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2012

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## Celebration of the 13th Anniversary of the Colby Undergraduate Research Symposium

### 2012 Program

- Keynote Speaker
- Schedule - Wednesday
- Schedule - Thursday
- Schedule - Friday
- Poster Program
- Associated Sessions
- Abstracts
- Honors Program
- Participating Departments/Programs

Research Symposium

**Wednesday, April 25, 2012**  
**Research Posters - 6:30 PM**  
**Keynote Presentation - 7:30 PM**



**Jennifer Yoder**



**Arne Koch**



**Herb Wilson**

The keynote speakers will be **Professors Jennifer Yoder** (Government), **Arne Koch** (German and Russian) and **Herb Wilson** (Biology) who will share their insights and experiences as teacher-scholars working closely with students in their research. The address, on **Wednesday, April 25**, will begin at **7:30 pm** in **Ostrove Auditorium**, preceded by a reception and poster presentations by selected faculty, invited by the Dean of the Faculty, and their students at 6:30 pm in the atrium of the Diamond Building.

### Invited Research Poster Presentations:

**Nicole Hewes ('12) and Karen Kusiak**  
**Johanna Salay ('12) and Herb Wilson**  
**Peter Smithy ('12) and Russell Cole**  
**Frances Lee ('12) and Cathy Bevier**  
**Katherine MacNamee ('14) and Arne Koch**  
**Jenifer Goldman ('12) and Christopher Soto**  
**David Quigley ('12) and Stephanie Taylor**  
**Jennie Buskin ('13) and Scott Taylor**  
**Dylan Plaskon ('15) and Kevin Rice**  
**Shaquan Huntt ('13) and Cheryl Townsend Gilkes**  
**Yiyuan Qin ('12) and Philip Nyhus**  
**Samantha Bassman ('12) and Jennifer Yoder**

More Than Just Nonsense Verse?: The Language of Dr. Seuss and Children's Literacy  
 Investigating the Shoreline Development on the Great Pond Littoral Environment  
 The Influence of Developed Versus Undeveloped Shoreline Sites on Great Pond  
 Morphology and Behavior of Zebrafish after Embryonic Ethanol Exposure  
 VILLY: The Colby-Bates German Virtual Library  
 How Does Completing a Personality Questionnaire Affect Subsequent Behavior?  
 Circadian Clock Synchronization - Mapping Cell Characteristics to Tissue Period  
 Combinatorial Vector Calculus: A New Proof of Green's Theorem  
 XPA Gene Knockdown using siRNA Transfection through Electroporation.  
 Underrated and Untold: Du Bois, African Americans, and the American Experience  
 Assessment of a Reintroduction of the South China Tigers (*Panthera tigris amoyensis*)  
 Vlaanderen voor de Vlaamingen: An Analysis of the Vlaamse Beweging and its Quest for Autonomy





COLBY CELEBRATION OF SCHOLARSHIP

## RESEARCH SYMPOSIUM

**Colby Undergraduate Research Symposium 2012**  
**April 25 - April 27, Colby College, Waterville, Maine**

[Keynote Address](#)

April 25, 7:30 pm Ostrove Auditorium

### Research Presentations

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**Wednesday, April 25**

#### SESSION I: BIOLOGY

**Behavioral and Physiological Ecology Research Presentations**

10:00 - 10:50 am

**Olin 335**

**Session Chair: Cathy Bevier**

**Charlotte Veazie ('12)**

The Effects of Copper and EDTA on Growth and Mortality in a Freshwater Amphipod (*Gammarus*)

#### SESSION II: ENVIRONMENTAL STUDIES

**Environmental Studies Honors and Independent Study Presentations**

1:00 - 3:30 pm

**Hurd**

**Session Chair: Russ Cole**

**1:00 pm** **Daniel Homeier ('12)**, Environmental Studies

Cameras, Satellites, and Surveys: A Multi-Platform Approach to Monitoring Lake Conservation Behavior

**1:30 pm** **Anna Leavitt ('12)**, Environmental Studies

From Pond to Pump: Microalgae as a Feedstock for Biodiesel

**2:00 pm** **Yiyuan Qin ('12)**, Environmental Studies

South China Tiger Reintroduction: Lessons, Assessments, and Implications

**2:40 pm** **Jillian Howell ('12)**, Environmental Studies

Church Forests in Ethiopia

#### SESSION III: WGSS

**Women Gender and Sexuality Studies Seminar I**

1:00 - 3:30 pm

**Smith**

**Session Chair: Lisa Arellano**

**1:00 pm** **Ashley Oliver ('12)**, Women, Gender, Sexuality

Of Men and Monsters: Masculinity and Vampires in Buffy the Vampire Slayer

**1:15 pm** **Morgan Lingar ('13)**, Women, Gender, Sexuality

'Against Nature? - Women who Murder Family Members'

**1:30 pm** **Lindsay Putnam ('12)**, Women, Gender, Sexuality

Capitalism as Antifeminism in Sex and the City

**1:45 pm** **Berol Dewdney ('13)**, Women, Gender, Sexuality

Intersections of Female Embodiment and Feminism through the Decades

**2:00 pm** **Veronica Foster ('12)**, Women, Gender, Sexuality

A Modern Faith: Religion and Feminism in the Public Sphere

**2:15 pm** **Bailey Girvan ('12)**, Women, Gender, Sexuality

Breaking Barriers?: The Illusion of Progress for Women in Primetime Comedies

**2:30 pm** **Caitlin Burchill ('12)**, Women, Gender, Sexuality

Opening the Gridiron to Girls: Women and Pro Football

**2:45 pm** **Hannah DeAngelis ('12)**, Women, Gender, Sexuality

Queering the Colby Archive: Combating Queer Erasure with Narratives of Queer Survival

**SESSION IV:**  
**General Session I**

**Whitney**

**Session Chair: Joseph Reisert**

1:00 - 2:00 pm

- 1:00 pm** **Fiona Masland ('12)**, East Asian Studies  
Qing-Era Manchu Male Identity Through Material Culture
- 1:20 pm** **Lucy Wilhelms ('12)**, English  
Mediums Change, Fears Stay the Same
- 1:40 pm** **Gordon Fischer ('13)**, African Studies  
Students Protest for Social Justice

**SESSION V: ECONOMICS**  
**Multinational Corporations**

**Diamond 343**  
**Session Chair: Andreas Waldkirch**

1:00 - 4:00 pm

- 1:00 pm** **Xinyi Chen ('12)**, Economics  
Does Bilateral Economic Interdependence Promote Post-War Reconciliation
- 1:15 pm** **John O'Brien ('12)**, Economics  
The Link between Exchange Rates and Foreign Direct Investment: A BRIICKSS Panel Analysis
- 1:30 pm** **Matthew Boyes-Watson ('12)**, Economics  
Illegal Activity and the Composition of Foreign Ownership: Study of Firm-Level Data from the World Bank Enterprise Surveys
- 1:45 pm** **Kathy Wan ('12)**, Economics  
Foreign Direct Investment Into Industries in Taiwan
- 2:00 pm** **Kathleen Davis ('12)**, Economics  
Exploring Horizontal vs. Vertical Determinants of FDI: Evidence from US Multinationals
- 2:30 pm** **Brady Lenahan ('12)**, Economics  
Huge at Home, Big Abroad: A Case Study of Walmart
- 2:45 pm** **David Oxnard ('12)**, Economics
- 3:00 pm** **Kento Momma ('12)**, Economics  
FDI, Inequality, and Growth: An Empirical Study
- 3:15 pm** **Patrick Dolan ('12)**, Economics  
Does Tax Progressivity Affect FDI
- 3:30 pm** **Gemma Yie ('12)**, Economics  
Foreign Direct Investment and Human Development: An Examination of FDI as a Predictor of HDI in Developing Countries

**SESSION VI: GOVERNMENT**  
**Government**

**Whitney**  
**Session Chair: Joseph Reisert**

2:00 - 3:00 pm

- 2:00 pm** **Andrew Estrada ('12)**, Government  
Single-Issue Elections and Public Perception: How Unemployment, Presidential Approval Rating, and Military Casualties Determine Whether an Election will Focus on One Defining Issue
- 2:20 pm** **Alexander Orleans ('12)**, Government  
In Extremis: Operational Lessons from the War on Terror
- 2:40 pm** **Charles Diamond ('12)**, Government  
The Electoral Success of Ethnic Minority Candidates in Local London Politics

**SESSION VII:**  
**General Session VIII: Science**

**Whitney**  
**Session Chair: Robert Bluhm**

3:05 - 4:05

- 3:05 pm** **Nirakar Poudel ('12)**, Physics and Astronomy  
Electronic Detection of Ultra Cold Neutral Plasmas
- 3:30 pm** **Austin Hoag ('12)**, Physics and Astronomy  
Spontaneous Lorentz Symmetry Breaking and Cosmology in Five Dimensions
- 3:45 pm** **Greg Merritt ('12)**, Physics and Astronomy  
Isometries and Spontaneous Lorentz Violation in General Relativity

**SESSION VIII: ENGLISH**  
**On With the Story: Advanced Projects in Prose I**

**Hurd**  
**Session Chair: Jennifer Boylan**

3:45 - 5:15 pm

**Lindsay Roberts ('13)**, **Katherine McCarrick ('13)**, **Grant Patch ('12)**, **Jenna Gundersen ('12)**, **Emily Stuart ('12)**, **Courtney Yeager ('12)** and **Michael Southard ('12)**, On With the Story: Advanced Projects in

Prose I

**SESSION IX: COMPUTER SCIENCE**  
**Computer Science Honors and Capstone Presentations**  
 4:00 - 6:00 pm

**Smith**  
**Session Chair: Bruce Maxwell**

- 4:00 pm** **William O'Brien ('12)**, Computer Science  
 The Intended Architecture of Web Applications - An Implementation of REST
- 4:25 pm** **George Carpenter ('12)**, Computer Science  
 Lazy Genius: Improving Fact Recall Using Social Flashcards
- 4:50 pm** **Leah Perlmutter ('12) and Martha Witick ('12)**, Computer Science  
 Humanoid Robot Soccer
- 5:15 pm** **Alex Swanson ('12)**, Computer Science  
 Bitcoin: The Evolution of Money Into The Virtual Space
- 5:35 pm** **Bogumil Giertler ('12)**, Computer Science  
 Augmenting Your Daily Reality

**SESSION X: ENGLISH**  
**Senior Poetry Reading**  
 4:00 - 5:00 pm

**Robinson Room, Miller Library**  
**Session Chair: Adrian Blevins**

- 4:00 pm** **Brynn Bernheimer ('12)**, English  
 Reading from her poetry
- 4:20 pm** **Jenny Chen ('13)**, English  
 Reading from her poetry
- 4:20 pm** **Elise DeSimone ('12)**, English  
 Reading from her poetry
- 4:30 pm** **Lucy Dotson ('13)**, English  
 Reading from her poetry
- 4:40 pm** **Rachel Goff ('12)**, English  
 Reading from her poetry
- 4:50 pm** **Sarah Hirsch ('12)**, English  
 Reading from her poetry
- 5:00 pm** **Winsor Wesson ('12)**, English  
 Reading from his poetry
- 5:10 pm** **Lindsay Putnam ('12)**, English  
 Reading from her poetry

**SESSION XI: PSYCHOLOGY**  
**Psychology Honors Thesis Presentations**  
 4:15 - 5:45 pm

**Whitney**  
**Session Chair: Melissa Glenn**

- 4:15 pm** **Jenifer Goldman ('12)**, Psychology  
 The Self-Esteem Conundrum: Mediating Mechanisms between Parenting Style and Children's Aggression
- 4:35 pm** **Kristen Erickson ('12)**, Psychology  
 Prenatal Choline Availability Influences Stress-vulnerability and Emotional Responses Differently in Adult Male and Female Rats
- 4:55 pm** **Sarah Falkof ('12)**, Psychology  
 The Influence of Regret and Framing Effects on Health Decision Making
- 5:15 pm** **Stephanie-Ann LaRose ('12)**, Psychology  
 Facial Recognition of Negative Emotion in Various Mood and Processing States

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**April 25 - April 27, Colby College, Waterville, Maine**

[Keynote Address](#)

April 25, 7:30 pm Ostrove Auditorium

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**Thursday, April 26**

**SESSION XII: ENVIRONMENTAL STUDIES**  
**Marine Conservation and Policy Presentations**  
 9:30 - 10:45 am

**Diamond 223**  
**Session Chair: Loren McClenachan**

**Peter Smithy ('12)**

Managing Ballast Water Invasive Species Introductions

**Tierney Dodge ('14)**

Invasive Marine Algae in Hawaii

**Leti Douglass ('12)**

Improving Fisheries Management: Solutions to Ecosystem Degradation and Stock Depletion in Indonesia

**Michael Stephens ('13)**

Nassau Grouper Spawning Aggregations: A Dangerous Game to Find a Mate

**SESSION XIII: RELIGIOUS STUDIES**  
**Religion and World War II Presentations**  
 9:30 - 10:45 am

**Lovejoy 344**  
**Session Chair: Debra Campbell**

**Geoff Bell ('12)**

Baptism in Crisis: How God Changed During World War II

**Allison Polchinski ('13)**

Circumstantial Faith

**SESSION XIV: RELIGIOUS STUDIES**  
**Seminar on Sikhism**  
 11:30 - 11:50

**Lovejoy 215**  
**Session Chair: Nikky Singh**

**11:30 am**     **John Holman ('13)**, Religious Studies  
 The Multicultural Art of the Singh Twins

**SESSION XV: ANTHROPOLOGY**  
**Anthropology Honors Thesis Presentations**  
 12:30 - 2:00 pm

**Smith**  
**Session Chair: Mary Beth Mills**

**12:30 pm**     **Hannah DeAngelis ('12)**, Anthropology  
 Maine's History of Hate and Hate and Violence Prevention: The Rise, Tenure, Fall and Future of the Diversity Leadership Institute

**1:15 pm**     **Sandhya Fuchs ('12)**, Anthropology  
 Public Imagery and Multicultural Integration; Reflections on BAPS Swaminarayan Hinduism in the British Diaspora

**SESSION XVI:**  
**General Session III**  
 1:00 - 2:45 pm

**Whitney**  
**Session Chair: Marilyn R. Pukkila**

**1:00 pm**     **Julie Kafka ('12)**, International Studies  
 'El Machismo es Violencia!': Interrogating Cultures of Gendered Violence within Ecuador's Pluriculturalist State

- 1:15 pm** **Peter Rand**, *Education and Human Development*  
Initiating Cultural Shift: A Study of Higher Education
- 1:30 pm** **Simran Jaising ('12)**, *Religious Studies*  
Tale Of Two Devis: Using The Dakshineswar Kāli Temple In Kolkata And Mumbadevi Temple In Mumbai As Influential Sites To Examine The Socio-Religious Politics Of Food Production And Consumption
- 1:45 pm** **Lucy Wilhelms ('12)**, *English*  
Life in Color
- 2:00 pm** **Allison Stitham ('12)**, *Religious Studies*  
Playing the Part: An Examination of Civil War Era Mourning and the Performance of Social Identity
- 2:15 pm** **Katherine Murray ('12)**, *Religious Studies*  
Prayer in Matthew: an Old Jewish Tradition or a Radical Christian Beginning?
- 2:30 pm** **Michael Trottier ('12)**, *Theater and Dance*  
The Process of Playwriting: An Exploration of Structure, Character and Dialogue

**SESSION XVII: ENGLISH*****On With the Story: Advanced Projects in Prose II***

1:00 - 2:30 pm

**Hurd****Session Chair: Jennifer Boylan**

**Tyler Parrott ('13)**, **Eli Dupree ('13)**, **Matthieu Nadeau ('12)**, **Lucy Wilhelms ('12)**, **Mike Rifkin ('12)**  
and **Jennifer Cox ('12)**, *On With the Story: Advanced Projects in Prose II*

**SESSION XVIII: EAST ASIAN STUDIES*****Japanese Animation***

2:15 - 3:15 pm

**Smith****Session Chair: Tamae Prindle**

- 2:15 pm** **Nicholas Balsbaugh ('13)**, *East-Asian Studies*  
Virtual Reality: Color in Summer Wars
- 2:25 pm** **Max Cushner ('14)**, *East-Asian Studies*  
The Sounds of Summer
- 2:35 pm** **Kayla Diaz ('14)**, *East-Asian Studies*  
Mise-en-scène in Summer Wars
- 2:45 pm** **Michael Kellar ('13)**, *East-Asian Studies*  
Plot in Summer Wars
- 2:55 pm** **Levin Zars ('14)**, *East-Asian Studies*  
Wars in Summer Wars
- 3:05 pm** **Kathy Wan ('12)**, *East-Asian Studies*  
Cherry Blossoms
- 3:15 pm** **Christopher Curtis ('14)**, *East-Asian Studies*  
Soup Kitchen

**SESSION XIX: AMERICAN STUDIES*****American Studies I***

3:00 - 5:00 pm

**Whitney****Session Chair: Laura Saltz**

- 3:00 pm** **Margaret Kruthoff ('12)**, *American Studies*  
'Called Her Women Together': Homebirth in Maine
- 3:15 pm** **Ashley Oliver ('12)**, *American Studies*  
Queer Sex Gods or Patriarchs with Fangs? Gender and Sexuality in Modern Vampire Narratives
- 3:30 pm** **Gordon Lessersohn ('12)**, *American Studies*  
The Unlikely Renovation of Fenway Park: A Triumph of Historic Preservation
- 3:45 pm** **Ruth Frank-Holcomb ('12)**, *American Studies*  
A Room of Our Own: Making Spaces for Stories of Sexual Violence, from Consciousness-Raising to the Feminist Blogosphere
- 4:00 pm** **Sandra Johnson ('12)**, *American Studies*  
Edible Activism: Food and the Counterculture of the 1960s and 1970s
- 4:15 pm** **Kathleen Ricciardi ('12)**, *American Studies*  
Royal Crisis: Masculinity in Disney Princess Films
- 4:30 pm** **Cordelia Cowan ('12)**, *American Studies*  
The Normalization of Alcohol Abuse through Popular Media
- 4:45 pm** **Nicole Sintetos ('12)**, *American Studies*  
No Place to Hide: Pare Lorentz and Nuclear Anxiety in the Atomic Age

**SESSION XX: LAS****Hurd**



**Latin American Studies**

3:00 - 4:15 pm

**Session Chair: Ben Fallaw**

- 3:00 pm** **Heidi Blair ('12)**, Latin American Studies  
Protecting Patagonia: Action and Inaction against the HidroAysén Dam Proposal in Chile
- 3:30 pm** **Kathryn Wassam ('12)**, Latin American Studies  
Return from Exile: The Process of Pinochet-Era Exiles Reintegration in Chile

**SESSION XXI: SOCIOLOGY**  
**Sociology 274**

3:30 - 5:30 pm

**Smith**  
**Session Chair: Victoria Mayer**

- 3:30 pm** **Allison Ehrenreich ('12)**, Sociology  
Pathways to Social Mobility: Educational Inequalities at Waterville Senior High School
- 3:50 pm** **Hannah Smythe ('12)**, Sociology  
Pathways to Social Mobility: Educational Inequalities at Waterville High School
- 4:10 pm** **Kirsten Stray-Gundersen ('12)**, Sociology  
Pathways to Social Mobility: Educational Inequalities at Waterville Senior High School
- 4:30 pm** **Hannah Ricketts ('12) and Malcolm Kerr ('13)**, Sociology  
Pathways to Social Mobility: Educational Inequalities at Waterville High School (Gender)

**SESSION XXII: HISTORY**  
**History Department Honors Presentations**

4:30 - 5:30 pm

**Hurd**  
**Session Chair: Raffael Scheck**

- 4:30 pm** **Susannah Hufstader ('12)**, History  
Die Deutsche Schrift? Typography Between Tradition and Modernity in Weimar and Nazi Germany
- 5:00 pm** **James Hubbard ('12)**, History  
From the Liffey to the Sheepscot: Pre-Famine Irish Immigration in Whitefield, Maine

**SESSION XXIII: HISTORY**  
**History 435: Civil War Seminar**

5:30 - 6:00 pm

**Hurd**  
**Session Chair: Elizabeth Leonard**

- 5:30 pm** **Lindsay Peterson ('13)**, History  
The Evolution of the Ambulance Corps During the Civil War

**SESSION XXIV: THEATER AND DANCE**  
**Move: The Summer of 1963 (April 26-28)**

7:30 - 9:30

**The Cellar Theater**  
**Session Chair: Delaney McDonough**

- 7:30 pm** **Delaney McDonough ('13)**, Theater and Dance  
Move: The Summer of 1963

**SESSION XXIV: RELIGIOUS STUDIES**  
**Religious Studies Presentations**

4:00 - 6:30 pm

**Lovejoy 205**  
**Session Chair: Nikky Singh**

- Maddie Berger**  
Islam in the Black-American Experience
- Andy Estrada**  
A Divine Being Clothed by Humanity: A Comparison of Jesus in the *Gospel of Judas* and the *Gospel of Mark*
- Rachel Frenkil**  
The Face of the Church on the Unborn Child: The Abortion Debate in the American Catholic Church
- Jena Hershkowitz**  
Religio-Cultural Identity and Law in Muslim India
- Allison Stitham**  
Playing the Part: An Examination of Civil War Era Mourning and the Performance of Social Identity
- Trip Venturella**  
Zen Aesthetics in Paula Vogel's *The Long Christmas Ride Home*
- Jack Vihstadt**  
The Good (Face) Book: Catholics and Social Media

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#### Friday, April 27

#### **SESSION XXV: AMERICAN STUDIES** **American Studies II**

8:30 am - 1:00 pm

<b>08:30</b>	<b><u>Amy Slipowitz ('12)</u></b> , American Studies He Smells the Money: Critiquing Capitalism in 'He Got Game'
<b>08:45</b>	<b><u>Edwin Torres ('12)</u></b> , American Studies Spike Lee's Summer of Sam and How People React to Social Change
<b>9:00 am</b>	<b><u>Mark Collins ('12)</u></b> , American Studies Racialized Drug Enforcement Laws as Seen Through Clockers and Summer of Sam
<b>9:15 am</b>	<b><u>Devlin McConnell ('12)</u></b> , American Studies Do the Right Thing
<b>9:30 am</b>	<b><u>Michael Perreault ('13)</u></b> , American Studies 'Whose [Movie] is This?': Foundations for a Different Authorship in Spike Lee's 'She's Gotta Have It'
<b>9:45 am</b>	<b><u>Nicole Sintetos ('12)</u></b> , American Studies Listening Beyond the Lines in a Post 9/11 World: Inside Man and When the Levees Broke's Musical Intertextuality
<b>10:15 am</b>	<b><u>Cosme Del Rosario-Bell ('12)</u></b> , American Studies Joe's Bed-Stuy Barbershop: We Cut Heads
<b>10:30 am</b>	<b><u>Catherine Donovan ('12)</u></b> , American Studies When The Levees Broke: A Requiem in Four Acts
<b>10:45 am</b>	<b><u>Eva Ludwig ('12)</u></b> , American Studies Spike Lee's Girl 6: Deconstructing the Narrative of African-American Women in Hollywood
<b>11:00 am</b>	<b><u>Christian Bertelsen ('12)</u></b> , African Studies Searching For 'Mo' Better Blues'
<b>11:15 am</b>	<b><u>Clay McMickens ('12)</u></b> , American Studies 'Clockers'
<b>11:30 am</b>	<b><u>Kira Novak ('12)</u></b> , American Studies Rewriting History: Spike Lee's Malcolm X
<b>11:45 am</b>	<b><u>Ruth Frank-Holcomb ('12)</u></b> , American Studies 'This Is MY Reality': Fantasy and Reality in Spike Lee's Girl 6
<b>12:00 pm</b>	<b><u>Benjamin Foreman ('12)</u></b> , American Studies He Got Game
<b>12:15 pm</b>	<b><u>Tyler Cash ('12)</u></b> , American Studies 'Just Like He Planned': Spike Lee's Inside Man
<b>12:30 pm</b>	<b><u>Kyle Brown ('12)</u></b> , African Studies Jungle Fever
<b>12:45 pm</b>	<b><u>Gabriel Callaghan ('12)</u></b> , American Studies Post-9/11 Anxiety in Spike Lee's 25th Hour

**SESSION XXVI: BIOLOGY**  
**Behavioral and Physiological Ecology Research Presentations**  
 10:00 - 10:50 am

**Whitney**  
**Session Chair: Margaret McFadden**

**Olin 335**  
**Session Chair: Cathy Bevier**

**Corey Park ('12)**The metabolic effect of multiple stresses on levels of lactate and glucose in the fiddler crab, *Uca pugnator*

**SESSION XXVII: CHEMISTRY**  
**Senior Chemistry Major Research Presentations**  
 11:00 - 11:50 am

**Arey 5**  
**Session Chair: Das Thamattoor**

**Alex Hymanson ('12)**

Synthesis of Ortho and Para Bridged Tetraaza[1,4]cyclophanes

**Emily Kaye ('12)**

The Apoptotic Cleavage of Poly(ADP-ribose) Polymerase by Laromustine and its Subspecies

**Kristina Blazanovic ('12)**

Experimental Evolution of Plasmid Compatibility

**SESSION XXVIII: GERMAN**  
**Figuring Animals in German Culture**  
 11:00 - 1:00 pm

**Hurd**  
**Session Chair: Arne Koch**

**11:00 am** **Elizabeth Schneider ('12)**, German/Russian  
 Kafka's Ape

**11:20 am** **Mallory Livingston ('12)**, German/Russian  
 Feudalismus, Volksmärchen, und Verstädterung: Über die zunehmende Distanz der Menschen von der Natur und der natürlichen Ordnung in der westlichen Kultur durch die Linse der Rolle der Tiere in Märchen

**11:40 am** **David Oxnard ('12)**, German/Russian  
 Das Tier Nennt Sich Mensch: Menschen und Tiere in Franz Kafkas 'Ein Bericht für eine Akademie' / The Animal Calls Itself Human: Humans and Animals in Franz Kafka's 'A Report to an Academy'

**12:00 pm** **Susannah Hufstader ('12)**, German/Russian  
 Feminine Felines: Constructions of Cats and Women in German Literature

**12:20 pm** **Rebecca Chenard ('12)**, German/Russian  
 Schuld in Akif Pirinccis Felidae (Guilt in Akif Pirincci's Felidae)

**SESSION XXIX: CANCELLED**  
**General Session II**  
 1:00 - 2:00 pm

**Hurd**

**SESSION XXX:**  
**General Session VI: Science and Mathematics**  
 1:00 - 3:15

**Whitney Room**  
**Session Chair: Suzi Cole**

**1:00 pm** **Michael Verschoor-Kirss ('12)**, Chemistry  
 Kinetics of Phosphine Substitution in Cyclopentadienyl Ruthenium (II) bis-triarylphosphine Chlorides: a Tale of Two Mechanisms?

