mythical creatures; divination; defense against the dark arts; transfiguration; charms; potions. We also consider race, gender, and representation in fantasy fiction, as well as critical reception of the novels among fans and foes. Pérez.

Distribution: Dist: TMV; WCult: Varies. . Offered: 13F, 14F: D.F.S.P. .

### *Advanced Courses*

### **REL 80 - Seminars**

Raz

The contents of this course will vary from term to term.

In 13F at 10A, *The Dao: Wandering Along the Path in Early China*. This course investigates the notion of the Dao in early China. Dao, usually translated as Way, was a core concept in early Chinese religious thought. Appearing in almost all early texts, this term was adopted as a name of a philosophy, a religion, indeed, a whole way of life, Daoism. Yet, the precise meaning of this term is elusive. Through careful examination of several texts from early China which discuss the Dao, as well as modern studies which approach these texts with different methodologies, we will attempt to understand what the Dao meant to different thinkers in early China. Raz.

In 14F at 10A, *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 Seigel, 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 medical practitioners will be guest speakers. Randall.

Distribution: Dist: TMV; WCult: Varies. Offered: 13F, 14F: 10A .

**REL 81 - Dickinson Distinguished Scholar Seminar**

Reinhart

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.

Distribution: Dist: TMV; WCult: Varies. Crosslisted as: JWST 70.3. Offered: 15S: 2A.

**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**

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.

In 14W at 10A, "Religion! Just the facts please." MacEvitt and Benor.

In 15W at 10A, TBA. Reinhart.

Distribution: TMV. Prerequisite: Open only to senior majors. Offered: 14W, 15W: 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 Professor D. A. Garretson, M. Gronas; Assistant Professors L. Patyk, V. Somoff; Senior Lecturer A. Rakova; Mellon Postdoctoral Fellow Andrew Chapman.

*To view Russian Language and Literature courses, click here (p. 409).*

**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 through 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. 407).

#### **RUSS 1 - Introductory Russian**

Garretson (13F), Patyk (13F)

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: 13F: 9L, 12.

#### **RUSS 2 - Introductory Russian**

Gronas

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: 14W: 9L.

#### **RUSS 3 - Introductory Russian**

Rakova

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: 14S: 9L.

#### **RUSS 7 - First-Year Seminar in Russian**

Offered: Consult special listings.

#### **RUSS 10 - Introduction to Russian Civilization (formerly Russian 15)**

Gronas, Chapman (14W)

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.

Distribution: TMV; WCult: CI. Offered: 14W: 2A.

#### **RUSS 11 - Special Topics in Russian Culture**

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F through 15S.

#### **RUSS 12 - Ethnicity and Nationalism in Russia and the Neighboring States (formerly Russian 39)**

Kan

Open to all classes.

Distribution: SOC; WCult: W. Crosslisted as: ANTH 39. Offered: Not offered in the period from 13F through 15S.

#### **RUSS 13 - Slavic Folklore: Vampires, Witches and Firebirds**

Somoff (13F), Gronas (14S)

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.

Distribution: INT or LIT; WCult: W. Offered: 13F, 14S, 14F, 15S: 10.

#### **RUSS 14 - The Age of Brainwashing: A History of Russian and Eastern European Film**

Gronas

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.

Distribution: ART; WCult: W. Crosslisted as: FILM 42.  
Offered: 14S: 10A.

### **RUSS 18 - Russian Theater (formerly Russian 38)**

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.

Distribution: LIT; WCult: W. Crosslisted as: THEA 10.  
Offered: 14S: 10.

### **RUSS 19 - Understanding the Russians: The Role of Language and Culture in Communication**

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.

Distribution: SOC or INT; WCult: W. Offered: 14F: 11.

### **RUSS 21 - Russian Civilization: Study Abroad**

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.

Distribution: INT or SOC; WCult: W. Prerequisite: membership in the L.S.A. Program. Offered: 14X: D.L.S.A.+.

### **RUSS 22 - The Russian Language: Study Abroad**

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.

Distribution: WCult: W. Prerequisite: membership in the Foreign Study Program. Offered: 14X: D.L.S.A.+.

### **RUSS 23 - The Russian Language: Study Abroad**

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.

Distribution: WCult: W. Prerequisite: membership in the L.S.A. Program. Offered: 14X: D.L.S.A.+.

### **RUSS 27 - Intermediate Russian I**

Rakova

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: Russian 3 or equivalent. Offered: 13F: 12.

### **RUSS 28 - Intermediate Russian II and III**

Rakova

This sequence 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 23 or RUSS 27, or permission.  
Offered: 14W: 12.

### **RUSS 29 - Intermediate Russian II and III**

Rakova

This sequence 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 23 or RUSS 27, or permission.  
Offered: 14S: 12.

### **RUSS 31 - Transgressive Novels: Masterpieces of Russian Fiction**

Kopper

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.

Distribution: LIT; WCult: W. Offered: 14W: 10A.

### **RUSS 32 - Twentieth Century Russian Literature: Revolution, Terror, and Art**

Somoff

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.

Distribution: LIT; WCult: W. Offered: 14W: 2.

### **RUSS 35 - Dostoevsky and the Problem of Evil**

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.

Distribution: LIT; WCult: W. Offered: 14S: 2A.

### **RUSS 36 - "The Seer of the Flesh": Tolstoy's Art and Thought**

Patyk

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.

Distribution: Dist: LIT; WCult: W. Offered: 13F: 2A.

### **RUSS 38 - Special Topics in Russian Literature**

Somoff (14W), Kopper (14S), Chapman (14S)

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.

In 14W, *Russian Fairy Tales*. 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. Somoff.

In 14S, *The Violence of the Story: Masterpieces of Short Fiction in Russia and the West*. Through its brevity the short story challenges readers to invent, imagine, and interpolate information to a degree not demanded by the novel. This course explores the inherent violence that the story form does to reading expectations, notions of character interaction, and conventional ideas about what constitutes a plot. It also examines ways in which the short story tests our ability to contextualize and defeats our wish for closure. Kopper.

In 14S, *Narrating the City: Soviet Urban Culture and the 20th Century*. The 20<sup>th</sup> century saw Moscow rise not only as the Soviet capital, but also as the primary site of

storytelling, replacing the 19<sup>th</sup> century literary tradition of the St. Petersburg text. Through literature and film, we will explore city space as text and how it was culturally constructed beyond its physical architecture. The course will draw on theoretical texts in sociology, anthropology, and cultural studies to contextualize the Soviet project of urbanization. Chapman.

Distribution: Dist: LIT; WCult: W. Offered: 14W: 10, 14S: 10, 11.

#### **RUSS 41 - Advanced Conversation and Composition**

Rakova

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: Russian 29 or higher. Offered: 14F: 10.

#### **RUSS 42 - Advanced Grammar I**

Rakova

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.

Offered: 13F: 10.

#### **RUSS 43 - Advanced Grammar II**

Offered: Not offered in the period from 13F through 15S.

#### **RUSS 45 - Special Topics in Russian Language**

Garretson

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: Russian 29 or higher. Offered: Not offered in the period from 13F through 15S.

#### **RUSS 48 - Structure of Modern Russian (formerly Russian 62)**

Garretson

Offered: Not offered in the period from 13F through 15S.

#### **RUSS 71 - Advanced Seminar in Russian Culture**

Somoff

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.

Distribution: LIT; WCult: W. Prerequisite: At least one course in the 40s; students who have equivalent preparation may enroll with permission of the instructor. Offered: 14S: 12.

#### **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**

Offered: Not offered in the period from 13F through 15S.

#### **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, J. J. Kim, A. V. Koop, R. L. Kremer, J. V. Kulvicki, J. H. Moor, A. L. Roskies.

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**

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**Courses**

BIOL 4	Genes and Society
BIOL 5	Philosophy of Biology
BIOL 9/CHEM 9	Chemical Principles and Biological Processes II
BIOL 36	History of Genetics
COLT 65	Literature and Science
COLT 66	Literature and Psychoanalysis
EARS 5	Natural Disasters and Catastrophes
EARS 6	Environmental Change
EDUC 56	STEM and Education
ENGS 3	Materials: The Substance of Civilization
ENGS 5	Healthcare and Biotechnology in the 21st Century
ENGS 37	Introduction to Environmental Engineering
ENGS 41	Sustainability and Natural Resource Management
ENVS 11	Humans and Nature in America
ENVS 3	Environment and Society: Towards Sustainability?
ENVS 50	Environmental Problem Analysis and Policy Formulation
ENVS 72	Nature Writers
HIST 21	Modern American Thought and Culture
HIST 36	Health Care in American Society: History and Current Issues
HIST 51	Modern European Intellectual History
HIST 57	Scientific Revolutions and Modern Society
HIST 63	History of Recent Science and Technology
MATH 36/M&SS 36	Mathematical Models in the Social Sciences
MUS 9	Music and Technology
PHIL 25	Philosophy of Medicine
PHIL 26/COGS 26	Philosophy and Computers
PHIL 27	Philosophy of Science
PHIL 35	Philosophy of Mind
REL 35	Religion and Science
SOCY 28	Health Care and Health Care Policy

**Social Science**

*To view Social Science courses, click here (p. 413).*

**SSOC - Social Science Courses**

*To view Social Science requirements, click here (p. 413).*

**SSOC 1 - War and Peace in the Modern Age**

Press

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.

Distribution: SOC. Crosslisted as: WPS 1 and GOVT 50. Offered: Not offered in 2013-2014; may be offered in 2014-2015.

**Sociology**

Chair: Kathryn J. Lively

Professors J. L. Campbell, M. Parsa; Associate Professors D. L. Anthony, M. D. Dixon, D. K. King, K. J. Lively; Assistant Professors J. N. Houle, J. M. McCabe, E. C. Walton; Adjunct Professor A. B. Flood; Adjunct Assistant Professor V. A. Lewis; Visiting Assistant Professor K. Smith; Lecturers P. Coutinho-Sledge, D. Goodman.

*To view Sociology courses, click here (p. 416).*

**Requirements for the Standard Major**

The standard major in Sociology consists of eleven courses (ten for Classes prior to 2015), 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. (Classes prior to 2015 need only one methods course: SOCY 10 or SOCY 11.)
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. Majors are encouraged to identify an area of concentration within Sociology.

- 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:

- Prerequisite: one introductory level course, either SOCY 1 or SOCY 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. (Classes prior to 2016 need only one methods course: SOCY 10 or SOCY 11.)
- One theory course: SOCY 15, or SOCY 16.
- Students must take 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. Majors are encouraged to identify an area of concentration within Sociology.
- 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.
- 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.

### **Requirements for the Basic Minor**

The basic minor in Sociology consists of six courses, to be selected as follows:

- Prerequisite: one introductory level course, either SOCY 1 or SOCY 2.
- One theory course, either SOCY 15 or SOCY 16
- 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:

- One introductory level course, either SOCY 1 or SOCY 2.
- One theory course, either SOCY 15 or SOCY 16
- One of the following: SOCY 26 (formerly SOCY 49.3), SOCY 66 or SOCY 69
- Two of the following courses from the Lower Division  
SOCY 21 Political Sociology  
SOCY 22 The Sociology of International Development  
SOCY 26 (formerly SOCY 49.3) Capitalism, Prosperity and Crisis\*  
SOCY 27 Organizations in Society  
SOCY 28 Health Care and Health Care Policy  
SOCY 29 Sociology of Work
- 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 (formerly SOCY 79.3) Ideas, Politics and Crisis  
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, 66 or 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:

- One introductory course, either SOCY 1 or SOCY 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 (formerly SOCY 49.4) 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 57 Identity and Social Interaction of Multiracial Americans
  - 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 special set of social science courses taught in English by Copenhagen faculty. Students may choose courses in sociology, anthropology, government 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 11 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: [www.dartmouth.edu/~socy/honors.html](http://www.dartmouth.edu/~socy/honors.html).

### 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. 413).

### **SOCY 1 - Introductory Sociology**

Campbell (13F, 14F), Goodman (14S)

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.

Distribution: SOC; WCult: W. Offered: 13F, 14S, 14F: 9L.

### **SOCY 2 - Social Problems**

McCabe (14W, 15S), Anthony (15W)

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.

Distribution: SOC; WCult: W. Offered: 14W: 10A 15W: 9L 15S: 2A.

### **SOCY 7 - First-Year Seminars in Sociology**

Offered: Consult special listings.

### **SOCY 10 - Quantitative Analysis of Social Data**

Houle

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, SSOC 10, MSS 15 or SOCY 10 by special petition.

Distribution: QDS. Offered: 13F, 14W, 14F, 15W: 10.

### **SOCY 11 - Research Methods**

McCabe

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.

Distribution: SOC. Offered: 14S, 15S: 10A.

### **SOCY 15 - Sociological Classics**

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.

Distribution: TMV. Prerequisite: SOCY 1 or 2, or permission of the instructor. Offered: 13F, 14F: 10A 14S: 10 15W: 2A.

### **SOCY 16 - Constructing Social Theory**

Goodman

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.

Distribution: SOC. Prerequisite: SOCY 1 or SOCY 2, or permission of the instructor. Offered: Not offered in the period 13F to 15S.

### **SOCY 21 - Political Sociology**

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.

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F to 15S.

### **SOCY 22 - The Sociology of International Development**

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.

Distribution: INT. Offered: 13X, 14X: 10.

### **SOCY 23 - Social Movements**

Dixon

This course focuses on the origins and role of social movements in shaping the structure of contemporary societies. After examining theories of social movements, we will apply them to the American civil rights movement and to revolutionary movements in developing countries. Finally, we will explore the causes of revolutions in Iran, Nicaragua, and the Philippines, and explain the rise of Islamic fundamentalism, revolutionary socialism, and democracy in these three countries. Open to all classes.

Distribution: SOC; WCult: W. Offered: 14F: 2A.

### **SOCY 25 - Democracy and Democratization in Developing Countries**

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.

Distribution: SOC or INT; WCult: NW. Offered: 14X: 2.

### **SOCY 26 - Capitalism, Prosperity and Crisis (Formerly 49.3)**

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.

Distribution: SOC; WCult: W. Offered: 15S: 10A.

### **SOCY 27 - Organizations in Society**

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.

Distribution: SOC; WCult: W. Offered: 14F: 12.

### **SOCY 28 - Health Care and Health Care Policy**

Lewis

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.

Distribution: SOC; WCult: W. Offered: 13F: 10A.

### **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.

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F to 15S.

### **SOCY 30 - Deviance and Social Control**

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.

Distribution: SOC; WCult: W. Offered: 14W: 2.

### **SOCY 31 - Youth and Society**

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.

Distribution: SOC; WCult: CI. Offered: 14S: 2A 15W: 10A.

### **SOCY 32 - The Social Meanings of Home**

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.

Distribution: SOC; WCult: W. Offered: Not offered in the period from 13F to 15S.

### **SOCY 33 - Self and Society**

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.

Distribution: SOC. Offered: 14F: 10A.

### **SOCY 34 - Health Disparities**

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.

Distribution: SOC. Offered: 14S: 2 15S: 11.

### **SOCY 35 - Sociology of Mental Health**

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.

Distribution: SOC. Offered: 13F, 14F: 2.

### **SOCY 39 - Reproductive Rights and Technologies**

### **SOCY 43 - Dangerous Intersections: Race, Class, and Gender**

### **SOCY 44 - Complexities of Latino Identities in the US**

Gomez

The Latino population currently consists of approximately 38 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; and, its experience in the United States is quite varied. This seminar will explore issues of race, class, and gender within the Latino community in the United States. It will examine the socio-economic experiences of various Latino groups (Chicanos, Puerto Ricans, Cubans, Dominicans, Central and South Americans), as well as issues of identity, pan-ethnicity, representation of group politics, language, and gender & class conflicts.

Distribution: SOC; WCult: W. Crosslisted as: LATS 5. Offered: 13X, 14X: 10A.

### **SOCY 45 - Inequality and Social Justice (Formerly 49.4)**

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.

Distribution: SOC. Offered: 14S: 12 15W: 10A.

### **SOCY 46 - Constructing Black Womanhood**

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.

Distribution: SOC; WCult: CI. Crosslisted as: AAAS 25 and WGST 33.1. Offered: 15W: 3A.

### **SOCY 47 - Race and Ethnicity in the U.S.**

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.

Distribution: SOC; WCult: W. Offered: 15S: 2.

### **SOCY 48 - Immigration, Race and Ethnicity**

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.

Distribution: SOC; WCult: CI. Crosslisted as: GEOG 28, and LATS 40. Offered: 14W, 15W: 10A.

**SOCY 49 - Lower Division Special Topics Courses**

In 13F at 12, *The Sociology of Culture*. Culture is anything that has meaning and that can be passed on to subsequent generations. Culture includes myths, art, stories, songs, movies, novels, icons, manners, speech habits and much more. You have inherited a culture and you will pass one on to the next generation. The aim of this class is to help you to analyze the culture that you have inherited and to critically evaluate the culture that you intend to pass on. Goodman

In 14W and 15W at 2, *The Sociology of Family*. 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. Dist: SOC; WCult: W. Walton

In 14W at 11, *TBA*. King

Offered: 13F: 12 14W: 11, 2 15W: 2.

**SOCY 50 - Sociology of Law**

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. Complementing 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.

Distribution: SOC; WCult: W. Prerequisite: SOCY 1 or 2, or permission of the instructor. Offered: 15S: 12.

**SOCY 51 - Prisons: The American Way of Punishment**

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.

Distribution: SOC; WCult: W. Offered: 14F: 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?

Distribution: SOC; WCult: W. Crosslisted as: PBPL 81.5. Offered: Not offered in the period from 13F to 15S.

**SOCY 57 - Identity and Social Interaction of Multiracial Americans**

Offered: Not offered in the period from 13F to 14S.

**SOCY 58 - Education and Inequality**

Offered: Not offered in the period from 13F to 14S.

**SOCY 61 - Women, Work and Family**

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.

Distribution: SOC; WCult: W. Prerequisite: SOCY 1 or 2, or WGST 10 with permission. Crosslisted as: WGST 33.5. Offered: 14S: 10A.

**SOCY 62 - Love, Romance, Intimacy and Dating (formerly 49.9)**

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.

Distribution: SOC. Crosslisted as: WGST 33.7. Offered: 14S: 3B.

### **SOCY 63 - Trust in Society**

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.

Distribution: SOC. Prerequisite: SOCY 1 or 2, and one other Sociology course. Offered: 15W: 12.

### **SOCY 64 - The Sociology of Emotion**

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. Lively.

Distribution: SOC. Offered: 14F: 3B.

### **SOCY 66 - Markets and Management**

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.

Distribution: SOC; WCult: W. Offered: 15W: 11.

### **SOCY 67 - Ideas, Politics and Crisis (Formerly 79.3)**

Campbell

Political efforts to cope with today's financial crisis have drawn the world's attention to the importance of new and innovative ideas in public policymaking. But where do these policy programs come from? How are they framed to muster support? What underlying intellectual, political and philosophical assumptions do they involve? How do they correspond to public opinion? How do they reflect the material and political interests of various supporters and opponents? Why do some ideas affect policymaking and others do not? This course explores these issues and others related to how and why ideas affect public policymaking, particularly during times of crisis. Special attention will be focused on the rise since the late 1970s of neoliberalism—a conservative set of ideas, which calls for lower taxes, less welfare spending and less business regulation, among other things. But the course also explores the fate of neoliberalism in the wake of the current financial crisis and the possibility that we are entering a post-neoliberal era. This is an upper division course that includes a major research paper requirement.

Distribution: SOC; WCult: W. Crosslisted as: PBPL 82.2. Offered: 13F, 14F:11.

### **SOCY 68 - Global Health Systems**

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.

Distribution: INT; WCult: NW. Offered: 14F: 2.

### **SOCY 69 - The Sociology of Globalization**

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.

Distribution: SOC or INT. Offered: 14W: 11.

### **SOCY 70 - American Labor Relations**

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.

Distribution: SOC; WCult: W. Offered: 13F: 2A.

### **SOCY 79 - Upper Division Special Topics Courses**

In 13F at 10, *Drugs and Pharmaceuticals in Society*. Licit and illicit drugs make illuminating case studies for our economic and political systems. We explore the following questions: Are profit motives and humanitarian concerns in irresolvable conflict? Does the international network of illegal drugs show the future of globalization? Does pharmaceutical lobbying demonstrate the anti-democratic influence of money? Is the "war on drugs" political demagoguery or a rational response to human weakness? We will use readings, research papers and discussions to explore these questions. *Dist:* SOC; WCult: W. Goodman

In 14W and 15W at 2A, *Sociology of Gender*. (*Identical to WGST 34.4*) 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. *Dist:* SOC McCabe

In 14S at 11, *Sociology of the Body*. Can social life exist without bodies? How can attention to the body influence our understanding of social processes of subjectivity, interaction, and practice? This seminar provides an overview of sociological approaches to the body across the study of gender, race, class, (dis)ability, sport, medicine, technology, and more. Students will complete a course-long research project in which they analyze the impact and meanings of bodies in a particular social or media context. Coutinho-Sledge

In 14S at 2A, *TBA*. King

In 15S at 3B, *TBA*. King

Offered: 13F: 10 14W: 2A 14S: 11, 2A 15W: 2A 15S: 3B .

### **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**

Lively (14W, 15S), King (14S)

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.

Distribution: SOC; WCult: W. Offered: 14W, 14S, 15S: 10A.

### **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-Chávez

Professors R. E. Biron, R. Bueno-Chávez, J. M. del Pino, B. Pastor, S. D. Spitta; Associate Professors J. Aguado, R. A. Franconi, A. Gómez, I. Lozano-Renieblas, A. Martín, I. Reyes; Assistant Professors J. Ariza, N. Cirmigliaro, S. Díaz-Duhalde, C. Minchillo, S. Muñoz, A. Santana; Research Assistant Professor E. A. Polli; Senior Lecturers P. Asensio, G. S. Guzmán-Bueno, R. M. Matorras, G. M.

Mayo-Prada, D. J. Moody, I. Saucedo, M. E. A. Vélez; Lecturers P. Carranza, N. Monetti

*To view Spanish courses, click here* (p. 428).

*To view Portuguese courses, click here* (p. 435).

### **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.

Major/Minor/Modified Major Requirement Change – SPAN 10 to SPAN 20.

Effective Summer term 2011 the Spanish and Portuguese Department will replace SPAN 10 with SPAN 20, and, SPAN 20 will be a required course for the major, minor and modified major. All students who have taken SPAN 10 prior to Summer term 2011 can use this course as a required course for the major, minor or modified major in the Department.

### **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) 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) 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) Foreign Study Program (PORT 35 and PORT 36, 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.** Fall, Winter, Spring: Barcelona, Spain (last LSA to Barcelona in Fall will be 2013); Winter, Spring: Buenos Aires, Argentina (last LSA to Buenos Aires in Spring will be 2014).

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.

**Portuguese L.S.A.** Summer: Salvador, Bahia, Brazil (last offering will be Summer 2013)

Prerequisite: Completion of PORT 1 with a grade of B or better, or equivalent preparation.

