

Note from the Editorial Board

Dear Reader,

Science is often perceived in a solely academic or educational lens. We forget that science is not an isolated aspect of society, but something far more pervasive. It is the study and exploration of the sciences that form the basis of the information and tools, which define how we live. Thus, for this issue of the *Dartmouth Undergraduate Journal of Science*, we examine this connection between science and society.

Our staff review articles this issue tackle an array of topics. Yoo Jung Kim discusses ways in which medicine can be personalized to every patient. Amanda Zieselman describes the placebo effect, and the medical validity of using non-treatment. Evelyn Maldonado's article studies the intricate relationship between music and the brain. And Suyash Bulchandani addresses on sports equipment unites science with athletics.

A discussion of cognitive enhancers can be found in Andrew Foley's article on neurologic drugs. Rui Shu has written a review on the development of optogenetics and magnetism in neuroscience research. Scott Gladstone examines the science and current research behind many popular science-fiction technologies. Finally, Derek Racine investigates the development of the Internet, and a few of its modern social applications.

Independent undergraduate research also plays an important role in the *DUJS*, and we are excited to feature three submissions. Sharang Biswas has written an essay discussing the history and events surrounding the discovery structure of DNA; Ben Hughey and Alexandra Giese summarize their research on glacial movement; and Robin Costello, Nina Frankel, and Madilyn Gamble report on the feeding adaptations and sexual dimorphism of lionfish. Our featured faculty interview in this issue comes from Sienna Craig, Associate Professor of Anthropology, who discusses her study of non-traditional medicine in Nepal and Tibet.

Lastly, we conducted our first annual International Science Essay Contest this fall, and received 80 excellent submissions from 20 countries. We would like to congratulate all of participants for their hard work. Our first place winner, Christian Nakazawa of Owings Mills, MD, and second place winner, Shreya Ahuja of Dallas, TX, have their essays featured in this issue.

We would like to extend a special thank you to the Undergraduate Admissions Office and Maria Laskaris, Dean of Admissions, for bringing the *DUJS* and our ISEC to high schools around the world. In addition, we would like to thank Jane Quigley, Head Librarian of the Kresge Physical Sciences Library, for assisting in the expansion of our distribution network.

Thank you for reading the *DUJS*, and we hope you enjoy this issue.

Sincerely,
The *DUJS* Editorial Board

Dartmouth College
Hinman Box 6225
Hanover, NH 03755
(603) 646-8714
<http://dujs.dartmouth.edu>
dujs@dartmouth.edu

Copyright © 2012
The Trustees of Dartmouth College

The Dartmouth Undergraduate Journal of Science aims to increase scientific awareness within the Dartmouth community by providing an interdisciplinary forum for sharing undergraduate research and enriching scientific knowledge.

EDITORIAL BOARD

President | Editor-in-Chief
Andrew H. Zureick '13 | Daniel K. Lee '13

Managing Editors: Yoo Jung Kim '14,
Kyle Heppenstall '13, Andrew Foley '15
Design Editor: Steven Chen '15
Assistant Editors: Scott Gladstone '15,
Annie Chen '13
Online Content Editor: Brendan Wang '15
Public Relations Officer: Derek Racine '14

STAFF WRITERS

Stephanie Alden '16
Tyler Billipp '14
Suyash Bulchandani '15
Kristopher Brown '14
Pranam Chatterjee '15
Annie Chen '13
Barry Chen '16
Alexandra Dalton '16
Nina Dewees '16
Kristen Flint '14
Andrew Foley '15
Sandy Fox '16
Scott Gladstone '15
Thomas Hauch '13
Annie Huang '16
Shinri Kamei '16
Yoo Jung Kim '14
Aaron Koenig '14
Evelyn Maldonado '15
Sarah Morse '15
Vikram Narayan '15
Na Eun Oh '16
Timothy Pang '13
Miguel Peña '16
Derek Racine '14
Rui Shu '15
Katie Sinclair '14
Brendan Wang '15
Danny Wong '14
Xiongfei Zhang '16
Amanda Zieselman '15

DESIGN STAFF

Barry Chen '16
Sandy Fox '16
Shinri Kamei '16
Rui Shu '15
Xiongfei Zhang '16

FACULTY ADVISORS

Alex Barnett - Mathematics
William Lotko - Engineering
Marcelo Gleiser - Physics/Astronomy
David Glueck - Chemistry
Carey Heckman - Philosophy
Richard Kremer - History
Roger Sloboda - Biology
Leslie Sonder - Earth Sciences
David Kotz - Computer Science

SPECIAL THANKS

Dean of Faculty
Associate Dean of Sciences
Thayer School of Engineering
Provost's Office
R.C. Brayshaw & Company
Undergraduate Admissions