**1:23 pm** **Simran Jaising ('12)**, Chemistry  
 Gastronomy Reinvented: An Investigation Into Modern Cuisine In The Chemistry Lab

**1:48 pm** **Daren McGregor ('12)**, Geology  
 Gravity Core Geochemistry at the Kronebreen Glacier, Svalbard, Norway: Quantifying Climate Flux in a Glacimarine Setting

**2:03 pm** **Justin Sperry ('13)**, Geology  
 Investigation of Constriction in Deformation Zones with Complex Boundary Conditions

**2:18 pm** **John Dixon ('14) and David Wheeler ('14)**, Mathematics  
 Fibonacci Matrices

**2:43 pm** **Eli Dupree ('13)**, Mathematics  
 Functions with Dense Graphs.

**3:05 pm** **Derek Wise ('12), Kristen Erickson ('12), Lucas Fortier ('15) and Marina Rosengren ('12)**, Psychology  
 Prenatal Choline Rescues Cognitive Dysfunction in a Rat Model of Depression

**SESSION XXXI:**  
**General Session IV**  
 1:00 - 3:15

**Smith**  
**Session Chair: Abby Pearson**

**1:00 pm** **Alexandra Offer ('12) and Kristine Walters ('12)**, Anthropology  
 Art, Perception of Self and Body Image

- 1:30 pm** **Michael Doherty ('12)**, Economics  
Financial and Racial Influences on Coaching Change Decisions in NCAA Basketball
- 1:45 pm** **Dashiell Wasserman ('12)**, English  
Time, Language, & The Mythology of a Great Southern Babel: A Derridean Reading of William Faulkner's Absalom, Absalom!, The Sound and the Fury, As I Lay Dying & 'That Evening Sun'
- 2:15 pm** **Martin Tengler ('12)**, Global Studies  
Convenience on Every Corner: An Analysis of the Japanese Convenience Store Industry
- 2:45 pm** **Coline Ludwig ('12)**, Global Studies  
Intricacies of Organ Trafficking: Lessons from Chennai, India

**SESSION XXXII: RUSSIAN PROGRAM**  
**CBB Symposium: Russian Literature and Culture**  
2:00 - 5:00

**Lovejoy 215**  
**Session Chair: Elena Monastireva-Ansdell**

- 2:00 pm** **James Lasher ('12)**, German/Russian  
Музыка в романе Булгакова 'Мастер и Маргарита' (Music in Bulgakov's 'Master and Margarita')
- 2:15 pm** **Alina Nakos ('13)**, German/Russian  
Water Imagery in Bulgakov's 'Master and Margarita'
- 2:30 pm** **Nathan Lord ('12)**, German/Russian  
Bird Imagery in Bulgakov's Master and Margarita
- 2:45 pm** **Allison Brown ('12)**, German/Russian  
Color Symbolism in Mikhail Bulgakov's 'Master and Margarita'
- 3:00 pm** **Nora Donahue, Bates**, German/Russian  
Russian Roulette: Subtitling Azazel
- 3:15 pm** **Laura-Helene Athony-Gerroidt, Bates, German/Russian**  
A Few Issues in Translating From Russian To English In Kazakov's Goluboe i Zelionoe
- 3:30 pm** **Anniek Kool, UNH**, German/Russian  
Translational Problems In Toon Tellegen's Novel Not Everyone Could Fall Over
- 3:45 pm** **Neil O'Connor, Bates**, German/Russian  
The Russian Civil War: A Maine Soldier's Story
- 4:00 pm** **Rebecca Chenard ('12)**, German/Russian  
The Sun and the Moon in Bulgakov's Master and Margarita
- 4:15 pm** **Jason Parrett ('12)**, German/Russian  
Head Imagery in Bulgakov's Master and Margarita

**SESSION XXXIII: EDUCATION**  
**Inquiry and Practice in Education and Human Development**  
2:00 - 4:00 pm

**Diamond 122**  
**Session Chair: Mark Tappan**

- 2:00 pm** **Adrienne Bowles ('12), Molly Hodson ('13), Celeste Lattanzi ('14), Kate O'Callaghan ('13) and Hillary Rowse ('12)**, Education and Human Development  
Leisure, Work and Opportunities: Reflections of Social Class in Colby Students' Time Off the Hill
- 2:20 pm** **Annie Chen ('12) and Hillary Rowse ('12)**, Education and Human Development  
Privileged Identities: Exploring Affluent Adolescent's Understandings of Self and Others
- 2:40 pm** **Nicholas Nowak ('13)**, Education and Human Development  
Male Humor in Library Graffiti: What's Funny With Masculinity
- 3:00 pm** **Nicole Hewes ('12)**, Education and Human Development  
More Than Just Nonsense Verse?: The Language of Dr. Seuss and Children's Literacy

**SESSION XXXIV: ECONOMICS**  
**Economics Senior Honors Thesis Presentations**  
2:00 - 4:00 pm

**Hurd**  
**Session Chair: Michael Donihue**

- 2:00 pm** **Anne Burton ('12)**, Economics  
Has the Legalization of Medical Marijuana Affected Illicit Marijuana Consumption?
- 2:20 pm** **Kathleen Davis ('12)**, Economics  
Capital Controls in Emerging Markets
- 2:40 pm** **Michael Doherty ('12)**, Economics  
Economic and Racial Influences on Coaching Change Decisions?
- 3:00 pm** **Kelly Potvin ('12)**, Economics  
The Limits of Superstars: A Look Inside 'Star Power' Within Demand for the NBA
- 3:20 pm** **Bradley Turner ('12)**, Economics  
What Causes Ministers of Finance to Lose their Jobs?

**3:40 pm** **Amy Slipowitz ('12)**, Economics  
Controlling for Endogeneity: The Effect of Democracy on Economic Growth

**SESSION XXXV: BIOLOGY**  
**Biology Honors Thesis Presentations**  
2:00 - 4:00 pm

**Olin 1**  
**Session Chair: Cathy Bevier**

**2:00 pm** **Frances Lee ('12)**, Biology  
The Development, Morphology, and Behavior of *Danio rerio* After Embryonic Alcohol Exposure

**2:15 pm** **Travis Wright ('12)**, Biology  
Zebrafish Kidney Phagocytes Lack Diurnal Patterns in Reactive Oxygen Species Production

**2:30 pm** **Christine Reynolds ('12) and Justin Partridge ('12)**, Biology  
Expression of TIMELESS and CRYPTOCHROME Proteins in *Daphnia pulex* Give Evidence of Conserved Circadian Clock Mechanisms in Crustaceans

**SESSION XXXVI: CHEMISTRY**  
**Senior Chemistry Major Research Presentations**  
3:00 pm

**Keyes 105**  
**Session Chair: Das Thamattoor**

**Lindsay Dale ('12)**  
The Effects of the Anticancer Prodrug Laromustine on DNA Ligase III

**Erin Powers ('12)**  
Modeling Liver Alcohol Dehydrogenase: The Study and Synthesis of Tridentate Pincer Complexes

**Catherine Gallagher ('12)**  
Determining ASK1 Activation in Endothelial Cells Via Apoptosis-Inducing Laromustine

**SESSION XXXVII:**  
**General Session V: Languages**

**Smith**  
**Session Chair: Dean Allbritton**

3:30 - 4:30

**3:30 pm** **Oscar Mancinas ('12)**, Spanish  
Franco's Legacy: Birds, Children, and Other Beasts in Contemporary Catalan-Language Film

**3:45 pm** **Dominique Brunelle ('12)**, French and Italian  
The Myths of Infertility

**4:00 pm** **Madeleine Purcell ('12)**, French/Italian  
Franco-Americans and French Education in Maine

**SESSION XXXVII:**  
**General Session VII**  
3:30 - 5:00

**Whitney**  
**Session Chair: Marilyn R. Pukkila**

**3:30 pm** **Amanda Ferguson ('12)**, Sociology  
Public Health Through a Sociological Lens: Using the Social Determinants of Women's Health to Combat HPV and Cervical Cancer in Women Throughout sub-Saharan Africa

**3:45 pm** **Uzoma Orchingwa ('14)**, Sociology  
Black on The Hill

**4:10 pm** **Kristen Starkowski ('14)**, English  
Feeling as a Pre-Emergent Social and Economic Structure: The Role of Affect in the Capitalist Order in Rebecca Harding Davis' Life in the Iron Mills

**4:25 pm** **Kristen Starkowski ('14)**, English  
Unraveling the Nineteenth-Century Victorian Social Fabric: Clothing and Social Mobility in Charles Dickens' Great Expectations

**4:40 pm** **Lauren Fisher ('13) and Gordon Fischer ('13)**, Religious Studies  
Tzedek Chevrati: Social Justice Protesting in Israel

**SESSION XXXIX: HISTORY**  
**History 435: Civil War Seminar II**  
4:00 - 6:00 pm

**Hurd**  
**Session Chair: Elizabeth Leonard**

**4:00 pm** **Geoffrey Bell ('12)**, History  
Richard Cutts Shannon: Colby Student and Civil War Soldier

**4:30 pm** **Carter Stevens ('13)**, History  
Medal of Honor: Colby on the Frontline

**5:00 pm** **Julia Deutsch ('12)**, History  
Post Civil-War: Blacks in the North and Colby's Janitor Sam

**5:30 pm**     **Samuel West ('12)**, History  
Union Anti-Semitism from Tennessee to Maine

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COLBY CELEBRATION OF SCHOLARSHIP

## RESEARCH SYMPOSIUM

**Colby Undergraduate Research Symposium 2012**  
**April 25 - April 27, Colby College, Waterville, Maine**

[Keynote Address](#)

April 25, 7:30 pm Ostrove Auditorium

Poster Sessions - Robins Room, Roberts

### 2012 Program

- [Keynote Speaker](#)
- [Schedule - Wednesday](#)
- [Schedule - Thursday](#)
- [Schedule - Friday](#)
- [Poster Program](#)
- [Associated Sessions](#)
- [Abstracts](#)
- [Honors Program](#)
- [Participating Departments/Programs](#)

[Research Symposium](#)

**PLEASE NOTE** - Posters will be set up before 12 noon on the day assigned and taken down between 5 and 6 PM on the same day. They will be on display for one day only. Posters will be attended by the authors from 12 noon to 2:00 p.m.

- Wednesday - No. 1 [Julie Levine \('13\)](#), [Josephine Liang \('14\)](#), [Lori Ayanian \('14\)](#) and [Madeline Wadington \('14\)](#), **Psychology**  
 Effects of Physical Attractiveness on Moral Blame and Memory
- Wednesday - No. 2 [Mariah Smith \('13\)](#), [Benjamin Darr \('14\)](#), [Samantha Slotnick \('14\)](#) and [Shameeka Murphy \('13\)](#), **Psychology**  
 The Key to Accelerated Learning?: Exploring the Effect of Thought Speed on Cognitive Performance and Mood
- Wednesday - No. 3 [Shamika Murray \('14\)](#), [Ariel Martin \('14\)](#), [Frances Onyilagha \('14\)](#) and [Margaret Sargent \('14\)](#), **Psychology**  
 Effects of Moral Credentials on Ingroup/Outgroup Biases
- Wednesday - No. 4 [Iris Kim \('14\)](#), [Kimberly Johnson \('14\)](#), [Lily Tilton \('14\)](#) and [Shaquan Hunt \('13\)](#), **Psychology**  
 Facial Expressions on Morality and Memory: The Differences in the Perception of Gender and Emotion
- Wednesday - No. 5 [Brianna Wheeler \('14\)](#), [Aimee Polimeno \('14\)](#), [Ginger Brooker \('14\)](#) and [Natalie Tortorella \('14\)](#), **Psychology**  
 Self-Affirmation and Moral Credentials on the Expression of Racial Prejudice
- Wednesday - No. 6 [Ines Castro \('14\)](#), [Benjamin Brassord \('14\)](#) and [Natasha Ziv \('14\)](#), **Psychology**  
 Nature and Cognition
- Wednesday - No. 7 [Devin O'Brien \('12\)](#) and [Valerie Vesnaver \('13\)](#), **Psychology**  
 The Effect of Emotion on Curiosity
- Wednesday - No. 8 [Samuel Helm \('12\)](#) and [Robyn St. Laurent \('12\)](#), **Psychology**  
 BDNF Knockout Compromises Addiction Related Reward Pathway Functioning
- Wednesday - No. 9 [Jenifer Goldman \('12\)](#), [Cecil Papafio \('14\)](#), [Katherine MacNamee \('14\)](#), [Madeline Caplan \('12\)](#) and [Victoria Falcon \('15\)](#), **Psychology**  
 Attitudes of College Students on Race/Racism
- Wednesday - No. 10 [Amanda Carbonneau \('14\)](#), [Czarina Evangelista \('14\)](#), [Kara Constine \('13\)](#) and [Katherine MacNamee \('14\)](#), **Psychology**  
 Engagement with the Elements: Restorative Effects of Imagery and Various Sensory Aspects of Nature
- Wednesday - No. 11 [John Gardner \('12\)](#) and [Sean Padungtin \('13\)](#), **Psychology**  
 Modulation of Behavioral Outcomes by Choline in Male Rats with Extensive Hippocampal Damage
- Wednesday - No. 12 [Lisa Hoopes \('13\)](#) and [Lindsay Hylek \('12\)](#), **Psychology**  
 The Effect of Emotional States on Social Behavior
- Wednesday - No. 13 [Adam Drago \('14\)](#) and [Appalonia Tankersley \('14\)](#), **Psychology**  
 Moral Credentials and the Licensing of Racist and/or Homophobic Behavior
- Wednesday - No. 14 [Caroline Southwick \('14\)](#), [Alexander Baier \('14\)](#), [Kristina Haney \('13\)](#) and [Natalie Roher \('14\)](#), **Psychology**  
 Elucidating the Effects of a Natural Environment and Exercise on Executive Functioning
- Wednesday - No. 15 [David Kaufman \('14\)](#), [Ethan Meigs \('13\)](#), [Ian Leitch \('14\)](#) and [Rhiannon Archer \('14\)](#), **Psychology**  
 Face Familiarity Phenomenon



- Wednesday - No. 16 **Adam LaViolet ('13) and Shadiyah Ajao ('15), Psychology**  
Go with the Flow: Shared Literal and Figurative Meanings Influence Memory for Idioms
- Wednesday - No. 17 **Shannon Kooser ('14), Psychology**  
Testing Through the Ages: A Comparison of Testing and Encoding Strategies on Immediate and Delayed Retention Between Different Age Groups
- Wednesday - No. 18 **Hillary Keach ('13) and Adam LaViolet ('13), Psychology**  
The Effect of Feedback Type on the Hypercorrection Phenomenon
- Wednesday - No. 19 **Chelsea Nickerson ('13) and Kathryn Palano ('12), Psychology**  
Dietary Choline Supplementation During Adolescence Enhances Adult Hippocampal and Prefrontal Cortical Function in Male Rats
- Wednesday - No. 20 **Abigail Cooper ('15), Julia Blumenstyk ('14), Mikaela Mintz ('14) and Norah Flynn ('14), Psychology**  
The Interpersonal Effects of Natural Versus Urban Backgrounds on our Perception of Others
- Wednesday - No. 21 **Miia-Liisa Termonen ('14), Arthur Warner ('14), Jacqueline Charlton ('14) and Sarah Donegan ('14), Psychology**  
The Role of Success in the Relationship of Positive Affect and Accelerated Thinking
- Wednesday - No. 22 **Jacqueline McLaughlin ('13) and Constance Jangro ('13), Psychology**  
Do Learning Styles Exist? The Effect of Learning Styles versus Matching Modalities on Memory
- Wednesday - No. 23 **Cale Wardell ('13) and Chelsea Ammons ('13), Psychology**  
The Metacognition of Marginal Knowledge
- Wednesday - No. 24 **Shelley Kind ('13), Arvia Sutandi ('13) and Kelsey Tyler ('12), Psychology**  
The Effects of Emotion on False Memory
- Wednesday - No. 25 **Constance Jangro ('13), Psychology**  
Comparing Survival Processing and School Processing: An Analysis of Self-Referencing and Relevance Between Different Survival Scenarios on Recall
- Wednesday - No. 26 **Josef Broder ('13) and Anna Caron ('13), Psychology**  
Welcome to the Grasslands: Memory for Inherently Survival Relevant Information
- Wednesday - No. 27 **Stephanie-Ann LaRose ('12) and Adam LaViolet ('13), Psychology**  
What? You don't remember me? Surprise modulates the own-age bias in young, but not old adults.
- Wednesday - No. 28 **Ian Leitch ('14) and Martha Arterberry, Psychology**  
Is it a Bunting or a Warbler? Eye Movement Analysis in a Memory and Categorization Task
- Wednesday - No. 29 **Arvia Sutandi ('13), Psychology**  
Differential Effects of Warnings on Direct and Mediated False Memory in Young and Older Adults
- Wednesday - No. 30 **Kira Novak ('12) and Lauren Becker ('13), Psychology**  
BFFs or Frenemies? : The Effect of Conflict Style Self-Reports, Personality Self-Reports, and Personality Similarity on Conflict Resolution Between Friends
- Wednesday - No. 31 **Angelica D'Aiello ('12), Psychology**  
Neuroprotection by Postnatal Choline Supplementation in a Rat Model of Fetal Alcohol Syndrome
- Wednesday - No. 32 **Reesa Kashuk ('12) and Emily Stuart ('12), Psychology**  
Validating a Measure of Positive Acceptance in College Students
- Wednesday - No. 33 **Cynthia Garvin ('12) and Carolin Maney ('12), Psychology**  
Streamlining PSAs: Effects of Ad Framing and Regulatory Focus on Message Persuasiveness
- Wednesday - No. 34 **Brittany Hughes ('12), Psychology**  
The Effects of Racial Stereotypes on Childrens' Actor Judgments
- Wednesday - No. 35 **Madeline Caplan ('12), Abigail Cooper ('15), Cecil Papafio ('14), Katherine MacNamee ('14), Rebecca Stoutamyer ('15) and Victoria Falcon ('15), Psychology**  
Evaluating the Effectiveness of a Pro-social Intervention Program for Pre-schoolers
- Thursday - No. 1 **Jessica Moore ('14) and Carter Stevens ('13), German/Russian**  
Worker\_x: Suffering and Subordination
- Thursday - No. 2 **Jamie Curley ('12) and Kristine Walters ('12), German/Russian**  
The Objectification of Women in German Literature

- Thursday - No. 3 **Christine Wamsley ('15) and Audrey Lomax ('13), German/Russian**  
Woyzeck als Comic
- Thursday - No. 4 **Katherine MacNamee ('14) and Ben Borchard ('14), German/Russian**  
Woyzeck\_X: Die Doppelte Natur der Gesellschaft der Aufklaerung
- Thursday - No. 6 **Abigael Cheruiyot ('12), Mathematics**  
Integration of Multisensory Signals to Create Motion Perception
- Thursday - No. 7 **Brian Morgan ('13), Geology**  
Virtual Geologic Field Guide to the Kennebec Highlands, Central Maine
- Thursday - No. 8 **Karyn King ('12), Biology**  
Behavioral and Morphological Effects of Phytosterol, Progesterone, and Androstenedione Contaminated Water on Mosquitofish, *Gambusia affinis*
- Thursday - No. 9 **Susan Gagliardi, Biology**  
Interspecific Trends of Increasing North American Bird Populations
- Thursday - No. 10 **Mark Chaffin ('12), Biology**  
Small Rodent Population Dynamics and Movement in a Fragmented Landscape
- Thursday - No. 11 **Madelyn Renzetti ('14), Biology**  
Making the Mini Mutant: Constructing a Mutation in a Gene Encoding a Selenate Reductase
- Thursday - No. 12 **Robyn St. Laurent ('12), Biology**  
Reduction of Histone Deacetylase Activity by Sodium Butyrate Improves Motor Impairment in a Rotenone-Induced *Drosophila* Model of Parkinsons Disease
- Thursday - No. 13 **Alex Hymanson ('12), Chemistry**  
Synthesis of Ortho and Para Bridged Tetraaza[1,4]cyclophanes
- Thursday - No. 14 **My Tong ('14), Chemistry**  
Synthesis Optimization and Purification of 'Dicalixarene'
- Thursday - No. 15 **Emily Kaye ('12), Catherine Gallagher ('12), Emily Sher ('13), Kayla Gross ('13) and Lindsay Dale ('12), Chemistry**  
Changes in Apoptotic Gene Expression in Human Leukemia Cells Treated with the Anticancer Drug Laromustine
- Thursday - No. 16 **Lloyd Liang ('13), Chemistry**  
One-pot Syntheses of Structurally Rigid Ring Compounds
- Thursday - No. 17 **Michael Verschoor-Kirss ('12), Chemistry**  
Kinetics of Phosphine Substitution in Cyclopentadienyl Ruthenium (II) Bis-triarylphosphine Chlorides: a Tale of Two Mechanisms?
- Thursday - No. 18 **Samantha Lessard ('13), Chemistry**  
Spiropentanes as Sources of Cyclic Allenes
- Thursday - No. 19 **Katherine Murray ('12) and Josephine Thiele ('12), Chemistry**  
Dynamic Interactions Between Thermocline Depth and Internal Nutrient Loading in Central Maine Lakes
- Thursday - No. 20 **Beatrice Nakiryowa ('13), Chemistry**  
Toward a Stable and Crystalline 1,2-Cyclooctadiene
- Thursday - No. 21 **Andrea Schweitzer ('14) and Allana Sanborn ('13), Environmental Studies**  
The Associated Health Effects of Vietnam War Veterans from Exposure to Agent Orange
- Thursday - No. 22 **Michael Verschoor-Kirss ('12), Environmental Studies**  
They Can't Dodge a Bullet: Anthropogenic Causes of Lead Toxicosis in Wildlife
- Thursday - No. 23 **William Benjamin ('14) and Ellen Evangelides ('14), Environmental Studies**  
Are the Wrinkles in Your Clothes Leading to Wrinkles in Your Health? Risks of Using and Living Near Dry Cleaners
- Thursday - No. 24 **Caroline Maguire ('12), Kelly Roth ('12) and Michael Wismer ('12), Environmental Studies**  
Does Paraquat Exposure Lead to Parkinson's Disease?
- Thursday - No. 25 **Lucy O'Keefe ('14) and Kathryn Coe ('14), Environmental Studies**  
Links between Food Colorings and Increased Hyperactivity in Children
- Thursday - No. 26 **Jared Supple ('13) and William Supple ('12), Environmental Studies**  
Chemical Contaminates in Dairy Products

- Thursday - No. 27 **Elizabeth Schell ('14) and Sophie Weaver ('14), Environmental Studies**  
A Quick Downward Slope: The Potential Health Impacts of Fluorinated Ski Wax
- Thursday - No. 28 **Rachael Mack ('12) and Kristen Merrill ('12), Environmental Studies**  
Aspartame: Good for the Body, Bad for the Brain?
- Thursday - No. 29 **Charles Davis ('13) and John Mauer ('13), Environmental Studies**  
Impact of Nuclear and Fossil Fuel Energy on Human Health
- Thursday - No. 30 **Megan Flaherty ('13) and Kassandra Sullivan ('13), Environmental Studies**  
Does Prenatal Polychlorinated Biphenyls Exposure Affect Intelligence?
- Thursday - No. 31 **Michael Stephens ('13), Environmental Studies**  
Atlas of Maine: Department of Defense Installations and National Guard Armories
- Thursday - No. 32 **Matthew Silverman ('12), Environmental Studies**  
Atlas of Maine: Forest Type and Maple Production
- Thursday - No. 33 **Katherine Murray ('12), Environmental Studies**  
Atlas of Maine: Surficial Materials
- Thursday - No. 34 **Lydia Ball ('13), Environmental Studies**  
Atlas of Maine: Marine Worm and Molluscan Habitat
- Thursday - No. 35 **Helaine Linden ('14), Environmental Studies**  
Atlas of Maine: Deer Wintering Areas and Fragmented Forests in Maine
- Thursday - No. 36 **Sylvia Doyle ('12), Environmental Studies**  
Atlas of Maine: Predicted Lynx Habitat and Conserved Lands
- Thursday - No. 37 **Matthew LaPine ('13), Environmental Studies**  
Atlas of Maine: Critical Habitat of the Atlantic Salmon
- Thursday - No. 38 **Avery Beck ('14), Environmental Studies**  
Atlas of Maine: Concentration of Arsenic Contamination in Township Water Resources
- Thursday - No. 39 **Rebecca Forgrave ('14), Environmental Studies**  
Atlas of Maine: Maine Water Features and Drinking Water Sources
- Thursday - No. 40 **Dominique Kone ('13), Environmental Studies**  
Atlas of Maine: State of Maine Abundance of Hospitals in Populated Areas
- Thursday - No. 41 **Kathryn Lee ('13), Environmental Studies**  
Atlas of Maine: Moose Management in Conserved Areas
- Thursday - No. 42 **Elizabeth Schneider ('12), Environmental Studies**  
Atlas of Maine: Deer Wintering and Conservation Areas in Maine
- Thursday - No. 43 **Colin Cummings ('14), Environmental Studies**  
Atlas of Maine: Location of Dams Along Atlantic Salmon Habitats in Maine
- Thursday - No. 44 **Meagan Hennessey ('14), Environmental Studies**  
Atlas of Maine: Police Stations in Relation to Population
- Thursday - No. 45 **Michael Whalen ('12), Environmental Studies**  
Atlas of Maine: Essential Seabird Habitats of the Gulf of Maine
- Thursday - No. 46 **Anna Hess ('14), Environmental Studies**  
Atlas of Maine: Income Per Capita in Maine
- Friday - No. 1 **Lucy Wilhelms ('12), English**  
The Love Poetry of the Troubadours: Socio-Economic Comparisons
- Friday - No. 2 **Nicole Hewes ('12), Education and Human Development**  
More Than Just Nonsense Verse?: The Language of Dr. Seuss and Children's Literacy
- Friday - No. 3 **Joshua Balk ('14), Margaret Hunziker ('12), Rebecca Aliber ('13) and Samantha Bassman ('12), Sociology**  
Learning By Giving: Maine Children's Home Summer Camp Scholarship Program
- Friday - No. 4 **Kelsey Werner ('12), Cecelia Conroy ('14), Jayde Bennett ('13) and Molly Parsons ('13), Sociology**  
Learning by Giving: Strengthening Families Program for The Family Violence Project

- Friday - No. 5 **Isadora Alteon ('14), Sociology**  
(Tentative Title) 'Panama, Where the World Meets: An Exploratory Study of Healthcare systems in Panama City, Panama'
- Friday - No. 6 **Ian Bettencourt ('12), Biology**  
Maine State Crime Laboratory and CODIS
- Friday - No. 7 **Sylvia Doyle ('12) and Matthew Silverman ('12), Biology**  
A Guide to Trees on Campus: Digital Media and Walking Tours
- Friday - No. 8 **Alexander Storer ('12), Biology**  
Characterizing the Phagocytic Activity of Zebrafish Kidney Neutrophils
- Friday - No. 9 **Jennie Buskin ('13) and Philip Prosapio ('13), Mathematics**  
Combinatorial Vector Calculus: A New Proof of Green's Theorem
- Friday - No. 10 **Arijumand Maso and Shikhar Nayak ('15), Mathematics**  
Perception of Motion during Dix-Hallpike Maneuver
- Friday - No. 11 **Emily Niemi ('12) and Jordan Cadorette ('12), Mathematics**  
Mental Health Screening in Rural Maine Primary Care
- Friday - No. 12 **Ai Phuong Tong ('15), Physics and Astronomy**  
Stabilizing the Frequency of a Diode Laser Using a Lock-In Amplifier
- Friday - No. 13 **Jamie Suzuki ('14) and Abebu Kassie ('14), Chemistry**  
The Reaction of Dihalocarbenes with Anthracenes
- Friday - No. 14 **Stefan Davatz ('13), Chemistry**  
Determining Where Para-Calixarenes Gain an Additional Degree of Freedom
- Friday - No. 15 **James Shaum ('13), Chemistry**  
Generation of Formyl- and Vinylcarbenes from Nonnitrogenous Precursors
- Friday - No. 16 **Jared Supple ('13), Chemistry**  
Tracing Performance Endurance Genes Through Families
- Friday - No. 17 **Brianna Lind ('12) and Laura Gigliotti ('12), Environmental Studies**  
A Survey of Termite Genera Along a Catenal Gradient in Southern Kruger National Park
- Friday - No. 18 **Yiyuan Qin ('12), Adrienne Bowles ('12) and Olivia Kefauver ('12), Environmental Studies**  
Parks as a Biodiversity Conservation Strategy in Urban Environments
- Friday - No. 19 **Susan Gagliardi, John Mauel ('13) and Lucas Haralson ('14), Environmental Studies**  
Criteria for a Successful Large Mammal Reintroduction
- Friday - No. 21 **Laura Gigliotti ('12), Colleen Kenny ('12) and Sara Mason ('12), Environmental Studies**  
Elephant Management in Africa
- Friday - No. 21 **Trevor Poole ('12), Guillermo Sapaaj ('14) and Monica Davis ('13), Environmental Studies**  
Ecological Considerations in National Park Design
- Friday - No. 22 **Lydia Ball ('13), Dominique Kone ('13) and Michael Steele ('14), Environmental Studies**  
Effect of Wild Pig, *Sus scrofa*, Populations in the United States
- Friday - No. 23 **Erin Love ('14) and Victoria Abel ('14), Environmental Studies**  
The Impact of War on Biodiversity
- Friday - No. 24 **Katherine Houser ('13) and Melissa Krause ('12), Environmental Studies**  
BPA and Behavioral Disorders
- Friday - No. 25 **Jessica Blais ('12) and Sarah Nalven ('13), Environmental Studies**  
Do Aluminum-based Antiperspirants Increase Risk of Breast Cancer?
- Friday - No. 26 **Jillian Howell ('12), Kristin Marks ('12) and Noah Teachey ('13), Environmental Studies**  
Out of the Mountains and into Your Body: Mountaintop Removal Mining and Heart and Lung Disease
- Friday - No. 27 **Catherine Gallagher ('12) and Sarah Fensore ('13), Environmental Studies**  
Does Phthalate Exposure Impair Reproductive Development?
- Friday - No. 28 **Zoe Sherman ('12) and Sandra Johnson ('12), Environmental Studies**  
Obesogens and the Maternal Programming of Obesity
- Friday - No. 29 **Anna Hess ('14), Morgan Monz ('14) and Sara Lezin ('14), Environmental Studies**