Students may satisfy the language requirement through enrollment in the Portuguese L.S.A. Upon successful completion of the program, credit will be awarded for PORT 3, PORT 5 and PORT 6.

Students live with families for one term in Salvador.

Participants 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 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 (will be offered every Summer term beginning Summer 2014)

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 Spanish 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 (will be offered every Fall term beginning Fall 2014 - check with the Department)

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 Spanish 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 (will be offered every Summer term beginning Summer 2014 - check with the Department)

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 Portuguese 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.

**Portuguese F.S.P.** Winter 2015 (biennially - check with the Department): Rio de Janeiro, Brazil

Prerequisite: PORT 9, and PORT 20 or the equivalent, or permission of the program director.

The program includes courses in advanced language, literature and culture of the Portuguese-speaking world. Upon successful completion of the program, credit will be awarded for PORT 25, PORT 35 and PORT 36. The latter two courses may be counted towards 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 and compliance with orientation procedures.

All students live with families for one term in Rio de Janeiro.

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. 423).

### SPAN 1 - Introductory Spanish

13F: Vélez, Saucedo, Moody 14W: Asensio, Monetti 14S: Saucedo

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: 13F: 9S, 10, 11 14W: 9S, 10 14S: 9S, 11 14F: 9S, 10, 11 15W: 9S, 10 15S: 9S, 11.

### SPAN 2 - Intermediate Spanish I

13F: Asensio, Mayo-Prada, Carranza 14W: Saucedo, Vélez 14S: Vélez, Polli

Continuation of SPAN 1. 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 1.

Offered: 13F, 14W: 9S, 10, 11, 12 14S: 10, 11, 12 14X: 9S 14F, 15W: 9S, 10, 11, 12 15S: 10, 11, 12.

### **SPAN 3 - Intermediate Spanish II**

13F: Matorras, Guzmán-Bueno, Santana 14W: Mayo-Prada, Guzmán-Bueno 14S: Mayo-Prada, Matorras, Ariza, Carranza

Continuation of SPAN 2. SPAN 3 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 2.

Offered: 13F: 9S, 10, 11, 12, D.L.S.A. 14W: 9S, 11, 10, D.L.S.A. 14S: 9S, 10, 11, 12, D.L.S.A. 14X: 10 14F: 9S, 10, 11, 12 15W: 9S, 11, 10, D.L.S.A. 15S: 9S, 10, 11, 12, D.L.S.A.

### **SPAN 5 - Language Study Abroad**

13F: Ariza 14W: Muñoz, Polli 14S: Santana, Cirnigliaro

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.

Distribution: WCult: W (Spain), NW (Buenos Aires). Prerequisite: acceptance into the Dartmouth Language Study Abroad Program. Offered: 13F, 14W, 14S, 14X, 14W, 14S: D.L.S.A.

### **SPAN 6 - Language Study Abroad**

13F: Ariza 14W: Muñoz, Polli 14S: Santana, Cirnigliaro

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.

Distribution: LIT; WCult: W (Spain), NW (Buenos Aires). Prerequisite: acceptance into the Dartmouth Language Study Abroad Program. Offered: 13F, 14W, 14S, 14 X, 15W, 15S: D.L.S.A.

### **SPAN 7 - First-Year Seminars in Spanish and Spanish-American Literature**

Spitta

Offered: Consult special listings.

### **SPAN 9 - Culture and Conversation: Advanced Spanish Language**

13F: Muñoz, Gómez 14W: Matorras 14S: Asensio

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: 13F: 10, 11, 12 14W: 10, 11 14S: 9L, 10 14X: 11 14F: 10, 11, 12 15W: 10, 11 15S: 9L, 10.

### **SPAN 10 - has been renumbered SPAN 20.**

### **SPAN 15 - Intensive Writing Workshop for Spanish Speakers**

Spitta

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: 14S: 10A.

### **SPAN 20 - Writing and Reading: A Critical and Cultural Approach**

13F: Reyes, Cirnigliaro 14W: Gómez, 14S: del Pino

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.

Distribution: LIT. 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. Offered: 13F, 14W: 10, 11 14S: 11, 12 14X: 12, D.L.S.A.+ 14F, 15W: 10, 11 15S: 11, 12.

### **SPAN 21 - Traditional and Contemporary Andean Cosmogonies and Cultural Production: A Historical Approach**

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.

Offered: 14F: D.L.S.A.+.

### **SPAN 22 - Modern and Contemporary Spanish Artistic and Cultural Production**

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.

Distribution: Art; WCult: W. Offered: 14X: D.L.S.A.+.

### **SPAN 23 - Argentine Cultural Heritage**

14S: Reyes

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.

Distribution: ART; WCult: NW. Prerequisite: Acceptance into the Dartmouth Foreign Study Program, Argentina. Offered: 14S, 15S: D.F.S.P.

### **SPAN 24 - Spanish Cultural Heritage**

13F: 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.

Distribution: ART; WCult: W (Spain). Prerequisite: acceptance into the Dartmouth Foreign Study Program, Spain. Offered: 13F, 14F: D.F.S.P.

### **SPAN 30 - Introduction to Hispanic Studies I: Middle Ages-17th Century**

14S: Lozano

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 may also be cultural, visual, and/or filmic.

Distribution: LIT; WCult: W. Prerequisite: SPAN 20. Offered: 14S, 15S: 12.

### **SPAN 31 - Introduction to Hispanic Studies II: 18th and 19th Centuries**

14W: del Pino, Aguado

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 may also be, cultural, visual, and/or filmic.

Distribution: LIT; WCult: W. Prerequisite: SPAN 20. Offered: 14W, 15W: 9, 10.

### **SPAN 32 - Introduction to Hispanic Studies III: 20th-21st Centuries**

13F: Aguado

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 may also be cultural, visual, and/or filmic.

Distribution: LIT; WCult: W. Prerequisite: SPAN 20. Offered: 13F: 11, 12 14X: D.L.S.A.+ 14F: 11, 12.

**SPAN 33 - Argentine Civilization: Society, Culture and Politics in Argentina**

Reyes

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.

Distribution: SOC; WCult: NW. Prerequisite: acceptance into the Dartmouth Foreign Study Program. Offered: 14S, 15S: D.F.S.P.

**SPAN 34 - Society, Culture and Politics in Spain**

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.

Distribution: SOC; WCult: W. Prerequisite: acceptance into the Dartmouth Foreign Study Program, Spain. Offered: 13F, 14F: D.F.S.P.

**SPAN 35 - Studies in Spanish-American Literature and Culture**

Reyes

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.

Distribution: LIT; WCult: NW. Prerequisite: acceptance into the Dartmouth Foreign Study Program, Argentina. Offered: 14S, 15S: D.F.S.P.

**SPAN 36 - Studies in Modern and Contemporary Spanish Literature**

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.

Distribution: LIT; WCult: W. Prerequisite: acceptance into the Dartmouth Foreign Study Program, Spain. Offered: 13F, 14F: D.F.S.P.

**SPAN 40 - Hispanic Literature and Culture by Period**

Diaz-Duhalde

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.

**In 13F**, *The Novels of Destruction. Social and State Violence in 19th Century Latin American Narrative Fictions.*

This course will explore the topics of social and state violence through 19th century novels from the Southern Cone. The course will have two overarching objectives. First, we will study the novel as genre in the context of political and aesthetical movements that pertain to the State-building process. Second, we will rethink the role of narrative fictions as they bear witness to the social upheavals and military destruction produced by that very process of nation construction (revolutions, wars, riots, mutinies). Authors we will explore in this course: José Victorino Lastarria (Chile), Juan María Gutiérrez (Argentina), Alejandro Magariños Cervantes (Uruguay), Alberto Blest Gana (Chile), Eduardo Acebedo Díaz (Uruguay), Juan Crisóstomo Centurión (Paraguay), and Eugenio Cambaceres (Argentina).

Distribution: Dist: LIT: W. Cult; Varies. Prerequisite: SPAN 20. Offered: 13F: 10.

**SPAN 43 - Hispanic Literature and Culture by Genre**

Muñoz

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.

**In 13F**, *Let's Make a Scene!: from Love to War in Stages in Modern Spain.*

Theater in 18th century Spain enjoyed a new age of splendor that continued into the 19th century

with an increasing number of theatergoers. This panoramic course will explore how theater shocked people into questioning controversial issues in a highly tumultuous period in Spain: Women issues; fashion "diseases;" romantic love; insatiable passions; domestic violence; illiterates, freaks and prostitutes; war and revolution. Other issues to be examined include "dangerous" spaces such as gardens, balconies and windows; the physical space of theater as a place of social and emotional encounter; and the impact in stages of political breakthroughs –after all the word "liberal" was coined for the first time in early 19th century and has shaped Spanishness ever since up to these days.

Distribution: Dist: LIT; W. Cult: Varies. Prerequisite: SPAN 20. Offered: 13F: 11.

### **SPAN 45 - Regional/National/Trans-Atlantic Approaches to Hispanic Studies**

Pastor

This course studies the complex intersections between literatures, languages, cultures and their national, regional, and trans-Atlantic contexts in Spain, Latin America, and the U.S. In this course, literary and cultural expressions are studied in relation to place in a wide array of historical contexts. Issues may include literature and colonialism, "indigenismo," the city/country dialectic, regional and national languages and cultural interdependence, the arts as buffers of political/nationalistic violence, national borders and cultural identity, and the formation of national literatures.

**In 14S, *Utopian Cartographies of Enlightenment and Emancipation/Cartografías utópicas de la Emancipación.***

This course will trace the fascinating map of utopian journeys, visions and proposals that shaped Latin America's independence from Spain between the 18th century and 1900. We will read a variety of literary works and documents as we explore the many dialogues that, across the Atlantic and between North and South America, revolutionized Spanish American societies and helped shape new ideals of freedom, justice, culture and art. Readings will include Lizardi, Miranda, Bolívar, Alberdi, Sarmiento, Martí and many others.

Distribution: Dist: LIT; WCult: Varies. Prerequisite: SPAN 20. Offered: 14S: 11.

### **SPAN 50 - Gender and Sexuality in Hispanic Studies**

This course will explore how the study of gender and sexuality is integral to understanding the complexities of Hispanic societies and cultures. In addition to analyzing literary texts and cultural and artistic productions, students will also examine theoretical and critical approaches to the

study of gender and sexuality. Topics may include feminist movements, the construction and performance of gender, the theory and practice of women's writing, sexual identities, and queer theories as they relate to Hispanic embodiments and representations in literature and culture.

Distribution: LIT; WCult: Varies. Prerequisite: SPAN 20. Offered: Not offered in the period 13F through 14S.

### **SPAN 53 - Topics in Spanish Linguistics, Rhetoric, and Poetics**

Cirnigliaro

The focus of study for this course will be the evolution of the Spanish language from its old and early modern manifestations to contemporary uses. Specific geographical contexts will be given special attention. Topics may include the constitution of Castilian as a national language and its relation to other peninsular languages; the history of linguistic change on all levels (phonetic/phonological, morphological, syntactic, and semantic); the influence of Arabic, indigenous languages of the Americas, English, and dialectal variants. Fundamental notions of rhetoric and poetics will be central to this course as well.

***In 13F, Spanish Linguistics, Rhetoric, Poetics, and the Politics of Language.***

The first part of this course surveys the evolution of Castilian language, with special emphasis on the influence of Arabic and indigenous languages of the Americas, Judeo-Spanish (ladino), Italianisms and Cultisms, Voseo, and the influence of English. In the second part, students will acquire analytical skills to understand the rhetorical and poetic architecture of major works of the Golden Age (Garcilaso de la Vega, Luis de Góngora, Fray Luis de León, etc). Finally, the course reflects on the politics of language by focusing on the history of Language Academies, the production of Grammars, Dictionaries and Orthographies, the relation between Castilian and other languages in Spain and Latin America, and the place of Castilian/Spanish in the United States. Cirmigliaro.

Distribution: LIT; WCult: Varies. Prerequisite: SPAN 20. Offered: 13F: 12.

### **SPAN 55 - Hispanic Literature, Culture, and Politics**

This is an interdisciplinary course that studies through diverse representations in literature and the arts major sociopolitical realities that have shaken and transformed the Hispanic world such as the Conquest, colonialism, the rise of the modern nation states, the Mexican and Cuban revolutions, the Spanish Civil War, Latin America's "dirty" wars, etc. The course will explore the interconnection between culture and politics allowing the student to read culture as a political text and political events as texts.

Distribution: SOC, WCult: Varies. Prerequisite: SPAN 20.  
Offered: not offered in the period 13F through 14S.

### **SPAN 60 - Race and Ethnicity in Hispanic Studies**

Martín

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".

**In 14S, *Bullets and Letters: Basque Terrorism and the Arts.***

This course will focus on Basque culture produced in response to ETA terrorism and its resolution. We will study the ideology that governs nationalist discourses, understand the relation between identity and violence, and find in the arts (literature, film, painting, and sculpture) a reason to make the humanities one of the legs upon which peace and reconciliation rest. Literature by Atxaga, Etxenike, Otxoa, Juaristi, Zaizarbitoria; films by Medem, Calparsoro, Arteta, Gutiérrez Aragón, Rosales, Taberna; and art by Ugarte, Ameztoy, Oteiza, and Chillida.

Distribution: LIT, WCult: CI. Prerequisite: SPAN 20.  
Offered: 14S: 2A.

### **SPAN 63 - Hispanic Film Studies**

Spitta

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.

**In 14W, *Latin American Film.***

In this survey of Latin American film we will study the Mexican Golden Age of film (1936-1969), Cuba's revolutionary film (*Lucia*) as well as other radical films of the 60s (*Sangre del condor*), and women's films. We will end looking at the most important production coming out of Latin America today such as the films of Francisco Lombardi, Claudia Llosa, Lucrecia Martel and others. We will also study important film manifestos.

Distribution: ART; WCult: Varies. Prerequisite: SPAN 20.  
Offered: 14W: 2A.

### **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.

Distribution: ART; WCult: Varies. Prerequisite: SPAN 20.  
Offered: not offered in the period 13F through 14S.

### **SPAN 70 - Great Works of Hispanic Literature: Don Quixote and One Hundred Years of Solitude**

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.

**In 14S, *Don Quixote.***

From the time of its publication in 1605 (Part I) and 1615 (Part II), *Don Quijote* has provoked radically different interpretations. Taking as point of departure both the comic and the romantic interpretation, the course will explore, in the first place, the meaning of the *Quijote* across the centuries. Parallely the course seeks to understand the *Quijote* both per se--as an autonomous work of literature--and as a highly creative response to the literary and cultural forces from which it was forged. In addition to explore the historical

context, such as social conflicts in the Hapsburg monarchy, in order to make understand better the work, the course will attend also to the literary history, and will offer an approach to novel as literary genre, product of the Medieval "mixtification" which flourished in the Renaissance.

Distribution: LIT; WCult: Varies. Prerequisite: SPAN 20. Offered: 14S: 12.

### **SPAN 72 - Latin American and Latina Women: Gender, Culture, Literature**

Prerequisite: SPAN 20. Offered: Not offered in the period from 13F through 14S.

### **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.

Distribution: LIT; WCult: Varies. Prerequisite: SPAN 20. Offered: Not offered in the period from 13F through 14S.

### **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.

Distribution: LIT; WCult: Varies. Prerequisite: SPAN 20. Offered: Not offered in the period from 13F through 14S.

### **SPAN 77 - Texts and Contexts: Topics in Writing**

Bueno

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.

Distribution: LIT; WCult: W. Offered: 13X: 10A.

### **SPAN 78 - Living in the Borderlands: Latino/a Culture and Identity**

Offered: Not offered in the period from 13F through 14S.

### **SPAN 79 - Latino/a Literature: Between Literary Traditions, Languages, and Cultures**

Offered: Not offered in the period from 13F through 14S.

### **SPAN 80 - Senior Seminar in Hispanic Studies**

13F Aguado; 14W del Pino; 14S Biron

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).

**In 13F**, *Piratas, aventureros, curas, guerras y crisis religiosas: Miguel de Unamuno y Pío Baroja*.

The turn and first decades of the XXth century in Spain was a period of profound social, sexual, political, and philosophical changes. Miguel de Unamuno engaged in his time by focusing on religious values and existential crisis while Pío Baroja responded by freeing his characters from any form of constraint. We will read major works by both writers.

**In 14W**, *The Best Hispanic Poetry: Emotion for the Contemporary Reader*.

Sentiment and subjectivity establish themselves as pillars of modern poetry. In order to overcome its restrictive communicative function and prevail over time, language dwells in a figurative realm by grace of the metaphorical leap. This course will concentrate on the study of some of the finest poems and poets of the Spanish language. Starting with some early examples of the Castilian lyrical tradition (Jorge Manrique, Garcilaso de la Vega, Luis de Góngora or Sor Juana Inés de la Cruz), we will take pleasure in reading and study in depth major figures like Rubén Darío, Juan Ramón Jiménez, Federico García Lorca, and Pablo Neruda. Particular attention will be paid to contemporary manifestations of poetry that inhabit the territory of popular songs.

**In 14S**, *NARCO-NARRATIVAS (discurso político, literatura, música, y cine)*.

From the 1970s to the present day, the international War on Drugs has--directly and indirectly--produced a rich popular culture that might be organized as a new genre: narco-narrative. The stories that celebrate, defend, decry, or attack drug trafficking offer intriguing windows onto the relationship between cultural production (music, prose, and film) on the one hand, and politics/identity-formation on the other hand. In the specific context of Colombia and Mexico, we will explore governmental narratives about drug-trafficking (such as El Plan Colombia and El Plan Mérida), popular corridos, rap, films, testimonios, novels and short stories in order to identify the aesthetic, economic, and moral stakes of these different types of story-telling about the drug trade.

Distribution: Dist: LIT; W.Cult: Varies. Offered: 13F: 2 14W: 2 14S: 12 14F: 2 15W: 2 15S: 12.

### **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. 423).

### **PORT 1 - Introductory Intensive Portuguese**

Sellmann

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: 14W: 10+.

### **PORT 3 - Intermediate Intensive Portuguese**

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: 14S, 15S: 10+.

### **PORT 5 - Brazilian Culture and Society**

A course in Brazilian culture and society taught in the context of the Language Study Abroad 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, oral presentations, and a final course examination.

Distribution: SOC; WCult: NW/CI. Prerequisite: acceptance into the Dartmouth Language Study Abroad program. Offered: last offering 13X.

### **PORT 6 - 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 literature.

Distribution: LIT; WCult: NW. Prerequisite: acceptance into the Dartmouth Language Study Abroad program. Offered: last offering 13X.

### **PORT 7 - First-Year Seminars in Portuguese**

Offered: Consult special listings.

**PORT 9 - Writing and Speaking: A Cultural Approach**

13F: Franconi; 14X:

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.

Distribution: LIT. Prerequisite: Completion of the foreign language requirement in Portuguese, or permission of the Chair. Offered: 13F: 11 14X: D.L.S.A.+.

**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.

Distribution: WCult: NW. Offered: 14X: D.L.S.A.+.

**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.

Distribution: LIT; WCult: NW. Offered: 14X: D.L.S.A.+.

**PORT 20 - The Portuguese-Speaking World and its Literatures and Cultures: The Definition of an Identity**

Minchillo

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.

Distribution: LIT. Prerequisite: PORT 9. Offered: 14S: 12.

**PORT 25 - Advanced Portuguese Composition**

Franconi

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.

Distribution: WCult: NW. Prerequisite: acceptance into the Dartmouth Foreign Study Program. Offered: 15W: D.F.S.P. (pending approval).

**PORT 35 - Advanced Studies in Brazilian Culture and Society**

Franconi

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.

Distribution: SOC; WCult: NW. Prerequisite: acceptance into the Dartmouth Foreign Study Program. Offered: 15W: D.F.S.P. (pending approval).

**PORT 36 - Studies in Contemporary Brazilian Literature**

Franconi

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.

Distribution: LIT; WCult: NW. Prerequisite: acceptance into the Dartmouth Foreign Study Program. Offered: 15W: D.F.S.P. (pending approval).

**PORT 60 - The Portuguese-Speaking World: Literature and Culture by Period**

Franconi

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.

**In 14W**, *Eroticism and Power: The Brazilian Prose Fiction during the Military Dictatorship (1964-1985)*.

The analysis of Brazilian prose fiction along the years of the military dictatorship (1964-85) shows a significant number of works dealing with the relationship between eroticism and power. This binomial is depicted in novels and short stories by two main trends: transgression and perversion. Manifestations of the cult of virility and authority, conflicts between sexual conduct and conservative morals, and erotic behavior in correlation with power practices are some aspects portrayed by those works as efficient condemnation of the dictatorship and its lingering effects on Brazilian society. The course will focus on literary works representative of the period supported by extensive theoretical, historical, and critical materials.

Distribution: LIT; WCult: W. Prerequisite: PORT 9 or permission of the instructor. Offered: 14W: 2.

#### **PORT 61 - The Portuguese-Speaking World: Genre**

Distribution: LIT; WCult: NW. Prerequisite: PORT 9 or permission of the instructor. Offered: Not offered from the period 13F through 14S.

#### **PORT 62 - Film Media, Performance, and the Arts in the Portuguese-Speaking World**

Franconi

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.

**In 13F**, *From Literature to Television: The Miniseries*.

In this course we will study through miniseries produced in Brazil and Portugal processes of language and aesthetic changes that literary works (novels, short stories or plays) suffer when transposed to television; procedures used by

adapters, writers and co-authors in the reformulation of the original works; their dramatic rewriting; adaptation as a process of modification of the source text to the new environment and its consequent reception before suppressions and additions. Three miniseries of distinct themes, formats and genres will be analyzed throughout the course, while each student will be in charge of presenting his own weekly analysis of a miniseries chosen among the ten selected for this purpose. Assigned work includes the weekly presentations, short papers, and sharing summaries, comments, and ratings on the public WordPress website the Portuguese-language films at Dartmouth [PLFD] <http://sites.dartmouth.edu/plfd/>.

Distribution: ART; WCult: W. Prerequisite: PORT 9 or permission of the instructor. Offered: 13F: 2.

#### **PORT 63 - Special Topics. Literary and Cultural Productions of the Portuguese-Speaking World**

Sellmann

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.

**In 14W**, *Brazilian identity, urban space and literature: exploring the works of Jorge Amado*.

A course about the construction of Brazilian identity and the city through the works of Brazilian writer Jorge Amado (1912-2001). The studied material comprises novels, novellas, as well as film, graphic novels and TV adaptations. Prominent themes include but are not limited to race, religion, history, humor and contemporary issues in Brazilian society. Assigned work includes oral presentation and short papers.

Distribution: LIT; WCult: NW. Prerequisite: PORT 9 or permission of the instructor. Offered: 14W: 12.

#### **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.

Distribution: LIT. Prerequisite: PORT 9 or permission of the instructor. Offered: not offered in the period from 13F through 14S.

### **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: 13F, 14W, 14S, 14F, 15W, 15S: 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: 13F, 14W, 14S, 14F, 15W, 15S: 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: 13F, 14W, 14S, 14F, 15W, 15S: 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: Pamela Esme Thompson

Professors B. Garand, M. Flanagan, L. E. Hamlin, C. M. Randall, P. E. Thompson; Associate Professors S. Y. Park, 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: T. Ferrara, G. Levant.