- Effects of Phthalates on Children
- Friday - No. 30 **Siya Hegde ('13) and Emily Niemi ('12), Environmental Studies**  
The Adverse Effects of Urban Air Pollutants on Child Health
- Friday - No. 31 **Lauren Kerr ('13) and Lisa Nehring ('14), Environmental Studies**  
Connections Between Environmental Exposures to Lead and Late-onset Neurodegenerative Disease
- Friday - No. 32 **James O'Brien ('12), Emma Suojanen ('12) and Eva Valladares Anton ('14), Environmental Studies**  
What's In Your Bedroom?: The Negative Health Effects of Sexual Lubricants
- Friday - No. 33 **Erica VandenBerg ('13) and Mackenzie Nichols ('14), Environmental Studies**  
Toxic Fire: The Increasing Risk Associated with an Increasingly Synthetic World
- Friday - No. 34 **Lindsay Jarrett ('14) and Jennifer Sher ('14), Environmental Studies**  
Effects of Arsenic as a Carcinogen in Drinking Water
- Friday - No. 35 **Rebecca Mayer ('13) and Adrianna Twombly ('13), Environmental Studies**  
Does BPA Exposure During Pregnancy Lead To Behavior Problems In Young Girls?
- Friday - No. 36 **Lydia Ball ('13) and Dominique Kone ('13), Environmental Studies**  
Distribution of Atlantic Forest Fragments in Relation to Probable Water Sources
- Friday - No. 37 **Helaine Linden ('14), Environmental Studies**  
Suitable Land Cover Habitats for Elephant and Cheetah Populations
- Friday - No. 38 **Rachael Mack ('12), Environmental Studies**  
Obstacles to Replacing Lawn with Buffer: Barriers to Implementation of the LakeSmart Program on Maine's Lakes
- Friday - No. 39 **Matthew Silverman ('12) and Katherine Murray ('12), Environmental Studies**  
Linking Farms and Food Banks in Massachusetts
- Friday - No. 40 **Avery Beck ('14) and Rebecca Forgrave ('14), Environmental Studies**  
Availability of Biomass for Colby's Steam Plant
- Friday - No. 41 **Sylvia Doyle ('12), Environmental Studies**  
Predicted *Witheringia solanacea* Habitat in Costa Rica
- Friday - No. 42 **Matthew LaPine ('13), Environmental Studies**  
Sea Level Rise Impacts and the Value of Affected Properties in Barnstable, MA.
- Friday - No. 43 **Kathryn Lee ('13) and Anna Hess ('14), Environmental Studies**  
Analysis of Proposed East-West Highway in Maine
- Friday - No. 44 **Elizabeth Schneider ('12) and Michael Whalen ('12), Environmental Studies**  
Casco Bay
- Friday - No. 45 **Meagan Hennessey ('14), Environmental Studies**  
Visitation Effects on Reid State Park
- Friday - No. 46 **Colin Cummings ('14) and Michael Stephens ('13), Environmental Studies**  
Viewshed Analysis of Proposed Wind Farms in Maine
- Friday - No. 47 **Patrick Adams ('13), Allison Emery ('12) and Karen Clark ('12), Sociology**  
Women Unlimited: Grant Proposal for Financial Literacy Courses in Maine's Correctional Facilities

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COLBY CELEBRATION OF SCHOLARSHIP

## RESEARCH SYMPOSIUM

**Colby Undergraduate Research Symposium 2012**  
**April 25 - April 27, Colby College, Waterville, Maine**

[Keynote Address](#)

**April 25, 7:30 pm Ostrove Auditorium**

**Associated Sessions**

### 2012 Program

- [Keynote Speaker](#)
- [Schedule - Wednesday](#)
- [Schedule - Thursday](#)
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- [Poster Program](#)
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- [Abstracts](#)
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- [Participating Departments/Programs](#)

[Research Symposium](#)

**Tuesday, Nov. 29, 2011**

**AMERICAN STUDIES**

**American Studies Seminar: Nature and Nation**

**Session Chair: Laura Saltz**

- Gordon Lessersohn ('12)** The White Pass and the Yukon Route: From Conquering to Conserving Nature  
**Aarika Ritchie ('12)** Simulation in the Great North Woods: A Tourism Reality  
**Zoe Sherman ('12)** The Call of Glacier National Park: Advertising from 1910-1930

**Thursday, Dec. 1, 2011**

**AMERICAN STUDIES**

**American Studies Seminar: Nature and Nation**

**Session Chair: Laura Saltz**

- Caitlin Burchill ('12)** Women and Weather: Our Society's Obsession with Having Control over Both  
**Katie Ricciardi ('12)** Crumbling Luxury: Upper-Class Identity at the Mountain View House during the Great Depression  
**Margaret Kruthoff ('12)** The Remaking of a Natural Woman in *Our Bodies, Ourselves and Spiritual Midwifery*

**Thursday, Dec. 6, 2011**

**AMERICAN STUDIES**

**American Studies Seminar: Nature and Nation**

**Session Chair: Laura Saltz**

- Sarah G. Janes ('12)** The Impossibility of Knowing Animals: Patterns of Natural Desire in Modern America  
**Bailey Girvan ('12)** Reviving 'Sacagawea': Trailblazing for Women's Suffrage through Appeasement of Male Skittishness  
**Coco Cowan ('12)** The Fishing Industry: Friend or Foe? Understanding the Unknowable Stories of *The Perfect Storm*  
**Sandy Johnson,** Wendell Berry, Michael Pollan, and New Agrarianism in Contemporary American Society

**Wednesday, Dec. 7, 2011**

**GOVERNMENT**

**Government Department Presentations**

**Diamond 122**  
**Session Chair: Joe Reisert**

- Emma Eschweiler ('14)** Citizenship and Migration: the Roma of Europe  
**Kayla Lewkowicz ('14)** Identity and Marginalization: the Berbers of Morocco and France  
**Katy Lindquist ('14)** The Confused Identity of the Banyamulenge

**Allison Nolan ('14)** Standing for Change: The Mobilization of Indigenous Movements in Bolivia  
**Rachel Rosenbaum ('13)** Brazilian Travesti: Spaces of Abuse and Agency  
**Jenny Sher ('14)** Religion and Land: The Uyghurs of Northwestern China

**Thursday, Dec. 8, 2011**

**AMERICAN STUDIES**  
**American Studies Seminar: Nature and Nation**

**Session Chair: Laura Saltz**

**Mike Mastrocola ('12)** The Major Issues with Major League Baseball Stadiums: The Deterioration of America's Pastoral Pastime  
**Aurore Spiers** Painting Niagara Falls in the Nineteenth Century: Thomas Cole, Frederic Church, William Hunt, and George Inness's Role in the Creation of a National Symbol  
**Sam Deeran ('12)** Our Past Is in the Future: The Non-Linear HIStory of the American Frontier, and How Science-Fiction Texts Influence Expansionist Ideology

**Monday, Feb. 27**

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
 3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

**David Furman ('12)** Two lasers: a Pulsed Dye Laser and a Q-switched Nd:YAG Laser  
**Anika Lindemann ('12)** What Does a Stable Network Look Like?

**Monday, Mar. 5**

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
 3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

**Sam Grant ('12) and Austin Duncanson ('12)**  
 Smoothed-Particle Hydrodynamics

**Thursday, Mar. 8**

**EAST ASIAN STUDIES**  
**East Asian Studies Student-Faculty Research Colloquium**  
 5:00 - 6:30 pm

**Robins Room, Roberts Union**  
**Session Chair: Hong Zhang**

**John O'Brien ('12)** An Appreciation of Political Pressure: Does US Political Pressure Motivate China's Exchange Rate Policy?  
**Genevieve Hsueh ('12)** Cosmetic Surgery in South Korea: Multi-dimensional and Evolving  
**Taro Gold ('12)** Entrepreneurship: Is Japan Willing to Take the Risk?  
**Yuri Min ('12)** Foundations and Development of Nationalism in the South Korean State Under Park Chung Hee: Focused Analysis of Park's Saemaul Undong (New Community Movement) Policy  
**Christopher Crabbe ('12)** China's Healthcare Assistance in Zimbabwe  
**Peter Graham ('12)** Learning from the Social Web of Japan: What Makes Online Communication Engaging?

**Monday, Mar. 26**

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
 3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

**William Voigt ('12)** Constructing a Magneto Optical Trap for Potassium Atoms  
**David Jensen ('12)** Continuous-Wave Laser Excitation of Rydberg States in Rubidium

**Monday, April 2**

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
 3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

**Chris Halladay ('12)** Fluid Dynamics and Biocomotion at the Interface

**Monday, April 9**

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

**Andrew McDonough-Lee ('12)** Development of Improved Comprehensive Models of High Mass Protostellar Objects  
**Erik Baish ('12)** Formation of Very-High Mass Stars

**Friday, April 13**

**GOVERNMENT**  
**Government Department Presentations**

**Waterville Senior High School**  
**Session Chair: Joe Reisert**

**Kayla Chen ('12)** Democracy in Argentina  
**Mike Whalen ('12)** Military in Brazil, South Korea and Turkey  
**Yuri Min ('12)** Civil Society in South Korea  
**Katie Selin ('12)** West Bank v. Gaza, Palestine  
**Kelsey Werner ('12)** Botswana v. Swaziland on HIV-AIDS  
**Luke Siebert ('12)** Boliva v. Paraguay on Ethnic Heterogeneity  
**Clay McMickens ('12)** Haiti v. Chile on Agricultural Exports

**Monday, April 16**

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

**Nirakar Poudel ('12)** Ultra-Cold Neutral Plasmas  
**Kent Momma ('12)** Pattern Formation in Excitable Media: Stripes, Spirals, and Stirring

**Tuesday, April 17**

**BIOLOGY**  
**Evolutionary Analysis Presentations**  
11:00 am - 12:15 pm

**Diamond 242**  
**Session Chair: Judy Stone**

**Victoria Abel ('14)** Conservation Genetics of the Red Panda (*Ailurus fulgens*)  
**Emily Arsenault ('14)** The Evolution of Mimicry and Coevolution in *Heliconius* Butterflies  
**Stefan Davatz ('13)** The Molecular Basis for Intelligence in Octopuses  
**Sarah Fensore ('13)** Maternal Effects of Nutrient Deficiencies in a Modern Diet  
**Allison Hess ('13)** Coevolution of Languages and Genes Amongst the Bamiléké, in the West Region of Cameroon  
**Zakary Jaques ('13)** Population Genetics and Conservation of the Asian Elephant (*Elephas maximus*)  
**Adam LaViolet ('13)** The Speciation of the Giraffe (*Giraffa camelopardalis*) into Six Separate Species  
**Drew Mealor ('14)** The Effects of Pine Nut Availability and Genotype on Grizzly Bear Diets in Yellowstone National Park  
**Allana Sanborn ('13)** Evolution of the p53 Tumor Suppressor Protein and its Role in Reproduction

**Thursday, April 19**

**BIOLOGY**  
**Evolutionary Analysis Presentations**  
11:00 am - 12:15 pm

**Diamond 242**  
**Session Chair: Judy Stone**

**Brittney Bell ('13)** Amylase Activity, Taste Preference, and Oral Health in European-American and Somali Ethnic Groups of Central Maine  
**Michelle Burt ('14)** The Evolution of Mimicry in Octopuses  
**Laura Crowley ('13)** Epigenetic Alteration of *Drosophila* Genes Through Polycomb Group Proteins in Response to Temperature



- Maxwell Hogue ('13)** The Generational Impact of Maternal Care as Expressed Behaviorally and Epigenetically in Mice
- Alice Hotopp ('15)** The Evolution of Cooperative Hunting in Orca Whales
- Ashley Johnson ('13)** Environmental Factors and Evolution of Influenza A
- Hilary Perrey ('13)** Pathogen-induced Selection and Autoimmunity in Sjogren's Syndrome

**EAST ASIAN STUDIES**  
**East Asian Studies Student-Faculty**  
**Research Colloquium**  
 5:00 - 6:30 pm

**Robins Room, Roberts Union**  
**Session Chair: Hong Zhang**

- Fiona Masland ('12)** Northern Dragons: The Transformation and Balancing of Ethnic and Gender Identities in the Imperial Court of the Early Qing (1644-1722)
- Annie Chen ('12)** Party Rhetoric and Corrupt Action: A Study of Systemic Corruption in the People's Republic of China

**Friday, April 20**

**CHEMISTRY**  
**Senior Chemistry Major Research**  
**Presentations**  
 11:00 - 11:50 am

**Arey 5**  
**Session Chair: Das Thamattoor**

- Josie Thiele ('12)** TBA
- Michael Verschoor-Kirss ('12)** TBA
- Vanesa Silvestri ('12)** TBA

**GEOLOGY**  
**Geology Honors Banquet and Thesis**  
**Defense**  
 6:00 pm

**Roberts Union**  
**Session Chair: Robert Gastaldo**

- Chishala Kapupu ('12)** Characterization of a Middle Permian Deltaic Distributary Channel, in the Karoo Basin, South Africa
- Daren McGregor ('12)** Sedimentology and Geochemistry of Fjord-Floor Sediments in Kongsfjorden, Svalbard, Norway
- Nathan Katsiaficas ('12)** Geodynamic Constraints on the Flow of Samoan-plume Mantle into the Northern Lau Basin

**Monday, April 23**

**BIOLOGY**  
**Behavioral and Physiological Ecology**  
**Research Presentations**  
 10:00 - 10:50 am

**Olin 335**  
**Session Chair: Cathy Bevier**

- Laura Gigliotti ('12)** The Effect of Temperature on the Foraging of Ladybeetles (Coccinellidae) on Aphids (Aphidoidea).

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
 3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

- Greg Merritt ('12)** Isometries and Spontaneous Lorentz Violation in General Relativity
- Austin Hoag ('12)** Cosmological Effects of Spontaneous Lorentz Symmetry Breaking

**MATHEMATICS**  
**Mathematics Department Honors**  
**Presentation**  
 4:00 - 5:00 pm

**Mudd 405**  
**Session Chair: Andreas Malmendier**

- Sarah Harmon ('12)** Recurrence Relations, Fractals, and Chaos

**Tuesday, April 24**

**RELIGIOUS STUDIES**  
**Religion and World War II Presentations**  
 9:30 - 10:45 am

**Lovejoy 344**  
**Session Chair: Debra Campbell**

**Jay Holman ('13)** Zen and the Art of World War  
**Kristen Robinson ('14)** Can Divinity Be Bombed?: A Look at the Emperor Cult and the State of Japan During World War II

**ENVIRONMENTAL STUDIES**  
**Marine Conservation and Policy**  
**Presentations**  
 9:30 - 10:45 am

**Diamond 223**  
**Session Chair: Loren McClenachan**

**Trip Smith ('12)** Mislabeled of Seafood  
**Anna Leavitt ('12)** The Marine Stewardship Council: Certification of Unsustainable Fisheries  
**Taylor Witkin ('14)** The Effect of Trade and Regulation on the Sustainability of Atlantic Bluefin Tuna  
**Matt LaPine ('13)** Atlantic Salmon: A Species in Peril

**Wednesday, April 25**

**BIOLOGY**  
**Behavioral and Physiological Ecology**  
**Research Presentations**

**Olin 335**  
**Session Chair: Cathy Bevier**

10:00 - 10:50 am

**Charlotte Veazie ('12)** The Effects of Copper and EDTA on Growth and Mortality in a Freshwater Amphipod (*Gammarus*)

**ENGLISH**  
**On With the Story: Advanced Projects in**  
**Prose I**  
 3:45 - 5:15 pm

**Hurd**  
**Session Chair: Jennifer Boylan**

**Lindsay Roberts ('13), Katherine McCarrick ('13), Grant Patch ('12), Jenna Gundersen ('12), Emily Stuart ('12), Courtney Yeager ('12) and Michael Southard ('12), English**

**Thursday, April 26**

**ENVIRONMENTAL STUDIES**  
**Marine Conservation and Policy**  
**Presentations**  
 9:30 - 10:45 am

**Diamond 223**  
**Session Chair: Loren McClenachan**

**Peter Smithy ('12)** Managing Ballast Water Invasive Species Introductions  
**Tierney Dodge ('14)** Invasive Marine Algae in Hawaii  
**Leti Douglass ('12)** Improving Fisheries Management: Solutions to Ecosystem Degradation and Stock Depletion in Indonesia  
**Michael Stephens ('13)** Nassau Grouper Spawning Aggregations: A Dangerous Game to Find a Mate

**RELIGIOUS STUDIES**  
**Religion and World War II Presentations**  
 9:30 - 10:45 am

**Lovejoy 344**  
**Session Chair: Debra Campbell**

**Geoff Bell ('12)** Baptism in Crisis: How God Changed During World War II  
**Allison Polchinski ('13)** Circumstantial Faith

**ENGLISH**  
**On With the Story: Advanced Projects in**  
**Prose II**  
 1:00 - 2:30 pm

**Hurd**  
**Session Chair: Jennifer Boylan**

**Tyler Parrott ('13), Eli Dupree ('13), Matthieu Nadeau ('12), Lucy Wilhelms ('12), Mike Rifkin ('12) and Jennifer Cox ('12), English**

**RELIGIOUS STUDIES**  
**Religious Studies Presentations**  
 4:00 - 6:30 pm

**Lovejoy 205**  
**Session Chair: Nikky Singh**

**Maddie Berger** Islam in the Black-American Experience  
**Andy Estrada** A Divine Being Clothed by Humanity: A Comparison of Jesus in the *Gospel of Judas* and the *Gospel of Mark*  
**Rachel Frenkil** The Face of the Church on the Unborn Child: The Abortion Debate in the American Catholic Church

**Jena Hershkowitz**

Religio-Cultural Identity and Law in Muslim India

**Allison Stitham**

Playing the Part: An Examination of Civil War Era Mourning and the Performance of Social Identity

**Trip Venturella**Zen Aesthetics in Paula Vogel's *The Long Christmas Ride Home***Jack Vihstadt**

The Good (Face) Book: Catholics and Social Media

**Friday, April 27****BIOLOGY****Behavioral and Physiological Ecology  
Research Presentations****Olin 335****Session Chair: Cathy Bevier**

10:00 - 10:50 am

**Corey Park ('12)**The metabolic effect of multiple stresses on levels of lactate and glucose in the fiddler crab, *Uca pugnator***CHEMISTRY****Senior Chemistry Major Research  
Presentations****Arey 5****Session Chair: Das Thamattoor**

11:00 - 11:50 am

**Alex Hymanson ('12)**

Synthesis of Ortho and Para Bridged Tetraaza[1,4]cyclophanes

**Emily Kaye ('12)**

The Apoptotic Cleavage of Poly(ADP-ribose) Polymerase by Laromustine and its Subspecies

**Kristina Blazanovic ('12)** Experimental Evolution of Plasmid Compatibility**CHEMISTRY****Senior Chemistry Major Research  
Presentations****Keyes 105****Session Chair: Das Thamattoor**

3:00 pm

**Lindsay Dale ('12)**

The Effects of the Anticancer Prodrug Laromustine on DNA Ligase III

**Erin Powers ('12)**

Modeling Liver Alcohol Dehydrogenase: The Study and Synthesis of Tridentate Pincer Complexes

**Catherine Gallagher ('12)**

Determining ASK1 Activation in Endothelial Cells Via Apoptosis-Inducing Laromustine

**Monday, April 30****ENVIRONMENTAL STUDIES****Environment and Society Research  
Presentations****Diamond 142****Session Chair: Philip Nyhus**

10:00 - 10:50 am

**Lily S. Crane ('15), Anne E. Schechner ('15), Elizabeth C. McCormack ('15) and Matthew R. Lipman ('15)**

From Seattle to Boston; Factors Affecting Public Transportation Ridership In Select U.S. Cities

**Andrew J. Newcomb ('15), Lindsay C. Jarrett ('14), Olivia R. Avidan ('15) and Peter B. Quayle ('15)**

Removing America's Dams: Influences of Dam Removal Across the United States

**Ruth C. Hawley ('15), Amara M. Weiss ('14), Rumbidzai Gondo ('14) and Madison M. Scheer ('15)**

What's in a Rate? A Comparative Analysis of Total Fertility Rates in African Countries

**BIOLOGY****Behavioral and Physiological Ecology  
Research Presentations****Olin 335****Session Chair: Cathy Bevier**

10:00 - 10:50 am

**Sara Mason ('12)**The effect of acclimation temperature on metabolism and respiratory quotient in the Asian House Gecko, *Hemidactylus frenatus***HISTORY****Introduction to History Presentations****Session Chair: Raffael Scheck**

1:00 - 2:15 pm

**Jena Hershkowitz ('12)**

From Captivity to Independence: Indian POW Uprisings and the Indian Independence Movement

**Beth Fleming ('13)**

The Venetian Ghetto in the 16th and 17th Centuries through the Lens of Civilian Internment

**Stephanie Marano ('14)**

Italian American Internment during the Second World War

**Stephanie Ruys de Perez ('14)**

Hell Ships: The Transport of Allied POWs by the Japanese in World War II

What Was the Big Deal? Reactions to the Treatment of Rebel Prisoners of War on

- Mckenzie Love ('13)** the British Prison Hulks of the American Revolution  
**Luke Henneberger ('14)** POW and MIA: Where the Lines Blur  
**Patrick Martin ('13)** POWs in the Korean War

**PHYSICS AND ASTRONOMY**  
**Physics Department Senior Talks**  
 3:00 pm

**Keyes 102**  
**Session Chair: Robert Bluhm**

- Dan Pennachio ('12)** Long-Term Frequency Stabilization of Cavity Diode Lasers using Digital Feedback  
**Chris Hoder ('12)** Theoretical Study of the Manipulation of Entanglement with Laser Pulse Sequences

**GOVERNMENT**  
**Government Department Senior Thesis Presentations**  
 4:00 - 6:00 pm

**Diamond 141**  
**Session Chair: Joe Reisert**

- Samantha Bassman ('12)** Vlaanderen voor de Vlamingen: A Historical Exploration of the Vlaamse Beweging and the Flemish Quest for Autonomy  
**Laura Maloney ('12)** Should She Run? The Decision for Female Candidates  
**Mason Roberts ('12)** Anti-Intellectualism in American Politics  
**Desiree Shayer ('12)** The Expulsion of the British from Iraq and Egypt: Analysis and Conclusions

**MATHEMATICS**  
**Mathematics Department Honors Presentation**  
 4:00 - 5:00 pm

**Mudd 405**  
**Session Chair: Andreas Malmendier**

- Jennifer Beatty ('12)** The Radon Transform and the Mathematics of Medical Imaging

**SCIENCE, TECHNOLOGY, AND SOCIETY**  
**Science, Technology, and Society Senior Research Posters**  
 4:00 - 5:30 pm

**Robins Room, Roberts Union**  
**Session Chair: Jim Fleming**

- ST483 honors**  
**Canning, Robert T. ('12)** Forecasting the Future: The Early United States Weather Bureau  
**Kasprak, Christopher J. ('12)** Hurricanes as Social Probes: Galveston 1900, New England 1938, New Orleans 2005  
**Meehan, Thomas P. ('12)** Electronic Health Records and the Future of Health Care in Connecticut  
**Sintetos, Nicole G. ('12)** The Sexual Brain: Essentialism in Queer Popular Science  
**Weiner, Margie L. ('12)** Computer Clashes in the Classroom: Teachers as Agents of Reform in American Public Schools
- Senior Posters**  
**George C. Carpenter ('12)** Your Brain in the Cloud: Online Learning and the Paradigm of Education  
**Kyle P. Donovan ('12)** Saving Hollywood? The Struggle to Protect Intellectual Property Rights  
**Katherine E. Graichen ('12)** Your Brain in the Cloud: Online Learning and the Paradigm of Education  
**Elliot A. Mermel ('12)** Breaching Boundaries: The Impact of Intellectual Property Laws on The Healthcare Industry  
**J. Arya Moallem ('12)** Blooming Industry, Ancient Roots: Green Buildings in Red China  
**Spencer C. Phillips ('12)** Keeping the Center Alive: Portland, Oregon and the Urban Growth Boundary  
**Amanda L. Reynolds ('12)** From Bubble to Burp: The Unlikely Technologies that Made Brewing an Industry  
**Campbell Stevenson ('12)** Urban Parks and City Development: Neglected Green Space

**Tuesday, May 1**

**ENVIRONMENTAL STUDIES**  
**Marine Conservation and Policy Presentations**  
 9:30 - 10:45 am

**Diamond 223**  
**Session Chair: Loren McClenachan**

- Lydia Ball ('13)** Is Conservation Effort Distributed Fairly Among Marine Species?  
**Amanda Reynolds ('12)** Solutions for Curtailing Japanese Whaling: Direct Action or Traditional Conservation?  
**Eliza Reynolds ('12)** Sea Otter Recovery  
**Grace O'Connor ('14)** Impacts of Coastal Development in Florida, USA on Nesting Populations of Leatherback, Loggerhead, and Green Sea Turtles

**RELIGIOUS STUDIES**

**Lovejoy 344**

**Religion and World War II Presentations**  
9:30 - 10:45 am

**Session Chair: Debra Campbell**

**Laura Waingrow ('14)** Cinematography of Spirituality and Religion in World War II  
**Kathy Shei ('13)** Soldiers and Their Faith

**ENVIRONMENTAL STUDIES**  
**Global Food Policy Presentations**  
11:00 - 12:15 pm

**Diamond 153**  
**Session Chair: Travis Reynolds**

**Shreya Balakrishna ('12)** Through the European Grapevine: One Continent's Precarious Position in the Global Wine Market  
**Letson Douglass ('12)** Farmer Brown's Plight: The Impact of Federal and State Regulations on Small-scale Dairy Farmers in Maine  
**Sally Holmes ('13)** An Analysis of Swine Manure Management Strategies in Brazil  
**Julie Kafka ('12)** Cultivating the Miracle Drink: Argentine Mate and World Exports  
**Olivia Kefauver ('12)** Seeds of War: US Agricultural Policy in Afghanistan  
**Sarah Large ('14)** Corn-Based Ethanol in the United States: Creating Incentives to Use Renewable Fuel  
**Frances Lee ('12)** Trade Liberalization and the Future of Korean Beef

**BIOCHEMISTRY**  
**Biochemistry Poster Presentations**  
12:30 - 2:00 pm

**Olin Arcade**  
**Session Chair: Julie Millard**

**Lloyd Liang and Kristina Blazanovic**  
ATP Synthase Deficiency  
**Beatrice Nakiryowa and Byung Kim**  
Glucose 6-phosphate Dehydrogenase Deficiency  
**Sam Lessard and John Gilboy**  
Maple Syrup Urine Disease  
**Adam Spierer, Meredith Reynolds and Jackson Clark**  
Wilson's Disease

**BIOLOGY**  
**Behavioral and Physiological Ecology**  
**Research Presentations**  
1:00 pm

**Olin 223**  
**Session Chair: Cathy Bevier**

**Heather Cronin ('13)** Male-male Interactions in the Electric Fish, *Brienomyrus brachyistius*  
**Kelsey Tyler ('12)** The Possible Implications of Climate Change on the Spring Arrival of Migratory Birds

**HISTORY**  
**Global Health History Presentations**  
1:00 pm

**Waterville High School**  
**Session Chair: Jim Webb**

**Emma Suojanen ('12)** The Global Campaign to Eradicate Guinea Worm  
**Leti Douglas ('12)** Poisoning India: The Negative Impacts of Pesticides on Human Health  
**Shreya Balakrishna ('12)** Peerless Plastic: Discoveries and Global Perceptions of Polyvinyl Chloride  
**Vincent Todd ('12)** Libya, Eritrea, and Italian Somaliland: The Real Malaria Problems of Italian Africa  
**Sean Michael ('12)** L'ducation Sexuelle versus Sex Education: The statistical repercussions of sex education in France and the United States  
**Emma Pearson ('12)** Smoking: An Examination of the Tobacco Industry's Political, Economic and Human-Health Impacts in the United States and the United Kingdom  
**Natalie Biederman ('12)** Tuberculosis in South Africa  
**Kelly Roth ('12)** A Global Examination of Multiple Sclerosis  
**Caitlyn Lancaster ('12)** The History and Rise of MRSA (Methicillin-resistant *Staphylococcus aureus*) in the Hospital Setting  
**Lauren Kerr ('13)** Forget Me Not: A Cross-Cultural and Environmental History of Alzheimer's Disease  
**Becky Mayer ('13)** Scientific Racism and the Treatment of Leprosy on the Hawaiian Islands

**GOVERNMENT**  
**Government Department Presentations**  
7:00 - 9:30 pm

**Diamond 241**  
**Session Chair: Joe Reisert**

**Toreyan Clarke ('12)** Measuring Democratic Despotism  
**Patrick Cronin ('12)** New Media v. Newspapers: Prospects for Active Citizenship in the Internet Age  
**Charles Diamond ('12)** Burke and Tocqueville on the French Revolution  
**John Tully ('13)** Prospects for Liberty in an Era of Declining Civic Engagement  
**Maddie Strachota ('13)** Mill and Tocqueville on Individualism, Individuality, and Liberty

**MUSIC**  
**Senior Seminar Presentations on Bartok**  
 7:00 - 9:00 pm

**Given Auditorium**  
**Session Chair: Steven Nuss**

<b>Tom Hurley ('12)</b>	Expanding and Contracting Interval cycles in Bartok's Final <i>Mikrokosmos</i>
<b>Charlotte Veazie ('12)</b>	Spatial Logic in Bartok's First Violin Concerto
<b>Chris Bertelsen ('12)</b>	The Brave Struggle of Octatonicism in Bartok's "Wrestling" from <i>Mikrokosmos</i>
<b>Evan O'Neill ('12)</b>	Tetrachordal Foundations and Mathematical Relations in Bartok's Merriment
<b>James Lasher ('12)</b>	Spatial Organization in Bartok's Op. 14, <i>Suite</i> , Mvmt. II
<b>Lauren McCrary ('12)</b>	Space and Symmetry in Bartok's "Game" from <i>Mikrokosmos</i>
<b>Austin Hoag ('12)</b>	Hexatonicism in Bartok's String Quartet No. 4/III
<b>Allison Emery ('12)</b>	Symmetry and Suppression in Bartok's "Ostinato" from <i>Mikrokosmos</i>
<b>Jesse Goldman ('12) and Jenna Gundersen ('12)</b>	Modes and the Golden Ratio in Bartok's 'Pe Loc' from <i>Romanian Folk Dances</i>

**Wednesday, May 2**

**ENVIRONMENTAL STUDIES**  
**Environment and Society Research**  
**Presentations**

**Diamond 142**  
**Session Chair: Philip Nyhus**

10:00 - 10:50 am

<b>Matthew E. Ayers ('15), Carolyn J. Bennett ('15), Tara L. Chizinski ('14) and Caroline A. Lauth ('15)</b>	Powered by Water and Wind: Renewable Electricity Production by State
<b>Olivia L. Collins ('14), Rebecca S. Herman ('14), Kushveer S. Jadeja ('15) and Katherine C. Rizk ('15)</b>	What Factors Lead to the Successful Recovery of Australian Marine Fish Populations?
<b>Jingying Xu ('15), Zachary E. Esakof ('15), John Z. Hartnett ('15) and Conor R. Schlosser ('15)</b>	Why Do Some Cities Have Higher Levels of Air Pollution Than Other Cities?

**BIOLOGY**  
**Behavioral and Physiological Ecology**  
**Research Presentations**

**Olin 335**  
**Session Chair: Cathy Bevier**

10:00 - 10:50 am

<b>Sarah Nalven ('13)</b>	Interactions between Skin Secretions and Epibiotic Bacteria of the Wood Frog, <i>Lithobates sylvatica</i>
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**BIOCHEMISTRY**  
**Biochemistry Poster Presentations**

**Olin arcade**  
**Session Chair: Julie Millard**

12:30 - 2:00 pm

<b>Jennifer Gemmell and Tyler Parrot</b>	Pompe Disease
<b>Justine Partridge and Garth Franklin</b>	Hunter Syndrome
<b>Abigael Cheruiyot and Meghan Tedoldi</b>	Metabolic Disorders in HIV Patients on Highly Active AntiRetroviral Treatment
<b>Charlie Frank and Rachel Guerra</b>	Ornithine Transcarbamylase Deficiency
<b>Kayla Gross and Christine Reynolds</b>	Phenylketonuria

**HISTORY**  
**Introduction to History Presentations**

**Session Chair: Raffael Scheck**

1:00 - 2:15 pm

<b>Amelia Kennedy-Smith ('14)</b>	The Gypsy Family Camp at Auschwitz
<b>Raymond Duffy ('13)</b>	An Internal Struggle: The United States and the Plight of its 'Native Inhabitants'
<b>Kayla Diaz ('14)</b>	No Longer Human: Changes in Japanese Treatment of POWs, 1900-1944
<b>Jasmine Phillips ('14)</b>	The Usefulness of the Geneva Convention on POWs of 1949 in the Vietnam War
<b>Chris Henderson ('14)</b>	The Motives Behind Japanese-American Internment during World War II

**BIOCHEMISTRY**  
**Molecular Biology Presentations**

**Olin 335**  
**Session Chair: Elizabeth Bean**

1:15 - 2:00 pm

<b>Beatrice Nakiryowa ('13) and Vanesa Silvestri ('12)</b>	<i>RBCS-3B</i> gene expression under different light conditions in <i>Arabidopsis thaliana</i>
<b>Kristina Blazanovic ('12), Audrey Gourlie ('12) and Jesus Vidaurri-Martinez ('13)</b>	Expression levels of <i>HSP70</i> in two, three, and four week old <i>Arabidopsis thaliana</i> under heat stress

**Josie Thiele ('12) and Michael Verschoor-Kriss ('12)**Molecular Analysis of Leaf Senescence in Varying Sized Leaves of *Arabidopsis thaliana***SCIENCE, TECHNOLOGY, AND SOCIETY  
Weather, Climate, and Society Poster  
Session**

2:00 - 4:00 pm

**Parker Reed,  
Session Chair: Jim Fleming**

**Professor Kloppenberg's Improvisational Practices in Dance (TD 258)** students will be dancing the weather and climate on five continents conjunction with the Weather, Climate, and Society poster presentation.

The student dancers are: **Justin De Santis '13, Sara Gibbons '15, Emilie Jensen '15, 'Sally' Tong Jin '15, Madeline Kurtz '14, Jordan Lorenz '15, Delaney McDonough '13, Mackenzie Milne '14, Elizabeth DiMarco '13, Mikela Mintz '14, Alison Reader '12, Desiree Shayer '12, Jamie Suzuki '14, Francesco Tisch '12, and Sujie Zhu '14**

**AFRICA**

- Annalisa Teste ('14) and Margie Weiner ('12)** Weather, Climate, and Society in Kampala, Uganda
- Chishala Kapupu ('12) and Sydney Hammond ('14)** Weather Climate and Society in the Congo Basin
- Madeline Wilson ('14) and Isabel MacKinnon ('15)** Weather, Climate and Society in Egypt
- William Bloomhardt ('12) and Claudia Aviles ('15)** Interactions Among Weather, Climate, and Society in Zimbabwe

**ASIA**

- Campell Stevenson ('12) and Amanda Walujono ('14)** Extremes of Tibet
- Thomas Kimball ('12) and John Hartnett ('15)** Magnificent Maldives
- Margaret Fasel ('12) and Neal Kopser ('13)** Environmental and Social Issues in Beijing
- Alex Finigan ('14) and Pete Hamblett ('14)** Weather, Climate, and Society in Siberia

**AUSTRALASIA**

- Spencer Phillips ('12) and Jared Scharf ('15)** Weather, Climate and Society in Indonesia, with an emphasis on the island of Bali
- Matthew Cheever ('12) and Jenna Mahaffie ('14)** Weather, Climate and Society in Suva, Fiji
- David Deneroff ('13) and Marianne Ferguson ('14)** Weather, Climate, and Society in Rotorua, New Zealand
- Brett Depper Goldstein ('13) and Ben Hannon ('13)** Weather, Climate, and Society in Papua New Guinea

**EU GREENLAND**

- Hilary Barr ('13) and Robbie Canning ('12)** Rotterdam, A City Underwater
- Toreyan Clarke ('12)** Weather, Climate, and Society in Southern Spain
- John Vanasse ('14) and Charles Diamond ('12)** Weather, Climate, and Society of the English Channel
- Eoin McCarron ('13) and Matthew Seff ('14)** Weather, Climate, and Society in Edinburgh

**LATIN AMERICA**

- William Supple ('12) and Olivia Avidan ('15)** Weather, Climate, and Society in Quito, Ecuador
- Theresa Petzoldt ('14) and Cassandra Smith ('15)** Weather, Climate, and Society in Brasilia, Brazil
- Brooke Chandor ('15) and Dan Hussey ('13)** Weather, Climate, and Society in Lima, Peru
- Charlotte Deavers ('14) and Kylie VanBuren ('15)** Weather, Climate, and Society in Panama

**MATHEMATICS  
Mathematics Department Honors  
Presentation**

4:00 - 5:00 pm

**Mudd 405  
Session Chair: Andreas Malmendier**

**Anika Lindemann ('12)** Odd or Even: Detecting Parity of Rank in a Family of Rational Elliptic Curves

**Thursday, May 3**

**ENVIRONMENTAL STUDIES**  
**Marine Conservation and Policy**  
**Presentations**  
9:30 - 10:45 am

**Diamond 223**  
**Session Chair: Loren McClenachan**

**Rhiannon Archer ('14)** The Japanese Whaling Loophole  
**Ellie Linden ('14)** Effects of Climate on Polar Bears and Possible Solutions  
**Max Pollinger ('14)** Lessons Learned from the BP Oil Spill

**RELIGIOUS STUDIES**  
**Religion and World War II Presentations**  
9:30 - 10:45 am

**Lovejoy 344**  
**Session Chair: Debra Campbell**

**Rachel Frenkil ('12)** The German Degenerative Art of Karl Zerbe

**ENVIRONMENTAL STUDIES**  
**Global Food Policy Presentations**  
11:00 - 12:15 pm

**Diamond 153**  
**Session Chair: Travis Reynolds**

**Sarah Madronal ('14)** Impacts of U.S. Food Aid in Central and South America  
**Charlotte Olena ('12)** Touched by the Hands of a Slave: Forced Labor in Modern American Agriculture  
**Nick Papanastassiou ('13)** Costa Rica's Banana Production System is Owned by Others  
**Sergei Poljak ('14)** The Case for GM Crops  
**Mandy Reynolds ('12)** Potatoes in Peru: Solving World Malnutrition and Poverty  
**Kelsey Werner ('12)** Food Aid and Conflict in Somalia  
**Dylan Nisky ('14)** Atlantic Bluefin Tuna Policy

**ANTHROPOLOGY**  
**Global Mobilities**  
1:00 - 3:30 pm

**Diamond 344**  
**Session Chair: Mary Beth Mills**

**Andrea Birnbaum ('12)** Institutional Identities and Global Citizenship: An Ethnographic Analysis of Study Abroad at Colby  
**Adrienne Bowles ('12)** Citizenship & Identity in the US-Mexico Borderlands  
**Francesca Breene ('12)** Medecines Sans Frontiers and the Narrative Power of Medical Humanitarianism  
**Jennifer Gemmell ('12)** Citizenship and the Discourse of Fertility and Family Planning  
**Hannah Goodwin ('12)** New Mainers: Processes of citizenship and identity for refugees and immigrants in Portland, Maine

**BIOLOGY**  
**Advanced Neurobiology Presentations**  
1:00 pm

**Olin 213**  
**Session Chair: Tariq Ahmad**

**Chelsea Nickerson ('13) and Andrew Rhoads ('14)**  
Caffeine Modulates Paraquat-induced Locomotor Deficits in a *Drosophila melanogaster* Model of Parkinson's Disease  
**Jessie Rottersman ('14) and Arvia Sutandi ('13)**  
Characterization of the Olfactory Response to Positive, Neutral, and Negative Odors in *Drosophila dunce* Mutant Larva  
**Gabrielle Donahue ('14), Audrey Gourlie ('12) and Cassie Huang ('13)**  
The Effects of Nicotine on Motor Control Defects in a Paraquat-induced Motors Defects in a *Drosophila* Model of Parkinson's Disease

**BIOCHEMISTRY**  
**Molecular Biology Presentations**  
1:15 - 2:00 pm

**Olin 335**  
**Session Chair: Elizabeth Bean**

**Catherine Gallagher ('12) and Sarah Lake ('13)**  
Changes in gene expression of *RBCS-3B* in *Arabidopsis thaliana* with varying light color  
**David Brazel ('12) and Claire Herbig ('13)**  
Chitin Induces Polygalacturonase Inhibition in *Arabidopsis*  
**Katarina Sirka ('13) and My Phuong Tong ('14)**  
The Effect of Temperature on the Expression of the *HSP70* gene in *Arabidopsis thaliana*

**ENVIRONMENTAL STUDIES**  
**Environment and Society Research**

**Diamond 142**



**Presentations****Session Chair: Philip Nyhus**

7:00 - 9:00 pm

- John T. Papa ('14), Samantha F. Draper ('14), Ilanna W. Fricks ('15) and Leah E. Powley ('15)**  
Determinants of Urban Green Space: An 8-City Analysis
- Abigail E. Arndt ('15), Meredith P. Braun ('15), Beatrice C. Smith ('15) and Caroline Keaveney ('15)**  
Determinants of the Conservation Status of Tuna
- Savannah C. Judge ('15), Connor D. Whitley ('15), Meghan F. Harwood ('15) and Shadiyat O. Ajao ('15)**  
Effects of Economic Policies on Wind Power: A Comparative Case Study Analysis
- Christopher W. Abbott ('15), Monique L. Kelly ('14), Jeffrey C. Meltzer ('15) and Sydney C. Morison ('15)**  
Exploring Local Food Systems: Why Farmers' Markets Succeed or Fail
- Jake J. Lukach ('15), Sangay L. Thinley ('15), Danielle B. Levine ('15) and Molly E. Nash ('15)**  
Higher Education and Sustainability: Energy Efficiency on College Campuses

**Friday, May 4****ENVIRONMENTAL STUDIES  
Environment and Society Research  
Presentations****Diamond 142  
Session Chair: Philip Nyhus**

10:00 - 10:50 am

- Victoria E. Abel ('14), Sophie R. Frishberg ('15), Sara D. Miller ('15) and Mark O. Vargas ('15)**  
Saving Our Species: An analysis of successful animal conservation
- Angela R. Cross ('15), Margaret M. Fein ('15), Doris O. McAuliffe ('14) and Alexander G. Wilsterman ('15)**  
The *Panthera* Problem: Factors Influencing the Densities of Big Cat Populations
- Natalie T. Cecere ('15), Devki Rana ('15), William T. Vietze ('15) and Helaine M. Linden ('14)**  
The Underlying Causes of Coral Degradation: An Eight-Case Study

**THEATER AND DANCE  
Theater and Dance Senior Research  
Presentations****Runnals 110  
Session Chair: Lynne Conner**

12:00 - 2:15 pm

- Eva Ludwig ('12)** When Performance Becomes a Social Event: Environmental Theater
- Alison Reader ('12)** Walking, It's Art
- Ahmed Asi ('13)** The Mythic Rhythm
- Francesco Tisch ('12)** Art is Dead, Long Live Art
- Sally Meehan ('12)** The Living Newspaper
- Michael Trottier ('12)** Breaking the Contract: Examining Reaction to *The Agony and the Ecstasy of Steve Jobs*

**Wednesday, May 9****FRENCH AND ITALIAN  
Parisian Encounters: Great Loves, Grand  
Passions****Session Chair: Adrianna Paliyenko**

6:00 - 9:00 pm

- Dominique Brunelle ('12)** Genius and the Discourse of Medicine
- Lucy Wilhelms ('12)** The Visages of Josephine Bonaparte: The Politics of Art
- Annie Kramer ('14)** Medicine and Art, or Representing Monomania
- Sarah Fensmore** Literary Memory: The Paris Insurrection of June 5 and 6, 1832
- Molly Rogers ('13)** George Sand on Gender and Genius
- Julie Solomon ('12)** Did George Sand Influence Chopin's Musical Genius?
- Natalie Biedermann ('12)** The Truth and Falsity of Gender: The Illustrated Magazine in 19th-Century France
- Cara Gaynor ('13)** The Art of Prostitution in 19th-Century Paris
- Sophia Rothschild ('12)** The Importance of Rosa Bonheur as a Woman Artist in the 19th Century
- Margaret Hunziker ('12)** Mary Cassatt and the Impressionist Circle
- Sarah Braselton ('13)** Berthe Merisot: Familial Impressions

**Friday, May 11****PHILOSOPHY  
Philosophical Approaches to Global****Lovejoy 212**

**Justice Presentations****Session Chair: Lydia Moland**

9:00 am

<b>Avram Reisman ('13)</b>	Rousseau, The General Will, and Collective Responsibility
<b>David Furman ('12)</b>	Third-Party Responsibility in Foreign Conflict
<b>Jack Harris ('12)</b>	Terrorism as an Adjective
<b>Shaquan Huntt ('13)</b>	The Nature of the Machine and the Invisible Hand that Oppresses
<b>Wayne Kim ('14)</b>	A Philosophical Analysis of Kony 2012
<b>Najah Magloire ('14)</b>	Pogge's Haiti
<b>Amber Ramirez ('14)</b>	The Lost, Killed, and Forgotten: Cd. Juarez, Women, and "Official Disrespect"
<b>Jon Riesenbach ('12)</b>	Terrorism or Hacktivism?
<b>Josh Rothenberg ('14)</b>	The Lack of Innocents

**FRENCH AND ITALIAN****Parisian Encounters: Great Loves, Grand Passions****Session Chair: Adrianna Paliyenko**

1:30 - 4:30 pm

<b>Pamela Alakai ('14)</b>	The Rise and Fall of Napoleon's Military Genius
<b>Jane Munger ('13)</b>	Marie Antonin Carême: The Genius of French Cuisine
<b>Solon Arguello ('15)</b>	The Role of French Jews in European Politics
<b>Aileen Evans ('12)</b>	The Education of Girls during the 19th Century in France
<b>Maddie Purcell ('12)</b>	Napoleonic Propaganda
<b>Michel O'Shea ('14)</b>	The Legacy of Toussaint Louverture
<b>Hannah Goodwin ('12)</b>	Odilon Redon: Science and the Psychology of Dreams in Symbolist Art of the 19th Century
<b>Kimara Nzamubona ('14)</b>	Hausmanisation: the Birth of Modern Paris
<b>Tate Kaneshige ('12)</b>	European Colonisation and its Effect on the Representation of Identity in French Polynesia
<b>Caroline Riina ('12)</b>	The Life of Marie Curie and her Impact on 19th-Century Feminism in France

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**Colby Undergraduate Research Symposium 2012**  
**April 25 - April 27, Colby College, Waterville, Maine**

**Abstracts - Research Symposium**

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**(TENTATIVE TITLE) 'PANAMA, WHERE THE WORLD MEETS: AN EXPLORATORY STUDY OF HEALTHCARE SYSTEMS IN PANAMA CITY, PANAMA'**

**Isadora Alteon ('14), Sociology**

'Panama' and 'health' brings to light polar realities: the increasing instances of medical tourism and inexpensive private health insurance for the minority of non-Panamanians, and the health-care inequalities for the majority of Panamanians. During a one-month exploratory study in Panama, I looked at health issues that affected the Panamanian citizenry, which is often overlooked by the tourism industry: mainly public health care systems, health education, and cultural perceptions of medical issues. During my time in Panama over January, I conducted an exploratory study to discover the ways health and health-care was discussed in an urban environment with growing disparities, to assess the delivery of health-care (prevention and treatment) to children at Hospital del Nino, as well as to bear witness and observing the truths of children's vulnerability to certain diseases and health conditions going beyond the restrictions of aggregated data tables.

**LEARNING BY GIVING: MAINE CHILDREN'S HOME SUMMER CAMP SCHOLARSHIP PROGRAM**

**Joshua Balk ('14), Rebecca Aliber ('13), Samantha Bassman ('12) and Margaret Hunziker ('12), Sociology**

Representing the Maine Childrens Home for Little Wanderers, our grant writing team Rebecca Aliber, Josh Balk, Samantha Bassman, Margaret Hunziker, and Steve Mayberry requests 0,000 from the Learning By Giving Foundation to fund the Summer Camp Scholarship Program. This program, which was established in 1967, provides disadvantaged children across the entire state of Maine with the opportunity to grow as independent individuals in a safe environment. Due to the increase in poverty, the number of children eligible for camp scholarships has also grown, indicating a greater need for additional program funding. The cost, after subsidies, of this positive educational and social experience is 50 per child. With a grant of 0,000, forty more children will be able to attend camp, which would increase the number of accepted children by approximately one-third. As of April 18, there are 49 children registered, 116 children on the waitlist, and applications are still being received.

**ATLAS OF MAINE: MARINE WORM AND MOLLUSCAN HABITAT**

**Lydia Ball ('13), Environmental Studies**

Marine worms and mollusks are important prey items for shorebirds and humans. Additionally, humans also use marine worms and mollusks as bait. This causes competition between shorebirds and humans. This map shows important habitat of marine worms and mollusks. Data was acquired from the Maine Office of GIS and the USGS Gulf of Maine GIS Data Catalog. All layers are projected using NAD 1983 UTM Zone 19N.

**DISTRIBUTION OF ATLANTIC FOREST FRAGMENTS IN RELATION TO PROBABLE WATER SOURCES**

**Lydia Ball ('13) and Dominique Kone ('13), Environmental Studies**

The Atlantic Forest of Brazil is highly fragmented and it is estimated that less than 7% of its original area remains (Umetsu et al. 2008). This high rate of fragmentation is primarily due to the conversion of forested areas into agricultural lands. This may hinder the dispersal of many species that inhabit this area because of an increase in edge effects, decrease in reproductive success, higher limitation of resources, etc. However, the inter-habitat matrix, or heterogeneous mosaic of varying habitats gradations, may allow population dispersal and the creation of meta-populations. In particular, amphibians are extremely sensitive to habitat degradation and fragmentation because their complex life cycle and special physiological requirements (Santos et al. 2009). Amphibians have low mobility and many studies use one kilometer as the estimated farthest distance that amphibians will travel for new habitat (Smith and Green 2005). The purpose of this study was to analyze the Atlantic forest fragments surrounding Sa Luiz do Paraitinga for their connectivity and possible suitability as amphibian habitat.

**VIRTUAL REALITY: COLOR IN SUMMER WARS**

**Nicholas Balsbaugh ('13), East-Asian Studies**

In the field of animation, color is often used to represent a plethora of concepts or ideas. In this way, the director and animators of the anime film 'Summer Wars' rely on the contrasts and exaggerations of color to differentiate the real from the virtual while successfully maintaining the distinction between good and evil across these parallel planes of existence.

**ATLAS OF MAINE: CONCENTRATION OF ARSENIC CONTAMINATION IN TOWNSHIP WATER RESOURCES**

**Avery Beck ('14), Environmental Studies**

Arsenic is a toxic heavy metal that has been detected in much of Maine's well water, and its widespread occurrence in Maine groundwater resources has become a public health issue. This map displays the towns whose domestic wells, by percentage of wells sampled, have had arsenic concentrations in excess of 10 micrograms per liter (g/L) of well water, the U.S. Environmental Protection Agency's maximum contaminant level for arsenic in public water. The towns in which Maine's thirty most-contaminated

wells can be found are denoted as well, as are the locations of public-supply wells and groundwater resources (aquifers) throughout the state. Source Data: the Maine Office of GIS (MEOGIS), the Maine Geological Survey, ESRI ArcGIS10, the U.S. Geological Survey (USGS) National Water-Quality Assessment Program Report Assessment of Arsenic Concentrations in Domestic Well Water, by Town, in Maine, 2005-09. Projected using Universal Transverse Mercator Zone 19N with NAD 1983 Datum.

#### **AVAILABILITY OF BIOMASS FOR COLBY'S STEAM PLANT**

##### **Avery Beck ('14) and Rebecca Forgrave ('14), Environmental Studies**

Colby has just built a new biomass plant, and is committed to sourcing its wood fuel from within a 50-mile radius of campus. With three truckloads of fuel coming in daily, two important questions remain, how much biomass is available for harvesting within 50 miles of campus, and whether Colby's biomass use will have an impact on the surrounding forests. Using ArcGIS, land cover data from the Maine Office of GIS was spatially joined to a data layer of woodlots to examine the state of forest regeneration in woodlot areas, where most harvesting typically occurs. The spatially joined data was then used to calculate the total amount of biomass within 50 miles of Colby, using a range of estimates for forest regrowth rates. For comparative purposes, the 50 mile distance was defined in two ways, both as a radius extending directly from Colby's steam plant, and as a maximum distance traveled away from the plant on the surrounding roads network.

#### **RICHARD CUTTS SHANNON: COLBY STUDENT AND CIVIL WAR SOLDIER**

##### **Geoffrey Bell ('12), History**

This study follows the Civil War service of Waterville College student Richard Cutts Shannon. In the spring of 1861 Shannon was a junior at Waterville College who had never missed a class. When President Champlin called the semester to an early close, Shannon went home to Portland, consulted with his family, and within months he found himself engaged at the First Battle of Bull Run. What motivated Shannon and the thousands of other volunteers to leave safe, insulated lives at home and join the Union ranks? For Shannon and many others, it was not freedom for slaves, nor was it any religious devotion that drove them to put their young lives on the line. These men sacrificed themselves to protect the sanctity of the Union and the principles that it embodied.

#### **ARE THE WRINKLES IN YOUR CLOTHES LEADING TO WRINKLES IN YOUR HEALTH? RISKS OF USING AND LIVING NEAR DRY CLEANERS**

##### **William Benjamin ('14) and Ellen Evangelides ('14), Environmental Studies**

Perchloroethylene, also known as Tetrachloroethylene and abbreviated PERC, is a chemical solvent commonly used in the dry cleaning industry. Humans are exposed to PERC through contaminated drinking water, direct contact, and inhalation of emissions. Our research displays the potential of PERC's negative effects on human health, including the potential to cause cancer and neurological damage, focusing primarily on dry cleaning customers and communities in the areas surrounding the establishments. Analyzing the current legislative and technological regulations set by groups such as the EPA, we discuss the potential implementation of cleaner alternatives in the dry cleaning industry.

#### **SEARCHING FOR 'MO' BETTER BLUES'**

##### **Christian Bertelsen ('12), African Studies**

In all of his movies, Spike Lee attempts to break stereotypes in order help reshape the African-American identity as seen through film. This is often done in reaction to very specific sources such as hollywood, hood films, blaxploitation, and in the case of Mo Better Blues; films about jazz. In the case of this film, however, Lee has a weaker claim for such a reaction than in the other cases, and certain elements of the film such the portrayal of female characters, misogynistic humor, anti-semitism, and the portrayal of jazz itself ultimately undermine the effectiveness of any progressive agenda.

#### **MAINE STATE CRIME LABORATORY AND CODIS**

##### **Ian Bettencourt ('12), Biology**

The Maine State Police Crime Laboratory, located in Augusta, is the primary evidence processing facility for the Maine State Police. It has served Maine since 1926, and makes its services available to all law enforcement agencies working in Maine. The Crime Laboratory is divided into a number of sections, consisting of forensic biology, forensic chemistry, firearms and toolmarks, latent prints, computer crimes, and the polygraph unit. The building is also adjacent to the Office of the Chief Medical Examiner. The laboratory is also where all evidence is submitted for review in criminal investigations. While all areas of the laboratory have important roles, one of the crucial tasks for the forensic biology section is the processing of offender DNA samples to obtain a distinct DNA profile. These profiles are then shared with the Combined DNA Index System (CODIS), the DNA database that is funded by the Federal Bureau of Investigation. As an intern in the forensic DNA section, I had the opportunity to tour a number of the crime laboratory divisions, including forensic chemistry, firearms, latent prints, and the medical examiner. However, my primary responsibility was preparing DNA samples from offenders around the state for profile generation and subsequent entry into CODIS.

#### **PROTECTING PATAGONIA: ACTION AND INACTION AGAINST THE HIDROAYS&EACUTEN DAM PROPOSAL IN CHILE**

##### **Heidi Blair ('12), Latin American Studies**

Forthcoming: this would be the oral defense of these two honors thesis as well

#### **DO ALUMINUM-BASED ANTIPERSPIRANTS INCREASE RISK OF BREAST CANCER?**

##### **Jessica Blais ('12) and Sarah Nalven ('13), Environmental Studies**

It has been suggested that antiperspirants play a role in breast cancer because they contain a variety of chemicals that are applied frequently to an area directly next to the breast. Aluminum salts, the active ingredient in many antiperspirants, have toxic properties including the ability to penetrate the skin, bind to DNA, and cause epigenetic changes; aluminum salts have also been shown to interfere with the function of estrogen receptors of human breast cancer cells. Scientific evidence is still inconclusive, but there is increasing evidence to support a link between antiperspirant use and breast cancer.

#### **WELCOME TO THE GRASSLANDS: MEMORY FOR INHERENTLY SURVIVAL RELEVANT INFORMATION**

##### **Josef Broder ('13) and Anna Caron ('13), Psychology**

Processing information for survival relevance has been shown to improve memory, possibly because memory systems likely

evolved to enhance an organisms survival. Experiment 1 examined whether survival relevance influences learning. Sixty plantlike stimuli were developed and distributed into two groups matched on familiarity and perceived edibility. Participants learned which stimuli belonged in each group through trial and feedback. In the basic condition the images were classified as A or B; in the edibility condition, the classification decision was between edible and inedible; and in the survival condition, participants were told to imagine being stranded in foreign grasslands and they had to learn whether stimuli were edible. On a final test, participants correctly classified more stimuli in the edibility and survival conditions, suggesting that the edibility judgment may have activated survival processing or been more meaningful and thus easier to learn. Experiment 2 was designed to explore these possibilities by adding a control condition, in which participants were told to imagine themselves as scientists studying in foreign grasslands, and their task was to determine whether stimuli were native to the area. Participants were repeatedly tested on blocks of all 60 stimuli until achieving 90% accuracy. As predicted, all participants performed roughly at chance during the first block, but significant differences emerged in the second block. Participants in the edibility and survival conditions showed faster learning in the first two blocks relative to those in other conditions. Thus, processing information for its survival value does promote rapid learning of novel complex stimuli.

#### **COLOR SYMBOLISM IN MIKHAIL BULGAKOV'S 'MASTER AND MARGARITA'**

**Allison Brown ('12), German/Russian**

In Mikhail Bulgakovs novel, Master and Margarita, concerning the Devils presence in Moscow during the Stalin Era, the author makes use of a variety of colors in order to illustrate his characters relationships to good and evil. Two sets of colors black, gray, and green, and white, red, and pink stand out in the first chapters of the novel. Black, gray, and green, colors associated with Woland, are primarily connected with death, evil, and punishment, while white, red, and pink, associated with Pontius Pilate, are connected with the religious themes of innocence, martyrdom, and salvation. Throughout the novel, it becomes clear that, although these themes seem to conflict with one another, in actuality, one set cannot exist without the other. The troubled souls of the Soviet Union can only attain for salvation if they are faced with punishment for their sins. The stage of punishment is represented by the presence of black, and the opportunity for salvation appears in conjunction with white. Under special circumstances, if salvation is achieved, a higher state of spirituality can be attained and is represented by the appearance of gold. During the course of the novel, the appearance of each of these colors indicate to the reader the main characters' fates.

#### **HAS THE LEGALIZATION OF MEDICAL MARIJUANA AFFECTED ILLICIT MARIJUANA CONSUMPTION?**

**Anne Burton ('12), Economics**

Since 1996, 16 states and the District of Columbia have legalized medical marijuana. Some opponents of medical marijuana claim that medical marijuana is diverted for illicit consumption. This paper uses data from the National Household Survey on Drug Use and Health to determine the effect of medical marijuana legalization on the consumption of marijuana and other substances. The regression results indicate that medical marijuana has a statistically significant effect on first time marijuana use and past month use, but not on past year use. Although the consumption data do not differentiate between licit (medical) and illicit marijuana consumption, the differences in the populations of medical marijuana patients and first time users suggest that, at least for initiation of marijuana, medical marijuana has had a positive impact on illicit marijuana consumption. This paper also confirms prior studies findings of a substitution effect between alcohol and marijuana.