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. 439).

## **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. 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. 438).

#### SART 15 - Drawing I

Hamlin, Park, Thompson, Randall, Riley & 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.

Distribution: ART. Offered: 13F: 10A, 2A; 14W:10A; 14S:10A, 2A.

#### SART 16 - Sculpture I

Garand, Park, Lee

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.

Distribution: ART. Offered: 13F, 14W:10A, 2A; 14S: 10A.

### **SART 17 - Special Topics**

Thompson, Kawiaka

A variety of courses are taught as Special Topics courses. The course taught in 13F: 10A is "Collage: Bridging the Gap." 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. 14W: 2A is Digital Drawing." This class will explore the connection and potential of the hand and digital devices being used together to create original drawings. Students will explore the implications, opportunities and technical issues of using the computer as a drawing tool and combining computer generated drawings with those done by hand. Layering, collaging and converting 3D form to 2D drawings by hand and computer will be explored, using PhotoShop, Illustrator and Rhino software, among others. Hand printed and laser cut generated drawings will be created as final works. Supplemental course fee required. Enrollment limited. No prerequisite.

Distribution: ART . Offered: 13F: 10A; 14W: 2A. .

### **SART 20 - Drawing II**

Randall, 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.

Distribution: ART. Prerequisite: SART 15. Offered: 13F, 14S: 2A.

### **SART 21 - Sculpture II**

Park, Associates

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.

Distribution: ART. Prerequisite: SART 15 and SART 16. Offered: 13F, 14W: 2A .

### **SART 22 - Figure Drawing**

Associates

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.

Distribution: ART. Prerequisite: SART 15. Offered: 14W: 2A.

### **SART 23 - Figure Sculpture**

Park

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.

Distribution: ART. Prerequisite: SART 15 and SART 16. Offered: 14S: 2A.

### **SART 25 - Painting I**

Thompson, Caine, Ferrara

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.

Distribution: ART. Prerequisite: SART 15. Offered: 13F:10A, 2A; 14W, 14S: 10A; .

### **SART 26 - Printmaking I: Lithography or Relief (These alternate each year, in fall term.)**

Lee

Relief Printmaking. Basic techniques of relief printmaking. Images (abstract and/or representational) are cut to stand out in relief from blocks of various materials, such as wood, linoleum, rubber, and plastic. The raised surfaces are inked and printed, using both black and color inks. Includes multiple-block color printing, and may combine with collograph, letterpress, or other printmaking processes. Includes visits to extensive collection in

Dartmouth's Hood Museum. This course may be repeated for credit by permission of the Chair. Supplemental course fee required. Enrollment limited. 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.

Distribution: ART. Prerequisite: SART 15. . Offered: 13F: 2A.

### **SART 27 - Printmaking I-Intaglio**

Hamlin, Associates

Basic techniques of printing from images bitten and/or incised in metal plates. Demonstrations and assignments in drypoint, etching (with hard ground, soft ground, lift ground, aquatint, spit bite), and chin collé. Mezzotint, carborundum printing, cardboard engraving, and monotype may also be included. Solid technique will be taught and required, but always in the service of aesthetic achievement. Students also see original prints by master artists in the Hood Museum's outstanding collection. Supplemental course fee required. Enrollment limited.

Distribution: ART. Prerequisite: SART 15. Offered: 14W, 14S: 2A.

### **SART 28 - Printmaking II**

Hamlin, Lee, Associates

An intensive studio exploration of intermediate printmaking processes in monotype, intaglio, relief, or lithography. Color printing and various other techniques will be taught. Enrollment limited.

Distribution: ART. Prerequisite: SART 26 or SART 27. Supplemental course fee required. Enrollment limited. Offered: 13F, 14W, 14S: 2A.

### **SART 29 - Photography I**

Miller, Beahan

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.

Distribution: ART. Prerequisite: SART 15. Offered: 13F:10A; 14W, 14S:2A.

### **SART 30 - Photography II**

Miller, Beahan

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.

Distribution: ART. Prerequisite: SART 29. Offered: 13F, 14S: 2A.

### **SART 31 - Painting II**

Riley, Caine

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.

Distribution: ART. Prerequisite: SART 25. Offered: 13F, 14W, 14S: 2A.

### **SART 65 - Architecture I**

Kawiaka, 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.

Distribution: ART. Prerequisite: SART 15. Offered: 13F, 14W: 10A; 14S: 2A.

### **SART 66 - Architecture II**

Kawiaka

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.

Distribution: ART. Prerequisite: SART 65. Supplemental course fee required. Offered: 13F: 2A; 14S: 10A.

### **SART 68 - Architecture III**

Kawiaka

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.

Distribution: ART. Prerequisite: SART 66. Offered: 13F: 2A; 14S: 10A.

### **SART 71 - Drawing III**

Randall & Associates

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.

Distribution: ART. Prerequisite: SART 20. Offered: 13F, 14S: 2A.

### **SART 72 - Painting III**

Riley, Caine

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.

Distribution: ART. Prerequisite: SART 31. Offered: 13F, 14W, 14S: 2A.

### **SART 73 - Sculpture III**

Park, Associates

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.

Distribution: ART. Prerequisite: SART 21. Offered: 13F, 14W: 2A .

### **SART 74 - Printmaking III**

Hamlin, Lee, Associates

A course designed to allow the student to explore their own area of printmaking specialization intensively in both subject and technique. The student will be assisted in the application of advanced printmaking methods to the development of a personal voice. Can be repeated for credit. Enrollment limited.

Distribution: ART. Prerequisite: SART 28. Supplemental course fee required. Offered: 13F, 14W, 14S: 2A.

### **SART 75 - Photography III**

Miller, Beahan

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.

Distribution: ART. Prerequisite: SART 30. Offered: 13F, 14S: 2A.

### **SART 76 - Senior Seminar I**

Miller, Caine

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.

Distribution: ART. Offered: 14W: 10A, 2A.

### **SART 77 - Senior Seminar II**

Randall, Park

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.

Distribution: ART. Prerequisite: SART 76. Offered: 14S: 10A, 2A.

### **SART 90 - Independent Study**

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.

Distribution: ART. Offered: All terms: Arrange.

## **Theater**

Chair: Daniel J. Kotlowitz

Professors T. P. Hackett, D. Kotlowitz; Associate Professors L. Edmondson, J. M. Horton, M. B. Sabinson; Assistant Professors S. D. Colbert (English), L. C. Kohn, I. Mayorga; Senior Lecturers C. Dunne, J. G. Rice, J. D. Sutton; Lecturers, C. Kohn, T. Thompson; Visiting Professors G. Alexi-Meskhishvili, W. P. Chin (English); Adjunct Professor T. F. Evans; Adjunct Assistant Professor S. L. Silver; Mellon Postdoctoral Fellow M. Yessayan.

*To view Theater courses, click here* (p. 448).

### **Requirements for the Major**

The Theater program at Dartmouth College combines courses in the history, theory, and criticism of Theater as a performing art with courses in theater practice. Due to the wide range of interests encompassed in 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. Students may concentrate their studies in such areas as Acting and Directing; Dance; Theatrical Design; Technical Production; Playwriting; Dramaturgy; History, Theory, and Criticism of Theater. Students intending to pursue a theater major should:

- Declare their intention to become a theater major to the Department of Theater's academic assistant.
- The Department of Theater will assign newly declared majors a faculty advisor.
- With their faculty advisor, students will create an organized, coherent program of study (major cards) comprised of ten theater courses supported by a written rationale.
- The program of study, rationale, and major cards are then submitted to the Department Chair for approval.

#### **Requirements:**

1. Ten major courses, as enumerated within the following categories:

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 in Theater Studies 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 Theatre, 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

\*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, including but not limited to:

ENGL 24: Shakespeare I

ENGL 26: English Drama to 1642

ENGL 47: American Drama

ENGL 54: Modern British Drama

2. Four courses in Theater Practice:

a. The following course in theater production is required:

THEA 40: Technical Production

b. Majors are required to take at least one of the performance courses:

THEA 10: Special Topics, upon approval

THEA 26: Movement Fundamentals I

THEA 27: Movement Fundamentals II

THEA 28: Dance Composition

THEA 29: Dance Studies in Performance

THEA 30: Acting I

THEA 36: The Speaking Voice for the Stage

THEA 50: Playwriting

THEA 54: Directing

THEA 60: Classical Performance I

THEA 61: Classical Performance II

THEA 65: Drama in Performance

THEA 80: Independent Study

c. Majors are required to take at least one course in theater design/management:

THEA 10: Special Topics, upon approval

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

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. Theater production credits demonstrate competence in theater production by active and sustained participation in theater offerings at the Hopkins Center or elsewhere with approval of the Department. Sustained participation shall consist of completing four production credits for Department of Theater productions or productions sponsored by the Department of Theater. Production credits will 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. Or, the student may complete THEA 41: Stage Management to fulfill this requirement. With prior approval of the Director of Theater, a Shakespeare Alley Showcase (SAS) production may also fulfill this requirement.
- One production credit must be fulfilled by serving on a production's 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 Department approval.

### Modified Major in Theater

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 will count toward the major(s) in the related department(s) or program(s).

Students intending to pursue a modified major should:

- Declare their intention to become a modified theater major to the Department of Theater's academic assistant.
- The Department of Theater will assign newly declared modified majors a faculty advisor.
- With their faculty advisor, students will create an organized, coherent program of study (major cards) comprised of eight theater courses supported by a written rationale.
- The program of study, rationale, and major cards are then submitted to the Department Chair for approval.

1. Modified majors must take two Theater Studies Courses:

a. One course in the Theater Studies Courses:

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 additional Theater Studies Course:

THEA 1: Introduction to Theater \*

THEA 22: Black Theatre, 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 10: Special Topics, with approval of the Chair THEA 80: Independent Study

RUSS 18: Russian Theater

CLST 2: The Tragedy and Comedy of Greece and Rome

\*THEA 1 satisfies the Theater Studies course fulfillment only if it is completed before THEA 15, 16, and 17.

Additionally, students may also fulfill the Theater Studies requirement with one of the following courses:

ENGL 24: Shakespeare I

ENGL 26: English Drama to 1642

ENGL 47: American Drama

ENGL 54: Modern British Drama

2. Modified majors must complete the following course in theater production:

THEA 40: Technical Production

3. Modified majors must take at least one course in performance:

THEA 10: Special Topics, upon approval

THEA 26: Movement Fundamentals I

THEA 27: Movement Fundamentals II

THEA 28: Dance Composition

THEA 29: Dance Studies in Performance

THEA 30: Acting I

THEA 36: The Speaking Voice for the Stage

THEA 50: Playwriting

THEA 54: Directing

THEA 60: Classical Performance I

THEA 61: Classical Performance II

THEA 65: Drama in Performance

THEA 80: Independent Study

4. Modified majors must take at least one course in theater design/management:

THEA 10: Special Topics in Theater, upon approval

THEA 41: Stage Management

THEA 42: Scene Design I

THEA 44: Lighting Design I

THEA 43: Scene Design II

THEA 45: Composition and Design

THEA 48: Costume Design I

## THEA 80: Independent Study

## 5. Production requirement:

Every Modified Theater major is expected to complete production credits. Theater production credits demonstrate competence in theater production by active and sustained participation in theater offerings at the Hopkins Center or elsewhere with approval of the Department. Sustained participation shall consist of completing four production credits for Department of Theater productions or productions sponsored by the Department of Theater. Production credits will 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. Or, the student may complete THEA 41: Stage Management to fulfill this requirement. With prior approval of the Director of Theater, a Shakespeare Alley Showcase (SAS) production may also fulfill this requirement. One production credit must be fulfilled by serving on a production's 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 shop 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 Department approval.

6. The Culminating Experience, THEA 90. Students seeking a modified major must also complete THEA 90: *Contemporary Practices in U.S. Theater*, the Culminating Experience for the Theater major in their final year.

**The Minor in Theater**

The requirements for a Theater minor are six theater courses. Students intending to pursue a minor in theater should:

- Declare their intention to minor in theater to the Department of Theater's academic assistant.
- The Department of Theater will assign newly declared theater minors to a faculty advisor.
- With their faculty advisor, students will create an organized, coherent program of study (major cards) comprised of six theater courses supported by a written rationale.
- The program of study, rationale, and major cards are then submitted to the Department Chair for approval.

1. Theater minors must take at least 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. Theater minors must complete the following course in theater production:

THEA 40: Technical Production

3. 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. Theater production credits demonstrate competence in theater production by active and sustained participation in theater offerings at the Hopkins Center or elsewhere with approval of the Department. Sustained participation shall consist of completing four production credits for Department of Theater productions or productions sponsored by the Department of Theater. Production credits will 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 required for the theater minor.
- Production credits can be fulfilled by serving on a productions 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/pr 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 Department approval.

### The Culminating Experience

All Theater majors and modified Theater majors must complete the course Theater 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:

- 1) a written thesis or substantial piece of writing for a performance such as a full-length play;
- 2) a realized production and supporting paper

3) 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 pre-requisites must be completed:

1. Students should have completed 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
- or ENGL 26: English Drama to 1642. Additionally, students should have completed one course in Theater Practice:

Performance:

- THEA 10: Special Topics, upon approval
- THEA 26: Movement Fundamentals I
- THEA 28: Dance Composition
- THEA 29: Dance Studies in Performance
- THEA 30: Acting I
- THEA 36: The Speaking Voice for the Stage
- THEA 50: Playwriting

Or

Design:

- THEA 10: Special Topics in Theater, upon approval
- THEA 41: Stage Management
- THEA 42: Scene Design I
- THEA 44: Lighting Design I
- THEA 45: Composition and Design
- THEA 48: Costume Design I

The typical British conservatoire 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. 443).

### THEA 1 - Introduction to Theater

Mayorga and the staff

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.

Distribution: ART. Offered: 13F: 12 14F: 12.

### THEA 7 - First-Year Seminars in Theater

Mara Sabinson

Consult special listings.

Offered: Consult special listings.

### THEA 10 - Special Topics in Theater

In 13F at ARR (Section 1), *Dramatic Storytelling*. This course is designed to expose students to two main forms of dramatic storytelling, play and screenplay, and explore the ways they are different and the ways they are the same. By the end of the course, the student will better understand which form best suits a given story, to adapt stories told originally in one form into the other, and develop an appreciation of the history and traditions of both forms. Dist: ART. Sutton

In 14W at 10A (Section 1) *Creativity and Collaboration*. 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. Dist: ART. Evans.

In 14W at 11 (Section 2) *Russian Theater*. (Identical to, and described under, RUSS 18). Dist: LIT; WCult: W. Somoff.

In 14W at 10A (Section 3) *Contemporary U.S. Latina/o Theater and Performance*. (Identical to, and described under, LATS 35.1) A study of contemporary plays, performances, and other theatrical modes of representation written by U.S. Latina/o playwrights/performers. Focus will be placed on works by Puerto Rican, Mexican-American, and Cuban American ethnic heritages. Readings will include theoretical writings about representation and identity, sociopolitical contexts, dramatic criticism, and historical studies that situate Latina/os in US America. All play texts will be in English with some Spanish passages. The course *does not* require Spanish fluency. Dist: ART; WCult: CI. Mayorga.

In 14W at 2A (Section 4) *Solo Performance*. 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. Dist: ART. Mayorga.

In 14W at 12 (Section 5) *Unveiling the Harem Dancer*. (Identical to, and described under, WGST 59.3 and AMES 25) 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. Dist: INT; WCult: NW. Yessayan.

In 14W at 10A (Section 6) *August Boal's Forum Theater*. This course exams the theoretical Pedagogy of the Theater of the Oppressed and proceeds to the practical—original Forum Theater narratives presented to invited audiences at end-of-term. Readings and systematic conditioning through specific exercises developed by Boal, prepare students for creating and performing four Forum Theater pieces, narratives of students' personally experienced oppressions within the Dartmouth community. Students can explore the roles of actor, director, playwright, stage manager and technical contributor to the ensemble creations. Dist: ART (pending approval) Rice.

In 14S at 10A (Section 1), *Human Rights and Performance*. (Identical to COLT 34) 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 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. Dist: ART. Edmondson.

In 14S at 3A (Section 2) *Textual Analysis*. An introduction to the techniques for analyzing a theatrical text from the point of view of a practicing theater artist. Methods for exploring the elements of a script will be applied to Clifford Odets' 1935 social protest play, *Waiting for Lefty*, with the purpose of successfully transforming a one-dimensional script into a three-dimensional performance. Particular attention will be given to the social, cultural and artistic context that gave rise to this Depression-era play. The class will culminate in a workshop production of *Waiting for Lefty* presented for an invited audience. Dist: ART. Hackett.

In 14S at 11 (Section 3) *The Tragedy and Comedy of Greece and Rome*. (Identical to, and described under, CLST 2) Dist: ART; WCult: W. Tell.

In 14S at 2A (Section 4) *Acting for Musical Theater*. This course will introduce student 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. Dist: ART. Dunne.

Offered: 13F: Arrange 14W: 10A, 11, 12, 2A 14S: 11, 10A, 2A, 3A.

### **THEA 15 - Theatre and Society I: Classical and Medieval Performance**

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.

Distribution: ART or INT; WCult: W. Offered: 13F: 2 14F: 2.

### **THEA 16 - Theatre and Society II: Early Modern Performance**

Edmondson

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.

Distribution: ART or INT; WCult: W. Offered: 14W:11 15W: Arrange.

### **THEA 17 - Theatre and Society III: 19th and 20th Century Performance**

Edmondson

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.

Distribution: Dist: INT or ART; WCult: W. Offered: 14S: 2A 15S: Arrange.

### **THEA 22 - Black Theater, U.S.A.**

Colbert

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.

Distribution: ART; WCult: CI. Crosslisted as: AAAS 31. Offered: 14W: 11 15F: Arrange.

### **THEA 23 - Topics in African Theater and Performance**

Edmondson

This course introduces the student to the startling diversity of sub-Saharan African theatre performance. Through an exploration of performance traditions and plays, the course addresses the cultural and political complexities of this troubled but vibrant continent. The course is organized around a series of key issues and debates, such as the intersection of ritual and theater, the role of colonialism and imperialism, resistance to the state, gender and performance, and the theater of war. Although the performance traditions and playwrights of several countries will be touched upon in the course of the term, Nigeria, South Africa, Kenya, Tanzania, Uganda, and Rwanda receive a strong emphasis. Open to all classes.

Distribution: ART; WCult: NW. Crosslisted as: AAAS 54. Offered: 14W: 12 15W: Arrange.

### **THEA 24 - Asian Performance Traditions**

Chin, W.

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.

Distribution: ART; WCult: NW. Crosslisted as: AMES 24. Offered: 14S: 2A 15S: Arrange.

### **THEA 26 - Movement Fundamentals I**

Evans

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. Instructor permission required.

Distribution: ART. Offered: 13F, 14F: 10A.

### **THEA 27 - Movement Fundamentals II**

Evans

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 class will explore individual performance. Assignments include readings, written work, class presentations and a final paper.

Distribution: ART. Prerequisite: THEA 26. Offered: 14W: 2A 15W: Arrange.

### **THEA 28 - Dance Composition**

Evans

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 student's theoretical and creative exploration. To this end the class will concentrate on individual student choreography. Student's class work will be performed in an informal showing at the conclusion of the term.

Distribution: ART. Prerequisite: THEA 26 and THEA 27 or permission of the instructor. Offered: Not offered in 13F through 14S.

### **THEA 29 - Dance Theater Performance**

Evans

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.

Distribution: ART. Offered: 14S, 15S: 2A.

### **THEA 30 - Acting I**

Kohn, C., Rice, Thompson.

Basic introduction to acting technique for the stage. Designed to develop 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.

Distribution: ART. Offered: 13F: 10A, 2A 14W: 10A 14F: 10A, 2A 15W: Arrange.

### **THEA 31 - Acting II**

Kohn, C., 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.

Distribution: ART. Prerequisite: THEA 30 and permission of the instructor. Offered: 14W: 2A 14S:10A 15W: Arrange.

### **THEA 32 - Acting III**

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.

Distribution: ART. Prerequisite: THEA 30, THEA 31 and permission of the instructor. The department recommends that Acting III should be taken in the term following Acting II. Offered: 14S: 2A 15S: Arrange.

### **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.

Distribution: ART. Offered: Not offered in the period from 13F through 15S.

### **THEA 36 - The Speaking Voice for the Stage**

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.

Distribution: ART. Offered: 14W: 10A 15W: Arrange.

### **THEA 40 - Technical Production**

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.

Distribution: ART. Offered: 13F, 14W, 14F, 15W: 11.

### **THEA 41 - Stage Management**

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.

Distribution: ART. Offered: 14F: 3A.

### **THEA 42 - Scene Design I**

Alexi-Meskhishvili

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 between 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.

Distribution: ART. Offered: 14W, 15W: 2A.

### **THEA 43 - Scene Design II**

Alexi-Meskhishvili

Further study of the design process and the creation of visual expressions of dramatic text. Emphasis will be placed on the difference between theater, opera and ballet. Students will work with scale color models and have opportunities to design student directed department productions.

Distribution: ART. Prerequisite: THEA 42, or permission of the instructor. Offered: 14S: 2A 15S: Arrange.

### **THEA 44 - Lighting Design I**

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 Theater Department productions with faculty and student lighting designers. Lectures, discussions, design projects, and critiques. Open to all classes.

Distribution: ART. Offered: 14W: 11 15W: Arrange.

### **THEA 45 - Composition and Design**

Kotlowitz

Open to all classes.

Distribution: ART. Offered: Not offered in the period from 13F through 15S.

### **THEA 46 - Costume Production**

Staff

Open to all classes, with instructor's permission.

Distribution: ART. Offered: Not offered in the period from 13F through 15S.

### **THEA 48 - Costume Design I**

L. Kohn

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.

Distribution: ART; WCult: W. Offered: 13F, 14F: 10.

### **THEA 50 - Playwriting I**

Sutton

The aim of the 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 class 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.

Distribution: ART. Offered: 13F: 3A 14S: 3A 14F, 15S: Arrange.

### **THEA 51 - Playwriting II**

Sutton

Permission of the instructor is required.

Distribution: ART. Offered: 14S, 15S: Arrange.

### **THEA 54 - Directing**

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.

Distribution: ART. Prerequisite: THEA 30 and permission of the instructor. Offered: 14W: 3A 15S: Arrange.

### **THEA 60 - Classical Performance I**

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.

Distribution: ART. Prerequisite: THEA 1 and either THEA 15, THEA 16, ENGL 24 or ENGL 26 are required. In addition, one production course, either THEA 26, THEA 30, THEA 50, THEA 41, THEA 42, THEA 44, THEA 46, or THEA 48 are required. Offered: 14X, 15X: D.F.S.P.

### **THEA 61 - Classical Performance II**

The staff

A continuation of Classical Performance I. This course is graded credit/no credit.