#### **COMBINATORIAL VECTOR CALCULUS: A NEW PROOF OF GREEN'S THEOREM**

**Jennie Buskin ('13) and Philip Prosapio ('13), Mathematics**

Vector calculus is an important mathematical subject, and is useful in other scientific disciplines, most notably fluid dynamics and electricity and magnetism. Vector calculus centers on three fundamental theorems: Stokes theorem, Greens theorem, and the divergence theorem. However, most standard vector calculus texts and courses do not present a complete proof of Greens theorem or the planar divergence theorem. This project devised new approaches to these theorems, which are accessible to undergraduates taking a vector calculus course. Using graph theory, we created combinatorial analogs to both Greens theorem and the planar divergence theorem. We were able to successfully extend our combinatorial analog of Greens theorem to a rigorous proof of the traditional theorem. The structure of our combinatorial analogs also allowed us to explore connections between vector calculus and topology and graph theory.

#### **POST-9/11 ANXIETY IN SPIKE LEE'S 25TH HOUR**

**Gabriel Callaghan ('12), American Studies**

Spike Lees 2002 drama, 25th Hour, tells the story of, Monty Brogan, a young New York drug dealer who, during his last day of freedom before serving a seven-year prison sentence, attempts to make amends with his friends and family. Although David Benioff wrote the story before the terrorist attacks of September 11th, Spike Lees film suggests a number of parallels between Montys story and the surrounding desolation of post-9/11 New York. These parallels would seem to indicate that the character of Monty and well as the diegetic world he inhabits are metaphors for the tumultuous condition of the United States, and New York City in particular, in the post-9/11 period.

#### **EVALUATING THE EFFECTIVENESS OF A PRO-SOCIAL INTERVENTION PROGRAM FOR PRE-SCHOOLERS**

**Madeline Caplan ('12), Abigail Cooper ('15), Victoria Falcon ('15), Katherine MacNamee ('14), Cecil Papafio ('14) and Rebecca Stoutamyer ('15), Psychology**

The study assessed the effectiveness of a preschool intervention program, which educates preschoolers about sharing by comparing program participants with control participants (children not receiving intervention programming). Because the programming focuses specifically on teaching children what it means to share, and on which types of items should and should not be shared, our research examines child participants assumptions about sharing several weeks after the programming. Specifically, the research assesses how well children are able to apply program content in relation to sharing of emotions (especially happy, angry, and sad) in contrast to sharing everyday objects (combs, books, and friends). Within the past two decades, there has been an increase in the number of prevention and intervention programs that aim to decrease violent and detrimental behavior of children within schools. Schools serve as a natural setting for these programs because they are an environment for individual growth (Samples, 2004), and prevention programs promote social and emotional skills that encourage healthy development in children (Fitzgerald & Van Schoiack Edstrom, 2006). It is important for these programs to target young children who are in the early stages of pro-social development because it can not only lessen milder forms of aggression, but prevent more serious acts of violence that are likely to occur in adolescence or young adulthood, when patterns have been set in place and are harder to un-learn (Samples, 2004; Leff, Power, Manz, Costigan, & Nabors, 2001).

#### **ENGAGEMENT WITH THE ELEMENTS: RESTORATIVE EFFECTS OF IMAGERY AND VARIOUS SENSORY ASPECTS OF NATURE**

**Amanda Carbonneau ('14), Kara Constine ('13), Czarina Evangelista ('14) and Katherine MacNamee ('14), Psychology**

Previous research suggests that spending time in nature and viewing pictures of nature can have cognitive benefits (Berman, Jonides, & Kaplan, 2008). These benefits come from a restored ability to focus attention. This study hopes to distinguish which aspects of nature, auditory, visual, or both, have the greatest restorative effects on attention. In addition, the study explores the effect of engagement with nature, and whether or not engagement and different aspects of nature interact to restore attention. Ninety Colby students participated in the study by taking attention-measuring tests before and after exposure to videos of different aspects of nature with half of the participants being instructed to imagine themselves in the video stimulus. Results showed that when participants imagined themselves in the video stimulus it affected how their attention was restored. Imagery and the type of video stimulus also interacted to show that the specific sensory aspect of nature and the participants ability to imagine themselves in the stimulus affects how restorative nature can be.

**LAZY GENIUS: IMPROVING FACT RECALL USING SOCIAL FLASHCARDS**

**George Carpenter ('12), Computer Science**

When a student needs to memorize a large number of facts - for instance, in preparation for a test - frequently he or she makes flashcards. While running through the flashcards, the student may come up with mnemonics to help him or her remember how to get from one side of the flash card to the other. The problem with this model is that the mnemonic the student makes up could be valuable to many more people than him or herself, but remains tacit. Even if the student is part of a study group, the mnemonics only get shared with a select number of people. Lazy Genius aims to solve this problem by constructing an online database for mnemonics. The website gives people a way to input decks of flashcards, and then add mnemonics to individual cards, or facts. The mnemonics people add are available to everyone, so a list created by a student to study for a Biochemistry test one year, for instance, will be available the next year for more students to improve upon.

**'JUST LIKE HE PLANNED': SPIKE LEE'S INSIDE MAN**

**Tyler Cash ('12), American Studies**

On the surface the film Inside Man starring Denzel Washington and Clive Owen appears to be yet another heist movie that keeps the viewer enthralled and on the edge of their seat waiting for the plot to take them on a ride. Many people do not even realize it is a Spike Lee joint, or rather they are shocked to realize it. Even when he is presented with an opportunity to create a big Hollywood film, he still manages to embed his own societal critique within the film while the viewer remains oblivious due to the plot twists. Once the film is stripped of its amazing camera work, the ever evolving plot line, and the big names of the cast it becomes clear that the film Inside Man is at its core a Spike Lee joint that handles issues of class, race, power dynamics, corruption, among other contemporary issues that America faces in the post 9/11 era.

**NATURE AND COGNITION**

**Ines Castro ('14), Benjamin Brassord ('14) and Natasha Ziv ('14), Psychology**

Previous research shows that exposure to nature has restorative effects on attention and performance on short-term memory tests. Merely viewing photos of nature has been shown to have equal restorative effects, implying that restoration is primarily a result of visual processing. However, questions remain about what specific aspects of natural settings cause restoration. The present study explores the effects of the expansiveness and novelty of nature on cognition. Specifically, this study aims to attribute increased performance on the backwards digit span task (BDS), a measure of short-term memory, to being induced by either looking at expansive images (such as landscapes) or unusual images (such as an exotic plant or interesting rock formation). The participants liking of the picture was also predicted to have an effect on their BDS performance. To measure the restorative effects of nature images, the study combines variables in four conditions to test the effect of each one separately, and each participant was asked to rate how much he or she liked each picture. Contrary to previous research, participants in this study did not demonstrate improved performance after viewing the nature images, nor did they show an improved performance as a result of viewing pictures they rated more favorably. These findings point to the importance of stimulus consistency and suggest that the photos compiled could have been inconsistent within each variable, thus disrupting attention restoration.

**SMALL RODENT POPULATION DYNAMICS AND MOVEMENT IN A FRAGMENTED LANDSCAPE**

**Mark Chaffin ('12), Biology**

As anthropogenic stresses increase landscape fragmentation, the response of local plant and animal populations becomes of increasing concern in terms of guiding management decisions. We studied the spatial and temporal dynamics of small rodent populations in an experimentally fragmented grassland landscape in Kansas undergoing succession. Specifically, we addressed the following questions: 1) Does increased fragmentation influence mammal movement or population size? 2) If so, do animals respond to fragmentation similarly regardless of species? 3) As plant succession proceeds over a nine year period (1994-2002), do mammal responses to fragmentation change? We found clear successional patterns in rodent abundance over time at the landscape level: white-footed mice colonized the habitat in later years as deer mice and prairie voles declined in abundance. Small mammals displayed species-specific preferences for patch size as we observed differing relative abundances on small versus large patches. Additionally, fragmentation influences the amount of movement by small rodents. For testable species, if rodents moved, individuals moved farther on small patches than large. Furthermore, a higher proportion of individuals did not move significant distances on small patches than large patches which can likely be explained by the increased risk of traveling through exposed, interstitial space. Species showed distinct distributions of captures on edge traps versus central traps on large patches suggesting that a possible preference for edge habitat may influence movement patterns on small patches. We also observed some species-specific movement patterns through successional time. These altered behaviors have implications for conservation and restoration of potentially fragmented landscapes.

**SCHULD IN AKIF PIRINCCIS FELIDAE (GUILT IN AKIF PIRINCCI'S FELIDAE)**

**Rebecca Chenard ('12), German/Russian**

In this paper I will discuss silenced guilt in Akif Pirincci's 'cat detective' novel Felidae. Specifically, I will address how the events in the novel correspond to German guilt after the Second World War by examining how the cats ignore or are silent about the terrible cat murders in their district. I will look at silenced guilt as it relates to the individual, society, and history.

**THE SUN AND THE MOON IN BULGAKOV'S MASTER AND MARGARITA**

**Rebecca Chenard ('12), German/Russian**

I will present on the symbolism of the sun and moon, light and dark, day and night in Bulgakov's novel Master and Margarita. Specifically, I will discuss how the sun and light are connected with power that destroys individual thought, while the moon and darkness are associated with creativity, imagination, and the existence of multiple truths.

#### **INTEGRATION OF MULTISENSORY SIGNALS TO CREATE MOTION PERCEPTION**

##### **Abigael Cheruiyot ('12), Mathematics**

The information about a human body's orientation and movement in space is presented to the brain through various senses such as visual, proprioceptive, and vestibular cues. The reliability of each cue in different motion behaviors may vary, thus the brain is presented with the challenge of integrating various information in order to create one accurate perception of motion. A survey by Thomas Mergner in 2002 suggested the presence of one common kinematic reference system that creates internal reconstruction information from multiple sensors. More experiments have confirmed the presence of such a reference system, and a population of neurons involved has been identified. Mathematical modeling has also revealed preferred methods of integrating the information from various signals depending on their reliability. Here, I present a brief overview of our current understanding of method used to create motion perception.

#### **THE INTERPERSONAL EFFECTS OF NATURAL VERSUS URBAN BACKGROUNDS ON OUR PERCEPTION OF OTHERS**

##### **Abigail Cooper ('15), Julia Blumenstyk ('14), Norah Flynn ('14) and Mikaela Mintz ('14), Psychology**

A great deal of research has been conducted on the cognitive, physical, and restoration benefits of the presence of nature, yet none have carried these effects over to the interpersonal realm. This study explores the relation between the participants ratings of attractiveness, likeability, honesty, and trustworthiness of an individual and the environment in which the individual is shown. In order to do this, faces were put in front of a nature, urban, or white background and were rated on the qualities mentioned above. Results show a main effect for background was found, meaning that the manipulation of background for the portraits did affect the overall ratings of people. This effect showed that the urban background significantly lowered peoples ratings of others, but nature did not significantly improve them from a control background, which scored the highest on average. Future research could explore the damaging effects of an urban environment on our ratings of others, as well as why blank backgrounds seem to lead to the most positive perception of others.

#### **THE NORMALIZATION OF ALCOHOL ABUSE THROUGH POPULAR MEDIA**

##### **Cordelia Cowan ('12), American Studies**

This project examines the link between the alcohol-related behaviors we see on campuses like Colby's and those behaviors consistently reflected in films or on television. To do so effectively, it is necessary to consider media effects theory, statistical evidence found in published alcohol use and abuse studies, and popular media texts like Friday Night Lights or Gossip Girl. In evaluating a variety of popular texts, I lean most heavily on Albert Bandura's theory of social learning and George Gerbner's theory of social reality. In applying these theories to the texts, then comparing my observations to the statistics provided by the alcohol studies, distinct patterns emerge regarding the media's representations of the alcohol-related behaviors of certain groups. In this project, I focus on representations of student drinkers, male and female drinkers comparatively, and drinkers who are members of an exclusive group such as a fraternity, sorority, or athletic team. The patterns evident in the popular media's treatment of these groups in relation to alcohol normalize, reflect, and even have the ability to alter the behaviors of audience members everywhere.

#### **THE SOUNDS OF SUMMER**

##### **Max Cushner ('14), East-Asian Studies**

This paper covers the sound aspect of the movie Summer Wars.

#### **NEUROPROTECTION BY POSTNATAL CHOLINE SUPPLEMENTATION IN A RAT MODEL OF FETAL ALCOHOL SYNDROME**

##### **Angelica D'Aiello ('12), Psychology**

Exposure to alcohol during prenatal development has devastating, lifelong effects. In a rat model of fetal alcohol syndrome the characteristic cognitive deficits are prevented by postnatal supplementation with the essential dietary nutrient, choline (e.g. Thomas, 2009). These effects are robust on hippocampal-dependent tasks, suggesting that choline may be having its neuroprotective effect by acting on the hippocampus. In the present study we assessed the capacity for choline supplementation to protect against declines in adult hippocampal neurogenesis and degeneration in the prefrontal cortex induced by fetal alcohol exposure. Timed-pregnant Sprague Dawley rats were administered liquid diets beginning on gestation day 8 and continuing until birth: half of the dams diets contained 355 kcal of ethanol and half did not. At birth pups were cross-fostered to control fed mothers and weaned on postnatal day (PD) 25. At this time half of each group received a standard choline diet containing 1.1 g/kg choline and half received a choline supplemented diet containing 5 g/kg choline. On PD 56 rats were sacrificed and brains retained for immunohistochemistry of the new neuron marker, doublecortin, and degeneration marker, Fluor Jade B. We predict that those rats exposed to ethanol in utero will display fewer new hippocampal neurons than control rats and this effect will be prevented in choline-supplemented rats. These data will enhance our understanding of choline's neuroprotective effects in a rat model of fetal alcohol syndrome and ultimately novel treatment approaches such as this dietary intervention offer provocative new directions in preventing and ameliorating damage to the developing nervous system.

#### **DETERMINING WHERE PARA-CALIXARENES GAIN AN ADDITIONAL DEGREE OF FREEDOM**

##### **Stefan Davatz ('13), Chemistry**

Calix[4]arenes consist of four benzene rings linked with carbon atoms, originally in meta positions on the benzene rings, into a macrocycle. If two opposite benzene rings have the carbon linkers in para positions, they should theoretically be able to rotate around these bonds. By adding an ester group onto each of these two benzene rings we create two stereoisomers, which we can distinguish by NMR. Though we can see slight broadening of the peaks as we increase the temperature, we cannot reach the temperature that lets the isomers freely convert into each other. Our next step is to separate the isomers using HPLC. We hope that when we heat them after isolation, they would equilibrate to their initial ratio again.

#### **CAPITAL CONTROLS IN EMERGING MARKETS**

##### **Kathleen Davis ('12), Economics**

Capital flows have become increasingly more volatile over the past decade, causing growing concern in emerging markets over the potential damages large sudden capital inflows and outflows can cause those economies. Capital controls have been used

since World War I as a way to try to control these flows. After being abolished nearly everywhere, they have recently been reintroduced in a number of countries. The main analysis of this paper looks at the effect of the capital controls on capital inflows from 2000 through 2010 in an 8 country sample of emerging markets who have recently implemented changes in their capital control policies: Brazil, Colombia, Indonesia, South Korea, Peru, South Africa, Thailand and Turkey. The paper adds to the current literature by contributing a cross-country analysis, as well as by using a more sophisticated measure of capital controls. Despite these measures, this paper finds that there is no robust evidence that capital controls significantly reduce short-term or long-term inflows, confirming the results of previous literature. Thus, this paper concludes that the use of capital controls as one way to control the volatile capital flows cannot be supported.

#### **IMPACT OF NUCLEAR AND FOSSIL FUEL ENERGY ON HUMAN HEALTH**

**Charles Davis ('13) and John Mauer ('13), Environmental Studies**

From an economic perspective, nuclear energy is a viable alternative to fossil fuel combustion. Nuclear power has low fuel costs associated with power generation making it an attractive alternative source in the future with the potential to service an increase portion of the world as non-renewable fossil sources are depleted. However, observing the viability of nuclear energy from a human health perspective yields potentially conflicting results. Studies conducted on both large nuclear disasters and low-dose level emissions have revealed a statistically significant impact on human health from nuclear radiation. However, increased risk from these exposures appear to differ little from everyday background radiation that affects the public, even when observing the excess risk for those most directly affected populations. Increased exposure to air pollution was shown to have more than twice excess risk of mortality than radiation exposure. Given current available information, continuing to invest in nuclear energy in place of fossil fuel combustion will have a positive effect on human health in the future.

#### **POST CIVIL-WAR: BLACKS IN THE NORTH AND COLBY'S JANITOR SAM**

**Julia Deutsch ('12), History**

In 1867 Samuel Osborne, a former slave, became an employee of Colby College. Using Osborne as a case study, I will examine the treatment of blacks in the North after the Civil War.

#### **FINANCIAL AND RACIAL INFLUENCES ON COACHING CHANGE DECISIONS IN NCAA BASKETBALL**

**Michael Doherty ('12), Economics**

It has always been generally accepted that the most important statistics for any coach are winning percentage and number of championships won. When determining the likelihood of being retained or fired these two metrics are clearly the dominant proxies for performance in any sport at any level. Therefore these proxies also seem like the most probable reasons for why any coach would be either fired or receive a contract extension. If the sports industry were perfectly competitive and efficient, it would make sense that coaches with the highest winning percentage and most championships (when compared to their reasonable team expectations of success) would be least likely to get the axe. On the other end of the spectrum, the coaches with low winning percentages and few or no championships would have to be seriously concerned about losing their job. Nevertheless, just as the result of sporting events are not determined on paper prior to the game, coaching employment decisions are not carried out solely as a product of mathematical calculations comprised of the performance variables winning percentage and number of championships won. Just as there are human errors committed in any sports contest there are also human errors to be accounted for in making managerial change decisions. Our research does in fact take into account the performance proxies when analyzing each coach's chance of survival. However, the main purpose of this experiment is to test whether there are other social and financial influences, which may be irrelevant to performance or sports altogether, incorporated into the decision making process of whether or not to fire a coach.

#### **A GUIDE TO TREES ON CAMPUS: DIGITAL MEDIA AND WALKING TOURS**

**Sylvia Doyle ('12) and Matthew Silverman ('12), Biology**

We identified and researched trees and shrubs on the main campus and create a walking tour for both Maine Native Plants, and Plantings of Interest. Working closely with the biology department and Physical Plant we will label important specimens to educate the public. Information included will be relevant to the average human, casual scientist, and expert botanist. We have compiled this information (locations, history, identifying features and two tours) and will have it available online and in printed/printable form.

#### **ATLAS OF MAINE: PREDICTED LYNX HABITAT AND CONSERVED LANDS**

**Sylvia Doyle ('12), Environmental Studies**

Lynx (*Lynx Canadensis*) potential habitat is merged with Maine's conserved lands to visually display conserved lands within lynx range. Lynx potential habitat, accessed at [geo.data.gov](http://geo.data.gov), was predicted through analysis of habitat, range limits, and sightings (Krohn et al. 1998). Maine conserved lands, county boundaries, and hillshade layers were accessed through the Maine Office of G.I.S. and the state and basemap layers through E.S.R.I. 10.

#### **MORAL CREDENTIALS AND THE LICENSING OF RACIST AND/OR HOMOPHOBIC BEHAVIOR**

**Adam Drago ('14) and Appalonia Tankersley ('14), Psychology**

Studies by Monin and Miller (2001) have provided evidence pointing to a moral licensing effect. This phenomenon occurs when a person has the opportunity to establish moral credentials by affirming their lack of bias towards a certain social group. Establishing these moral credentials effectively proves their lack of bias, giving them more leeway to behave in a biased manner later on. In our study, we decided to see if moral licensing occurred across domains, specifically the domains of race and sexual orientation. For example, if someone establishes moral credentials for sexual orientation, will those carry over to race, and vice versa. It was found that those who identified as the majority third of the population for sexual orientation demonstrated hiring bias for the sexual orientation domain. Likewise, males showed a greater hiring bias in the domain of sexual orientation however both sexes showed hiring bias in this domain.

#### **FUNCTIONS WITH DENSE GRAPHS.**

**Eli Dupree ('13), Mathematics**

As mathematicians, we spend a lot of time studying functions that are continuous, but it's also fun to look at functions that are so discontinuous that their graphs are dense in the plane! This talk presents one such function, and our proof that its graph is dense gets into the structure of the rational numbers and some neat consequences of the Prime Number Theorem.



### **PRENATAL CHOLINE AVAILABILITY INFLUENCES STRESS-VULNERABILITY AND EMOTIONAL RESPONSES DIFFERENTLY IN ADULT MALE AND FEMALE RATS**

**Kristen Erickson ('12), Psychology**

The nutrient choline is essential in central nervous system development and availability in early life has lasting effects on neural function and behavior. There is convincing evidence that prenatal choline supplementation in rats and humans exerts marked neuroprotective effects against severe disorders such as fetal alcohol syndrome and epilepsy but also prevents age-related declines in plasticity and cognitive function. Choline levels may exert neuroprotective effects by increasing adult neural plasticity and neurotrophic expression. Interestingly, a failure in neural plasticity and diminished neurotrophic expression are believed to be important contributors to the pathology associated with a host of psychological disorders including depression. Going along with this, antidepressant treatments boost neural plasticity, particularly adult neurogenesis in the hippocampus: prenatal choline supplementation has the same effect. Recent work in our lab (Glenn et al., 2012) compellingly showed that choline supplementation early in life has an antidepressant effect in adult female rats. The aim of the present study was to extend these findings in two important ways: 1) by examining the interaction of diet and biological sex (depression in humans affects males and females differently, yet the majority of animal research on depression has been conducted with males), and 2) by examining both prenatal choline supplementation and deficiency, because choline supplementation appears to be neuroprotective, but choline deficiency leads to cognitive deficits and possibly to vulnerability to psychopathology.

### **SINGLE-ISSUE ELECTIONS AND PUBLIC PERCEPTION: HOW UNEMPLOYMENT, PRESIDENTIAL APPROVAL RATING, AND MILITARY CASUALTIES DETERMINE WHETHER AN ELECTION WILL FOCUS ON ONE DEFINING ISSUE**

**Andrew Estrada ('12), Government**

Understanding whether a presidential contest will be a single issue election (one in which the public perceives one issue to be of far greater concern than all others) is important in predicting the outcome. This paper explores how unemployment, presidential approval ratings, and military casualties determine whether an election will focus on one defining issue. This paper concludes that moderate to high unemployment and low to moderate presidential approval ratings both encourage an election to focus on a single issue. The amount of hostile military deaths, however, plays no consistent role. Furthermore, the majority of single issue elections in the modern political era have focused on the economy. What does this mean for the 2012 presidential election? While both President Obama and his Republican opponent will be assessed by voters on many issues, the current economic and military factors and presidential approval ratings indicate that this contest will focus on a single issue. That issue, as confirmed by recent public polling, is the economy.

### **THE INFLUENCE OF REGRET AND FRAMING EFFECTS ON HEALTH DECISION MAKING**

**Sarah Falkof ('12), Psychology**

We constantly face situations in which we need to make decisions. Decisions that impact our health are often viewed as some of the most important. Whether we are deciding on a certain treatment for an illness or taking preventative actions, we often consider information given to us from sources such as health centers, doctors, public health departments, and health insurers. This study investigates methods for influencing decision-making regarding preventative vaccine shots. Specifically, the research assessed the influence of message framing on regret and action likelihood. The present study found that in the experimental scenario, message framing of vaccine information and participants' action or inaction in getting a vaccine shot influenced participants' experienced regret after getting sick from an illness. In addition, the current research also examined the inaction inertia theory in the realm of vaccine decision-making.

### **PUBLIC HEALTH THROUGH A SOCIOLOGICAL LENS: USING THE SOCIAL DETERMINANTS OF WOMEN'S HEALTH TO COMBAT HPV AND CERVICAL CANCER IN WOMEN THROUGHOUT SUB-SAHARAN AFRICA**

**Amanda Ferguson ('12), Sociology**

Cervical cancer is the most common cancer among women on the African continent. Globally, there are over 500,000 new cases of cervical cancer annually, with more than 83% of those cases occurring in developing countries (Kerr 2009:5). Most forms of cervical cancer are caused by preventable strains of HPV. Women in sub-Saharan Africa are dying from the disease at a rate that is 24 times greater than that of the women in the United States. The divide in rates of cervical cancer between sub-Saharan Africa and the developed world stems from multiple social determinants of disease. Unfortunately, although it is a major epidemic among women in sub-Saharan Africa, the disease of cervical cancer is receiving very little international attention. Because the region of sub-Saharan Africa is plagued by other infectious diseases, such as HIV/AIDS, cervical cancer has fallen behind on the public health agenda. Additionally, there are many social and cultural behaviors that are making HPV and cervical cancer common in the sub-Saharan region. Pervasive gender norms and poor access to and quality of healthcare have prevented the subcontinent of Africa from making progress towards stopping the spread of HPV and cervical cancer. Additionally, HPV/cervical cancer are closely related to the HIV/AIDS epidemics. Innovative programs that integrate screening and treatment procedures for both diseases have been effective in reducing rates of both diseases, and should be considered as a long term solution for these diseases. In order to end the spread of HPV/cervical cancer in this region of the world, it is necessary to combat the social determinants of this disease in order to make substantial progress.

### **STUDENTS PROTEST FOR SOCIAL JUSTICE**

**Gordon Fischer ('13), African Studies**

A short film by Gordon Fischer. On Monday, March 26th, 2012, over 320+ students from 14 different states requested a meeting with Albert Lord, the CEO of Sallie Mae. They wanted to negotiate and discuss student loan debt, which in America is now over 1 trillion dollars. Sallie Mae refused to meet and instead called the police, who promptly arrived and arrested 36 students. When I was walking by 7th St on Pennsylvania Avenue I heard chanting and sirens and knew I should be filming whatever was happening. This short film is the result.

### **TZEDEK CHEVRATI: SOCIAL JUSTICE PROTESTING IN ISRAEL**

**Lauren Fisher ('13) and Gordon Fischer ('13), Religious Studies**

The summer of 2011 brought to Israel a mass mobilization of the public. Beginning in early July, the hundreds of thousands of Israelis moved into tent-communities across the country in protest of the rising cost of living. On July 14, 2011 Israel joined the global protest phenomena, shouting for social justice. The movement began when Daphne Leef, a twenty-five-year-old video editor, pitched a tent in Tel Aviv's Habima Square. Leef posted a Facebook page, asking others to join her dissent from the rising cost of living. Just a day later, fifty tents appeared on Tel Aviv's main road, Rothschild Boulevard, and twenty tents appeared in the heart of Jerusalem. By the end of the summer, 500,000 Israelis took the streets in Israel's three major cities Haifa, Tel Aviv, and Jerusalem embodying the slogan haam doresh tzedek chevrati, the people demand social justice. The J14 movement, named

for the date Daphne pitched the first tent, yielded the highest number of protesters per capita in the world, a percentage comparable to 19.4 million Americans. What began as a search for government reform ultimately transformed into an effort to redefine the social paradigm from one of fractured individualism to one of solidarity and community. Our documentary and lecture explores the unrequited mutual obligation between the citizen and the state and the way in which this Israel's demonstrations are imbued with senses of national pride rather than anger or dissent.

#### **DOES PRENATAL POLYCHLORINATED BIPHENYLS EXPSURE AFFECT INTELLIGENCE?**

**Megan Flaherty ('13) and Kassandra Sullivan ('13), Environmental Studies**

Polychlorinated Biphenyls are organochlorines that mimic the thyroid hormone, thus interfering with proper thyroid function. Proper thyroid hormone homeostasis is necessary for healthy neurological development. For one study, the prenatal PCB levels were measured by testing the infants umbilical cord blood and the results showed a positive correlation between greater PCB cord blood levels and poor test performance at both ages. A study done on Taiwanese people exposed to high levels of PCBs through contaminated rice oil found their children to be born with retarded growth, delayed cognitive development, and more behavioral problems than unexposed children. As the PCB exposure increases, IQ levels, freedom from distractibility and verbal comprehension decrease. Individual associations with IQ were larger among the more highly chlorinated PCBs. But in this study, placental PCB levels showed a relationship with IQ, while chord blood PCBs did not. (Steward et al) PCBs were banned in 1972, but they are still a major environmental contaminant, for example in fish and rice oil. PCB levels in breast milk and maternal serum are correlated with consumption of contaminated fish. Since PCBs are persistent molecules and are still contaminating the environment, perhaps the next step in preventing PCBs exposure would be to warn consumers about the consequences of ingesting PCBs, especially while pregnant.

#### **HE GOT GAME**

**Benjamin Foreman ('12), American Studies**

As one of America's best filmmakers and biggest basketball fans, Spike Lee combines his two passions to create his film 'He Got Game' which uses Coney Island, one of the largest breeding grounds for N.B.A players, to challenge the notion that, for kids living in a troubled environment, sports is the only way out.

#### **ATLAS OF MAINE: MAINE WATER FEATURES AND DRINKING WATER SOURCES**

**Rebecca Forgrave ('14), Environmental Studies**

ArcGIS was used to create a map connecting water features in Maine people are familiar with to the sources of drinking water they use. These sources include public water wells, water utilities and surface watersheds used for the water supply. The lakes and rivers layers are clipped from a national dataset of water features produced by the U.S. Geological Survey. Wells, water utilities, and surface watersheds data are from the Maine Office of GIS.

#### **'THIS IS MY REALITY': FANTASY AND REALITY IN SPIKE LEE'S GIRL 6**

**Ruth Frank-Holcomb ('12), American Studies**

In Girl 6, Spike Lee explores the tenuous relationship between fantasy and reality. Through the use of cinematography, intertexts and dissonance, Lee emphasizes the constructed nature of womanhood, explores film as a medium caught between fantasy and reality, and stresses the danger of blurring the line between fantasy and reality.

#### **A ROOM OF OUR OWN: MAKING SPACES FOR STORIES OF SEXUAL VIOLENCE, FROM CONSCIOUSNESS-RAISING TO THE FEMINIST BLOGOSPHERE**

**Ruth Frank-Holcomb ('12), American Studies**

Firsthand accounts of sexual violence are appearing in comments across the feminist blogosphere. There are many notable parallels between this online trend and the personal stories of sexual violence that emerged within consciousness-raising groups during the early 1970s. In this project, I provide a study of the consciousness-raising movement and the feminist blogosphere, and explore the similarities between the two. In doing so, I hope to demonstrate that feminist blogs currently function as modern-day consciousness-raising groups. Consciousness-raising groups created spaces where women could safely and effectively share their personal accounts of sexual violence. I argue that women continue to need such spaces today, and that they have found them on feminist blogs.

#### **CRITERIA FOR A SUCCESSFUL LARGE MAMMAL REINTRODUCTION**

**Susan Gagliardi, Lucas Haralson ('14) and John Mauel ('13), Environmental Studies**

Success of large mammal reintroduction depends on a complex set of interactions between factors ranging from the biology of the animals, to the number reintroduced, to various human pressures. Here, we present a criteria for a successful large mammal reintroduction and use it to analyze two recent attempts, gray wolves in Yellowstone National Park and Przewalski's horses in Hustai National Park, Mongolia.

#### **INTERSPECIFIC TRENDS OF INCREASING NORTH AMERICAN BIRD POPULATIONS**

**Susan Gagliardi, Biology**

Understanding what factors drive changes in species abundances in space and time is a fundamental question in both basic and applied ecology. Though much research has been devoted to understanding declining trends in many North American birds, little is known about the dynamics of increasing bird populations. Using data from the North American Breeding Bird Survey, we aimed to 1) identify which bird species increased in overall abundance over the last 30 years; 2) identify what species traits may contribute to the shifts in abundance we observe. Out of 371 species in our data set, we found that 80 species increased significantly between 1970 and 2007. We analyzed data from 56 of these species using rank occupancy-abundance profiles (ROAPs) to partition abundance gains between increases in maximum local density and those due to newly occupied sites. We found that the least abundant species in 1970 were more likely to colonize new sites than the more common species. We also found that the magnitude of these shifts in occupancy was related to a species body size and habitat use. We found no relationship between any of these factors and increased abundance from change in maximum density per site.

#### **DOES PHTHALATE EXPOSURE IMPAIR REPRODUCTIVE DEVELOPMENT?**

**Catherine Gallagher ('12) and Sarah Fensore ('13), Environmental Studies**

Phthalates are a type of compound used in the manufacturing of many plastics and personal care products that people use every day. Studies have shown that phthalates have an antiandrogenic effect and decrease testosterone production. High levels of phthalates have correlated with decreases in reproductive development in rats and humans, making male infants the most at risk population.

#### **MODULATION OF BEHAVIORAL OUTCOMES BY CHOLINE IN MALE RATS WITH EXTENSIVE HIPPOCAMPAL DAMAGE**

**John Gardner ('12) and Sean Padungtin ('13), Psychology**

Choline is an essential nutrient with critical functions in the brain. Levels of choline during pre- and postnatal development exert marked and lasting effects on the functioning of the basal forebrain and hippocampal cholinergic system. Consequently, early life choline supplementation enhances memory function and emotionality in adulthood. The major aim of this study was to determine whether these effects of choline occur through actions on the hippocampus (HPC). On postnatal day (PD) 25, male, Sprague-Dawley rats were placed on a standard (1.1 g/kg) or supplemented (5.5 g/kg) choline diet. After 6 weeks on these diets, rats underwent either an excitotoxic lesion of the hippocampus or sham surgery. Rats continued on the diets for a recovery period of 6 weeks at which point we conducted a battery of behavioral tests to assess mood and memory: anxiety was assessed using the elevated plus maze and open field test; spatial memory was assessed in a water maze; and memory for objects, object placement, and object in context was assessed using a novelty preference paradigm. Among non-lesioned rats we consistently observed less anxiety and enhanced memory function in choline-supplemented rats compared to standard-fed rats without an HPC lesion. However, both the standard-fed and choline supplemented rats with HPC lesions displayed deficits on the memory tests. These results suggest that choline's effects on emotional behavior are occurring via actions outside the HPC while its effects on memory occur through actions on HPC function.

#### **STREAMLINING PSAS: EFFECTS OF AD FRAMING AND REGULATORY FOCUS ON MESSAGE PERSUASIVENESS**

**Cynthia Garvin ('12) and Carolin Maney ('12), Psychology**

The study examined how advertisement framing and viewer chronic regulatory focus affected the message persuasiveness of public service announcements. Two forms of advertisement framing were examined: behavior frame do something or dont do something, and ad outcome achieve something good or avoid something bad. Participants rated the persuasiveness of five sets of advertisements, each for a target behavior: sex, alcohol, driving, exercise, and academics, respectively. Each set consisted of four versions of ad messages to elicit the target behavior based on a) the framing of the behavior as do something or dont do something and b) the framing of the outcome of the action as achieve something good or avoid something bad. Results showed that, regardless of participants regulatory focus, messages framed in terms of do something and achieve something good were more persuasive than messages framed in terms of dont do something and avoid something bad. Results showed a marginal effect for the interaction between regulatory focus and ad outcome on message persuasiveness. The findings can be applied to increase the effectiveness of Public Service Announcements and Health Education Campaigns.

#### **ELEPHANT MANAGEMENT IN AFRICA**

**Laura Gigliotti ('12), Colleen Kenny ('12) and Sara Mason ('12), Environmental Studies**

There have been many variations in the management strategies used to protect African elephants within the last century as population levels and ecological views have changed. Elephants are ecosystem engineers and greatly impact the state of the savanna where they live, and this can drastically affect the other wildlife that utilize these areas. Should we let elephants live naturally, or should we try to alter their environmental impact in order to allow for a more varied ecosystem? Elephant-human interactions and elephant conservation in regard to poaching must also be considered when creating an effective management plan. To illustrate various methods of management and what has and has not worked in the past we examined two case studies detailing different types of management strategies. Finally, we have created a list of recommendations and considerations important to elephant management that we believe are the most vital to address when creating a conservation plan.

#### **ATTITUDES OF COLLEGE STUDENTS ON RACE/RACISM**

**Jenifer Goldman ('12), Madeline Caplan ('12), Victoria Falcon ('15), Katherine MacNamee ('14) and Cecil Papafio ('14), Psychology**

Participants completed a simple survey with questions developed by modifying the Modern Racism and Social Dominance Scales (Pratto, Sidanius, Stallworth, & Malle) to reflect experiences of college populations. Nearly 500 participants, both in the CCOR group and in introductory psychology, completed the survey that included 63 likert scale items (1=Strongly agree; 5= Strongly Disagree) as well as demographic information. Our hypothesis was that white, male students are most likely to reflect biased attitudes against people of color or attitudes demonstrating lack of awareness about white privilege. According to the dependent variables established in the survey, this means that white males are more likely to believe that blacks and whites are afforded equal opportunities, that racial jokes are appropriate, that activism and dialogue are not everyones responsibility, that appearance gives an accurate representation of race, that people of color are over-sensitive, and that whites are not insensitive. The most significant result supporting this hypothesis concerned the issue of activism and dialogue: white males were significantly less likely to believe that activism and dialogue are not everyones responsibility than were members of any other demographic. Furthermore, CCOR-interested students were more aware of lack of equality for people of color, and less likely to see people of color as highly sensitive and more likely to see whites as insensitive. CCOR-interested students were no different in their attitudes about racial jokes, whether physical appearances reflect racial differences, or in attitudes regarding responsibility. These results suggest that becoming racially-empowered depends on ones relationship to privilege.

#### **THE SELF-ESTEEM CONUNDRUM: MEDIATING MECHANISMS BETWEEN PARENTING STYLE AND CHILDREN'S AGGRESSION**

**Jenifer Goldman ('12), Psychology**

A great deal of literature has examined the effects of parenting style on childrens outcomes (Baumrind, 1973; Maccoby & Martin, 1983), and have specifically found connections between parenting styles and childrens later aggression (e.g., Chen, 1997, Hart et al., 1998). What then, explains these relationships? One viable mediating mechanism is self-esteem. Authoritative parenting has been linked to high self-esteem, whereas authoritarian parenting has been linked to low self-esteem and higher levels of aggression (Baumrind, 1991). However, there is contention in the literature about whether aggression results from low self-esteem (e.g., Donnellan et al., 2005) or from overly inflated self-esteem (e.g., Sandstrom & Jordan, 2008; Bushman & Baumeister, 1998). In order to determine the role of self-esteem as a mediator between parenting style and childrens aggression, 81 Colby College students and 204 participants from an Internet sample completed a survey measuring the type of parenting style they experienced as children, as well as their explicit self-esteem, implicit self-esteem, behavioral aggression, trait aggression, and hostile emotions. Results suggest that high self-esteem serves as a mediating mechanism between authoritative parenting and low aggression, but while authoritarian parenting and low self-esteem each predicts higher aggression,

authoritarian parenting does not predict low self-esteem.

### **THE ADVERSE EFFECTS OF URBAN AIR POLLUTANTS ON CHILD HEALTH**

**Siya Hegde ('13) and Emily Niemi ('12), Environmental Studies**

Over the years, increased human exposure to hazardous air pollutants has resulted in unprecedented health consequences. Children stand among the most vulnerable members of the population, as they spend more time outdoors than adults and have underdeveloped immune systems. This study assesses some of the major air pollutants affecting children's health and various sources of exposure that result in systemic illnesses. It also highlights some of the key domestic policies that focus on alleviating air pollution, and suggests future plans of action that focus on preventing these environmental exposures.

### **BDNF KNOCKOUT COMPROMISES ADDICTION RELATED REWARD PATHWAY FUNCTIONING**

**Samuel Helm ('12) and Robyn St. Laurent ('12), Psychology**

Addiction and relapse are two issues that complicate the lives of individuals across the world. BDNF, a mechanism integral to addiction formation, has been shown to facilitate neuroplasticity in the reward pathway, reinforcing the addiction through structural changes in the region. The present research investigated the impact of incomplete expression of BDNF, via a monoallelic deletion, and the subsequent alterations in the standard reward seeking model when addicting rats to cocaine. The results suggest that the BDNF knockout resulted in insignificant reward seeking behavior measured in a CPP, while wildtype rats that received cocaine showed statistically significant preferences for the drug conditioned side. DCX+ neurons measuring for neurogenesis indicated expected decreases in those rats that exhibited incomplete BDNF expression, but were not significantly different from their wildtype counterparts. BDNF ELISA analysis also suggest that those rats that began the test with lower levels of BDNF did not receive the same reward from the drug as their high BDNF counterparts.

### **MORE THAN JUST NONSENSE VERSE?: THE LANGUAGE OF DR. SEUSS AND CHILDREN'S LITERACY**

**Nicole Hewes ('12), Education and Human Development**

This study examines the relationship between language use and textual understanding by exploring childrens performance on a narrative comprehension task after being exposed to either an authentic Dr. Seuss story or a prose, pseudo-Seuss text stripped of the distinctive language features of Dr. Seuss (i.e. rhyme, meter, alliteration). Previous research in this area has suggested that increased linguistic complexity (rhymes, alliteration, phonological similarity) negatively impacts comprehension. These previous studies, however, have not examined the impact of language use on higher-order comprehension tasks, particularly at the inferential or evaluative levels of comprehension. The present study assessed the narrative comprehension of students in both the authentic Seuss and pseudo-Seuss conditions on both lower-order and higher-order comprehension tasks. In this study, students in the authentic Dr. Seuss condition scored higher on both higher-order and overall comprehension than the students in the pseudo-Seuss condition. These findings contradict the previous research and suggest that language features and linguistic play may increase higher-order comprehension skills and be an effective way for conveying difficult or complex ideas to young readers. Implications related specifically to the Dr. Seuss stories are discussed.

### **SPONTANEOUS LORENTZ SYMMETRY BREAKING AND COSMOLOGY IN FIVE DIMENSIONS**

**Austin Hoag ('12), Physics and Astronomy**

Nearly a century ago, Albert Einstein developed general relativity, a classical mathematical framework for understanding gravity as a warping of the fabric of spacetime. While accurate in describing the universe on large scales, general relativity is incompatible with quantum mechanics at the smallest known length scale in the universe, the Planck scale. Theories of quantum gravity, most notably string theory, attempt to unify gravity with quantum mechanics at this scale. The unification comes with a cost. In some cases, it suggests that Lorentz symmetry, one of the tenets of general relativity, is violated. One theory incorporating Lorentz violation, known as the Standard Model Extension (SME), predicts several parameters that may represent background fields in our universe. Such background fields may have once been present earlier in the history of the universe, but could have been suppressed as the universe expanded to its present state. Using Wolfram Mathematica, we investigated the fate of a single SME parameter in an expanding universe. We found that this parameter could not be entirely suppressed and would have already been detected if it existed. The SME arises from string theory, which suggests that there may be hidden additional spatial dimensions to our universe. By extending our cosmological model to incorporate a single extra dimension, we examined the possibility for the parameter to have been suppressed entirely within it during cosmological expansion. We found that even with the hidden dimension, the parameter could not be entirely suppressed within the familiar three dimensions of space.

### **CAMERAS, SATELLITES, AND SURVEYS: A MULTI-PLATFORM APPROACH TO MONITORING LAKE CONSERVATION BEHAVIOR**

**Daniel Homeier ('12), Environmental Studies**

Shoreline buffers are essential to maintaining lake water quality and there are numerous methods for their assessment. However, there is uncertainty in the benefits and drawbacks of different shoreline buffer assessment methods. In this study I explore three methods of remotely assessing shoreline buffers in the Belgrade Lakes Region of Maine: household surveys, geotagged shoreline photos, and satellite imagery. By comparing these three methods I aim to evaluate their accuracy and applicable scale when used to assess the presence or quality of shoreline buffers. I used both parametric and non-parametric analysis to (1) evaluate the relative accuracy of 154 household surveys in identifying buffer presence or quality, (2) compare experts in their buffer assessment of 98 geotagged photos of buffers, (3) assess the accuracy of approximately 450 million square meters of classified Geoeye-1 imagery, and (4) compare the three buffer assessment methods across lakes and demographic factors. Relative to an expert, shoreline residents accurately identified the presence of buffers while significantly overestimating their extent and quality. Experts differed in how they assessed the extent and quality of buffers. Classified satellite imagery was not significantly related to an experts buffer presence or quality assessment. While not significant, inter-lake comparison found that North Pond residents assess buffers slightly differently than Great Pond or East Pond residents, especially when considering income distribution. These findings suggest that household surveys and geotagged shoreline photos are valuable tools for evaluating shoreline buffers. Satellite imagery is informative at a lake or watershed scale, but has limitations at a lot scale.

### **THE EFFECT OF EMOTIONAL STATES ON SOCIAL BEHAVIOR**

**Lisa Hoopes ('13) and Lindsay Hylek ('12), Psychology**

The present research examines whether betrayal leads to antisocial behavior, while replicating the finding that guilt results in prosocial behavior. Participants were randomly assigned to one of three conditions (guilt, betrayal, neutral) and were each presented with two emotion inducing film clips. All participants were then presented with three vignettes, differing only in the targeted person a friend, acquaintance, or antagonist while the scenarios remained the same. We hypothesized that after watching film-

inducing video clips, participants feeling betrayed would likely behave more anti-socially, those experiencing guilt would behave more pro-socially, and those in the control condition would behave pro-socially towards a friend, but not a stranger or antagonist. A 3x3 mixed ANOVA was conducted and no significant differences between the three conditions (guilt, betrayal, neutral) were found. There was a significant difference within the friend, acquaintance, and antagonist conditions, and follow-up tests were conducted to explore the changes in betrayal and guilt regarding these scenarios. Individuals experiencing betrayal treated a friend and acquaintance the same at the highest level of pre and post-experienced betrayal. Therefore, these findings supported our hypothesis that individuals experiencing betrayal would act less altruistically.

#### **BPA AND BEHAVIORAL DISORDERS**

##### **Katherine Houser ('13) and Melissa Krause ('12), Environmental Studies**

We investigated how bisphenol A (BPA) exposure affected behavior through a literature review. The literature found that perinatal exposure to BPA, in male rats, developed a feminized profile that resembled the female control rats (Adriani, Seta, Dessi-Fulgheri, Farabollini, & Laviola, 2003). Another study found that nonsocial behaviors, like anxiety, exploration, and locomotion, were influenced by BPA exposure in rats. In males, anxiety was affected, and in females, activity was affected (Farabollini, Porrini, & Dessi-Fulgheri, 1999). Overall, it is clear that BPA does in fact affect behavior, and can lead to behavioral disorders. A key component to this research is determining the differing effects in male and females.

#### **CHURCH FORESTS IN ETHIOPIA**

##### **Jillian Howell ('12), Environmental Studies**

While the majority of Ethiopia's forests have been cleared for agriculture, pasture land and human settlements, religious communities across the country have conserved fragments of native forests around churches. These church forests have endured for centuries with some dating back to 300 A.D. and in many cases their conservation has occurred without the use of formal property boundaries as means of protection. Today there are as many as 35,000 church forests in Ethiopia, ranging in size from a single hectare to vast forest landscapes of more than 300 hectares. Using archived satellite imagery, ArcGIS, and spatial analysis, changes in church forest size and density in the Gondar region of Ethiopia over a thirty year period are explored.

#### **OUT OF THE MOUNTAINS AND INTO YOUR BODY: MOUNTAINTOP REMOVAL MINING AND HEART AND LUNG DISEASE**

##### **Jillian Howell ('12), Kristin Marks ('12) and Noah Teachey ('13), Environmental Studies**

Mountaintop removal (MTR) mining is a popular form of mining in Appalachia though the process results in the release of heavy metals, carcinogens, and particulate matter. Mining, including MTR mining, has been linked with increased rates of negative cardiovascular and lung health outcomes in Appalachia. Current policies regarding MTR coal mining do not adequately protect human health; stricter permitting processes are recommended. Future research is necessary to determine the specific impacts of MTR mining in contrast with underground mining.

#### **DIE DEUTSCHE SCHRIFT? TYPOGRAPHY BETWEEN TRADITION AND MODERNITY IN WEIMAR AND NAZI GERMANY**

##### **Susannah Hufstader ('12), History**

This paper focuses on typeface design and the role it played in the construction of German cultural identity during the Weimar Republic and the Third Reich. The project traces the separate development of blackletter (gothic-style) and roman typeface in Europe, questioning the extent to which those designs reflected cultural identity and ideology by the 20th century. In Weimar Germany, debates over typeface design and aesthetic identity in general reflected tensions between what cultural conservatives considered the traditional and true German way and a modernist approach to design that sought to embrace the possibilities of modernity. Although the conservative strain of cultural thought played a role in the development of National Socialist ideology, the Nazi relationship to aesthetics between tradition and modernity was complex; there were continuities between Weimar and Nazi culture that reflected a break with many aspects of traditional rhetoric. At the same time, traditional typeface persisted through the 1930s as enthusiastic followers of the Nazis identified blackletter as the proper German type and assumed its place as the face of National Socialism, despite more modernist preferences among Nazi officials. This project seeks to explain cultural responses to the crisis of modernity and aesthetic continuities between Weimar and Nazi Germany by examining trends in typeface design until a Nazi ban on blackletter type in 1941.

#### **FEMININE FELINES: CONSTRUCTIONS OF CATS AND WOMEN IN GERMAN LITERATURE**

##### **Susannah Hufstader ('12), German/Russian**

This paper examines the feminization and sexualization of cats in literature and the effects of such characterizations. In order to explain the nature or personality of an animal, one must adopt human characteristics to describe otherwise inexplicable animal behavior. In the case of cats, those descriptions reflect unease with our inability to observe; a cat's ability to defy the human gaze is equated with mysteriousness, untrustworthiness, and, in some cases, danger. By equating those characteristics, along with physical attractiveness, with a seductive female, the male subject acquires a means by which to explain the existence of the cat, even if that explanation is centered on the inability to observe and define the creature's ways. Once the cat is described in terms of the woman, the woman may in turn be oversimplified and defined in terms of the cat, whose character is now universally understood as attractive but untrustworthy. This paper examines poems by Rainer Maria Rilke, Ren Schickele, Eugen Roth, and Joachim Ringelnatz, as well as a short story by Richard Dehmel, in order to show this connection between characterizations of cats and women. More generally, the paper will highlight the potential for anthropomorphic descriptions of animals to create simplifying and often demeaning ways to describe humans.

#### **THE EFFECTS OF RACIAL STEREOTYPES ON CHILDREN'S ACTOR JUDGMENTS**

##### **Brittany Hughes ('12), Psychology**

This study examined the effects of race and actor valence on pre-school children's personality judgments and consequence assignments. Participants were assigned to one of two groups (black protagonist; white protagonist) and then rated the personality of and assigned a reward or punishment to each actor.

#### **GASTRONOMY REINVENTED: AN INVESTIGATION INTO MODERN CUISINE IN THE CHEMISTRY LAB**

##### **Simran Jaising ('12), Chemistry**

What is the difference between a kitchen and a lab? What does it mean to have a modernist pantry? Are food professionals and scientists really that different? This past year I worked under the support of the Chemistry department to deconstruct cooking processes behind modernist cuisine. Modernist Cuisine, or Molecular Gastronomy, is a form of cooking which takes advantage of

scientific innovation to transform the taste and/or presentation of food. This gastronomy movement uses chemistry and physics to understand why hydrocolloids, salts, polysaccharides, enzymes, modified food derivatives, and other ingredients act the way they do and how they can be manipulated to achieve new culinary heights. This science of food experiments with a variety of laboratory technique to question regular food experiences. This questioning of tradition often leads to non-stereotypical creations such as flavored steams or powders to accompany a dish and awaken other senses in the consumption process. Molecular Gastronomy is the center of controversy for chefs who believe the phenomenon reduces cooking to a heartless, calculated science. This project, 'Gastronomy Reinvented,' however, allowed me to explore the debate; leading me to find the commonalities between food professionals and scientists, kitchens and labs. Join me as I explain this overlap and the various modernist methods I explored to prepare and recreate traditional American and Indian dishes.

#### **TALE OF TWO DEVIS: USING THE DAKSHINESHWAR KĀLI TEMPLE IN KOLKATA AND MUMBADEVI TEMPLE IN MUMBAI AS INFLUENTIAL SITES TO EXAMINE THE SOCIO-RELIGIOUS POLITICS OF FOOD PRODUCTION AND CONSUMPTION**

##### **Simran Jaising ('12), Religious Studies**

This research project sought to investigate the particular culinary practices based on Kāli and Mumba, two distinctive forms of the Devi, or mother goddess, which utilize gendered and caste-based discrimination in their practices. These religious sites were vital to examine for their central impact in perpetuating ideals about food, women, and lower caste to surrounding cities. This study questioned the widespread influence of religious norms represented in the preparation of Prasād at both temples by observing practices of producers/consumers within. The treatment of this holy food was juxtaposed against bordering sites of food production in an effort to determine if the nourishment offered under these local goddesses dictated standards on the nourishment of those in the community.

#### **EDIBLE ACTIVISM: FOOD AND THE COUNTERCULTURE OF THE 1960S AND 1970S**

##### **Sandra Johnson ('12), American Studies**

This project Edible Activism demonstrates food's ability to act as a means for individual expression, community building, and rebellion by examining the Civil Rights Movement, the Back-to-the-Land and Commune movements, and the Ecology Movement. The 1960s and 1970s was a time of great social change in American history. Countercultural groups of this era, who opposed the confining structures, ideologies, rituals, and leadership of the wider straight society, provide the most pertinent examples of food as a political tool and symbol.

#### **'EL MACHISMO ES VIOLENCIA!: INTERROGATING CULTURES OF GENDERED VIOLENCE WITHIN ECUADOR'S PLURICULTURALIST STATE**

##### **Julie Kafka ('12), International Studies**

The paper examines principles of inclusive citizenship and gender equality in Ecuador's 2008 Constitution. First, we contextualize Ecuador's contested attempts to adopt a united national identity, with a focus on issues of inclusion, pluriculturalism, and mestizaje. The paper will place a particular emphasis on the montubios, who were recognized as an ethnic group in their own right in the 2008 Constitution. The montubios who have been generally perceived as uncultured (and thus, non-ethnic), and we will briefly interrogate the ways that problematic conceptions of culture are central to Ecuador's pluriethnic reimagining. Second, we will examine the gendered effects of cultural markers and stereotypes propagated through recent state-sponsored campaigns, Reacciona Ecuador! El Machismo es Violencia. We will be focusing on this central campaign against gender violence, and the way that it has affected gender relationships and dichotomies among the motubios in Ecuador.

#### **VALIDATING A MEASURE OF POSITIVE ACCEPTANCE IN COLLEGE STUDENTS**

##### **Reesa Kashuk ('12) and Emily Stuart ('12), Psychology**

College is a time of heightened social stress for young adults, which can interfere with successful academic functioning. Increasingly, mindfulness practice has been shown to improve well-being across life domains. Study 1 addressed mindfulness in college: we first studied 434 college students, in which the goals were to 1) develop psychometrically sound measures that address the acceptance of favorable events, not just unfavorable ones, 2) begin to validate these measures, and 3) examine the linkages of these and established measures with outcomes relevant to college functioning. Findings suggested that acceptance of favorable events is associated with acceptance of unfavorable events. We also concluded that this scale measured mindful cultivation of wholesome states of mind rather than mindful acceptance of positive events. Study 2 sought to develop a scale that has better content and construct validity. We reconsidered the wording of our items and developed a larger item pool which encompassed 1) a wide range of ways in which individuals might assign positive labels to their thoughts, emotions, and experiences, and 2) the extent to which individuals, when they have these kinds of thoughts, emotions, and experiences, tend to have accepting responses. Preliminary factor analysis of responses from 181 participants so far has resulted in a 9-item scale with better psychometric properties than our earlier scale. This new scale focuses on the acceptance of upbeat emotions and experiences. It is positively correlated with scores on the KIMS, which suggests that the concept of acceptance applies to both positive and negative experiences: those who have an accepting view of unfavorable thoughts and feelings are also inclined to have an accepting view of favorable emotions and experiences.

#### **FACE FAMILIARITY PHENOMENON**

##### **David Kaufman ('14), Rhiannon Archer ('14), Ian Leitch ('14) and Ethan Meigs ('13), Psychology**

Previous research has shown that people perceive unknown faces to have differing levels of familiarity based on facial expression. The research stated that unknown faces are perceived as significantly more familiar when they depict a neutral expression than when depicting a negative expression (e.g. angry). The research also stated that an unknown face with a positive expression (e.g. a smile) will be perceived as significantly more familiar than a face depicting a neutral expression. The purpose of this study is to test the hypothesis that a smiling face is not always more familiar than a neutral or negative face. To do this, we decided to create scenarios that would elicit an expected facial expression, and then presented the image of a face that was either congruent to the scenario, incongruent to the scenario, or irrelevant to the scenario. We expected that a face that is congruent with its scenario will be rated as more familiar than faces that are incongruent with the scenarios and faces which are irrelevant to the scenarios. We are especially interested in comparing the perceived familiarity of positive faces with the perceived familiarity of negatively congruent scenarios.

#### **CHANGES IN APOPTOTIC GENE EXPRESSION IN HUMAN LEUKEMIA CELLS TREATED WITH THE ANTICANCER DRUG LAROMUSTINE**

##### **Emily Kaye ('12), Lindsay Dale ('12), Catherine Gallagher ('12), Kayla Gross ('13) and Emily Sher ('13), Chemistry**

Laromustine is an experimental anticancer drug that has been tested in the clinic against acute myelogenous leukemia and

glioblastoma multiforme. In the body, Laromustines cytotoxic effects are a result of two cogenerated electrophiles, a 2-chloroethylating species that can cause lethal DNA damage and methylisocyanate, which carbamoylates sulfhydryl groups in proteins. The mechanism by which Laromustine kills cancer cells likely includes apoptosis. In order to further investigate this phenomenon, the extent to which Laromustine affects cultured human promyelocytic (HL-60) cells use of 88 genes relating to this cell death pathway was examined using quantitative real-time reverse transcriptase PCR. Cultured cells were treated with drug for six hours before harvesting mRNA for analysis. The expression of a subset of the tested genes emerged as significantly different in cells treated with Laromustine as compared to control cells. Included among these genes are: TNFRSF10D, TNFRSF17, CD40LG, TRAF4, and BAG3. The expression of BAG3, whose encoded protein is also known as CAIR-1 or Bis, was increased by more than two orders of magnitude in HL-60 cells exposed to Laromustine. By forming a complex with heat shock protein 70 (Hsp70), it is thought that BAG3 promotes anti-apoptotic activity by interfering with protein chaperoning and cytochrome-c release. It is possible that a pathway involving BAG3 could be a mechanism by which cells attempt to counter the effects of Laromustine exposure. Other apoptotic markers are also reported, including cleavage of poly(ADP-ribose) polymerase and staining with annexin V.