Distribution: ART. Offered: 14X, 15X: D.F.S.P.

### **THEA 62 - Plays in Performance-Perception and Analysis**

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 play going, 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.

Distribution: ART; WCult: W. Offered: 14X, 15X: D.F.S.P.

### **THEA 65 - Drama in Performance**

Horton

A class designed to investigate methods for the development of new work for the theater. Students will participate in all aspects of a main-stage production designed especially 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 fieldtrips, visits by guest artists and independent work in the 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.

Distribution: ART. Offered: 14X, 15X: 2A.

### **THEA 80 - Independent Study**

This course is designed to enable qualified upperclass students, who have completed the appropriate supporting course work, 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: Arrange.

### **THEA 90 - Contemporary Practices in U.S. Theater**

Kohn, L.C.

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. Instructor permission required.

Distribution: ART. Offered: 13F: 3B 14F: 3B.

### **THEA 91 - The Honors Thesis**

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 see the section on Theater Honors Program.

Offered: 13F, 14W, 14S: 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: 14W, 15W: 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: 13F, 14F: 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, juniors, and then sophomores; first-year students are not eligible.

Offered: 14S, 15S: 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 and Gender Studies Program

Chair: Jennifer L. Fluri

Professors S. Ackerman (Religion, Women's and Gender Studies), A. R. Allen (Philosophy, Women's and Gender Studies), F. E. Beasley (French and Italian), R. E. Biron (Latin American, Latino and Caribbean Studies, Spanish), L. E. Boose (English), A. Cohen (Art History), M. H. Darrow (History), M. R. Dietrich (Biological Sciences), M. Domosh (Geography), N. K. Frankenberry (Religion), S. Heschel (Religion), L. A. Higgins (French and Italian), K. J. Jewell (French and Italian), I. Kacandes (German), A. Lawrence (Film and Media Studies), A. Orleck (History), G. Parati (French and Italian, Women's and Gender Studies), A. W. B. Randolph (Art History), I. T. Schweitzer (English, Women's and Gender Studies), S. D. Spitta (Spanish and Portuguese, Comparative Literature), P. W. Travis (English), M. R. Warren (Comparative Literature), D. Washburn (Asian and Middle Eastern Language and Literature), B. E. Will (English); Associate Professors T. Aguado (Spanish and Portuguese), L. Baldez (Government, Latin American, Latino and Caribbean Studies), C. E. Boggs (English, Women's and Gender Studies), S. J. Brison (Philosophy), D. J. Brooks (Government), L. A. Butler (History), N. L. Canepa (French and Italian), M. K. Coffey (Art History), L. E. Conkey (Geography), A. A. Coly (African and African American Studies, Comparative Literature), S. R. Craig (Anthropology), M. Desjardins (Film and Media Studies), L. Edmondson (Theater), J. L. Fluri (Women's and Gender Studies, Geography), V. Fuechtner (German), D. K. King (Sociology), K. J. Lively (Sociology), C. H. MacEvitt (Religion), A. Martín (Comparative Literature, Spanish and Portuguese, Women's and Gender Studies), R.

Ohnuma (Religion, Women's and Gender Studies), T. Padilla (History), I. Reyes (Spanish), W. P. Simons (History), R. L. Stewart (Classics), A. Tarnowski (French and Italian), A. D. Tillis (African and African American Studies), S. A. M. Vásquez (English), R. M. Verona (French and Italian), M. J. Williams (Film and Media Studies), M. Williamson (Classics), M. F. Zeiger (English); Assistant Professors A. S. Bahng (English), R. J. Chenault (History), M. T. Clarke (Government), S. D. Colbert (English), L. Gulbas (Anthropology), L. Gutiérrez Nájera (Anthropology, Latin American, Latino and Caribbean Studies), L. Marcellesi (French), I. Mayorga (Theater), J. McCabe (Sociology), S. L. Mollett (Geography), E. Pérez (Religion), C. K. Quaintance (French); McKennan Postdoctoral Teaching Fellow C. Kivland (Anthropology), Mellon Postdoctoral Fellow M. Yessayan; Senior Lecturers M. A. Bronski (Jewish Studies, Women's and Gender Studies), K. F. Milich (Comparative Literature, Liberal Studies), D. J. Moody (Spanish), V. Palmer (Native American Studies); Lecturers F. M. A'Ness, Z. Ayubi, H. Damon-Moore, A. Jetter (English), A. P. Hernandez, G. Munafo, J. Rabig (English, MALS); Visiting Professors R. Baum (African and African American Studies, Religion), R. Bergland (Simmons College), S. Broeck (University of Bremen), W. P. Chin (Asian and Middle Eastern Studies, Theater), G. Dietze (Humboldt University, Berlin), M. P. Rodriguez (Universidad de Deusto); Visiting Associate Professor C. E. R. Bohmer (Government); Visiting Assistant Professors C. Gómez (Latin American, Latino and Caribbean Studies, Sociology), K. Smith (Sociology).

The Women's and Gender 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 and Gender Studies may be undertaken as a program for a major, a minor, or a modified major.

*To view Women's and Gender Studies courses, click here* (p. 457).

## Women's and Gender Studies Major

Women's and Gender 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 and Gender Studies Steering Committee. Students design their major

plans in consultation with the Chair. Only the Chair may sign major cards. Students interested in becoming majors should consult the Chair well in advance of their intended declaration of a major.

Prerequisite: WGST 10.

Requirements: (9 additional courses)

1. WGST 15
2. WGST 16
3. WGST 80
4. Three additional Women's and Gender Studies courses
5. Three additional courses selected from Women's and Gender 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.

WGST 7 (First-Year Seminar) may *not* count towards the major or minor.

## Honors Program in Women's and Gender Studies

Women's and Gender Studies majors will be invited to participate in the Women's and Gender Studies Honors Program if, after completing seven Dartmouth terms, WGST 10, and four graded courses in the Women's and Gender 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, WGST 98 and WGST 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 and Gender Studies Steering Committee by the second week of the fall term of the senior year. WGST 98 and WGST 99 carry two credits

toward degree requirements but count as only one credit toward major requirements.

## Women's and Gender Studies Minor

The Women's and Gender Studies minor consists of six courses: WGST 10 (prerequisite); WGST 15 or WGST 16; WGST 80; one other Women's and Gender Studies course; and two additional courses selected from the Women's and Gender Studies offerings or from associated courses.

## Women's and Gender Studies Modified Major

The modified major in Women's and Gender Studies combines gender-related interdisciplinary coursework taken under the auspices of the Women's and Gender 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 WGST 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 WGST must submit a written proposal that will be reviewed by the WGST 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 and Gender Studies (7 courses: 4 Core + 3 Electives)

1. WGST 10: Sex, Gender, and Society
2. WGST 15: Roots of Feminism
3. WGST 16: Contemporary Issues in Feminism
4. WGST 80: Senior Seminar
5. Three additional upper-level courses from the WGST 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 and Gender Studies

When Women's and Gender Studies becomes the secondary part of a modified major, five courses are required: WGST 10 (prerequisite) and four additional courses selected from the Women's and Gender 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 and Gender Studies Foreign Study Program

The Women's and Gender 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 and Gender 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, "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: The minimum prerequisite will be two courses, one taken from lists of courses approved by WGST 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 WGST or AMES program offices and/or websites for an up to date list of approved courses. Applications are made online through the Off-Campus Programs Office.

For an application or further information, visit the Off Campus Programs Office, 44 North College Street, or go to the OCP web site.

**WGST - Womens and Gender Studies Courses**

To view *Women's and Gender Studies requirements*, click [here](#) (p. 454).

**WGST 7 - First-Year Seminars in Women's and Gender Studies**

Offered: Consult special listings.

**WGST 10 - Sex, Gender, and Society**

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.

Distribution: Dist: SOC; WCult: CI. Offered: 13F: 9L, 10, 2A 14W: 10 14X: 10 14F: 9L, 10, 12 15W: 10A.

**WGST 15 - Roots of Feminisms: Texts and Contexts**

14W: Stewart

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.

Distribution: Dist: SOC; WCult: CI. Crosslisted as: In 14W only, cross-listed with CLST 11. Offered: 14W: 12 15W: 11.

**WGST 16 - Contemporary Issues in Feminism: Theory and Practice**

14S: Bahng

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.

Distribution: Dist: SOC; WCult: CI. Offered: 14S, 15S: 2A.

**WGST 19.1 - Queer Marriage, Hate Crimes, and Will and Grace: Contemporary Issues in LGBT Studies**

Bronski

This course will explore a wide range of contemporary issues and debates in lesbian, gay, bisexual, and transgender studies. We will do this by examining, in some detail, several issues now integral to present LGBT rights movements, but will expand our focus beyond the immediate concerns of political organizing to the broader questions these issues raise. The LGBT movement, now three decades old, is facing serious growing pains. It has won toleration and some mainstream acceptance, but must now decide its current needs, agendas, social and political goals. We will look at three important areas of discussion: challenges to the legal system such as the repeal of sodomy laws and hate crime legislation; evolving social constructions of LGBT life such as gay marriage, the "gayby-boom," and the effect of AIDS on community formation; the threat of queer sexuality especially as it relates to issues of childhood sexuality, public sex, and transgender identity. We will be reading primary source material, including Supreme Court decisions, as well as critical theory by writers such as Lani Guinier and Samuel Delany. We will also look at how popular culture movies like *Basic Instinct*, *Scary Movie*, *Jay and Silent Bob Strike Back* and television's *Will and Grace* and *Six Feet Under* both reflect and shape popular opinion. We will also examine how race, class, gender, and "the body" are integral to these topics and how queer representation in popular culture shapes both public discourse, and the LGBT cultural and political agendas.

Distribution: SOC; WCult: CI. Offered: 13F: 10A.

**WGST 19.2 - Sexuality, Identity, and Legal Theory****WGST 20.1 - Gender, Activism, and the Common Good**

Damon-Moore

This course will explore individual and group volunteerism and activism in the United States. Employing a community-based learning approach, students will develop their own gendered analysis and personal philosophy of volunteerism, activism, and philanthropy. Students will

gain knowledge of American lives and movements through readings, films, perspectives from class speakers, and community-based research and service (interviewing and research, 3-4 hours per week). Open to all students.

Distribution: SOC; WCult: CI. Offered: 14W: 3A.

### **WGST 21.2 - Fictions of Sappho**

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.

Distribution: LIT; WCult: CI. Offered: 15S: 3A.

### **WGST 22.1 - Gender and European Society from Antiquity to the Reformation**

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.*

Distribution: TMV; WCult: CI. Crosslisted as: HIST 42. Offered: 15W: 12.

### **WGST 23.2 - American Women's History from the Civil War to the Present**

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.

Distribution: SOC; WCult: W. Prerequisite: Open to sophomores, juniors, and seniors. Crosslisted as: HIST 28. Offered: 14W: 2A.

### **WGST 30 - Women, Gender, and the Economy**

Fluri

In 15S, (Section 1), Women, Gender, and Development (Identical to, and described under, GEOG 26). Open to all students.

Distribution: SOC; WCult: CI. Offered: 15S: 2A.

### **WGST 31.1 - Sex and the State in Latin America**

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.

Distribution: SOC; WCult: NW. Crosslisted as: GOVT 49.4, LACS 52. Offered: 14S: 2.

### **WGST 31.4 - Women and Politics**

D.A. 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.

Distribution: SOC; WCult: CI. Crosslisted as: GOVT 20.1. Offered: 14W: 12.

### **WGST 32.1 - Gender and the Law**

Bohmer

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.

Distribution: SOC; WCult: W. Crosslisted as: GOVT 68.1. Offered: 14S: 9L.

### **WGST 33.1 - Constructing Black Womanhood**

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.*

Distribution: SOC; WCult: CI. Crosslisted as: AAAS 25, SOCY 46. Offered: 15W: 3A.

### **WGST 33.5 - Women, Work, and Family**

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. Open to second-year students and above.

Distribution: SOC; WCult: W. Prerequisite: SOCY 1 or 2 or WGST 10, as this is an Upper Division course. Crosslisted as: SOCY 61. Offered: 14S: 10A.

### **WGST 33.7 - Love, Romance, Intimacy and Dating**

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, and how you can avoid that 50% divorce rate in your own life.

Distribution: SOC. Crosslisted as: SOCY 62.1. Offered: 14S: 3B.

### **WGST 34.2 - Gender Identities and Politics in Africa**

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.

Distribution: INT; WCult: CI. Crosslisted as: AAAS 40. Offered: 14S, 15S: 2A.

### **WGST 34.4 - Sociology of Gender**

McCabe

This course examines what it means to be a woman, man, boy, or girl in everyday life. We will explore how gendered beliefs affect the expectations, experiences, and opportunities of women and men. This course includes discussion of a number of different perspectives, including several feminist perspectives. Possible topics include: are there only two genders?, gendered language, masculinity during young adulthood, the wage gap, work-family balance, media images, and hooking up.

Distribution: SOC. Crosslisted as: SOCY 79.7. Offered: 14W, 15W: 2A.

### **WGST 36.1 - Gender in Cross-Cultural Perspective**

Gulbas

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.

Distribution: SOC or INT; WCult: CI. . Crosslisted as: ANTH 31. Offered: 13F: 2A 15W: 10.

### **WGST 37.2 - Gender, Space and Islam**

Fluri

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.

Distribution: SOC; WCult: CI. Crosslisted as: GEOG 41. Offered: 13F: 2A.

### **WGST 37.5 - Gender and Urban Transformation**

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 20<sup>th</sup> 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.

Distribution: Pending faculty approval. Offered: 14W: 10A.

### **WGST 38.2 - Women and Gender in the African Diaspora**

Johnson

The intersection of race, gender, sexuality, and class has been particularly significant for people of African descent—for both men and women. This course uses memoir to explore the social, political, cultural, and economic aspects of men's and women's lives across the Atlantic World in the nineteenth and twentieth centuries. The course will focus on the lives of female diasporic subjects from New Orleans to Russia, Jamaica to Harlem, even rural New Hampshire, and as they engaged social, political, and cultural institutions, from prisons to

churches, beauty salons to brothels, educational institutions to protest movements. We will give attention to the ways these women made sense of their lives and experiences as well as gendered arrangements of power, hierarchy, and meaning. In focusing on both women and gender, we will better understand the complex ways in which all persons of African descent defined their places in relation to one another and the broader society, imagining and enacting freedom dreams for themselves and transnational communities.

Distribution: INT or SOC; WCult: CI. Crosslisted as: HIST 6, AAAS 88.2. Offered: 14S: 10 15S: 12.

### **WGST 40.1 - Gender Issues in Native American Life**

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 the fields of anthropology, philosophy, literature, history, and government policy.

Distribution: SOC; WCult: CI. Crosslisted as: NAS 42.1. Offered: 13F: 2.

### **WGST 42.4 - War and Gender**

Boose

Of all the cultural enterprises and big ticket myths in western history, probably none has been as strictly gendered as war. Traditionally, war has been constructed as powerfully gendered binary in which battle is posed as a nearly sacred and exclusively male domain through which young men are initiated into the masculine gender and the male bond. From the west's great classical war narrative of The Iliad onward, the feminine has, by contrast, been defined as that which instigates male-male conflict and that which wars are fought either to save or protect, be it a war to rescue Helen of Troy, to avenge the raped women of Kuwait whose plight was invoked as a cause for the 1991 Gulf War, one to protect the faithful (or faithless and betraying) wife at home, or a war to defend the ultimate

national repository of the feminine ideal to be protected from the rapacious invasions of the enemy: America the Beautiful, mother land and virgin land. As a counterpart to the protection of the feminine imagined as belonging to one's own males, the narrative either tacitly or overtly allows a soldier to view the all "enemy" women as objects to be raped; and in the most recent wars of ethnic genocide of the 1990s onward, women in Bosnia, Rwanda, and Sudan have become no longer just incidental victims or "collateral damage," but the primary objects of enemy destruction. Starting with the Gulf War, however, the strict spatialization of the American war myth was at least challenged by the new presence of women on the war front, women as POWs, and in the present war in Iraq, women coming home maimed and in body bags; and women have now been integrated—whether successfully or not-- into all of the U. S. military accredited academies. With a special although not exclusive concentration on U.S. culture of the past century, this course will take a look at film, fiction, non fiction and biography, news media and online material, in tracing the strongly gendered myths and narratives that are wrapped up in the cultural understanding of War.

Distribution: LIT; WCult: W. Crosslisted as: ENGL 53.11. Offered: 13F: 10A.

### **WGST 42.5 - Ethnography of Violence**

Kivland

Violence is widely recognized as a problem in modern society, with policies to combat violence, or employ it, dominating political discussion. Yet the meaning of violence is seldom analyzed. Using an ethnographic lens, this course explores violence as a socially and culturally mediated phenomenon. We will trace how anthropologists have conceptualized diverse forms of violence, from state terror and gang conflict to gender inequality and everyday suffering. Case studies are drawn from Mozambique, Jamaica, and Chicago. Recommended: Anthropology 3.

Distribution: SOC. Crosslisted as: ANTH 12.3. Offered: 13F, 14F: 10A.

### **WGST 43.3 - Women and the Bible**

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.

Distribution: TMV; WCult: CI. Crosslisted as: REL 56. Offered: 15W: 2.

### **WGST 43.4 - Goddesses of India**

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.

Distribution: TMV; WCult: NW. Crosslisted as: REL 42. Offered: 14S: 2.

### **WGST 44.2 - Women in Islam and Judaism**

Heschel, Amirpur

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.

Distribution: TMV; WCult: CI. Crosslisted as: JWST 56, REL 19. Offered: 14S: 10A.

### **WGST 44.3 - Women, Religion and Social Change in Africa**

Baum

This introductory, multidisciplinary course examines women's religions 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.

Distribution: Dist: TMV, WCult: NW. Crosslisted as: AAAS 42.1, REL 19. Offered: 13F: 10A.

**WGST 46.1 - Feminism and Philosophy**

Allen

This course examines the relationship between feminism and philosophy. The focus is on such questions as: Is the Western philosophical canon inherently sexist? How should feminist philosophers read the canon? Are Western philosophical concepts such as objectivity, reason, and impartiality inherently masculinist concepts? The course may focus on either the ways in which feminists have interpreted great figures in the history of philosophy (e.g., Plato, Aristotle, Descartes, Hume, Kant, Nietzsche), or on the ways in which feminists have rethought basic concepts in core areas of philosophy (e.g., epistemology, ethics, metaphysics, political philosophy, philosophy of science), or both.

Distribution: TMV; WCult: CI. Crosslisted as: PHIL 22.  
Offered: 15S: 2.

**WGST 47.1 - Immigrant Women Writing in America**

Zeiger

In responding to the obstacles facing America's immigrants -- problems of dislocation, split identity, family disunity and claustrophobia, culture shock, language barriers, xenophobia, economic marginality, and racial and national oppression -- women often assume special burdens and find themselves having to invent new roles. They often bring powerful bicultural perspectives to their tasks of survival and opportunity seeking, however, and are increasingly active in struggles for cultural expression and social and economic justice. We will examine the different conditions for women in a variety of immigrant groups in America, reading in several histories, anthologies of feminist criticism, interdisciplinary surveys, and relevant texts in critical theory, but ultimately focusing on the words, in autobiography and fiction, of women writers. We will read such works as Akemi Kikumura's *Through Harsh Winters: The Life of a Japanese Immigrant Woman*; Maxine Hong Kingston's *The Woman Warrior*; Bharati Mukerjee's *Darkness*; Sandra Cisneros's *The House on Mango Street*; Jamaica Kincaid's *Lucy*; and Kim Chernin's *In My Mother's House*.

Distribution: LIT; WCult: W. Crosslisted as: ENGL 53.10.  
Offered: 13F: 11.

**WGST 47.3 - Modern American Women Poets**

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.

Distribution: LIT; WCult: W. Crosslisted as: ENGL 55.1.  
Offered: 14S: 11.

**WGST 47.5 - Black Brazilian Women Writers**

Salgueiro

Focus on the contemporary literary production of women of African ancestry in Brazil: poetry, short story and novel. Engage issues such as slavery and race relations, the construction of family, class divisions and spatial marginality, industrialization, and gender and sexuality politics. Discuss Afro-Brazilian music, film, and other artistic manifestations as well as contemporary Brazilian culture. Open to all classes.

Distribution: LIT. Crosslisted as: AAAS 80.2, COLT 52.1, LACS 64.1. Offered: 14W, 15W: 3B.

**WGST 48.7 - Sex and Gender in the Italian Renaissance**

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.

Distribution: LIT; WCult: W. Crosslisted as: FRIT 34.  
Offered: 14W: 10A.

**WGST 51.7 - Memoirs and the Work They Do**

Kacandes

Memoir has been a popular genre in the United States, Latin America and Europe for at least the last twenty years. That popularity does not seem to be abating, despite critics' claims that most recent memoirs are shallow, repetitive and badly written. In this course we will review some of the history of life writing forms to parse out misogyny and elitism. We will also learn how experts today understand life writing subgenres in print and other media, paying particular attention to experimentation and the line between fiction and non-fiction. The focus of the

course concerns how life writing is deployed in creating group identities, related to everything from addiction to victimhood, sexuality, ethnicity, and nationality. Texts include Coetzee's *Boyhood*, Spiegelman's *Maus*, Alison Bechdel's *Fun Home*, Kacandes's *Daddy's War*, Modiano's *Dora Bruder*, Cho's *I'm the One that I Want*, and Consalvi's *Broadcasting the Civil War in El Salvador*. Students will be asked to interview another about her or his life, do some writing about their own lives and bring examples to bear on our various topics from other cultures and languages than those represented on the syllabus.

Distribution: LIT; WCult: CI. Crosslisted as: COLT 39. Offered: 14W: 10A.

### **WGST 52.1 - Colonial and Postcolonial Masculinities**

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.

Distribution: LIT. Crosslisted as: AAAS 67, COLT 67, ENGL 54.14. Offered: 14W: 2A.

### **WGST 52.3 - Feminism, Islam, and Modernity in the Muslim World**

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.

Distribution: INT or SOC; WCult: NW. Crosslisted as: AMES 41.01. Offered: 14S: 12.

### **WGST 53.2 - Hand to Mouth: Writing, Eating, and the Construction of Gender**

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.

Distribution: SOC or INT; WCult: W. Crosslisted as: COLT 49. Offered: 13F: 2.

### **WGST 56.1 - Television and Histories of Gender**

Desjardins

This class examines the ways American commercial television has historically "assumed" gendered positionings of its audience, as well as operates as one of the strongest cultural touchstones of gendered identity in patriarchal, consumer society. After tracing television's place in the construction of gendered ideals through the history of the situation comedy, we examine "gender-specific" genres, such as sports, westerns, cop shows, and soap operas. Representative programs will be screened, and feminist essays on television history/theory are among assigned readings. *Open to all students.*

Distribution: ART; WCult: CI. Crosslisted as: FILM 46. Offered: 13F: 2A.

### **WGST 56.4 - Women and Journalism in the U.S.**

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.

Distribution: Pending faculty approval. Offered: 14W: 11.