#### **THE EFFECT OF FEEDBACK TYPE ON THE HYPERCORRECTION PHENOMENON**

**Hillary Keach ('13) and Adam LaViolet ('13), Psychology**

The hypercorrection effect describes the tendency that high-confidence errors on an initial test are more likely to be corrected on a later test than low-confidence errors when corrective feedback is given (Butterfield & Metcalfe, 2001). However, Butler, Fazio, and Marsh (2011) found that high-confidence errors are more likely to resurface on a delayed rather than an immediate test. Feedback improves performance on future tests, especially if the feedback is explanatory (Pashler, Cepeda, Wixted, & Rohrer, 2005; Butler, Godbole, & Marsh, under review). The present study examined the effect of feedback type (explanation, correct answer, none) on the hypercorrection effect over a delay. Participants answered questions, rated their confidence in their answers, received feedback, and then answered the questions again either immediately or one week later. Of interest was whether high confidence errors were likely to be corrected on an immediate test and to persist in accuracy on a delayed test if participants read explanation versus correct answer feedback.

#### **FACIAL EXPRESSIONS ON MORALITY AND MEMORY: THE DIFFERENCES IN THE PERCEPTION OF GENDER AND EMOTION**

**Iris Kim ('14), Shaquan Huntt ('13), Kimberly Johnson ('14) and Lily Tilton ('14), Psychology**

Sparse amounts of ongoing research have been conducted regarding the effects of gender and facial emotion on the moral blame of a character and participants memory of an event. There is some evidence that suggests that more moral blame is attributed to angry male faces and that smiling faces would improve memory. This study investigated the effect of happy and angry facial expressions and character gender on participants perception of moral blame and memory. Our findings found that facial expressions and gender did not have an effect on participants perceptions of moral blame and memory. Implications of these findings are discussed.

#### **BEHAVIORAL AND MORPHOLOGICAL EFFECTS OF PHYTOSTEROL, PROGESTERONE, AND ANDROSTENEDIONE CONTAMINATED WATER ON MOSQUITOFISH, *GAMBUSIA AFFINIS***

**Karyn King ('12), Biology**

Endocrine-disrupting chemicals in the environment threaten many species in their native habitats. For example, exposure to pulp and paper mill effluent leads to changes in secondary sex characteristics in female Eastern mosquitofish, *Gambusia holbrooki*. All females exposed to the paper mill effluent exhibited variable levels of masculinization (e.g., elongated anal fins that characterize male mosquitofish) (Stanko & Angus, Environ. Toxicol.Chem. 26:920-926.). Androstenedione and progesterone have been identified as a component of river water that is contaminated with paper mill effluent. Phytosterols, such as  $\beta$ -sitosterol, are also common in contaminated rivers. These phytosterols may subsequently be degraded by bacteria commonly found in river sediment, which releases the steroid hormone androstenedione. In this experiment, I tested the hypothesis that adult female mosquitofish, *Gambusia affinis*, exposed to 14 nM concentrations of three compounds for 6 weeks,  $\beta$ -sitosterol, progesterone, or androstenedione, would exhibit changes in morphology and behavior consistent with previous reports. I measured and compared body mass, body length, and anal fin length before and after treatments, and conducted mate choice trials between males and females after exposure. While I expected that females exposed to androstenedione would exhibit elongated anal fins and smaller changes in body mass and length than control females or those exposed to other chemicals, results were inconclusive. I also expected androstenedione-treated females to be less attractive to male mosquitofish in behavioral trials, but females exposed to  $\beta$ -sitosterol and progesterone should exhibit normal female behavior and sex characteristics.

#### **TESTING THROUGH THE AGES: A COMPARISON OF TESTING AND ENCODING STRATEGIES ON IMMEDIATE AND DELAYED RETENTION BETWEEN DIFFERENT AGE GROUPS**

**Shannon Kooser ('14), Psychology**

How does testing affect memory across different age groups? The Testing Effect refers to the finding that taking tests, even those without feedback, improves retention after a delay more than repeated studying. One possibility is that testing promotes encoding variability more than repeated studying, because testing encourages encoding of different elements associated with the material to be learned, and this variability facilitates later retrieval. The Testing Effect has been found for different materials and in a variety of populations, but few have examined it in older adults. Older adults typically perform worse on memory tests than younger adults, but can benefit from encoding manipulations that promote meaningful processing and encoding variability. One group of participants studied the pairs twice and one group processed the pairs twice, once looking for similarities and once creating a mental image. The third group studied the pairs once and took a test with feedback. After a ten-minute delay, all participants were tested on half of the word pairs, with no feedback. Two days later, another test was administered on the other half of the words, again with no feedback. The encoding variability promoted by the two processing manipulations and by the testing enhanced recall in young adults on immediate testing relative to repeated study, but different processing tasks did not lead to better scores on delayed tests. For older adults, using different levels of processing enhanced recall on immediate and delayed tests relative to repeated study. Both age groups showed a robust testing effect after two days, although it was larger in older adults.

#### **'CALLED HER WOMEN TOGETHER': HOMEBIRTH IN MAINE**

**Margaret Kruithoff ('12), American Studies**

How many generations must you go back in your family to find a relative who was born at home? For a growing number of women in Maine and around the country, this distance is shrinking dramatically as they themselves are choosing to give birth at home. For our technological and science-driven American society, giving birth at home is a radical notion. This study explores the

homebirth movement in Maine: the mothers, midwives, and homebirth advocates who have chosen to view birth as a natural process and site of empowerment for women and families. All births--home or hospital--are transformative for the mother, baby, and others involved, and hospitals are important places to receive medical treatment. However, some women argue that medical institutions do a disservice to women and birth because of their high rates of medical and surgical intervention and their lack of attention paid to the emotional and psychological aspects of pregnancy and childbirth. Grounded in a cultural history of childbirth in America from the 1700s to the women's health movement and the resurgence of midwifery in the 1960s-70s, this is an ethnographic study of the women and families involved in the homebirth movement in Maine. Beyond presenting a comprehensive picture of midwifery healthcare, the benefits and challenges of homebirth for the mother and baby, and the opportunities for families and communities made possible because of homebirth, this study seeks to explore the cultural ramifications of the homebirth movement for women and our country.

#### **ATLAS OF MAINE: CRITICAL HABITAT OF THE ATLANTIC SALMON**

##### **Matthew LaPine ('13), Environmental Studies**

This map depicts two variations of critical habitat of the Atlantic salmon. The first layer shows three watershed regions of particular importance, while the second layer highlights important stream and rivers that serve as salmon habitat. This map was created using data from the Maine Office of GIS, the National Oceanic and Atmospheric Administration, and the US Department of Agriculture using ArcGIS 10 and a NAD83, UTM19N projection.

#### **SEA LEVEL RISE IMPACTS AND THE VALUE OF AFFECTED PROPERTIES IN BARNSTABLE, MA.**

##### **Matthew LaPine ('13), Environmental Studies**

A recent study by the nonprofit organization Climate Central found that over 3.7 million Americans live within 1 meter of the high tide mark along coastlines. The same study warned of the implications of rising sea levels, and how the increase predicted by the IPCC (1m-3m) could have drastic effects on many Americans. The focus of the project is the Town of Barnstable, MA, the largest town on Cape Cod. My question is: does projected sea level rise disproportionately affect the wealthier inhabitants of Barnstable County, as measured by average property values?

#### **FACIAL RECOGNITION OF NEGATIVE EMOTION IN VARIOUS MOOD AND PROCESSING STATES**

##### **Stephanie-Ann LaRose ('12), Psychology**

Empathetic and sympathetic abilities have been linked to various important areas of life, including peer relationships, workplace functioning, and intimate relationships. Past research has indicated that these abilities can be affected by various external factors, and the present study focused on the factor of emotional state. Participants were given instructions designed to produce empathetic, sympathetic, or objective processing before viewing an emotion induction video (emotions induced included anger, guilt, or neutrality). Participants then completed a facial emotion identification task of faces displaying seven standard emotions, which was used as an objective measure for empathetic and sympathetic abilities, before completing questionnaires about trait empathy and social functioning. An initial sample of 90 participants show a positive correlation between self-reported empathy and social functioning with no effect of gender ( $r = .23$ ,  $p = .033$ ). Significant differences of gender were found in participants' ability to identify emotional expressions, with female participants having a higher overall ability to identify emotions than males. Participants' ability to identify the emotions of fear, anger, sadness, and anger was affected by factors of gender, induced emotion, and perspective-taking instructions. The results show that the abilities of empathy and sympathy may be influenced by the emotional state of the individual, a finding with implications for conflict management and interpersonal relationships.

#### **WHAT? YOU DON'T REMEMBER ME? SURPRISE MODULATES THE OWN-AGE BIAS IN YOUNG, BUT NOT OLD ADULTS.**

##### **Stephanie-Ann LaRose ('12) and Adam LaViolet ('13), Psychology**

Faces provide a wealth of information about an individual's identity and mood or emotional state. The ability to correctly recognize the face of a known individual is essential for social interactions. The own-age bias (OAB; see Rhodes & Anastasi, 2011, for a review) refers to the fact that individuals tend to remember faces of individuals from their own age group better than faces of younger or older individuals. Few studies to date have examined whether the emotional expression of the face affects the magnitude of the OAB. Ebner and Johnson (2009) failed to observe an OAB in either age group for happy, neutral, or angry faces. They did find a memory advantage for older adults for happy faces, consistent with some research showing a positivity bias in aging (Mather & Carstensen, 2003). In the present study, we compared memory for happy, neutral, and surprised faces. Surprise was selected because it might serve as a way of drawing attention by indicating something in the environment. Older adults ( $N = 43$ ) did not show an OAB or any effect of emotion on memory performance, whereas young adults ( $N = 44$ ) showed a reduction in the OAB for surprised faces and a trend toward a reduction for happy faces. Age estimates of the faces collected at encoding were modulated by emotion, with the greatest overestimation for surprised young faces and the least underestimation for surprised faces. Overall, emotional expression primarily influenced the performance of young adults, and decreased the magnitude of the OAB.

#### **GO WITH THE FLOW: SHARED LITERAL AND FIGURATIVE MEANINGS INFLUENCE MEMORY FOR IDIOMS**

##### **Adam LaViolet ('13) and Shadiyat Ajao ('15), Psychology**

Comprehension of idiomatic expressions requires processing literal and figurative meanings. Few studies have examined how older adults, who have more language experience, process idioms. We examined how literal and figurative meanings are connected and whether idioms that have the same figurative meaning are related in semantic memory. An episodic recognition task, where false alarms to foils provide a measure of accessibility, allowed us to assess whether similar idioms or phrases prime each other. In Experiment 1, participants studied idioms (e.g., kick the bucket) and non-idiomatic phrases that shared the literal meaning of an idiom (e.g., bite the dirt). In the recognition memory test, more false alarms were made to idioms (e.g., bite the dirt) when the literal phrase had been studied than vice versa, suggesting that the literal phrases increased the idioms' accessibility. In Experiment 2, participants studied idioms. Two types of foils were included in the recognition test: Unrelated (that did not share the figurative meaning of any studied idioms) and related idioms (non-studied idioms with the same figurative meaning as a studied item). False alarms to related idioms were higher than to unrelated idioms, suggesting that shared figurative meaning contributes to the activation of related idiomatic expressions. In both studies, the effects were larger for older adults than young adults, presumably reflecting additional experience with the language and greater familiarity with the idioms used. These findings suggest that literal and figurative meanings interact during processing and that idioms with shared meaning might be connected in semantic networks.

#### **Музыка в романе Булгакова 'Мастер и Маргарита' (MUSIC IN BULGAKOV'S 'MASTER AND MARGARITA')**

##### **James Lasher ('12), German/Russian**



Bulgakov in his work, 'Master and Margarita', makes extensive use of musical terminology and symbolism. This presentation will attempt to show how music, depending on its use and context, is simultaneously a negative and positive image in this novel and also an effective tool to satirize the shortcomings of art and music under Stalin's totalitarian regime.

#### **THE DEVELOPMENT, MORPHOLOGY, AND BEHAVIOR OF *DANIO RERIO* AFTER EMBRYONIC ALCOHOL EXPOSURE**

##### **Frances Lee ('12), Biology**

During pregnancy in mammals, the health and nutrition of the mother are essential for the neurological and morphological development of the fetus. Maternal consumption of alcohol can subject the fetus to fetal alcohol syndrome or fetal alcohol spectrum disorders (FAS or FASD). FAS is a public health problem, defined by varying degrees of irreversible mental retardation, physical defects, behavioral issues, and vision problems due to exposure to alcohol as a fetus. Research on FAS is critical because those with FAS display destructive behavior and problems including drug or alcohol dependency, psychiatric issues, and violent and sexual crimes. Recent studies on FAS have looked towards animal models, such as zebrafish, *Danio rerio*, that exhibit homologous physical and behavioral effects of alcohol (Bilotta et al., *Neuro.*, 26:737-743, 2004). To further explore the effects of FAS, we exposed zebrafish eggs to low doses of ethanol (0.5% v/v or 1% v/v) in either chronic (at least 8 h of exposure) or acute (1 or 4 h of exposure; up to four times during before hatching) patterns at different points during early development, and observed growth, morphology, and behavior of the fish. We tested the hypothesis that the effects of the ethanol exposure vary depending on the exposure period and stage of development, and that the severity of physical and behavioral differences in ethanol exposed groups are related to ethanol concentration.

#### **IS IT A BUNTING OR A WARBLER? EYE MOVEMENT ANALYSIS IN A MEMORY AND CATEGORIZATION TASK**

##### **Ian Leitch ('14) and Martha Arterberry ('14), Psychology**

Age-related declines in episodic memory are well-documented. Older adults, however, learn new skills and bird-watching is a common hobby among the elderly. Perhaps the materials typically used in laboratory experiments do not support older adults learning strategies and complex naturalistic stimuli might provide a better assessment of their memory capacities. In this study, 20 older and 20 younger adults studied images and names of birds. For large categories, six exemplars were studied, whereas only two were studied for small categories. At test, non-studied exemplars from all categories and from new categories were presented for a recognition decision. Older and younger adults were equally accurate in identifying old exemplars, but older adults had more false alarms, specifically to novel exemplars from large categories. Large category names were learned better than small category names, and older adults outperformed young adults in correctly naming the test exemplars, reflecting good categorization. The numbers of fixations during encoding to six features were coded. Older and younger adults did not differ in terms of the number of fixations. In large categories, the number of fixations did not predict memory accuracy, though in the small category the number of fixations on the wing region did predict accuracy. Thus, eye movement patterns were not clear predictors of memory or categorization with current sample size.

#### **SPIROPENTANES AS SOURCES OF CYCLIC ALLENES**

##### **Samantha Lessard ('13), Chemistry**

Many bicyclic cyclopropylidenes are known to rearrange to cyclic allenes. In this project we describe the synthesis of spiro-pentanes such as 1a',9b'-dihydrospiro[bicyclo[3.1.0]hexane-6,1'-cyclopropa[1]phenanthrene], which can be used as photochemical precursors to cyclopropylidenes such as bicyclo[3.1.0]hexane. Rearrangement of bicyclo[3.1.0]hexane then affords the cyclic allene such as cyclopenta-1,2-diene. It is anticipated that this approach would provide a route to extremely strained cyclic allenes that are otherwise inaccessible by current methods. Computational studies that model these systems will be also described.

#### **THE UNLIKELY RENOVATION OF FENWAY PARK: A TRIUMPH OF HISTORIC PRESERVATION**

##### **Gordon Lessersohn ('12), American Studies**

My thesis is called The Unlikely Decision to Preserve Fenway Park. In it, I try to answer two questions: first, how did the Red Sox decide to save Fenway when almost every other team had built a new ballpark? And second, was this the right decision? In the end, I argue it was the right decision for the Red Sox and Boston because (1) Fenway is the historic home of the multi-generational cultural love affair between New England and the Red Sox (2) Fenway's quirks and intimacy make it an architectural gem (one that could not be authentically reproduced in a retro ballpark) and (3) the renovation was economically intelligent: costing less than a third of a new ballpark (after historic renovation tax credits) while, along with NESN, generating enough revenue to keep the Red Sox competitive with any other team (second highest revenue/second highest payroll) -- including the Yankees with their new .6 billion stadium.

#### **EFFECTS OF PHYSICAL ATTRACTIVENESS ON MORAL BLAME AND MEMORY**

##### **Julie Levine ('13), Lori Ayanian ('14), Josephine Liang ('14) and Madeline Wadington ('14), Psychology**

Research has been conducted to examine the effects of social attractiveness on moral blame and memory. This study furthers previous research by observing the effect of physical attractiveness on moral blame and memory. The study explores the interaction of physical attractiveness and moral blame attribution. To do this effectively, this study followed the method used by Pizarro, Laney, Morris, & Loftus (2006), using the independent variables of physical attractiveness and social attractiveness. Social attractiveness was presented by either a morally justifiable scenario or a morally unjustifiable scenario. Findings include that physical attractiveness effected memory for item recall. Findings also confirmed that the justifiable scenario resulted in less moral blame than the unjustifiable scenario.

#### **ONE-POT SYNTHESSES OF STRUCTURALLY RIGID RING COMPOUNDS**

##### **Lloyd Liang ('13), Chemistry**

Diazadioxo[14]cyclophanes of type 5 were synthesized using a one-pot nucleophilic aromatic substitution (SNAr) reaction sequence. Condensation of an ortho-diamine and 1,5-difluoro-2,4-dinitrobenzene in a 1:2 stoichiometric ratio led to formation of an intermediate linear adduct (trimer). The formed trimer is then reacted with 1 equivalent of a catechol to yield diazadioxo[14]cyclophanes 5. Non-symmetrically substituted diamines and diphenols were used to form chiral macrocycles. This will allow for an analysis of the unique chemical and conformational properties of these chiral systems.

#### **A SURVEY OF TERMITE GENERA ALONG A CATENAL GRADIENT IN SOUTHERN KRUGER NATIONAL PARK**

##### **Brianna Lind ('12) and Laura Gigliotti ('12), Environmental Studies**

In a survey of termite distribution along a catena adjacent to the Nkuhlu exclosures in Kruger National Park, South Africa, we observed 12 genera, including all five mound-building genera present in the park. All mounds surveyed were photographed, measured for height and circumference, and categorized into four types that illustrate the changes in mound structure down the slope of the catena. Termite identification data of 161 samples collected from mounds and wood were used to create distribution maps. Three major patterns in distribution emerged: even distribution above and below the seepline, uneven distribution in relation to the seepline, and a higher genus richness downslope. Identification data along with a literature review was used to compile an updated list of termites found in Kruger National Park for park records. We examined trophic preference and life history strategies for mound homeostasis as possible explanations for these distribution patterns. The variation in taxonomic and functional groups illustrates the diverse and integral role that termites play in savanna ecosystem functioning. The challenges in our study reflect the challenges to termite research as a whole, and also bring to light important future directions for soil macrofauna research.

#### **ATLAS OF MAINE: DEER WINTERING AREAS AND FRAGMENTED FORESTS IN MAINE**

##### **Helaine Linden ('14), Environmental Studies**

This map displays Maine in a sense that relates the wildlife (deer wintering areas) with zones that have been negatively impacted by humans with fragmented forest. The fragmented forest data was downloaded from the National Atlas website, which includes the amount of forest as well as the connectivity between forest spots. The original data source was from the 1990s through Advanced Very High Resolution Radiometer (AVHRR) satellite imagery, and the data was compiled by the Global Land Cover Characteristics (GLCC) project. Since this data was created on the national level, its detail is not as thorough as that of the data specific to the state of Maine. The fragmentation data is based off of about one square kilometer pixels, so what is shown is not as precise as the deer wintering areas. This data was used in order to try and focus specifically on the phenomenon of fragmented forest rather than the many different types of landscapes present in Maine. In order to try and portray the area more accurately, hydrology was added to show the different areas that appear to be fragmented, but are actually bodies of water. The deer wintering area data came from the Maine Office of GIS, which acquired its data through the Department of Conservation Bureau of Parks and Land, Land Use Regulatory Commission, Department of Inland Fisheries and Wildlife, and State Planning Office. The hydrology data was obtained from ESRI ArcGIS10 Dataset.

#### **THE IMPACT OF WAR ON BIODIVERSITY**

##### **Erin Love ('14) and Victoria Abel ('14), Environmental Studies**

We are investigating the impacts of war on biodiversity. We will discuss the significance of biodiversity, examine wars ecologically relevant components, and tie in relevant case studies. All stages of war, preparation, warfare itself, and recovery, have positive and negative impacts. The consequences are varied and far-reaching and must be analyzed in ecological and social/historical context to be fully understood. The first case study looks at the use of Agent Orange in Vietnam and includes a discussion of chemical warfare. The second is an overview of the Nicaraguan Conflict (Revolution, Contra War, and Indigenous Resistance) and how complex the ramifications of war can be. The third case study will examine animal populations and the exploitation of forest reserves in Gola, Africa during the 1991-2001 Civil War. The fourth will focus on the conservation problems related to illicit crops, trafficking, and violence in the Andes region. We will conclude by confirming the importance of biodiversity protection and suggesting some possible mechanisms by which this could be accomplished in the context of political, economic, and social conflict.

#### **INTRICACIES OF ORGAN TRAFFICKING: LESSONS FROM CHENNAI, INDIA**

##### **Coline Ludwig ('12), Global Studies**

It is a sad reality that the world demand for organs surpasses supply. To bypass lengthy wait times and costly procedures, desperate individuals on organ transplant waitlists may choose to go abroad to procure organs in a cheaper and sometimes illegal manner called transplant tourism. Although governments and civil society organizations condemn the sale and commodification of organs, desperation drives the trade. In 1994, the Indian government passed the Human Organ Transplant Act, criminalizing the sale of organs and defining parameters for legal donation. Despite the ban on the commercialization of organs, the Voluntary Health Association of India estimates that 2000 Indians sell a kidney every year. Desperate buyers of organs find a market of sellers willing to sell their kidneys as a means to escape extreme poverty. This project explores the complexities behind the illegal organ trade in India and focuses on how inequalities in society promote the illegal sale of kidneys. Fieldwork in Chennai, India, highlights the hopelessness that drives people to sell their body parts and points to the need to address the complexity of poverty to redress this trade.

#### **ASPARTAME: GOOD FOR THE BODY, BAD FOR THE BRAIN?**

##### **Rachael Mack ('12) and Kristen Merrill ('12), Environmental Studies**

Aspartame is an artificial sweetener that has replaced sugar in many juices and flavored beverages, such as Coke-Zero or Pepsi One, in order to reduce the total caloric content of the drinks. As recently as 2011, the U.S. Food and Drug Administration and the American Beverage Association (which even promotes the use of the artificial sugar substitute) deemed aspartame safe for consumption after reviewing two scientific studies conducted for the European Food Safety Authority. However, the sweetener has been heavily contested and conflicting studies have suggested an association between consuming aspartame and detrimental brain effects. Aspartame is increasingly being found in more food and drink products, and they are often labeled as low- or no-calorie which makes them more appealing to certain consumers. Our research seeks to settle the debate of whether the consumption of aspartame and the metabolism of its breakdown products lead to negative neurological effects in humans, specifically Alzheimers disease and cancers.

#### **OBSTACLES TO REPLACING LAWN WITH BUFFER: BARRIERS TO IMPLEMENTATION OF THE LAKESMART PROGRAM ON MAINE'S LAKES**

##### **Rachael Mack ('12), Environmental Studies**

The LakeSmart program is an incentive program that encourages shorefront property owners to adopt lake-friendly practices and reduce their impact within the watershed. Although the program has been in place for eight years, its spread has been rather slow and it is far from achieving its goal of 15% participation on all of Maine's lakes. Electronic surveys were sent to approximately 350 shorefront property owners, who had and had not received a LakeSmart award, asking questions about their motivation to become involved, difficulties with the program, and attitude toward its structure and function. The intent was to investigate the aspects of the program relating to Section 3: Yard, Recreation Area and Footpaths, that were most difficult to overcome to achieve LakeSmart status. The results showed that a majority of property owners on LakeSmart participating lakes are aware of the factors affecting lake water quality and clarity, are strongly motivated to preserve those qualities of lakes, and are knowledgeable of the changes they need to make to their yards, but generally lack enough time and funds to complete the

work.

#### **DOES PARAQUAT EXPOSURE LEAD TO PARKINSON'S DISEASE?**

**Caroline Maguire ('12), Kelly Roth ('12) and Michael Wismer ('12), Environmental Studies**

The herbicide paraquat has been a topic of investigation as a potential cause of Parkinson's disease as a result of its structural similarity to a chemical known to induce parkinsonian symptoms, MPTP. While the exact mechanism is currently unknown, epidemiological data provides substantial support for a link between paraquat and the neurodegenerative disease. Currently, the Environmental Protection Agency has limited the use of paraquat to only licensed users but research in this field suggests that in order to be adequately protective of human health, a complete ban of the chemical may be warranted.

#### **FRANCO'S LEGACY: BIRDS, CHILDREN, AND OTHER BEASTS IN CONTEMPORARY CATALAN-LANGUAGE FILM**

**Oscar Mancinas ('12), Spanish**

The examination of two contemporary Catalan-Language Films, one situated pre-dictatorship just after the Spanish Civil War ('Pa negre') and the other situated post-dictatorship, in full-fledged modernity ('Petit indi'), provokes complex questions of citizenship. More specifically, how citizenship in modern Spain became fragmented during the Civil War in the 1930s, remained fragmented throughout the reign of military dictator, Francisco Franco--a reign which took Spain into the 1970s--and the long-lasting, traumatic effects the dictatorship has had on contemporary Spain. Aside from their shared linguistic elements, the use of animals in both films informs the plights of their respective protagonists, both of whom are young boys who are fighting to forge an identity in a society they do not feel is totally theirs. Ultimately, the questions of citizenship and civil rights extend far beyond the simple government titles of dictatorship and democracy, leaving the Spanish Body Politic, and its definition of citizenship, in flux.

#### **QING-ERA MANCHU MALE IDENTITY THROUGH MATERIAL CULTURE**

**Fiona Masland ('12), East Asian Studies**

While scholarship surrounding the ethnicity of the Qing emperors and the art and material culture produced under their rule, the field lacks an in-depth study of individual pieces of this material culture and its significance to both the ethnic and gender identities of the Manchu rulers. I examine the clothing of these men, through both surviving robes and painted representations, in an effort to understand how the early emperors of the Qing transformed and altered their identities as rulers of a vast multi-ethnic empire. In my study of the first four men to rule the Qing, I find that they engaged in complex experimentations with their imperial and personal images, while still preserving the fundamental characteristics of Manchu masculinity. Ultimately, their 'self-visions' serve as examples of the fluidity of identity, and the implications of identity transformation in the development of imperial authority.

#### **PERCEPTION OF MOTION DURING DIX-HALLPIKE MANEUVER**

**Arijumand Maso and Shikhar Nayak ('15), Mathematics**

The aim of this project was to design and program dynamic cartoon movies that are being used in trials to help patients with benign paroxysmal positional vertigo (BPPV) to identify the nature of their vertigo during Dix-Hallpike testing. Understanding the perception of motion will yield insights into the causes of BPPV and possibly lead to improved diagnostic techniques for vestibular disorders. Video cartoons indicating perception of motion in pitch, roll, yaw as well as combinations of the three primary motions are being used in the ongoing experimentation at Baylor College of Medicine. Graphics software MegaPOV was used in conjunction with computational programming language MATLAB to generate the cartoon graphics. We are able to indicate motion along any axis going through the center of the head. Theoretical predictions state that patients should only feel motion in one primary plane but our results indicate that most patients perceive motion in two or three planes.

#### **DOES BPA EXPOSURE DURING PREGNANCY LEAD TO BEHAVIOR PROBLEMS IN YOUNG GIRLS?**

**Rebecca Mayer ('13) and Adrianna Twombly ('13), Environmental Studies**

BPA is a synthetic chemical compound that has a variety of uses in everyday products. Due to its widespread usage, BPA exposure is almost ubiquitous in developed nations. The most common usage is in the manufacturing of polycarbonate plastics and epoxy resins that can be found in toys, water supply pipes, medical tubing, and food container linings. BPA poses a threat to human health because it can be hydrolyzed at high temperature, acidic, and basic conditions, causing BPA to leach from plastic containers and plastic-lined cans into the foods or liquids they contain.

#### **DO THE RIGHT THING**

**Devlin McConnell ('12), American Studies**

Spike Lee's Do the Right Thing sparked many questions including racially charged police brutality and economic statuses of poor black neighborhoods. But what message is Spike really trying to get across to his viewers? Joie Lees character says, Im up for up for some change in the community, but how about something positive? We must ask what IS the right thing?