### **WGST 56.7 - From Fanny to the Nanny: Jewish Women and Humor**

Offered: Not offered in the period 13F - 15S.

### **WGST 59.3 - Unveiling the Harem Dancer**

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.

Distribution: INT; WCult: NW. Crosslisted as: THEA 10, AMES 25. Offered: 14W: 12.

### **WGST 61.4 - Women and Madness**

Gulbas

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.

Distribution: SOC; WCult: CI. Crosslisted as: ANTH 61. Offered: 14S, 15W: 12.

### **WGST 61.5 - Gender and Global Health**

Gulbas

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.

Distribution: INT or SOC; WCult: CI. Crosslisted as: ANTH 26. Offered: 14F: 2A.

### **WGST 66.5 - Telling Stories for Social Change**

Hernandez

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.

Distribution: ART; WCult: CI. Offered: 13F: 2A.

### **WGST 80 - Seminar in Women's and Gender Studies**

13F: Martin 14F: Fluri

The seminar in Women's and Gender Studies is designed as a culminating experience for Women's and Gender Studies students and preparation for future work such as independent research, honors thesis, graduate studies and advanced scholarship. In 13F, *Gendering the Humanities and Human Rights: Textual Alliances*.

Offered: 13F: Monday 3-6 14F: 3A.

### **WGST 85 - Independent Study**

This will involve an independent project carried out under the direction of one or more of the Women's and Gender Studies faculty. Permission of the instructor and the Steering Committee is required.

Prerequisite: Permission of the instructor and approval of the WGST Chair and Steering Committee. Offered: All terms: Arrange.

### **WGST 90 - Foreign Study in Women's and Gender Studies I**

14W: Ohnuma

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 and Gender Studies course at the University of Hyderabad while a member of the Dartmouth Foreign Study Program in Women's and Gender Studies. Note: Because this course

will vary depending on the director, this course will not automatically be cross-listed with AMES.

Crosslisted as: AMES 29. Offered: 14W, 15W: D.F.S.P.

### **WGST 91 - Foreign Study in Women's and Gender Studies II**

University of Hyderabad Faculty

Credit for this course is awarded to students who have successfully completed a Women's and Gender Studies course at the University of Hyderabad while a member of the Dartmouth Foreign Study Program in Women's and Gender Studies.

Crosslisted as: AMES 27. Offered: 14W, 15W: D.F.S.P.

### **WGST 92 - Foreign Study in Women's and Gender Studies III**

University of Hyderabad Faculty

Credit for this course is awarded to students who have successfully completed a Women's and Gender Studies course at the University of Hyderabad while a member of the Dartmouth Foreign Study Program in Women's and Gender Studies.

Crosslisted as: AMES 28. Offered: 14W, 15W: D.F.S.P.

### **WGST 98 - Honors Thesis I and 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.

### **WGST 99 - Honors Thesis I and 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.

#### *Associated Courses*

#### **African and African American Studies**

AAAS 19: Representations of African American Women in Cinema

AAAS 25: Constructing Black Womanhood

AAAS 36: Toni Morrison

AAAS 40: Gender Identities and Politics in Africa

AAAS 41: Women in Africa

AAAS 67: Colonial and Post-Colonial Masculinities

AAAS 80.2: Black Brazilian Women Writers

AAAS 84: Caribbean Women Writers

AAAS 86: Black Women Writers

AAAS 88: Women and Gender in the African Diaspora

#### **Anthropology**

ANTH 31: Gender in Cross-Cultural Perspective

ANTH 33: Crossing Over: Latino Roots and Traditions

ANTH 34: Comparative Perspectives on the US-Mexican Borderlands

ANTH 44: Globalization from Above and Below

#### **Art History**

ARTH 16: Age and Status in the Ancient World

ARTH 16: Woman Artists and Gender Theories

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 82: 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 21: Writing Korean Women, Reading Korean Women

AMES 22: Gender and the Medina

AMES 25: Unveiling the Harem Dancer

#### **Classics**

CLST 10: Fictions of Sappho

CLST 10: Roots of Feminism

CLST 11: Sex, Celibacy, and the Problem of Purity:

Asceticism and the Human Body in Late Antiquity

CLST 11: Slaves, Wives, and Concubines: Did Roman Women Have a History?

College Courses

COCO 1: Assisted Reproduction in the Twenty-First Century

COCO 4: Virtual Gender: Popular Culture and the Construction of Gender

COCO 5, 12: Inside Out: Prison, Women, and Performance

COCO 8: Sexuality and Science

COCO 10: The Performative Body: Culture, Queerness, and the Limits of Genre

Comparative Literature

COLT 29: Tears, Love, Happiness: Feminine Territories, Feminist Readings

COLT 37: Gender and Islam

COLT 39: Mirror, Mirror on the Wall: Gendered Images in the Literary Fairy Tale

COLT 39: The Memoir Boom and its Backlash

COLT 39: Trauma and Prose Fiction

COLT 46: Mothers and Daughters

COLT 47: Medea

COLT 49: From Hand to Mouth: Writing, Eating, and the Construction of Gender

COLT 52: Beyond Sex, Drugs, and Rock 'n Roll: Radical Latinos in the 60s

COLT 52: The Borderlands: Latina/o Writers in the United States

COLT 55: The Karma of Love: Japanese Women Writers and the Classical Canon

COLT 67: Colonial and Post-Colonial Masculinities

COLT 67: Fictions of Sappho

COLT 67: Literature and Women's and Gender Studies

COLT 67: Onnade, the Female Hand: Japanese Women Authors and the Literary Canon

COLT 67: Women's Identities in Migration

COLT 67: Women and Surrealism

COLT 73/101: Feminist Readings

Education

EDUC 54: Moral Development and Moral Education

EDUC 57: Social, Emotional, and Moral Development

EDUC 62: Adolescent Development

English

ENGL 25: Gender and Power in Shakespeare

ENGL 60: Gender and Sexuality in Asian American Literature

ENGL 62: American Women Poets

ENGL 62: Gender and Cyberculture

ENGL 62: Gender and Memory

ENGL 62: Hebrew Women Poets

ENGL 62: Animals and Women Literature: Nags, Bitches, Shrews

ENGL 62: Immigrant Women's Writing in America

ENGL 62: Middle Eastern Memoirs/Autobiography and the Construction of Collective Memories

ENGL 62: The Poetry and Rhetoric of Love: From Petrarch to [nerve.com](http://nerve.com)

ENGL 62: Women, "Race" and Writing: American Drama and Performance

ENGL 62: War and Gender

ENGL 62: Queer Poetries

ENGL 66: Feminine/Masculine: Visions and Revisions of Early America

ENGL 66: Whitman and Dickinson

ENGL 67: Black Movements

ENGL 67: Black Women Writers

ENGL 67: Caribbean Women Writers

ENGL 67: Contemporary Playwrights of Color

ENGL 67: Contemporary Women Writers

ENGL 67: A History of Asian America in Novels and Prose

ENGL 67: Mixed Race Experience in Asian American Literature and Culture

ENGL 67: Modern American Jewish Women Writers

ENGL 67: Toni Morrison

ENGL 67: Transforming Selves Through Narrative

ENGL 70: Gender and Power in Shakespeare

ENGL 70: Love, Gender, and Marriage in Shakespeare

ENGL 70: Witchcraft and Early Modern England

ENGL 71: Not Your Father's Walt Whitman

ENGL 72: Men, Women, and the Love Lyric

ENGL 72: The Poetry of Elizabeth Bishop

ENGL 72: Woolfenstein

ENGL 72: Victorian Queer: Constructing Nineteenth Century Sexualities

ENGL 072: Virginia Woolf

#### Film and Media Studies

FILM 46: Television and Histories of Gender

FILM 47: Beatniks, Hot Rods, and the Feminine Mystique: Sex and Gender in 1950s Hollywood Film

FILM 47: Queers, Queens, and Questionable Women: How Hollywood Films Shaped Postwar LGBT Politics

FILM 47: Representations of African American Women in Cinema

FILM 47: Unlimited Women: Women and Popular Hindu Cinema

FILM 47: Women and the Film Industry

FILM 47: Woman/Nation

#### 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

#### French and Italian in Translation

FRIT 34: Sex and Gender in the Italian Renaissance

#### Geography

GEOG 9: Women, Gender, and Science

GEOG 19: Gender, Space, and the Environment

GEOG 26: Women, Gender, and Development

GEOG 41: Gender, Space, and Islam

GEOG 43: Geographies of Latin America

GEOG 48: Geographies of the Middle East

GEOG 49: Gender and Geopolitics of South Asia

#### German Studies

GERM 42: Freud, Psychoanalysis, Jews and Gender

GERM 42: Modern Sex: Weimar Republic Germany 1918-1933

#### Government

GOVT 20.1: Women and Politics

GOVT 30: Gender and American Politics

GOVT 49: Gender Politics in Latin America

GOVT 50: Race and Gender in International Relations

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

Hebrew

HEBR 31: Readings in Modern Hebrew Women's Literature

History

HIST 6: Gender and War in Modern European History

HIST 6: Gender and Sexuality: Asians in America

HIST 6: Women and Gender in the African Diaspora

HIST 27: Gender and Power in American History, 1607-1920

HIST 28: American Women's History Since 1920

HIST 29: Women in American Radicalism, Left and Right

HIST 42: Gender and European Society from Antiquity to Reformation

HIST 48: European Society in the Industrial Age

HIST 63: History of Recent Science and Technology

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 21: Modern American Jewish Women Writers

JWST 22: From Fanny to the Nanny: Jewish Women and Humor

JWST 24: Hebrew Women Poets

JWST 52: Judaism, Sexuality and Queerness

JWST 53: Gender and Judaism

JWST 56: Women in Islam and Judaism

JWST 61: Freud, Psychoanalysis, Jews and Gender

Latin American and Caribbean Studies

LACS 52: Gender Politics in Latin America

LACS 56: Latin American Women Writers

LACS 80: Gender and Race in Latin America

Latino Studies

LATS 35: The Virgin of Guadalupe: From Tilma to Tattoo

LATS 41: Representations of/from Latin@s 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

Native American Studies

NAS 30: Native Cultural Production: (Re)Mapping Race, Gender, and Nation

NAS 42: Gender Issues in Native American Life

Philosophy

PHIL 9: Love and Friendship

PHIL 22: Feminism and Philosophy

PHIL 50: Sexuality, Identity and Legal Theory

Psychology and Brain Science

PSYC 54: Psychology and Gender

Religion

REL 13: Beyond God the Father: An Introduction to Gender and Religion

REL 14: Women, Religion, and Social Change

REL 19: Women in Islam and Judaism

REL 31: Sex, Celibacy, and the Problem of Purity: Asceticism and the Human Body in Late Antiquity

REL 40: Gods, Demons and Monkeys: The Ramayana Epic in India

REL 42: Goddesses of India

REL 48: Body and Sex in Chinese Religions

REL 51: The Virgin of Guadalupe: From Tilma to Tattoo

REL 56: Women and the Bible

REL 79: Feminist Ethics

REL 80: The Bible, Sex, and Sexuality

Russian Language and Literature

RUSS 13: 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 46: Constructing Black Womanhood

SOCY 49: Gender and Society

SOCY 49: The Sociology of Family

SOCY 61: Women, Work, and Family

SOCY 62: Love, Romance, Intimacy and Dating

SOCY 79.7: Sociology of Gender

Spanish

SPAN 50: Gender and Sexuality in Hispanic Studies

SPAN 62: Gender and Writing in Twentieth Century Spain

SPAN 62: Woman Writers in Twentieth Century 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: Hearing Voices Through Invisible Walls

THEA 10: Race, Gender, and Performance

THEA 10: Unveiling the Harem Dancer

THEA 24: Engendering Asian Performance

## Institute for Writing and Rhetoric

Director: Christiane K. Donahue

Director of Student Writing Support: Stephanie D. Boone

Multilingual Specialist: Michelle T. Cox

Associate Professor C. Donahue; Senior Lecturers S. D. Boone, J. A. Compton, M. E. Heck, D. J. Moody, T. S. Osborne; Lecturers F. N. A'Ness, C. A. Anguiano, K. M. Bauer, P. Baum, W. B. Boyer, S. B. Chaney, J. E. Dobson, M. R. Herman, J. L. Kalish, M. D. Koch, A. Kremer, C. Lannon, G. A. Lenhart, L. Lopez Snyder, P. Merton, W. A. Piper, D. A. Rezvani, E. B. Rockmore, J. A. Rowe, T. J. Ruback; Visiting Associate Professor N. J. Crumbine, J. B. Sargent; 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, and a multilingual specialist who supports multilingual graduate students in their writing and oral presentations.

*To view Speech courses, click here* (p. 470).

*To view Writing courses, click here* (p. 471).

## 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 - HUM 2), 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. 469).

### SPEE 20 - Public Speaking

Anguiano, Compton.

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.

Distribution: ART. Offered: 13F: 10A, 14W:10A, 2A, 14S: 2A, 14F, 15W, 15S: Arrange.

### SPEE 25 - Persuasive Public Speaking

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.

Distribution: ART. Offered: 14S: 10A.

### SPEE 27 - Intercultural Communication

Anguiano.

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.

Distribution: Dist: SOC; WCult: CI. Offered: 15S: Arrange.

### SPEE 30 - Speechwriting

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.

Distribution: ART. Offered: 15W: Arrange.

### SPEE 31 - Rhetoric of Social Justice: Public Advocacy and U.S. Social Justice Movements

Anguiano.

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.

Distribution: Dist: ART; WCult: CI. Offered: 13F: 2A, 15W: Arrange.

### **SPEE 32 - Legal Rhetoric**

Compton.

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. 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.

Distribution: ART. Offered: Not offered in the period from 13F through 15S.

### **SPEE 33 - Political Humor Rhetoric: Contemporary Television**

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.

Distribution: SOC. Offered: 14F: Arrange.

### **SPEE 34 - Image Rhetoric: Image Attack, Image Repair, and Image Promotion**

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.

Distribution: Dist: SOC. Offered: Not offered in the period from 13F through 15S.

### **SPEE 35 - Rhetorics of Race**

Anguiano.

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.

Distribution: SOC. Offered: 14W: 2A, 14F: Arrange.

### **SPEE 40 - Resistance To Influence: Inoculation Theory-Based Persuasion**

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.

Distribution: SOC. Offered: Not offered in the period from 13F through 15S.

### **WRIT - Writing Courses**

*To view Writing requirements, click here* (p. 469).

#### **WRIT 3 - Composition and Research: II**

Boone, Cox, Lannon, Lenhart, and Moody.

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: WRIT 2 - WRIT 3 is taken in lieu of WRIT 5 and meets the college requirement for composition. Students who take the WRIT 2 - WRIT 3 sequence defer their First-Year Seminar until the spring term. These courses do not serve in partial satisfaction of the Distributive Requirement.

Offered: 14W: 9L, 12 15W: 9L,12.

### **WRIT 5 - Expository Writing**

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.

Offered: 13F, 14W, 14F, 15W: 9L, 10, 10A, 11, 12, 2, 2A, 3B.

### **WRIT 7 - First-year Seminar in Writing**

The staff.

Consult special listings per term on the registrar's website.

Distribution: Varies. Prerequisite: WRIT 5 or its equivalent (WRIT 2-WRIT 3 or HUM 1). Offered: 14S, 15S: Arrange.

### **WRIT 8 - Writing with Media**

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.

Distribution: ART. Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1). Offered: Not offered in the period from 13F through 15S.

### **WRIT 9 - Composition: Theory and Practice**

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.

Distribution: ART. Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1). Offered: Not offered in the period from 13F through 15S.

### **WRIT 10 - Writing In The Workplace**

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.

Distribution: ART. Prerequisite: WRIT 5 or its equivalent (WRIT 2-WRIT 3 or HUM 1). Offered: 15S: Arrange.

### **WRIT 41 - Writing and Speaking Public Policy**

Kalish.

Identical to PBPL 41, 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.

Distribution: Dist: ART; WCult: W. Prerequisite: PBPL 5 or permission of instructor. Crosslisted as: PBPL 41. Offered: 14S, 15S: 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.

Distribution: ART. Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1), and permission of the instructor is required. Offered: 14S, 15S: Arrange.

### **WRIT 43 - The Written Judicial Opinion**

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.

Distribution: SOC. Prerequisite: WRIT 5 or its equivalent (WRIT 2 - WRIT 3 or HUM 1). Offered: 14S: 2.

### **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

### 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); Professors Emeriti O. A. Scornik, B. L. Trumppower; 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); 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. 474).

#### 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. 474).

##### BIOC 101 - Molecular Information in Biological Systems

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 must be taken concurrently with Genetics 102 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. Madden and associates.

Offered: 13F, 14F: M, W, F 8:30-9:50 a.m., X-hour Th, 8:30-9:50 a.m.

##### BIOC 106 - Spring MCB Course Module

Biochemistry 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 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: 14S, 15S: 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)**

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: 13F, 14F: 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: 14S, 15S: M, W, F 8:30-9:50 a.m. with x-hour Th 8:30-9:50 a.m.

### **BIOC 112 - Metabolic Basis of Disease (DMS1)**

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: 14W, 15W: 8.

### **BIOC 118 - Advanced Topics in Genetics and Molecular Genetics**

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. Crosslisted as: GENE 118. Offered: 14S, 15S: Arrange.

### **BIOC 132 - Inorganic Biochemistry**

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 041 or BIOL 040, and CHEM 064, or permission of the instructor. Crosslisted as: CHEM 092 and CHEM 132. Offered: 14S: 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.

Crosslisted as: Physiology 150. Offered: 15S: 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 for 2012 Fall through 2014 Spring—Enroll in CHEM 264*)

BIOC 261, Cancer Biology

BIOC 262, Lipid Biology and Neurodegeneration

**Biological Sciences - Graduate**

Chair: Elizabeth F. Smith

Professors M. P. Ayres, E. M. Berger, K. L. Cottingham, M. R. Dietrich, C. L. Folt, M. L. Guerinot, T. P. Jack, 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, R. H. Gross, R. E. Irwin, S. J.

Vélez; Assistant Professors E. E. Griffin, B. W. Taylor, O. Zhaxybayeva; Lecturer N. M. Grotz; Professor Emeritus J. J. Gilbert; Research Professor and Professor Emeritus R. T. Holmes; Adjunct Professors D. T. Bolger, A. J. Friedland, T. U. Gerngross, W.R. Green, N. J. Jacobs, A. R. Kapuscinski, L. R. Lynd, R. A. Maue, G. A. O'Toole, P. R. Sundstrom, R. K. Taylor, B. L. Trumpower, R. A. Virginia; Adjunct Associate Professors N. J. Dominy, L. C. Myers; Adjunct Assistant Professors D. Gilbert-Diamond, G. Grigoryan, K. E. Griswold, R. R. Knapp; Research Professors C. Y. Chen, G. C. Ruben; Research Assistant Professors H.-S. Jung, T. Punshon.

*To view Biological Sciences Graduate courses, click here.* (p. 477)

*To view Biological Sciences Undergraduate requirements, click here.* (p. 131)

*To view Biological Sciences Undergraduate courses, click here.* (p. 135)

### 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. 476)

*To view Biological Sciences Undergraduate requirements, click here.* (p. 131)

*To view Biological Sciences Undergraduate courses, click here.* (p. 135)

### BIOL 103 - The Molecular Mechanisms of Cellular Responses

Smith, 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: 14W: M, W, F 8:30AM-9:50AM, X-hour Th, 9:00AM-10:00 AM.

### BIOL 110 - Scientific Integrity and Research Ethics

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: 13F: Section 1: Tue 1PM-3PM, Section 2: Wed 1PM-3PM, Section 3: Thur 1PM-3PM.

### BIOL 120 - Advanced Population Ecology

TBA

Described under BIOL 051. Offered in alternate years.

Offered: 14F: 10A.

**BIOL 122 - Advanced Ecological Resilience**

Peart

A more advanced version of Biology 26 (see BIOL 026 course description). Graduate students will develop collaborative projects that contribute to knowledge, based on primary literature, data and/or modeling, with the goal of producing a publishable manuscript. Students may gain credit for only one of BIOL 26, 61 or 122.

Prerequisite: Graduate standing or permission of instructor.  
Offered: 13F: 2A.

**BIOL 123 - Advanced Community Ecology**

McPeck

Described under BIOL 058. Offered in alternate years.

Offered: 15W: tbd.

**BIOL 128 - Statistics and Experimental Design I**

Cottingham

Described under BIOL 029.

Prerequisite: Graduate standing. Offered: 14W: 10A, 15W: tbd.

**BIOL 129 - Statistics and Experimental Design II**

McPeck

Described under BIOL 059. Offered in alternate years.

Prerequisite: Graduate standing and at least one elementary course in statistics. Offered: 15S: 9L.

**BIOL 133 - Foundations of Ecological and Evolutionary Biology**

Irwin

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: 13F: arrange.

**BIOL 134 - Foundations of Ecological and Evolutionary Biology II**

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: TBA.

**BIOL 138 - Introduction to Polar Systems**

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.

Crosslisted as: EARS 128. Offered: not offered in 2013-2014.

**BIOL 139 - Computational Molecular Biology**

Gross

Described under BIOL 039.

Offered: 14W, 15W: 2A.

**BIOL 148 - Science and Policy of Rapid Environmental Change (identical to ENVS 80.1)**

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.

Crosslisted as: ENVS 80.1. Offered: 14S: 2A.

**BIOL 152 - Student-Organized Seminar in Ecology and Evolution**

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: 14W, 14S: Arrange.

**BIOL 153 - Aquatic Ecology**

B. Taylor

Described under BIOL 053. Offered in alternate years.

Offered: 13F: 10A.

**BIOL 165 - Current Topics in Molecular Genetics**

Grotz, Jack

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: not offered summer 2013-2014.

**BIOL 166 - Molecular Basis of Cancer**

TBA

Described under BIOL 066.

Offered: 14W, 15W: 10A.

**BIOL 169 - Supervised Teaching in Biology**

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**

Zegans

Described under BIOL 071.

Offered: 14S: 10 .

**BIOL 173 - Cell Signaling**

Dolph

Described under BIOL 069.

Offered: 13F, 14F: 2A.

**BIOL 176 - Advanced Genetics**

Berger

Described under BIOL 076.

Offered: 14S: 2A.

**BIOL 180 - Microscopy Principles and Application**

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: By permission of instructor, graduate standing. Offered: 13F: 10A.

### **BIOL 197 - Graduate Research I: Level I**

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**

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**

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**

### **BIOL 263 - Cell Biology**

### **BIOL 264 - Graduate Research Colloquium in Biological Sciences**

The staff

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 audiovisual materials. All students will be required to participate in at least one Journal Club/Research in Progress series. Although minor variations in format exist among the several series, all 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 undergraduates. BIOL 261, Building a Science Career BIOL 262, Mechanisms of Evolution and Development BIOL 263, Cell Biology BIOL 265, Microbial Ecology and Environmental Biology BIOL 266, Ecology and Evolution BIOL 268, Genes and Gene Products BIOL 269, Plant Molecular Biology BIOL 270, Computational Biology

Offered: F, W, S: Arrange.

### **BIOL 266 - Ecology and Evolution**

### **BIOL 267 - Graduate Research Colloquium in Biological Sciences**

The staff

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 audiovisual materials. All students will be required to participate in at least one Journal Club/Research in Progress series. Although minor variations in format exist among the several series, all 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 undergraduates. BIOL 261, Building a Science Career BIOL 262, Mechanisms of Evolution and Development BIOL 263, Cell Biology BIOL 265, Microbial Ecology and Environmental Biology BIOL 266, Ecology and Evolution BIOL 268, Genes and Gene Products BIOL 269, Plant Molecular Biology BIOL 270, Computational Biology

Offered: Not offered in the period from 13F through 15S .

### **BIOL 268 - Genes and Gene Products**

### **BIOL 269 - Plant Molecular Biology**

### **BIOL 270 - Computational Biology**

### **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: 14S, 15S: Arrange.

### **BIOL 297 - Graduate Research II: Level I**

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**

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**

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, R. P. Hughes, P. A. Jacobi, F. J. Kull, J. E. G. Lipson, G. C. Micalizio, D. F. Mierke, D. E. Wilcox, J. S. Winn; Associate Professor J. Wu; Assistant Professors I. Aprahamian, E. V. Pletneva; Senior Lecturers S. P. Milde, C. O. Welder; Adjunct Professors T. U.

Gerngross, U. J. Gibson, D. R. Madden, R. A. Naumann, H. M. Swartz; Adjunct Associate Professor M. R. Spaller, Adjunct Research Assistant Professor B. P. Jackson; Research Professors D. M. Lemal, T. A. Spencer; Research Assistant Professors M. Pellegrini, A. A. Pletnev

*To view Chemistry Graduate courses, click here.* (p. 477)

*To view Chemistry Undergraduate requirements, click here.* (p. 146)

*To view Chemistry Undergraduate courses, click here.* (p. 150)

## **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; 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 140 or any course in the 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 within a specified time a total of five cumulative examinations in chemistry at an advanced level, at least three of which must be from an area closely allied with the student's research area.
3. Presentation before the Department of a lecture unrelated to the thesis topic.
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. 481)

To view Chemistry Undergraduate requirements, click here. (p. 146)

To view Chemistry Undergraduate courses, click here. (p. 150)

### **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. For course descriptions, see CHEM 096. 101.1 Quantum Chemistry 101.2 Statistical Thermodynamics 101.3 Molecular Spectroscopy 101.4 Chemistry of Macromolecules 101.7 Introduction to Materials Chemistry 101.8 Chemical Kinetics

Crosslisted as: CHEM 096. Offered: 13F, 14F, 14W, 15W: 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. Crosslisted as: PHAR 123. Offered: 15W: Arrange Offered in alternate years.

### **CHEM 124 - Analytical Chemistry and Inorganic Instrumental Analysis**

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. Crosslisted as: EARS 124. Offered: 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 064, or permission of the instructor. Crosslisted as: CHEM 090. Offered: 15S: 10 Offered in alternate years.

**CHEM 131 - Advanced Inorganic Chemistry: Catalysis**

Prerequisite: CHEM 064, and either CHEM 052 or CHEM 058, or permission of the instructor. Crosslisted as: CHEM 091. Offered: 13F: 10 Offered in alternate years.

**CHEM 132 - Inorganic Biochemistry**

Prerequisite: CHEM 064, and CHEM 041 or BIOL 040, or permission of the instructor. Crosslisted as: CHEM 092 and BIOC 132. Offered: 14S: 10 Offered in alternate years.

**CHEM 137 - Methods of Materials Characterization**

I. Baker

Prerequisite: ENGS 024, or permission of the instructor. Crosslisted as: PHYS 128 and ENGS 137. Offered: 15W: 10.

**CHEM 140 - Chemistry Research Colloquia**

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. The staff.

Offered: All but summer terms: W 4:00-5:00 p.m., Th 10:30-noon.

**CHEM 151 - Physical Organic Chemistry**

Prerequisite: CHEM 052 or CHEM 058, or permission of the instructor. Crosslisted as: CHEM 093. Offered: 14F: 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. Offered: 15S: Arrange.

**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: 15S: 10.

**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: 14W: 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. Offered: 14S: Arrange.

**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.**

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.

Distribution: SCI. Prerequisite: CHEM 041 and CHEM 042 or CHEM 067, or permission of the instructor.

**CHEM 161.2 - Biomolecular Simulations.**

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.

Distribution: SCI. Prerequisite: CHEM 041 and CHEM 042 or CHEM 067, or permission of the instructor.

### **CHEM 161.3 - Biomolecular NMR.**

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.

Distribution: SCI. Prerequisite: CHEM 041 and CHEM 042 or CHEM 067, or permission of the instructor.

### **CHEM 161.4 - Structure and Dynamics of Biomolecules.**

Mierke

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.

Distribution: SCI. Prerequisite: CHEM 041 and CHEM 042 or CHEM 067, or permission of the instructor.

### **CHEM 161.5 - Protein Crystallography.**

Kull

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.

Distribution: SCI. Prerequisite: CHEM 041 and CHEM 042 or CHEM 067, or permission of the instructor.

### **CHEM 103 - Special Topics in Biophysical Chemistry.**

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.

Distribution: All Terms: Arrange. Offered: ARRANGE.

### **CHEM 256 - Graduate Instruction in Teaching**

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: 13F, 14F: Arrange.

### **CHEM 257 - Supervised Undergraduate Teaching in Chemistry**

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 0256 or previous teaching experience in undergraduate chemistry courses. Offered: All terms: Arrange.

### **CHEM 260 - Graduate Research Colloquium in Organometallic Chemistry**

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**

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**

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**

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**

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**

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**

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**

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: Roxana Verona

Professors K. Conley (French and Italian, Comparative Literature), J. V. Crewe (English, Comparative Literature), G. Gemünden (German, Comparative Literature), M. J. Green (French and Italian, 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); 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), V. Fuechtner (German), A. Gomez (Spanish and Portuguese), A. Halasz (English), A. Martín (Spanish and Portuguese, Comparative Literature), K. Mladek (German), M. Otter (English, Comparative Literature), I. Reyes (Spanish and Portuguese, Comparative Literature), M. Swislocki (Spanish and Portuguese), A. Tarnowski (French and Italian, Comparative Literature), A. Tillis (AAAS), M. Williamson (Classics, Comparative Literature); Assistant Professors P. Chaudhuri (Classics),

N. Ciriigliaro (Spanish and Portuguese), S. Diaz, (Spanish and Portuguese), Y. Komska (German), J. Smolin (AMELL); Senior Lectures K. Milich (Liberal Studies), Lecturer J. C. Smolin (Spanish and Portuguese); Visiting Professor M. Salgueiro

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. 487)

*To view Comparative Literature Undergraduate requirements, click here.* (p. 166)

*To view Comparative Literature Undergraduate courses, click here.* (p. 168)

### **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 72/100, Contemporary Literary Criticism and Theory (required)  
CL 73/101, 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. 486)

*To view Comparative Literature Undergraduate requirements, click here.* (p. 166)

*To view Comparative Literature Undergraduate courses, click here.* (p. 168)

### **COLT 100 - Contemporary Literary Criticism and Theory**

Biron (13F), LaGuardia (14F)

In 13F, *Meaning...* The concept of "meaning" relies on certain assumptions about texts, interpretation, and communities. Attending to the roots of contemporary critical practices in philosophy, linguistics, and semiotics, we will consider some of the latest, "cutting edge" ideas in literary and critical theory as they relate to all kinds of cultural "objects": written texts, films, bodies, identities, buildings, cities, nations, etc. Works by Hegel, Nietzsche, Saussure, Kristeva, Foucault, Lacan, Benjamin, Derrida, Butler, and others. Open to M.A. candidates only. Biron.

Offered: 13F:M2-5, 14F:2A.

### **COLT 101 - Topics in Literary Criticism and Theory**

Kritzman (14W), Coly (15W)

In 14W, see description under COLT 073. Prerequisite for M.A. candidates: COLT 100.

Offered: 14W, 15W: 2A.

### **COLT 102 - Tutorial**

Arrange with advisor. This course is open to M.A. candidates only.

Offered: 13F, 14F: Arrange.

### **COLT 103 - COLT-103**

Otter (14S), Fuechtner (15S)

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: 14S, 15S:3A.

### **COLT 105 - Graduate Seminar**

Washburn

This course is open to M.A. candidates only.

Offered: 14W, 15W: Arrange.

### **COLT 106 - Graduate Research**

Offered: Arrange.

## **Computer Science - Graduate**

Chair: Thomas H. Cormen

Professors C. J. Bailey-Kellogg, A. T. Campbell, M. Casey, 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, A. Chakrabarti, L. Fleischer, F. Pellacini; Assistant Professors G. Grigoryan, L. Torresani, X. Zhou; Senior Lecturer C. Heckman; Lecturers S. Haddadan, P. Hannaway, A. Molina-Markham; Research Professor L. Loeb; Research Assistant Professor S. L. Bratus; Adjunct Professors C. Elliott, A. Gettinger, M. D. McIlroy, W. M. McKeeman, C. E. Palmer; Adjunct Assistant Professor O. Zhaxybayeva.

*To view the Computer Science Graduate courses, click here.* (p. 491)

*To view the Computer Science Undergraduate requirements, click here.* (p. 174)

*To view the Computer Science Undergraduate courses, click here.* (p. 178)

## **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
  - a. 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, unless given an exemption by his or her Ph.D. research advisor; and
  - b. Either give a talk or present a poster at the Computer Science Research Symposium.
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 100 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 chosen by the student; 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 committee shall be formed for the purpose of guiding the student's research, according to the rules of the College. This committee must be approved by 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 above 100. 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 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

above 100. 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.

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.

### **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.

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 earlier for advice on prerequisites, and on the scheduling of required courses for the degree. 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. Anticipated schedule of courses for senior and fifth year; 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 Master's 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 and COSC 177.
  - At least two of the following: COSC 183, COSC 31, COSC 61, COSC 76, COSC 81.
  - At least one of the following: COSC 129, COSC 56/ENGS 31, ENGS 21.
  - Courses not listed may be approved by the program advisor as substitutes for courses above.

It is expected that the six courses be completed prior to the fourth term.
2. Students complete five research credits (COSC 297, COSC 298) plus one thesis credit (COSC 299). The fourth term is expected to be a mix of research and thesis.
3. **Thesis Requirement:** Each student must complete a satisfactory thesis and research project based on independent (or a mix of independent and team-work) original research. The research and thesis must be approved by three program members 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. All students in the Digital Arts concentration will complete a thesis as well as a research project in Digital Arts. Both should represent mostly independent, or a mix of independent and team, work. It 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.*

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*To view the Computer Science Undergraduate requirements, click here.*

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*To view the Computer Science Undergraduate courses, click here.* (p. 178)

#### **COSC 135 - Data Stream Algorithms**

Chakrabarti

Crosslisted as: Described under COSC 35. Offered: Not offered every year.

#### **COSC 140 - Computational Complexity (Formerly COSC 239)**

Prerequisite: COSC 39 or equivalent. Students need to be familiar with the formalism of the Turing Machine, and with the notion of NP-completeness. Crosslisted as: Described under COSC 40. Offered: Not offered every year.

#### **COSC 149 - Topics in Algorithms and Complexity (Formerly COSC 185)**

Jayanti

Crosslisted as: Described under COSC 49. Offered: 14S: Arrange.

#### **COSC 165 - Smartphone Programming**

Campbell

Crosslisted as: Described under COSC 65. Offered: 14S: 10.

#### **COSC 169 - Topics in Computer Systems (Formerly COSC 188)**

Zhou (fall), Campbell, Smith (winter)

Crosslisted as: Described under COSC 69. Offered: 13F, 14W: Arrange.

#### **COSC 170 - Numerical and Computational Tools for Applied Science (Formerly COSC 136)**

Farid

Crosslisted as: Described under COSC 70. Offered: 14S: 2A.

#### **COSC 174 - Machine Learning and Statistical Data Analysis (Formerly COSC 134)**

Torresani

Crosslisted as: Described under COSC 74. Offered: 14W: 10A.

#### **COSC 175 - Introduction to Bioinformatics (Formerly COSC 143)**

Bailley-Kellogg

Crosslisted as: Described under COSC 75. Offered: 13F: 2A.

#### **COSC 177 - Computer Graphics**

Staff

Crosslisted as: Described under COSC 77. Offered: 14S: 2A.

#### **COSC 183 - Computer Vision (Formerly COSC 164)**

Torresani

Crosslisted as: Described under COSC 83. Offered: 13F: 10A.

#### **COSC 184 - Mathematical Optimization and Modeling (Formerly COSC 146)**

Crosslisted as: Described under COSC 84. Offered: Not offered every year.

**COSC 186 - Computational Structural Biology**

Grigoryan

Crosslisted as: Described under COSC 86. Offered: 14S: 2A.

**COSC 189 - Topics in Applied Computer Science**

Grigoryan (winter), Bailley-Kellogg, Torresani (spring)

Crosslisted as: Described under COSC 89. Offered: 14W, 14S: Arrange.

**COSC 191 - Writing, Presenting, and Evaluating Technical Papers in Computer Science (Formerly COSC 110)**

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 every year.

**COSC 210 - Computer Science Colloquium****COSC 219 - Special Topics (Formerly COSC 181)****COSC 231 - Advanced Algorithms (Formerly COSC 105)**

Fleischer

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: 14W: Arrange.

**COSC 239 - Computational Complexity (Formerly COSC 109)**

Chakrabarti

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 039 or equivalent. Students need to be familiar with the formalism of the Turing Machine, and with the notion of NP-completeness. Offered: Not offered during this academic period.

**COSC 240 - Numerical Linear Algebra (Formerly COSC 106)**

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 matrixes (partial differential equations).

Prerequisite: COSC 071, MATH 026, or ENGS 091. 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. Crosslisted as: ENGS 106 and MATH 116. Offered: Not offered every year.

**COSC 251 - Computer Architecture (Formerly COSC 107)**

Prerequisite: ENGS 031 and COSC 051. COSC 057, COSC 058, or equivalent is recommended. Crosslisted as: Described under ENGS 116. Offered: Not offered every year.

**COSC 258 - Advanced Operating Systems (Formerly COSC 108)**

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: 14W: Arrange.

### **COSC 259 - Programming Languages (Formerly COSC 118)**

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 276 - Advanced Artificial Intelligence (Formerly COSC 104)**

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 (Formerly COSC 180)**

#### **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 (Formerly COSC 257)**

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 J. L. Aronson, X. Feng, G. D. Johnson, C. E. Renshaw; Professor Emeritus R. W. Birnie; Associate Professors W. B. Dade, M. Sharma, L. J. Sonder; Assistant Professors R. L. Hawley, M. A. Kelly, Devon J. Renock; Research Associate Professor B. P. Jackson; Visiting Professor E. S. Posmentier; Visiting Assistant Professor A. Sharma; Visiting Assistant Research Professors E. E. Meyer, J. A. Mikucki, E. C. Osterberg; Research Instructors J. R. Moore, 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. Spydell.

*To view Earth Sciences Graduate courses, click here.* (p. 494)

*To view Earth Sciences Undergraduate requirements, click here.* (p. 187)

*To view Earth Sciences Undergraduate courses, click here.* (p. 188)

### **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), special project research (EARS 131), 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. 493)

To view Earth Sciences Undergraduate requirements, click here. (p. 187) (p. 187)

To view Earth Sciences Undergraduate courses, click here. (p. 188) (p. 188)

#### EARS 107 - Mathematical Modeling of Earth Processes

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: 15W: Lectures and Laboratory to be arranged. Offered alternate years.

#### EARS 108 - Radiogenic Isotope Geochemistry

Prerequisite: EARS 062 or EARS 073 or equivalent. Offered: Not offered in the period from 13F through 14S.

#### EARS 117 - Analysis of Environmental Data

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. Feng.

Offered: 15W; 9L; X-hour required.

#### EARS 118 - Advanced Methods for Environmental Data Analysis

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.).  
Feng.

Prerequisite: EARS 17 or EARS 117 and MATH 3 or the equivalents. Offered: 14W: 9L.

#### **EARS 119 - Stable Isotope Geochemistry**

Prerequisite: EARS 062 or EARS 073 or equivalent.  
Offered: Not offered in the period from 13F through 14S.

#### **EARS 121 - Graduate Seminar**

Offered: Arrange.

#### **EARS 124 - Analytical Chemistry and Inorganic Instrumental Analysis (Identical to, and described under, Chemistry 124)**

staff

Prerequisite: CHEM 5 and CHEM 6 or equivalents or permission of instructor. . Crosslisted as: CHEM 124.  
Offered: 15S: Lectures and Laboratory to be arranged.

#### **EARS 128 - Introduction to Polar Systems (Identical to BIOL 138)**

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.

Crosslisted as: BIOL 138. Offered: 14F, 15F: 3A.

#### **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 - Part-time Thesis Research (one-course equivalent)**

Offered: Arrange.

#### **EARS 142 - Level II - Part-time Thesis Research (two-course equivalent)**

Offered: Arrange.

#### **EARS 143 - Level III - Full-time 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**

Renock

Prerequisite: EARS 40 and CHEM 5 or equivalents.  
Crosslisted as: Described under EARS 51. Offered: 14W: 11; X-hour required Offered alternate winter terms.

#### **EARS 152 - Structural Geology (described under Earth Sciences 52)**

Dade

Prerequisite: EARS 040 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 052.  
Offered: 15S: 11; Laboratory: Arrange; X-hour required - Offered alternate spring terms.

#### **EARS 158 - Sedimentary Petrology (described under Earth Sciences 58)**

Planavsky

Prerequisite: EARS 040 or equivalent or permission of instructor. Crosslisted as: Described under EARS 058.  
Offered: 14W: 2A; X-hour required - Offered alternate winter terms.

#### **EARS 159 - Igneous and Metamorphic Petrology**

Sharma

Prerequisite: EARS 040 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 059.  
Offered: 15S: 11; Laboratory: Arrange; X-hour required - Offered alternate spring terms.

#### **EARS 162 - Geochemistry (described under Earth Sciences 62)**

Jackson

Prerequisite: CHEM 6 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 62.  
Offered: 14F, 15F: 2A; X-hour required.

#### **EARS 164 - Geophysics (described under Earth Sciences 64)**

Sonder

Prerequisite: MATH 3 or equivalent or permission of the instructor. MATH 8 or equivalent is advisable, but not required. Crosslisted as: Described under EARS 64.  
Offered: 14S: 10; Laboratory: Arrange; X-hour required - Offered alternate spring terms.

#### **EARS 165 - Remote Sensing (described under Earth Sciences 65)**

Chipman

Crosslisted as: Described under EARS 065. Offered: 14W: 10A; Laboratory: W 1:00-2:55 or Th 1:00-2:55; X-hour required.

### **EARS 166 - Hydrogeology**

Renshaw

Prerequisite: MATH 3 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 66. Offered: 15W: T, Th 8-10; X-hour required - Offered alternate winter terms.

### **EARS 167 - Environmental Geomechanics (described under Earth Sciences 67)**

Dade

Prerequisite: MATH 023 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 067. Offered: 14W: 10; X-hour required - Offered alternate winter terms.

### **EARS 170 - Glaciology (described under Earth Sciences 70)**

Hawley

Prerequisite: PHYS 3 and MATH 3 or equivalents. EARS 33 or equivalent is recommended. Crosslisted as: Described under EARS 70. Offered: 14S: 2A; X-hour required - Offered alternate spring terms.

### **EARS 171 - River Processes and Watershed Science (described under Earth Sciences 71)**

Magilligan

Prerequisite: EARS 16 or EARS 33 or BIOL 23 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 71. Offered: 15S: 10; Laboratory: M 3-5; X-hour required - Offered alternate spring terms.

### **EARS 172 - Geobiology (described under Earth Sciences 72)**

Prerequisite: CHEM 5 or equivalent or permission of the instructor. EARS 31 or BIOL 16 or equivalent recommended. Crosslisted as: Described under EARS 72. Offered: 15W: 10; X-hour required.

### **EARS 173 - Environmental Isotope Geochemistry**

Feng

Prerequisite: CHEM 5 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 73. Offered: 15S: 10A; Laboratory: Arrange; X-hour required. Offered alternate spring terms.

### **EARS 174 - Soils and Aqueous Geochemistry (described under Earth Sciences 74)**

Renock

Prerequisite: CHEM 5 and EARS 62 or equivalents or permission of instructor. Offered: 14F: 10A; X-hour required.

### **EARS 175 - Advanced Quaternary Paleoclimatology**

Kelly

Prerequisite: EARS 15 or ENGS 172 or equivalent or permission of the instructor. Crosslisted as: Described under EARS 75. Offered: 15S: 3A; X-hour required - Offered alternate spring terms.

### **EARS 176 - Contaminant Hydrogeology**

Renshaw

Prerequisite: EARS 066 or equivalents or permission of instructor. Crosslisted as: Described under EARS 076. Offered: 15S: 2A; Laboratory: Th 4:00-6:00; X-hour required. Offered alternate spring terms.

### **EARS 177 - Environmental Applications of GIS (Identical to, and described under, Geography 59)**

Chipman

Crosslisted as: GEOG 059. Offered: 14W: 11; Laboratory M 1:00-2:55 or Tu 1:00-2:55. X-hour required. .

### **EARS 179 - Special Topics**

Offered: Not offered in the period from 13F through 14S.

### **EARS 201 - Earth Systems**

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. Dade.

Offered: 14F, 15F: Arrange.

### **EARS 202 - Geochemical Tracers**

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: 14W, 15W: Arrange.

### **EARS 203 - Earth Surface Processes**

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: 14S, 15S: Arrange.

## **Engineering Sciences - Graduate**

Chair: Erland M. Schulson

Professors I. Baker, B. Cushman-Roisin, G. Cybenko, E. Garmire, T. U. Gerngross, R. J. Graves, 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; Professors Emeriti A. O. Converse, C. E. Hutchinson, F. E. Kennedy, H. J. Richter, B. U. O. Sonnerup, G. B. Wallis; Associate Professors M. E. Borsuk, H. J. Frost, K. E. Griswold, E. W. Hansen, J.E. Hill, M. Q. Phan, B. S. Trembly, U.G.K. Wegst; Assistant Professors M. E. Ackerman, S. G. Diamond, B.P. Epps, R. J. Halter, J. Liu, K. Odame, J.T. Stauth, D.W. Van Citters, V. Vaze; Senior Lecturers J. P. Collier, E. Fossum, A. Hartov, P. J. Hoopes, M. S. Laser, R. C. Lasky, C. G. Levey, V. V. May, V. F. Petrenko, P. J. Robbie, J. M. Rosen, S. G. Shepherd; Lecturers M. R. Albert, A. Borsic, P. Bonfert-Taylor, D. C. Cullen, K. Hoyt, R.W. Obbard, S. O. Peterson, A. Scherer, M.E. Testorf, J.D. Wilson.

*To view Engineering Sciences Graduate courses, click here.* (p. 501)

*To view Engineering Graduate courses, click here.* (p. 500)

*To view Engineering Sciences*

*Undergraduate requirements, click here.* (p. 205)

*To view Engineering Sciences Undergraduate courses, click here.* (p. 212)

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 18, 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 18 is recommended.

### 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 Course<sup>11</sup>
  - 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.

<sup>11</sup>ENGS 91, ENGS 92, ENGS 93, ENGS 100, ENGS 104, ENGS 105, ENGS 106, ENGS 200, ENGS 202, ENGS 205.

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 2013-2014 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.

<sup>12</sup> *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 specialization<sup>13</sup>.
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. <sup>(See footnote below.)</sup>
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.

<sup>13</sup> *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. 497)

*To view Engineering Sciences Graduate courses, click here.* (p. 501)

*To view Engineering Sciences Undergraduate requirements, click here.* (p. 205)

*To view Engineering Sciences Undergraduate courses, click here.* (p. 212)

### **ENGG 129 - Instrumentation and Measurements**

#### **Staff**

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 031 and ENGS 061 or equivalent.  
Offered: 15S: 11; Laboratory.

### **ENGG 138 - Corrosion and Degradation of Materials**

Frost

Prerequisite: ENGS 024 and CHEM 005. Offered: Not offered for the period 13F through 14S.

### **ENGG 148 - Structural Mechanics**

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 033. Offered: 15W: 10A Offered in alternate years.

### **ENGG 166 - Quantitative Human Physiology**

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: Not offered in the time period 13F - 14S.

### **ENGG 210 - Spectral Analysis**

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 in the period from 13F through 14S.

### **ENGG 212 - Communications Theory**

Prerequisite: ENGS 110. Offered: Not offered in the period from 13F through 14S.

### **ENGG 230 - Fatigue and Fracture**

Prerequisite: Engineering 130 or permission of the instructor. Offered: Not offered in the period from 13F through 14S.

### **ENGG 240 - Kinematics and Dynamics of Machinery**

Prerequisite: Engineering 140. Offered: Not offered in the period from 13F through 14S.

### **ENGG 261 - Biomass Energy Conversion**

Lynd, Laser

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: 15S: Arrange Offered in alternate years.

### **ENGS - Engineering Sciences - Graduate Courses**

*To view Engineering Sciences Graduate requirements, click here.* (p. 497)

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### **ENGS 100 - Methods in Applied Mathematics I**

Epps

Concepts and methods used in the treatment of linear equations with emphasis on matrix operations, differential equations, and eigenvalue problems will be developed following a brief review of analytic function theory. Topics include the Fourier integral, finite and infinite dimensional vector spaces, boundary value problems, eigenfunction expansions, Green's functions, transform techniques for partial differential equations, and series solution of ordinary differential equations. Properties and uses of orthogonal polynomials and special functions such as the hypergeometric, Bessel, Legendre, and gamma functions are included. Applications in engineering and physics are emphasized.

Prerequisite: ENGS 092 or MATH 033 or MATH 043, with permission of instructor, or the equivalent. Offered: Not offered in the period 2013-2014.

### **ENGS 104 - Optimization Methods for Engineering Applications**

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 022 and ENGS 027 or equivalents, or permission of instructor. Offered: 13F, 14F: T/Th 4-5:50.

### **ENGS 105 - Computational Methods for Partial Differential Equations**

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 023 and ENGS 091 (COSC 071 [formerly COSC 026]), or equivalents. Offered: 14W: 11 Offered in Alternate Years.

### **ENGS 106 - Numerical Linear Algebra**

Chakrabarti

Prerequisite: COSC 071 (formerly COSC 026) or ENGS 091. 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. Crosslisted as: COSC 240. Offered: Not Offered in the period 2013-2014.

### **ENGS 110 - Signal Processing**

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 032 and ENGS 092 or equivalents. Offered: 14S, 15S: 10.

### **ENGS 112 - Modern Information Technologies**

Staff

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 020, ENGS 093 and ENGS 027 or COSC 060 (formerly COSC 078). ENGS 093 can be taken concurrently. Offered: 15S: 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 026, MATH 023, or equivalents plus familiarity with MATLAB. Offered: Not offered in the period from 13F through 14S.

### **ENGS 115 - Parallel Computing**

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 091 (or COSC 071 [formerly COSC 026] or equivalent). Offered: 13F, 14F: 2A.

### **ENGS 116 - Computer Engineering: Computer Architecture**

This course provides an introduction to the field of computer architecture. The history of the area will be examined, from the first stored program computer to current research issues. Topics covered will include successful and unsuccessful machine designs, cache memory, virtual memory, pipelining, instruction set design, RISC/CISC issues, and hard-ware/software tradeoffs. Readings will be from the text and an extensive list of papers. Assignments will include homework and a substantial project, intended to acquaint students with open questions in computer architecture.

Prerequisite: ENGS 031 and COSC 051 (formerly 037); COSC 057 (formerly 048), COSC 058, or equivalent recommended. Crosslisted as: COSC 251. Offered: Not offered in the period from 13F through 14S.

### **ENGS 120 - Electromagnetic Fields and Waves**

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 023 or PHYS 041. Offered: 14W, 15W: 9.

### **ENGS 122 - Semiconductor Theory and Devices**

Garmire

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 and ENGS 032 or equivalents. Crosslisted as: PHYS 126. Offered: 14S, 15S: Arrange.

### **ENGS 123 - Optics**

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 023 or PHYS 041, and ENGS 092 or equivalent. Crosslisted as: PHYS 123. Offered: 13F: 9L Offered in alternate years.

### **ENGS 124 - Optical Devices and Systems**

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 023. Crosslisted as: PHYS 124. Offered: 14F: 9 Offered in alternate years.

### **ENGS 125 - Power Electronics and Electromechanical Energy Conversion**

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 023 and ENGS 032. Offered: 13F, 14F: 11.

### **ENGS 126 - Analog Integrated Circuit Design**

Odame

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 032 and ENGS 061, or permission.  
Offered: 14S, 15S: 2A.

### **ENGS 128 - Advanced Digital Systems Design**

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 031 and ENGS 062 or COSC 051 (formerly COSC 037). Offered: 15S: Arrange Offered in Alternate Years.

### **ENGS 130 - Mechanical Behavior of Materials**

Van Citters

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 024 and ENGS 033, or equivalent.  
Offered: 13F, 14F: 10.

### **ENGS 131 - Science of Solid State Materials**

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 024 or PHYS 024 or CHEM 076 or equivalent. Offered: 13F, 14F: 10.

### **ENGS 132 - Thermodynamics and Kinetics in Condensed Phases**

Frost

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 024 and ENGS 025, or equivalent.  
Offered: 14W, 15W: 11.

### **ENGS 134 - Nanotechnology**

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: 14W, 15W: 10A.

### **ENGS 135 - Thin Films and Microfabrication Technology**

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 024 or equivalent. Offered: 14W: 2  
Offered in alternate years.

### **ENGS 137 - Methods of Materials Characterization**

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 024 or permission. Crosslisted as: PHYS 128 and CHEM 137. Offered: 15W: 10 Offered in alternate years.

### **ENGS 140 (Renumbered to ENGS 72 - pending approval) - Applied Mechanics: Dynamics**

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 022. Offered: 14W, 14F: 9.

### **ENGS 142 - Intermediate Solid Mechanics**

May

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 071 or ENGS 076 or equivalent.  
Offered: 14W, 15W: 10.

### **ENGS 145 - Modern Control Theory**

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 026. Offered: 14S, 15S: 10A.

### **ENGS 146 - Computer-Aided Mechanical Engineering Design**

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 076. Offered: 14S, 15S: 2A.

### **ENGS 147 - Mechatronics**

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 026 or ENGS 145 and two of ENGS 031, ENGS 032, ENGS 033, ENGS 076 or equivalent.  
Offered: 14S: 2A 15W: Arrange.

### **ENGS 150 - Intermediate Fluid Mechanics**

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 034, or permission of the instructor.  
Offered: 14S, 15S: 12.

**ENGS 151 - Environmental Fluid Mechanics**

Staff

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 034 and ENGS 037, or equivalent.  
Offered: 15W: Arrange Offered in alternate years.

**ENGS 152 - Magnetohydrodynamics**

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 068 or equivalent, or permission of the instructor. Crosslisted as: PHYS 115. Offered: 15W: 2A  
Offered in alternate years.

**ENGS 153 - Computational Plasma Dynamics**

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 068 or equivalent with ENGS 091 or equivalent recommended, or permission of the instructor. Crosslisted as: PHYS 118. Offered: 15S: Arrange Offered in alternate years.

**ENGS 155 - Intermediate Thermodynamics**

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 025. Offered: 14S, 15S: Arrange.

**ENGS 156 - Heat, Mass, and Momentum Transfer**

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 034. Offered: 14S, 15S: 10.

**ENGS 157 - Chemical Process Design**

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 036. Offered: 14W, 15W: 11.

**ENGS 158 - Chemical Kinetics and Reactors**

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 036. Offered: 14S: 12 Offered in alternate years.

**ENGS 160 - Biotechnology and Biochemical Engineering**

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 3 or CHEM 5, BIOL 12 or BIOL 13 and permission of the instructor. Offered: 13F, 14F: 9; Laboratory.

**ENGS 161 - Metabolic Engineering**

Lynd

A consideration of practical and theoretical aspects of modifying metabolic pathways to produce products of

interest. After reviewing basic principles of metabolism and the scope of the metabolic engineering field, case studies of metabolic engineering will be examined including detailed consideration at a genetic level. Thereafter, techniques and applications of metabolic modeling will be considered, including structured modeling and metabolic control theory.

Prerequisite: ENGS 160, a non-introductory course in biochemistry or molecular biology, or permission. Offered: 15W: Arrange Offered in alternate years.

### **ENGS 162 - Methods in Biotechnology**

Griswold

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: 15S: Arrange Offered in alternate years.

### **ENGS 163 - Protein Engineering**

Ackerman

Engineered biomolecules are powering an array of innovations in biotechnology, and this course will familiarize students with key developments in the field. A brief review of important biochemical principles will touch on concepts such as the central dogma of biology, atomic scale forces in protein structures, and the relationship between protein structure and function. Strategies for protein structure modification will then be surveyed, with a particular emphasis on genetic techniques. These discussions will culminate with a detailed examination of evolutionary engineering algorithms that represent state of the art technologies for combinatorial protein design. The development of proteins with practical utility will be highlighted throughout the term using examples and case studies taken from the current literature.

Prerequisite: One from ENGS 35 or 160, and one from CHEM 5 or 10. Alternatively students may have one from CHEM 41, BIOL 40 or Biochem 101. Equivalent courses

accepted with instructor's permission. Offered: 14W, 15W: 10.

### **ENGS 164 - Cellular and Molecular Biomechanics**

A graduate section of ENGS 064 involving a project and additional class meetings. Not open to students who have taken ENGS 064.

Prerequisite: ENGS 030 or equivalent, ENGS 033 or ENGS 034 or equivalent. Offered: Not offered in the period from 13F through 14S.

### **ENGS 165 - Biomaterials**

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 024, or equivalent. Offered: 14S, 15S: T/Th 8-10:00.

### **ENGS 167 - Medical Imaging**

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 023 or equivalent. Offered: 14F: 10 Offered in alternate years.

### **ENGS 169 - Intermediate Biomedical Engineering**

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: 15S: 2 Offered in Alternate Years.

### **ENGS 170 - Neuroengineering**

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 022 and ENGS 056. Offered: 14W, 15W: 2A.

### **ENGS 171 - Industrial Ecology**

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 021 and ENGS 037. Offered: 14W, 15W: 10.

### **ENGS 172 - Climate Change and Engineering**

Staff

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: Not offered in the period from 13F through 14S.

### **ENGS 175 - Energy Systems**

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 025, ENGS 051, either ENGS 173 or ENGS 174 or permission of the instructor. Offered: 14S, 15S: Arrange.

### **ENGS 200 - Methods in Applied Mathematics II**

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. Crosslisted as: PHYS 110. Offered: 14W: 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 13F through 14S.

### **ENGS 205 - Computational Methods for Partial Differential Equations II**

Staff

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: Not offered in the period from 13F through 14S.

### **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 13F through 14S.

### **ENGS 250 - Turbulence in Fluids**

Prerequisite: ENGS 150 or equivalent. Offered: Not offered in the period from 13F through 14S.

## **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. 510).

### **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. 509).

### **GENE 102 - Molecular Information in Biological Systems**

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: 13F, 14F: M, W, F 8:30-9:50 a.m., X-hour Th, 9:00-10:00 a.m.

### **GENE 107 - Spring MCB Course Module**

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: 14S, 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**

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: 14S, 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**

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. Crosslisted as: BIOC 118. Offered: 15S, 16S: Arrange.

### **GENE 142 - Genetics and Physiology of Behavior**

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**

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: 14S: Arrange Offered in alternate years.

**GENE 145 - Human Genetics**

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 90 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. Crosslisted as: MICR 145. Offered: 15S: Arrange Offered in alternate years.

**GENE 146 - Molecular and Computational Genomics**

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. Crosslisted as: QBS-146. Offered: 14S, 15S: Arrange.

**GENE 147 - Animal Development and Human Disease**

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: 14S: Arrange Offered in alternate years.

**GENE 148 - Biological Mass Spectrometry and Proteomics**

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 187 - Essentials of Global Health Research**

Adams, Waddell, Karagas, Splaine

Research in global health requires a unique knowledge base and set of interpretive skills. This course is designed to provide students interested in conducting research in international settings the basics for designing and executing a study and performing data collection and analysis. The course is organized into three modules to cover the key topics relevant to global health researchers: global health disease and epidemiology, evaluating quality of international health data, and ethical research in global health. Open to undergraduates (sophomores and above) who should enroll under INTS 087.

Prerequisite: permission of an instructor. Crosslisted as: INTS 087. Offered: 14S: 3A.

**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

#### **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. 513).*

### **MALS - Master of Arts in Liberal Studies Courses**

*To view Master of Arts in Liberal Studies requirements, click here (p. 513).*

#### **MALS 130 - Research Methods**

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.

#### **MALS 131 - Social Science Research Methods**

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.

#### **MALS 137 - Thesis Research**

Offered: 13F, 14W, 14S.

#### **MALS 191 - Oral History in Theory and Practice**

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: 13F.

### **MALS 205 - Narrative Non-Fiction**

Barbara Kreiger

This course is aimed at those with a special interest in non-fiction creative writing. (e.g., memoir, travel, nature) Writing experience is preferred, but is not a prerequisite. What is required is a commitment to the imaginative exploration of experience and a serious desire to devote oneself to the writing process.

Offered: 14S.

### **MALS 206 - The Craft and Culture of Journalism in the 21st Century**

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: 14W.

### **MALS 213 - Fiction-Short Story**

Alan Lelchuk

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 225 - Global Diffusion of Democracy**

Ronald Edsforth

This seminar's subject is the spread of democratic systems of governance around the world since the late 18th century, with the major focus on the diffusion of democracy since 1945. Students are required to be active participants in all aspects of the course. Students complete several short writing assignments and a research paper. The required readings include books, journal articles, and referencing websites devoted to major topics considered in the seminar. During the first and longest part of the course the seminar examines types and variations of democratic governance and the historical and geographic patterns of democracy's diffusion. The various components and underpinnings of democracy are identified and discussed (e.g. political rights, civil society, forms of representation, division of powers, etc). Barriers to democratization, as well as conditions facilitating

democratization are also considered. The variety of transitions to democracy in monarchies, former colonies, communist countries, and dictatorships, as well as the effectiveness of violent and non-violent strategies are carefully examined and compared. The second transitional part of the seminar will focus its attention on very recent questions about the relationship between the "free market" and democracy, and to the question of whether armed interventions promote democratization. In the final weeks of the term, students present their research projects on selected countries from all regions of the world. Research projects should develop ideas about specific topics like the relationship between globalization and democracy, the role of religion in democracies, the status and power of women and minorities in democracies, and the conditions in which democracy is eroded and even lost.

### **MALS 226 - Screenwriting**

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.

### **228 - The Lyrics of Bob Dylan**

Louis Renza

We will do close critical readings of certain Dylan lyrics spanning his entire career, also taking into account their social, historical, and biographical circumstances. The course aims to discuss how these lyrics variously exploit, complicate, and question their wider cultural imbrications. Note: Some attention will be given to the performance aspect of Dylan's songs, but we will not listen to them in class. All of the songs assigned and discussed will be available for your listening beforehand in the Paddock

Music Library. Course Requirements: regular attendance, at least two in-class oral reports, and two papers.

### **MALS 234 - Telling True Stories**

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: 14W.

### **MALS 239 - Poetry Workshop**

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: 14S.

### **MALS 240 - Globalization and Its Discontents**

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.

### **MALS 244 - World Wars & Global Peace Culture**

Ronald Edsforth

This seminar offers all of us (including the instructor) an opportunity to read, think, talk, and write about two of the most important subjects in globalization studies: war and peace. The seminar is organized as a historical investigation. It focuses on the global history of war and on efforts to make a more peaceful world. Since warfare and terrorism dominate so much of the news and policy debate in the United States, it may surprise many students to know that the probability of a human being killed in war has never been lower than it is now in the early 21st century. This seminar explores the reasons behind this surprising fact. Students will examine the intertwined history of war and peace since 1900, focusing especially on increasingly diverse global efforts to eliminate interstate war, suppress collective violence within states, develop non-violent strategies for conducting political conflict, and establish universal human rights. Our historical investigation will be more topical than chronological. We begin the term examining the long history of ideas about war and making peace. Then, emphasizing developments since 1900, we study changes in international relations, warfare, liberal internationalism, international law, human rights, nonviolent political conflict, and third party interventions designed to end conflicts and build lasting peace.

Offered: 14S.

### **MALS 245 - Non-Fiction - Personal Essay**

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.

### **MALS 246 - Fiction Workshop - Novella**

Alan Lelchuk

This writing workshop will focus primarily on the longer fictional forms (the novella and the long story). Writing experience is preferred, but is not a prerequisite. Emphasis will be placed on student work, but a good number of

published stories and novellas will be looked at as well. Classes will be mostly discussions, analyses, and readings. The aims of the course are to help the young writer understand and practice the longer forms of fiction, to read those forms more judiciously and from a writer's point of view, and to raise his/her own levels of prose to a high literary standard.

Offered: 13F.

### **MALS 276 - America in the 1970's**

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.

### **MALS 277 - Coloring Gender**

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: 13F.

### **MALS 280 - Legitimacy of Global Modernity**

David Peritz

What are the main sources of social order in an increasingly global world (dis)order? We reside at the far end of vast, rapid and complex processes of social transformation referred to as modernization. These processes include the development of new ways of organizing economies, politics, culture, and society—the fundamental building blocks of human communities. One central issue addressed in this course is the worth or legitimacy of modernity. Which of the institutions and ideas that structured and guided processes of modernization are worth defending or reforming? Which should be rejected? Or should we reject them all and instead embrace a new, post-modern political epoch? To approach these questions we will focus on the market economy, the nation state, discipline and discourse, and we will read from the giants of modern social theory: Smith, Marx and Weber, Tocqueville and Mill, Foucault and Habermas. Processes of modernization also draw more and more persons and societies into the net of interconnectivity, mobility, and hybridity that we refer to as globalization. Understanding modernity as inherently global, originally imperial, and now increasingly post-colonial raises a further set of issues. Once we are attentive to the roles played by colonial domination and racial exploitation in generating modern social orders, does this fundamentally alter our verdict on these processes? What are implications of the fact that many of the tools of resistance to Western imperialism and domination seem to have been forged in the process of modernization itself? Does the Eurocentrism of the tradition of modern social theory invalidate its central concepts and insights? Or can they be reformulated in a way that divorces their critical power from the prejudices that informed their elaboration? Are ‘Europeans’ increasingly ‘provincialized’ as Western political, social and epistemic hegemony declines in an ever-more global world? This course tackles these issues in tandem. It pairs some of the most important modern social theorists with some of their most trenchant global and post-colonial critics, exploring several dimensions of the interchange between ‘the West and the rest’ and in the process throwing into sharp focus the question of the legitimacy of global modernity.

### **MALS 284 - Homegrown: "Local" in a Globalized Age**

Julia Rabig

Globalization has eroded local traditions, economies, and sources of authority. Yet, in spite of – or perhaps because of this – the local has retained both its allure and potency as a discourse of social, cultural, and political resistance to globalization. Adages such as “all politics is local” and “think globally, act locally” reflect commonly touted assumptions of the enduring significance of the local. This course draws on theoretical texts, documentary film, history, and cultural studies to analyze articulations of the local in a range of responses to globalization. Early readings will establish the contours of globalization and prompt students to pose broad questions about what

theorists call the “production of locality.” We’ll explore these questions with close readings around four themes, including media, civil society, food, and labor. We’ll read work by Antonio Negri, David Harvey, and Saskia Sassen, among others. Topics covered will range from the 1994 Zapatista uprising in Mexico and its influence on other resistance movements to expressions of “gastronationalism” and the politics of local food consumption.

Offered: 14W.

### **MALS 287 - Religion & Politics in a Post-Secular World: Rethinking Secularization**

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: 13F.

**MALS 288 - Preparing to Write: Strategies for Creative Writers**

Anna Minardi

The goal of this workshop is to increase students' awareness of the questions they face as creative writers. Our aim is to provide guidance while students develop their own "methodology," informed by the issues they'll confront as they begin to write. We'll focus on short projects in order to build confidence and strategies. In addition to student-generated topics, some of the questions we'll ask are: How do we find a subject? How do we know it will "work"? Is the computer a help or a hindrance at the beginning of the process? What is the role of research in the work of a creative writer? How do we transform our experiences and observations into a literary product? Class discussions will be enhanced by guest visits by MALS creative writing faculty.

Offered: 14S.

**MALS 318 - Cultural Studies**

Donald Pease; Winfried Fluck

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**

Misagh Parsa; Evelyn Gick

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: 14W.

**MALS 346 - Diasporas and Migrations**

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: 14S.

**MALS 361 - Global Media and Culture**

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**

Pati Hernandez; Francine A'ness

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: 14S.

## **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, C. D. Lahr, C. B. Pomerance, D. Rockmore, T. R. Shemanske, D. I. Wallace, D. L. Webb, D. P. Williams, P. Winkler; Associate Professors A. H. Barnett, S. Elizalde, R. C. Orellana, S. D. Pauls, C. J. Sutton, J. D. Trout, J. Voight; Assistant Professor E. van Erp; Research Instructors M. Cho, Z. Daugherty, F. Dorais, A. Gillman, P. Herbrich, O. Prosper; Visitors J. Bourke, S. Diesel, M. Kozek, F. Luca, S. J. Somersille; Adjunct Professor E. Demidenko; Adjunct Associate Professor B. F. Cole.

*To view Mathematics Graduate courses, click here.* (p. 520)

*To view Mathematics Undergraduate requirements, click here.* (p. 331)

*To view Mathematics Undergraduate courses, click here.* (p. 337)

### **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: Algebra A and B, Analysis A and B and Topology A and B.[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.

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[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. 519)

*To view Mathematics Undergraduate requirements, click here.* (p. 331)

*To view Mathematics Undergraduate courses, click here.*  
(p. 337)

#### **MATH 100 - Topics in probability theory**

#### **MATH 101 - Topics in algebra**

13F: Arrange. Williams.

#### **MATH 102 - Topics in geometry**

13F: Arrange. Herbrich.

#### **MATH 103 - Measure Theory and Complex Analysis**

13F: Arrange. Gordon.

Crosslisted as: MATH 073.

#### **MATH 104 - Topics in topology**

#### **MATH 105 - Topics in number theory**

13F: Arrange. Pomerance.

#### **MATH 106 - Topics in applied mathematics**

#### **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**

14W: Arrange. Shemanske.

Crosslisted as: MATH 081.

#### **MATH 112 - Geometry**

14S: Arrange. Sutton.

#### **MATH 113 - Analysis**

14S: Arrange. Trout.

#### **MATH 114 - Algebraic Topology**

14S: Arrange. Webb.

Crosslisted as: MATH 074.

#### **MATH 115 - Number Theory**

#### **MATH 116 - Applied mathematics**

14S: Arrange. Barnett.

#### **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: 13X: Arrange.

**MATH 118 - Combinatorics****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**

14W: Arrange. van Erp.

**MATH 124 - Current problems in topology**

14W: Arrange. Webb.

**MATH 125 - Current problems in number theory**

14S: Arrange. Voight.

**MATH 126 - Current problems in applied mathematics**

14W: Arrange. TBA

**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**

14W: Arrange. Orellana. 14S: Arrange. Daughtery

**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), J. D. Gorham (Pathology, and Microbiology and Immunology), 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), 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), R. A. Cramer (Microbiology and Immunology), Y. H. Huang (Surgery, and Microbiology and Immunology), T. Lahey (Medicine, and Microbiology and Immunology), D. Mullins (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:

### **CORE COURSES BY TERM**

#### **Fall Term**

BIOL 103	The Molecular Mechanisms of Cellular Responses
BIOC 101	Molecular Information in Biological Systems

#### **Winter Term**

BIOC 106	Spring MCB Course Module
MICR 104	The Molecular Mechanisms of Cellular Responses

#### **Spring Term**

Students must choose three of the following modules, each worth 1/3 credit, for a total of 1 credit:

BIOC 110	Biochemical and Genetic Basis of Medicine (DMS1)
BIOL 122	Advanced Ecological Resilience

GENE 102	Molecular Information in Biological Systems
MICR 104	The Molecular Mechanisms of Cellular Responses

### **MICR - Microbiology and Immunology Courses**

To view *Microbiology and Immunology requirements*, click [here](#) (p. 521).

#### **MICR 104 - The Molecular Mechanisms of Cellular Responses**

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: 14W, 15W: 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: 14S, 15S: 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**

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: 15W: Arrange Offered in alternate years.

#### **MICR 144 - Cellular and Molecular Basis of Immunity**

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, problem solving and discussion. This course is designed to be a graduate level course that builds upon a basic introductory immunology course. Because the Core course, an undergraduate course, or a medical course is a prerequisite, 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 and cover areas not typically covered in a basic immunology course. Lectures and discussion.

Prerequisite: A basic immunology course: BIOC 102, BIOL 046, or an equivalent. Offered: 14F: Arrange Offered in alternate years.

#### **MICR 145 - Human Genetics**

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. Crosslisted as: GENE 145. Offered: 15S: Arrange Offered in alternate years.

#### **MICR 146 - Immunotherapy**

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: 14S: Arrange Offered in alternate years.

#### **MICR 148 - Advanced Molecular Pathogenesis**

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: 13F: Arrange Offered in alternate years.

#### **MICR 149 - Microbial Physiology and Metabolism**

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 30 min lecture on an assigned topic. One paper is discussed each class period on the same topic.

Prerequisite: permission of the instructor. Offered: 15S: Arrange Offered in alternate years.

#### **MICR 167 - The Biology of Fungi and Parasites that Cause Disease**

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. Sundstrom.

Offered: 14W, 15W: 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; Associate Professor W. J. Summers; Assistant Professor S. Topel; Senior Lecturers T. E. Atherton, N. V. Boyer, L. G. Burkot, M. L. Cassidy, J. Diamond, R. P. Duff, 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, N. Davis, J. Dunlop, J. Halloran, T. M. Stoll, Adjunct Associate Professor H. F. Shabazz; Adjunct Assistant Professor F. L. Haas.

Directors of Hopkins Center performing organizations: D. M. Glasgow, Director, Barbary Coast Jazz Ensemble; L. G. Burkot Jr., Conductor, Dartmouth College Glee Club; W. L. Cunningham, Director, Dartmouth College Gospel Choir; R. P. 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. 525).*

To view Music Undergraduate requirements, click here. (p. 346)

To View Music Undergraduate courses, click here. (p. 348)

### 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. 524).

To view Music Undergraduate requirements, click here. (p. 346)

To view Music Undergraduate courses, click here. (p. 348)

### MUS 101 - Topics in the Repertoire of Electro-Acoustic and Computer Music

Topel

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

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.

Crosslisted as: MUS 14. Offered: 15W: Arrange.

### **MUS 103 - Sound Analysis, Synthesis, and Digital Signal Processing**

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: 14W: Arrange.

### **MUS 104 - Computer Music Composition**

TBA

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: 14S, 15S: Arrange.

### **MUS 105 - Musical Systems**

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: 13F: Arrange.

### **MUS 138 - Directed Research. The staff.**

The staff

Equivalent to two courses.

Offered: All terms.

### **MUS 139 - Directed Research. The staff.**

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. 526).*

## **Requirements for the Doctor's Degree (Ph.D.)**

### **PHAR - Pharmacology and Toxicology Courses**

*To view Pharmacology and Toxicology requirements, click here (p. 526).*

### **PHAR 123 - Graduate Toxicology**

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**

Gulledge 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: 14W: Arrange Offered every year.

### **PHAR 126 - Cancer Biology**

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**

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: 14S: Arrange Offered in alternate years.

### **PHAR 133 - Pharmacology of Drug Development**

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)**

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**

Course Directors: N. Shworak and S. Freemantle

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**

Course Directors: N. Shworak and S. Freemantle

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. Gullidge, A.F. Kisselev, M. Kurokawa, S. Lee, P.J. Lenck-Santini, B.W. Luikart, C.J. Marsit, T. Miller, P.A. Pioli, E. Rzucidlo, 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. 528).

**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:****Biomedical Physiology**

PEMM 271      Advanced Biomedical Sciences  
Two electives

**Cancer Biology and Molecular Therapeutics**

PEMM 126      Cancer Biology

Three electives

**Cardiovascular Diseases**

PEMM 275      Vascular Biology  
Three electives

**Molecular Pharmacology, Toxicology and Experimental Therapeutics**

PEMM 131/PHAR 131      Experimental Therapeutics & Drug Discovery  
Three electives

**Neuroscience**

PEMM 115      Neurosciences  
Two electives

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. 528).

**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: 13F 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: 14W 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: 13F 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.

Crosslisted 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.

Crosslisted 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: 13S 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

Crosslisted 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.

Crosslisted as: PHLS 117. Offered: 13F Offered every 4th year.

**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.

Crosslisted as: PHLS 119. Offered: Offered as requested.

**PEMM 123 - Graduate Toxicology**

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. Crosslisted 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.

Crosslisted as: PHLS 124 and PHAR 124. Offered: 14W: Arrange. Offered every year.

#### **PEMM 126 - Cancer Biology**

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

Crosslisted as: PHSL 128. Offered: Offered as requested.

#### **PEMM 131 - Experimental Therapeutics & Drug Discovery**

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. Crosslisted as: PHAR 131. Offered: 14S: Arrange Offered in alternate years.

#### **PEMM 132 - Physiological Systems Modeling**

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.

Crosslisted as: PHSL 132. Offered: 15S: Arrange. Offered in alternate years.

#### **PEMM 133 - Pharmacology of Drug Development**

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. Crosslisted as: PHAR 133. Offered: 14F: Arrange. Offered every year.

#### **PEMM 137 - Project Research (Qualifying Examination)**

A. Eastman

Summer term: Arrange

#### **PEMM 141 - Research Rotation I**

A. Eastman

All terms: Arrange

**PEMM 142 - Research Rotation II**

A. Eastman

All terms: Arrange

**PEMM 143 - Research Rotation III**

A. Eastman

All terms: Arrange

**PEMM 150 - Neurosciences I: Molecular and Cellular Neuroscience**

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.

Crosslisted as: PHSL 150. Offered: 14S: Arrange. Offered every year.

**PEMM 212 - Neurosciences II**

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**

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: 14W: Arrange. Offered every year.

**PEMM 271 - Advanced Biomedical Sciences**

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: 14S: Arrange. Offered every year.

**PEMM 275 - Vascular Biology**

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: 14S: Arrange. Offered every year.

**PEMM 297 - Level I: part-time research: 1 course equivalent**

A. Eastman

All terms: Arrange

Offered: All terms.

**PEMM 298 - Level II: part-time research: 2 course equivalent**

A. Eastman

All terms: Arrange

Offered: All terms.

**PEMM 299 - Level III: full-time research: 3 course equivalent**

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, 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 Professor R. Onofrio; Visiting Associate Professor Y. J. Brown; Adjunct Professors T. A. Fulton, W. Lotko, R. A. Naumann, B. W. Pogue, J. B. Weaver; Adjunct Associate Professors A. H. Barnett, A. J. Brizard, C. G. Levey, T. P. Smith, A. Ukhorskiy; Adjunct Assistant Professor J. Liu, F. Ticozzi; Research Professors P. Crane, R. E. Denton, J. G. Lyon; Research Associate Professor B. T. Kress, H-R Mueller.

*To view Astronomy Graduate courses, click here.* (p. 533)

*To view Physics Graduate courses, click here.* (p. 533)

*To view Physics and Astronomy Undergraduate requirements, click here.* (p. 370)

*To view Astronomy Undergraduate courses, click here.* (p. 373)

*To view Physics Undergraduate courses, click here.* (p. 374)

**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.

Special requirements:

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.

**Requirements for the Doctor's Degree (Ph.D.)**

A student will be admitted to Ph.D. candidacy upon:

1. Physics students: Receiving credit for seven out of the following eight core courses: PHYS 76, PHYS 91, PHYS 100, PHYS 101, PHYS 103-106.  
Astronomy students: Receiving credit for any four of the eight core courses (PHYS 76, PHYS 91, PHYS 100, PHYS 101, PHYS 103-106) and any four of ASTR 115-118 and PHYS 114.
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.

The candidate will receive the Ph.D. degree upon

1. Receiving degree credit for at least twelve graduate courses, exclusive of teaching courses. Two of the

twelve courses may be Graduate Research, both of which 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. 532)

*To view Physics Graduate courses, click here.* (p. 533)

*To view Astronomy Undergraduate requirements, click here.* (p. 370)

*To view Astronomy Undergraduate courses, click here.* (p. 373)

*To view Physics Undergraduate courses, click here.* (p. 374)

### **ASTR 115 - Advanced Stellar Astrophysics**

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. No student may receive credit for both ASTR 074 and ASTR 115.

Prerequisite: Permission of instructor. Offered: 15W: 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: 15S:  
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: 14X: Arrange Offered in alternate years.

### **ASTR 118 - Observational Cosmology**

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: 14W: 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. 532)

*To view Astronomy Graduate courses, click here.* (p. 533)

*To view Physics Undergraduate requirements, click here.* (p. 370)

*To view Astronomy Undergraduate courses, click here.* (p. 373)

*To view Physics Undergraduate courses, click here.* (p. 374)

### **PHYS 100 - Mathematical Methods for Physicists**

Viola

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, special 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: 13F, 14F: 11.

### **PHYS 101 - Classical Mechanics**

Lynch

Lagrangian and Hamiltonian formulation of mechanics, canonical transformations, relativistic mechanics, and continuum mechanics.

Prerequisite: PHYS 044. Offered: 13F, 14F: 10A.

### **PHYS 103 - Advanced Quantum Mechanics**

Alexander

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 091, PHYS 100, and PHYS 101. Offered: 14S: 10 Offered in alternate years.

### **PHYS 104 - Statistical Mechanics I**

Viola

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 091, or equivalent. PHYS 100 recommended. Offered: 14S, 15S: 11.

### **PHYS 105 - Electromagnetic Theory I**

Rogers

Potential theory of electrostatics, magnetostatics, and steady currents. Maxwell's equations, gauge transformations, and conservation laws.

Prerequisite: PHYS 041. Offered: 14W, 15W: 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: 15S: 10A Offered in alternate years.

### **PHYS 107 - Relativistic Quantum Field Theory**

Gleiser

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: 14W: 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: 14X: Arrange Offered in alternate years.

### **PHYS 110 - Methods in Applied Mathematics II**

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. Crosslisted as: ENGS 200. Offered: 14W: Arrange.

### **PHYS 111 - Plasma Kinetic Theory**

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: 14W: Arrange Offered in alternate years.

**PHYS 113 - Microscopic Theory of Solids**

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 091, or permission of the instructor. PHYS 103 recommended. Offered: 14W: Arrange Offered in alternate years.

**PHYS 114 - General Relativity and Cosmology**

Prerequisite: Permission of the instructor. Offered: Not offered in the period from 13F through 15S.

**PHYS 115 - Magnetohydrodynamics**

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 068 or equivalent, or permission of the instructor. Crosslisted as: ENGS 152. Offered: 15W: 2A Offered in alternate years.

**PHYS 116 - Quantum Information Science**

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 091. Offered: 14S: 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. Crosslisted as: ENGS 153. Offered: 15S: Arrange Offered in alternate years.

**PHYS 120 - Nonlinear Systems**

Prerequisite: ENGS 100 or equivalent. Offered: Not offered in the period from 13F through 15S.

**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**

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. Crosslisted as: ENGS 123. Offered: 13: Arrange Offered in alternate years.

**PHYS 124 - Optical Devices and Systems**

Garmire

Identical to, and described under, ENGS 124

Prerequisite: ENGS 023 or PHYS 041. Crosslisted as: ENGS 124. Offered: 14F: 9 Offered in alternate years.

**PHYS 126 - Semiconductor Theory and Devices**

Garmire

Identical to, and described under, ENGS 122.

Prerequisite: ENGS 024 and ENGS 032 or equivalents. Crosslisted as: ENGS 122. Offered: 14S, 15S: Arrange

**PHYS 127 - Reading Course**

Advanced graduate students may elect a program of independent reading.

Offered: All terms: Arrange.

**PHYS 128 - Methods of Materials Characterization**

Baker

Identical to, and described under, ENGS 137.

Prerequisite: ENGS 024 or permission. Crosslisted as: ENGS 137 and CHEM 137. Offered: 15W: 10 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**

Caldwell

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: 13F, 14W, 14F, 15W: 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. Gulledge, 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: Jay G. Hull

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, T. P. Wheatley; Assistant Professor J. B. Freeman, J. D. Kralik, M. Meng, W. M. Shim, K.S. Smith. A. Soltani; Senior Lecturer J. F. Pfister; Visiting Associate Professor J. L. Scheiner, J. White; Adjunct Professor R. A. Maue, J. Sargent, M. J. Sateia; Adjunct Associate Professor M. G. Funnell; Adjunct Assistant Professor M. J. Detzer, W. L. Hudenko; Research Professor P. Cavanagh, R. Elliott, R. E. Kleck; Research Associate Professor M. I. Gobbini, V. A. Reed; Research Assistant Professor in the Dartmouth Brain Imaging Center Y. C. Wu.

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. 537)

*To view Psychological and Brain Sciences Undergraduate requirements, click here.* (p. 378)

*To view Psychological and Brain Sciences Undergraduate courses, click here.* (p. 380)

### 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. 537)

*To view Psychological and Brain Sciences Undergraduate requirements, click here.* (p. 378)

*To view Psychological and Brain Sciences Undergraduate courses, click here.* (p. 380)

### PSYC 100 - Proseminar

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

Wolford

First section of Graduate level statistics. Taken by students in their second year.

Offered: 13F.

**PSYC 111 - Measurement and Statistics II**

Wolford

Second term of Graduate level statistics. Typically taken by PBS students in their second year.

Offered: 14W.

**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.

**PSYC 123 - Social Neuroscience**

Heatherton

Social brain science encompasses researchers who combine approaches of evolutionary psychology, social psychology, and neuroscience to study human behavior. This course will examine various topics in social psychology from a social brain science perspective, including, for example, person perception, theory of mind, stigma and stereotyping, self-regulation, affect, and self.

Offered: 14W.

**PSYC 160 - Imaging Methods**

Wheatley

This Imaging Methods course provides hands-on, intensive training in how to design, scan, and analyze an fMRI study using Analysis of Functional NeuroImages (AFNI). As students run and analyze their own studies, they will learn about best practices, common pitfalls, and how to get help and additional training going forward. Students will also receive an overview of other imaging techniques that compliment the spatial resolution of fMRI with finer temporal and structural information (e.g., EEG, DTI).

Offered: 14W.

**PSYC 164 - Computational Methods**

Haxby

An intensive and practical course for working with fMRI data, using methods that are also relevant for population code data from single units, LFP, EEG, MEG, etc.

Offered: 13F.

**PSYC 167 - Professional Development**

Clark

Success in research requires a solid background in one's discipline in addition to extensive practical experience. However, a wide range of "survival skills" also are needed, including the ability to communicate effectively, to find and keep a job, to secure funding, teach, publish and behave responsibly. The goal of this course is to provide a forum for discussion of these topics, resources for refining these skills, and some practical experience.

Offered: 13F.

**PSYC 171 - Brain Evolution**

Granger

For the first 200 million years of mammalian evolution, animals' brain sizes were relatively predictable from their body size via a straightforward allometric relation. In the past four million years, an evolutionary blink of the eye, primates rapidly evolved brains that are four times larger than previously would have been predicted for their body size. What are the contents of our brains? How do they differ from the brains of other mammals (and non-mammals)? How did they acquire their enormous size? Evolution acts on genes, not on organisms; what are the genetic factors that have been identified in recent primate brain growth? What mechanisms are at play, including extrinsic factors and evolutionary "pressures"? What criteria must theories of brain evolution conform to, and what data are to be accounted for? What differential predictions arise from various theories and how are they tested? What relationships obtain between anatomical and functional brain characteristics? The class will cover a set of related topics including brain structure, anthropology, evolution, genetics, development, cognition, race, intelligence.

Offered: 14S.

**PSYC 179 - Face Perception**

Gobbini

Faces are an endless source of information for non-verbal communication. Through faces we recognize identity and infer the emotional and mental states as well as the direction of attention of others. This course will focus on the neural mechanisms for face perception and the automaticity of retrieval of social cues conveyed by faces. In addition to weekly reading and student-led discussions, the students are required to write a paper at the end of the course.

Offered: 13F.

**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.

### **PSYC 289 - Independent Research**

Sign up for this when you need two course credits for independent research.

### **PSYC 290 - Predissertation Research**

Sign up for this when you need two course credits for pre-dissertation research.

### **PSYC 291 - Dissertation Research**

Sign up for this when you need two course credits for dissertation research.

### **PSYC 388 - Supervised Research**

Sign up for this when you need three course credits for supervised research.

### **PSYC 389 - Independent Research**

Sign up for this when you need three course credits for independent research.

### **PSYC 390 - Predissertation Research**

Sign up for this when you need three credits for pre-dissertation Research.

### **PSYC 391 - Dissertation Research**

Sign up for this when you need three credits for dissertation research.

## **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. 540).*

### **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. 539).

#### **QBS 110 - Integrative Biomedical Sciences I**

Moore and Pattin

This is the first of a two-part course designed 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: 13F, 14F: M, W, F 10:30-11:20 a.m.

#### **QBS 111 - Integrative Biomedical Sciences II**

Moore and Williams

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: 13F: F2-3pm.

#### **QBS 120 - Foundations of Biostatistics I: Statistical Inference**

Li and T.Tosteson

This is a graduate level course in statistics designed to teach 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 maximum likelihood, asymptotic theory and the delta-method, Bayesian inference, multivariate hypothesis testing, and correction for multiple comparisons. 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. The emphasis will be on theory used in modern applications in biomedical sciences, including genomics, molecular epidemiology, and translational research. The course will primarily feature computational examples using the statistical package R. 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: 13F: Th 1-4 p.m.

#### **QBS 121 - Foundations of Biostatistics II: Regression**

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: 14W.

#### **QBS 130 - Foundations of Epidemiology I: Theory and Methods**

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: 14W.

### **QBS 131 - Foundations of Epidemiology II: Molecular Epidemiology**

Andrew

This course covers the major issues in conduct of epidemiology investigations with a focus on exposure assessment and molecular-genetic characterization of disease phenotype. Topics include characteristics and routes of exposure, kinetics, measurement error, disease process models, variation, biologic effects, interaction, and biomarker validation. The course will meet for 3 hours per week.

Prerequisite: Foundations of Epidemiology I or Permission of Instructor. Offered: 14S.

### **QBS 146 - Foundations of Bioinformatics I: Molecular and Computational Genomics**

Moore and 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. Crosslisted as: Molecular and Computational Genomics. Offered: 14S.

### **QBS 149 - Mathematics and Probability for Statistics and Data Mining**

Demidenko and Gui

This course will cover the fundamental concepts and methods in mathematics and probability necessary to study statistical theory. Topics will include univariate and multivariate probability distributions with emphasis on the normal distribution, conditional distributions, mathematical expectation, convergence in probability and distribution, and the central limit theorem. 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: 14S.

### **QBS 175 - Foundations of Bioinformatics II: Introduction to Bioinformatics**

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. Crosslisted as: Introduction to Bioinformatics. Offered: 13F; 2A.

### **QBS 195 - Independent Study**

Moore 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 197 - Graduate Research in Quantitative Biomedical Sciences I**

Karagas, Moore, 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**

Karagas, Moore, 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**

Karagas, Moore, 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**

Gross and Pattin

All graduate students are required to enroll in the Quantitative Biomedical Sciences Seminar Series and Journal Club during their first four years, except summers. An essential element of scientific training is in the critical analysis and communication of experimental research in an oral format. Individuals will choose and present a current paper each term encompassing topics that use computational, bioinformatic, statistical and epidemiological approaches to solve scientific problems. This course will meet for a 1-hour discussion once per week.

Crosslisted as: Computational Biology Journal Club. Offered: 13F, 14W, 14S: W 12-1 p.m.

**QBS 297 - Advanced Graduate Research in Quantitative Biomedical Sciences I**

Karagas, Moore, 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**

Karagas, Moore, 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**

Karagas, Moore, 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. 542).*

**ECS - The Dartmouth Institute Courses**

*To view The Dartmouth Institute requirements, click here (p. 542).*

**ECS 100 - Inferential Methods and Systematic Review: Part 1**

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**

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**

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**

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**

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**

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**

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**

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**

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**

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**

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**

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)**

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**

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)**

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)**

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**

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**

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**

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**

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)**

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**

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**

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**

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**

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**

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**

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**

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**

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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