#### **MOVE: THE SUMMER OF 1963**

**Delaney McDonough ('13), Theater and Dance**

Move: The Summer of 1963 is an exploration of space, movement, and stillness through dialogue and dance. In the summer of 1963, two men meet working as movers, and the work unfolds as they move furniture and transform the space. In this turbulent historical chapter, revolutionary era in music, and time spent creating new spaces for their clients; the characters will learn from each other, but not truly change. The dialogue and the dancing occur in the room that the speaking characters, John and Mark, both create and deconstruct. The non-speaking dancers have a peculiar relationship with the actors and the space, contributing to the plots exploration. The actors and dancers are vehicles for the projects ultimate question: What tangible and intangible factors, in this specific time and place, could affect choice in space and action? This one-hour performance piece includes a seven-scene script and six dance pieces with contextualizing historical information and music. The full piece will be a multi-faceted look at the culture of 1963 in the United States. The project has three voices. The first is the microcosm, the script; the second is the macrocosm, the projections and music; and the third is the thematic exploration connecting the two, the dance pieces.

#### **GRAVITY CORE GEOCHEMISTRY AT THE KRONEBREEN GLACIER, SVALBARD, NORWAY: QUANTIFYING CLIMATE FLUX IN A GLACIMARINE SETTING**

**Daren McGregor ('12), Geology**

During the present period of significant climate flux, scientists are attempting to understand and constrain the way in which Earth responds to these changes, as well as what these changes mean for life on the planet. The polar regions (the Arctic and Antarctic) are particularly sensitive to climatic perturbations, and they house extensive evidence of the impact that warming has had in the past, from changing ocean chemistries to the relationship between glacial retreat and fluctuations in sea level. As part of an NSF-supported Research Experience for Undergraduates, a group of students traveled to Ny-Alesund, Svalbard, Norway in the summer of 2011 to conduct individual research projects relating to sedimentology and climate studies. Svalbard is an archipelago in the North Atlantic Ocean with a variety of terrains that makes it conducive to studying different aspects of the Holocene geologic record. Sediments throughout the archipelago capture Holocene and modern proxies for past climate fluctuation. This summers project was based in Kongsfjorden, a northwest-trending fjord with two actively retreating tidewater glaciers (Kronebreen and Kongsvegen) at its head. Rapid sedimentation rates in Kongsfjorden during glacial retreat have resulted in a high-resolution record of the past few decades. This individual research project (as part of an ongoing senior thesis) seeks to analyze sediment-core geochemistry from the sediments on the floor of Kongsfjorden in a chronostratigraphic framework, using a variety of analytical techniques. This poster presents a multidisciplinary application of X-ray fluorescence, total organic content, Cs-137 and Pb-210 radioisotopic dating, and other methods of sediment core analysis to infer paleoclimatic states.

#### **DO LEARNING STYLES EXIST? THE EFFECT OF LEARNING STYLES VERSUS MATCHING MODALITIES ON MEMORY**

##### **Jacqueline McLaughlin ('13) and Constance Jangro ('13), Psychology**

Although the existence of learning styles is a widely accepted belief in classrooms across the country, a review paper by Pashler, McDaniel, Rohrer, Bjork (2008) suggests that no previous research adequately supports the learning style hypothesis. The learning style hypothesis states that individualizing instruction to the learners style can allow people to achieve a better learning outcome. Other research suggests that a match between study-test modality can enhance aspects of memory (Maylor & Mo, 1999). The current experiment examined whether learning style preference or a study-test match in modality affected participants ability to answer comprehension questions regarding information from a short passage. Participants took a disguised learning style preference questionnaire and then either listened to or read a passage about sea otters. After a short delay, they completed a comprehension test that included information from the passage (verbal or written). Of interest is whether modality match between study and test influences memory more so than learning preferences. The results are interpreted within the basic theory of learning styles.

#### **ISOMETRIES AND SPONTANEOUS LORENTZ VIOLATION IN GENERAL RELATIVITY**

##### **Greg Merritt ('12), Physics and Astronomy**

General Relativity, or GR, is a theory which describes gravity as a manifestation of the curvature of space and time. While the other three fundamental forces in nature are represented as field theories, GR is a geometric theory. In the search for a way to reconcile the field theories for the electromagnetic, strong, and weak forces with the gravitational force, a logical place to start is by re-expressing GR as a field theory. In doing so, we find that the theory contains a number of symmetries. When we solve the equations in GR, we find that by choosing certain solutions we break some of the symmetries of the system (through a mechanism known as spontaneous symmetry breaking.) We seek to find out how the total number of symmetries, which are represented mathematically as isometries, change for different solutions when we add a vector potential field which spontaneously breaks (Lorentz) symmetry. Such a mechanism is thought to occur in higher dimensional theories such as String Theory, and so a better understanding of the mechanism in GR could be useful in later work. We will find that the number of symmetries is reduced from 10 to 6 with a time-dependent vacuum solution, which is the same number of symmetries that our actual universe is thought to possess.

#### **VIRTUAL GEOLOGIC FIELD GUIDE TO THE KENNEBEC HIGHLANDS, CENTRAL MAINE**

##### **Brian Morgan ('13), Geology**

The goal of this project is the development of an online geologic field guide to the Kennebec Highlands, in the Belgrade Lakes region of Maine. The Kennebec Highlands represent the largest public land area in the region, and is utilized for a number of recreational activities such as hiking, camping, fishing, and mountain biking. Researching the five popular hiking trails in the Kennebec Highlands that have interesting geologic features, a collaborative effort between the Belgrade Regional Conservation Alliance was developed to produce a virtual field guide of the area which we hope will be utilized by the public to give them background knowledge and understanding before hiking the trails. Furthermore, it is planned to make the product accessible in multiple formats, available in virtual and hard copy format. Google Earth and computer software such as arcGIS were utilized to create a user-friendly application that can be downloaded from multiple websites and can be accessed at the users convenience. Each of the trails was initially tracked using a Garmin Oregon 400t GPS unit. These tracks were then converted to .kmz files and applied to Google Earth. Geotagged photos taken along the trails using a Ricoh G700SE GPS camera were used to enhance the tracks and create placemarks in Google Earth. These placemarks were created in notepad, and saved as .kml files so that they could be uploaded onto Google Earth. Using arcGIS, bedrock and surficial geology GIS data were uploaded to transfer that information over to Google Earth as layers. A generic topographic map of the area was also uploaded so that it can be viewed as a layer. Placemarks along the hiking trails can be accessed and a picture and short description of a geologic feature will pop up that can be seen along the trail.

#### **ATLAS OF MAINE: SURFICIAL MATERIALS**

##### **Katherine Murray ('12), Environmental Studies**

This map was created using surficial geology data, Maine lakes and rivers data, and state hillshade data from the Maine Office of GIS. This map specifically focuses on the surficial materials of Maine geology. Surficial material refers to the types of sediment that are deposited onto the bedrock from glaciers. Surficial materials maps are important for a variety of reasons including: construction planning, locating sand and gravel pits, locating suitable landfills etc (<http://www.maine.gov/doc/nrimc/mgs/explore/surficial/facts/materials.htm>). The data were projected using UTM Zone 19N, NAD83.

#### **DYNAMIC INTERACTIONS BETWEEN THERMOCLINE DEPTH AND INTERNAL NUTRIENT LOADING IN CENTRAL MAINE LAKES**

##### **Katherine Murray ('12) and Josephine Thiele ('12), Chemistry**

Phosphorus is the limiting nutrient for algal growth in many Maine lakes. Recent work by Kopacek et al. (2001, 2005), Lake et al. (2007), Norton et al. (2008) and Wilson et al. (2008, 2010) has shown that internal nutrient loading is directly related to the sediment composition with significant quantities of phosphorus sequestered through binding with either aluminum or iron. Aluminum binds phosphate over a range of redox conditions. However, phosphorus bound to iron is susceptible to reductive dissolution leading to significant hypolimnetic phosphorus release and increased algal growth. Hypolimnetic oxygen

concentrations and sediment metal concentrations are important for understanding internal nutrient loading dynamics. This work reports the phosphorus, aluminum, and iron concentrations in sequential extractions of sediments from East Pond, North Pond, Great Pond, Long Pond, and Snow Pond, in the Belgrade Lakes watershed. Sediment samples were collected over a horizontal transect of lake depth to capture sediment chemistry across seasonally oxic, hypoxic, and anoxic sediments. This allowed evaluation of nutrient flux for sediments that were historically oxic but may become increasingly hypoxic due to changing thermocline depth. Small increases in internal nutrient flux can drive a positive feedback in which the thermocline becomes shallower due to decreased light penetration driven by increase phytoplankton growth. A shallower thermocline depth leaves a greater surface area of sediment subject to hypoxic conditions. Data will be presented for sediment compositions for all the aforementioned lakes with a detailed analysis of Great Pond sediment geochemistry to illustrate the potential of this feedback mechanism.

#### **EFFECTS OF MORAL CREDENTIALS ON INGROUP/OUTGROUP BIASES**

**Shamika Murray ('14), Ariel Martin ('14), Frances Onyilagha ('14) and Margaret Sargent ('14), Psychology**

Past research has examined how moral credentials sway perceived prejudice. Ingroup/Outgroup status affects how people categorize themselves and other people. Our research examined the roles of implied moral credentials, and in-group/out-group status in the perception of ambiguously discriminatory behavior. Participants were given a scenario where a construction worker/judge made an ambiguously sexist comment towards a mother or father. Subjects were asked a series of questions pertaining to the scenarios, including, their perceptions of the bias comment. We found that both moral credentials and ingroup/outgroup status have an effect on perceived bias.

#### **PRAYER IN MATTHEW: AN OLD JEWISH TRADITION OR A RADICAL CHRISTIAN BEGINNING?**

**Katherine Murray ('12), Religious Studies**

Prayer is defined as an intentional act of communicating with a higher being. In my presentation, I will examine how Christian prayer in Matthew deviates from, or reflects prayer in the Old Testament. The Gospel of Matthew retells the story and teachings of Jesus Christ, and upon reading Matthew with a critical eye, it becomes apparent that the author of Matthew wrote with the intention of displaying Jesus roots in Judaism in order to exemplify him as the Jewish Messiah. Through a close analysis of prayer in Matthew, it can be deduced that while these prayers rely heavily on old Jewish traditions, Jesus also introduces a new concept of inclusivity that extends to the Gentiles.

#### **TOWARD A STABLE AND CRYSTALLINE 1,2-CYCLOOCTADIENE**

**Beatrice Nakiryowa ('13), Chemistry**

Theoreticians as well as experimentalists have long been fascinated by cyclic molecules incorporating the allenic subunit. Allenic groups, which prefer a linear geometry, can inflict molecular strain on ring systems, and the strain increases with decreasing ring size. The smallest crystalline carbocyclic allene known to date has a nine-membered ring. This project aims to prepare a crystalline eight-membered allene that is kinetically stabilized by incorporating a triptycene unit. It is anticipated that this molecule will lend itself to structural characterization by single crystal X-ray diffraction and thus provide useful fundamental information about its unusual bonding and structure.

#### **WATER IMAGERY IN BULGAKOV'S 'MASTER AND MARGARITA'**

**Alina Nakos ('13), German/Russian**

This presentation will examine Mikhail Bulgakov's use of water imagery in his novel 'Master and Margarita.' Bulgakov's novel retells the story of Pontius Pilate in conjunction with a tale of the Devil's adventures in 20th century Moscow. Water is a recurring symbol of holiness, purity, and relief, often denoting the emotions of characters and the warped morality of the Devil's character. This presentation is a product of a semester-long study of the novel in the original Russian.

#### **DIETARY CHOLINE SUPPLEMENTATION DURING ADOLESCENCE ENHANCES ADULT HIPPOCAMPAL AND PREFRONTAL CORTICAL FUNCTION IN MALE RATS**

**Chelsea Nickerson ('13) and Kathryn Palano ('12), Psychology**

Choline, a precursor to acetylcholine, is a nutrient essential for the development and function of the central nervous system. Developmental choline supplementation provides neuroprotection against a variety of neural insults. This neuroprotection may arise through enhanced brain plasticity. Interestingly, choline effects on plasticity parallel the putative mechanism of action of known antidepressant drugs: enhanced adult neurogenesis. In this study, we examined the ways in which adolescent choline treatment impacted normal functioning in brain regions associated with depression: the hippocampus and prefrontal cortex. Male Sprague Dawley rats were treated with either a supplemented or standard choline diet from adolescence to adulthood. Once adults, rats underwent behavioral tests in which performance is compromised in rodent models of depression: an attention set shifting test assessed cognitive flexibility; an object recognition test assessed responses to and memory for novel stimuli; and a forced swim test assessed behavioral despair. Based on their performances, choline supplemented rats showed enhanced hippocampal and prefrontal cortical function. Key functional markers in the hippocampus and prefrontal cortex were then measured. Contrary to our expectations, there was not a significant difference in the number of new neurons generated in the hippocampus of choline supplemented and standard-fed rats. However, in the prefrontal cortex, the standard-fed rats exhibited a higher microglia density than did supplemented rats. Taken together, the behavioral and neurological results of this study strongly suggest that choline may specifically enhance function in brain areas known to be vulnerable to depression triggers, thereby mitigating pathology in and from the disorder.

#### **MENTAL HEALTH SCREENING IN RURAL MAINE PRIMARY CARE**

**Emily Niemi ('12) and Jordan Cadorette ('12), Mathematics**

Research has shown that mental health services are less utilized in rural communities than in urban ones. Our study looks at rural populations in Maine that may have under-served mental health patients, and how the screening tools PRIME-MD and SDDS-PC may be used in primary care settings to identify various illnesses and lead to increased treatment.

#### **BFFS OR FRENEMIES? : THE EFFECT OF CONFLICT STYLE SELF-REPORTS, PERSONALITY SELF-REPORTS, AND PERSONALITY SIMILARITY ON CONFLICT RESOLUTION BETWEEN FRIENDS**

**Kira Novak ('12) and Lauren Becker ('13), Psychology**

This study examined how a persons self-reported conflict resolution style, self-reported personality traits, and their similarity to a

partners personality influenced their behavior in a conflict task. Undergraduate students at Colby were asked to complete the Big Five Inventory. Students then engaged in a partner discussion task in which they were asked to simulate the role of a supervisor advocating for their employee to receive a bonus. After this debate, students were asked to complete a conflict resolution style questionnaire and answer questions about their history of conflict with their partner in the study. Results showed that self-reported conflict style is only a predictor for behavior in a conflict task when participants prefer to disengage from conflict. Neuroticism and Agreeableness were significantly correlated to the conflict style used in the task, while a higher difference score in the Extraversion and Neuroticism similarity indexes was significantly related to the way partners ultimately resolved the conflict task.

#### **REWRITING HISTORY: SPIKE LEE'S MALCOLM X**

##### **Kira Novak ('12), American Studies**

Over twenty years after the assassination of Malcolm X, the 1990s hip-hop and rap scene was alive with references and homages to the black Muslim civil rights leader. From Public Enemy's Fight the Power music video to the aptly named rap group X-Clan, black youth across the country were seeing Malcolms face and hearing Malcolms name without having a formal education on his life, his work, his beliefs. Spike Lee's Malcolm X biopic came at a perfect time, using film as a medium to teach and enlighten audiences about Malcolm X and black history in America. Lee made his film with reason and motive behind it to show Americans, black and white, young and old, the real Malcolm X - stripped of media representation and rap lyrics.

#### **THE INTENDED ARCHITECTURE OF WEB APPLICATIONS - AN IMPLEMENTATION OF REST**

##### **William O'Brien ('12), Computer Science**

As the world wide web continues to evolve, the gap between static web pages and desktop applications is closing. Increasingly, web sites host interactive applications that feel like desktop or mobile apps. Examples include Pandora internet radio, Google maps, Gmail, and the like. In order to scale these applications effectively, developers must work with the architecture of the Internet, not against it. This project demonstrates the principles outlined by Roy Fielding in his doctoral dissertation in which he derives the optimal architecture for the web. With these principles in mind, some up and coming technologies are evaluated including JSON schema and HTML5's offline application capabilities.

#### **WHAT'S IN YOUR BEDROOM?: THE NEGATIVE HEALTH EFFECTS OF SEXUAL LUBRICANTS**

##### **James O'Brien ('12), Emma Suojanen ('12) and Eva Valladares Anton ('14), Environmental Studies**

Sexual lubricants contain several hazardous chemicals, such as parabens, diethanolamine, petrochemicals, and nonoxynol-9, among others. Recent evidence suggests that these chemicals found in lubricants may have negative health effects, namely the facilitation of HIV transmission and impaired sperm mobility. Although there has not been a significant amount of policy dedicated towards lubricant regulation, given the toxic properties and known health effects of its chemical ingredients, future policy initiatives are imperative.

#### **LINKS BETWEEN FOOD COLORINGS AND INCREASED HYPERACTIVITY IN CHILDREN**

##### **Lucy O'Keeffe ('14) and Kathryn Coe ('14), Environmental Studies**

In recent years, there has been increased attention on the potential links between food coloring and increased hyperactivity in children. Diet has for a long time been considered as one of the contributing factors to ADHD, and now researchers are beginning to examine the effects of food coloring and hyperactivity in all children. Although there has been an influx of research related to food coloring and hyperactivity in children, the information produced is not conclusive to determine whether there is a direct link.

#### **ART, PERCEPTION OF SELF AND BODY IMAGE**

##### **Alexandra Offer ('12) and Kristine Walters ('12), Anthropology**

The examination of body image through the lens of Colby students.

#### **QUEER SEX GODS OR PATRIARCHS WITH FANGS? GENDER AND SEXUALITY IN MODERN VAMPIRE NARRATIVES**

##### **Ashley Oliver ('12), American Studies**

The United States has been taken over by vampires. Numerous films, television series, and romance novels are being rapidly consumed by Americans of age groups ranging from pre-teen to adult. The most prominent vampire stories of the early twenty-first century center on one key narrative convention: the heterosexual romance between a human female heroine and her vampire boyfriend. In this study, I have analyzed the roles that vampires embody in three cultural texts: the television series Buffy the Vampire Slayer and True Blood as well as the novels/films in the Twilight saga. Historically, the vampire has been used to mitigate societal anxieties about sexuality and gender roles. It was conceived of as a menace that needed to be exterminated. Although the vampire continues to occupy the status of sexual other, it is no longer a villain. The vampires today are idealized. In a culture of increasingly polarized sexual politics where a growing queer rights movement is opposed by a significant rise in religious fundamentalism, the vampire has become a pop culture weapon. We mitigate our dissatisfaction with dominant society's construction of gender and sexuality, presenting a fantasy vampire that embodies our idealized views of these subjects. Some vampires are patriarchal fangs, others transgress gendered boundaries, and still others are presented as queer sex gods. However, even in the most liberal texts, the vampires transgression remains bound (to varying degrees) by conventional notions of gender and sexuality.

#### **BLACK ON THE HILL**

##### **Uzoma Orchingwa ('14), Sociology**

As part of my Spring Independent Study with Professor Cheryl Gilkes, I am currently doing a documentary on the Black Experience at Colby College. The film will start with a background of the 5 salient events in Colby's history that has dealt with race and discrimination. Starting with the Jacquelyn Nunez Proposal in the 1960's, to the Charles Terrell led Chapel sit-in in 1970 (I was able to interview him on film last Thursday), and heading all the way up to the 2009 April Incident. Having laid out these issues, I will present the current Black Experience directly from the lips of Colby's black student population (the film is composed of many interviews with current black students).

#### **IN EXTREMIS: OPERATIONAL LESSONS FROM THE WAR ON TERROR**

##### **Alexander Orleans ('12), Government**

Since the initiation of Operation Enduring Freedom in 2001, the United States has encountered a dizzying array of challenges in the Afghan theater, ranging from poor coordination and intense mistrust of regional allies to refining battlefield intelligence distribution and operational direction. Drawing on the exceptional literature documenting the campaign in Afghanistan, declassified military documents and private organization reports, a definite set of mistakes, and accompanying lessons, emerge which must be recognized in order to effectively guide operational logic in the future. These lessons can provide significant improvement in the conduct of counter-terrorism and counterinsurgency campaigns, address the ongoing debate about whether a counter-terrorism or counterinsurgency strategy best serves US interests in Afghanistan, reinforce classic axioms regarding the preparation and execution of a war-fighting enterprise, and even strengthen efforts to bolster homeland security.

**DAS TIER NENNT SICH MENSCH: MENSCHEN UND TIERE IN FRANZ KAFKAS 'EIN BERICHT FÜR EINE AKADEMIE' / THE ANIMAL CALLS ITSELF HUMAN: HUMANS AND ANIMALS IN FRANZ KAFKA'S 'A REPORT TO AN ACADEMY'**

**David Oxnard ('12), German/Russian**

Walter Benjamin explains that humans are disgusted by animals because they fear that their own animal nature might be recognized, and that humans' only way of dealing with this fear is to make themselves rulers over animals. Franz Kafka's 'Ein Bericht für eine Akademie' is the first-person account of an ape who is caught in the wilderness and escapes his imprisonment by becoming human. This short story attempts to describe the way in which humans learn to become human and differentiate themselves from animals by rejecting their animal nature. 'Bericht' sheds light on how and why humans come to feel the need to rule animals by presenting a problematic account of the main character's metamorphosis from animal to human. By analyzing the story that Rotpeter, the narrator and protagonist of 'Bericht,' tells in light of Benjamin's explanation of the disgust of animals, it becomes clear that the only dividing line between animals and humans is attitude of superiority that is at the same time hypocritical and necessary for humans to function in society.

**HUMANOID ROBOT SOCCER**

**Leah Perlmutter ('12) and Martha Witick ('12), Computer Science**

Our presentation details the current state of our humanoid robot soccer team, an effort started Summer 2011 and further developed as our honors project this past year. We have developed humanoid robot soccer system capable of chasing a ball and recognizing important landmarks. Over the course of this project, we incorporated several different components into our system. Our physical platform is a DARwin-OP bipedal robot running Ubuntu Linux optimized for improved speed. For our vision system, we customized an existing vision system and developed operators to recognize white lines on a green background, yellow and blue landmark posts, and a red ball. The landmark post operator uses a state machine that performs vertical scans over the image to recognize wide bands of color in a specific order. The line operator employs state machines and Random Sample Consensus in a three-pass process. The ball operator employs a particle filter to track ball location and velocity, and attempts to predict ball location. To physically control the robot, we integrated the University of Pennsylvania's locomotion engine into our system. This dynamic walk engine uses sensor feedback to stabilize the robots gait and is capable of fast, omni-directional motion. The command module contains state machines that direct high-level robot behaviors, such as ball tracking and ball chasing. Our modules communicate using Carnegie Mellons Inter-Process Communication so that the the command module can incorporate data from the vision module and use it to control the walk engine and to move the robots head.

**'WHOSE [MOVIE] IS THIS?': FOUNDATIONS FOR A DIFFERENT AUTHORSHIP IN SPIKE LEE'S 'SHE'S GOTTA HAVE IT'**

**Michael Perreault ('13), American Studies**

Spike Lee's major filmic debut, 'She's Gotta Have It,' forms the directors beginnings of a new black counter-cinematic language. Using Claire Johnston's 'Women's Cinema as Counter-Cinema,' which calls for a non-reactionary cinema that is still fair in its representation, I will assess Spike Lee's cinematography, editing, and narrative and analyze the ways in which it transgresses or upholds the norms of classical Hollywood narrative film (and its connotative oppressiveness). In conjunction with his film, Lee's self-conscious presentation in the public eye as 'not a black Jim Jarmusch,' and 'not a black Woody Allen' (or a Scorsese, or a Spielberg), but as a man who makes films primarily for a black audience, shows that even early in his career, he was aware of the influence he would have on contemporary America's view of its underrepresented black population. 'She's Gotta Have It' is Lee's formal experiment in differentiation and originality. By presenting a film that is self-consciously appealing to white art-house audiences, but that is also decidedly different from the Kurosawa or Godard films that 'She's Gotta Have It' clearly references, Lee constructs a language of differentiation--of 'not this, but that.' Thus arises the question of interpretation: how do various spectators, of all genders, races, classes, sexualities, and levels of education view his film? Does his style require a literacy without which troubling situations may pass as acceptable facts? Backlash from numerous feminists and African American scholars have called attention to the easily misread ambiguities that exist throughout 'She's Gotta Have It.' With how much of a raised eyebrow does Spike Lee expect his viewers to watch? For his debut film, I contend that he sets the bar high.

**THE EVOLUTION OF THE AMBULANCE CORPS DURING THE CIVIL WAR**

**Lindsay Peterson ('13), History**

The United States Army was not prepared to deal with the number of wounded soldiers during the Civil War, as it was not expected the war would last very long. The U.S. Sanitary Commission recognized this medical disaster and pressured Surgeon General William Hammond to improve the situation on the ground. Hammond in turn demanded progress from the U.S. Secretary of War Edwin Stanton. The Army implemented reforms in regard to the movement of wounded soldiers away from the battlefield and the use of the ambulance corps was crucial to this process. This study will examine the development of the ambulance corps from its initiation to its widespread use in the U.S. Army during the Civil War.

**ELECTRONIC DETECTION OF ULTRA COLD NEUTRAL PLASMAS**

**Nirakar Poudel ('12), Physics and Astronomy**

The purpose of the experiment was to investigate the effect of time varying radio frequency field in ultra-cold neutral plasmas. Plasma oscillation is one of the most common collective modes in plasmas. Plasma oscillation is density dependent and this density dependent oscillation can be excited by applying time varying weak radio frequency signal. The voltage signals from the ultra cold neutral plasmas were analyzed to identify the mode of plasma oscillation and also determine permittivity of ultra cold neutral plasmas. The free electrons ejected from the plasma were also investigated to determine various plasma parameters like density, temperature and plasma expansion velocity. The results of the experiment showed good qualitative agreement with the theory. However, further analysis is required to determine quantitative agreement with the theory. The insights and the results obtained from the current project lay out a good foundation for future experiments to study plasma evolution and accurately determine various plasma properties.

**FRANCO-AMERICANS AND FRENCH EDUCATION IN MAINE**

**Madeleine Purcell ('12), French/Italian**

About one third of the population of Maine is of French descent. Although Franco-Americans have lived in this state for two centuries, they are often called French-Canadians even today. When, then, will they really become Mainers? Why is this group still considered distinct from the region and the country? The answers lie in the measures that Franco-Americans have taken to protect themselves from assimilation as well as in the particular forms of discrimination that they have faced as a group. This presentation discusses the historical prejudice against Franco-Americans and looks at present-day sites of French and Francophone culture in Maine, including an in-depth case study of the Maine French Heritage Language Program. A pilot initiative in Augusta and Lewiston, the Maine French Heritage Language Program introduces young students to the French language and to French cultures including those of Maine, New England, Canada, France, Madagascar and Togo without attempting to assign different values to the variants, which is a radical proposition when situated within the history of French in Maine.

**PARKS AS A BIODIVERSITY CONSERVATION STRATEGY IN URBAN ENVIRONMENTS****Yiyuan Qin ('12), Adrienne Bowles ('12) and Olivia Kefauver ('12), Environmental Studies**

The world is becoming increasingly urbanized and it is important to understand and explore how to integrate human needs with biodiversity conservation in this process. This study examines the role of parks as conservation strategies in Irvine, Chicago, and Curitiba, Brazil. Parks can be effective as a stepping stones in the urban landscape. They also provide important ecosystem services and attract native pollinators. It is also important to recognize the pragmatism required in the planning of parks in order to realistically determine what species and services are most important to maintain while also balancing community needs.

**SOUTH CHINA TIGER REINTRODUCTION: LESSONS, ASSESSMENTS, AND IMPLICATIONS****Yiyuan Qin ('12), Environmental Studies**

The south China tiger (*Panthera tigris amoyensis*) is a critically endangered subspecies native to China. The Chinese government has expressed interest in reintroducing the tiger. I conducted a three-component study to assess a potential reintroduction project. First, I completed a literature review on reintroductions globally and developed a framework to assess large carnivore reintroductions through the broad categories of biological and technical, organizational, and socioeconomic factors. Second, to learn about the attitudes of conservation professionals toward a possible reintroduction of the south China tiger and experiences in large carnivore conservation, I designed and sent out a survey to selected members in the international conservation communities. Among the 68 respondents, a majority supported a potential south China tiger reintroduction. Respondents cited China's capacity to plan and implement the project, the cultural significance of tigers, and the potential positive impact on future conservation, while recognizing challenges in finding suitable habitats, appropriate founder stocks, and enforcement of laws and regulations. Finally, I used Geographic Information System and Population Viability Analysis software to model and guide tiger management options. I used habitat suitability index for wild boar and Sika deer as a plausible proxy for tiger habitat suitability in Hupingshan and Houhe National Nature Reserves. My habitat suitability models identified a range of possible suitable sites based on different scenarios. I used VORTEX to model the influence of different initial population sizes, carrying capacity, and supplementation on the reintroduced tiger population over 100 years. Supplementation was found to have a crucial impact on tiger population viability.

**INITIATING CULTURAL SHIFT: A STUDY OF HIGHER EDUCATION****Peter Rand, Education and Human Development**

This study examines the initiation of positive cultural change within higher education institutions through student empowerment.

**MAKING THE MINI MUTANT: CONSTRUCTING A MUTATION IN A GENE ENCODING A SELENATE REDUCTASE****Madelyn Renzetti ('14), Biology**

Selenium (Se) can be found in very low quantity in the Earth's crust, where it is naturally distributed, as well as in greater concentrations in black shales and phosphate-bearing rocks. When this element is worn down, it produces selenite and selenate. The microbes I worked with, A34 and L33, are selenate-reducing organisms. The purpose of this research is to construct a mutation in a gene encoding a selenate reductase in the A34 and the L33 microbes, and then amplify the mutant construct by cloning it into an E. coli PCR 2.1 vector and then extracting it. In order to accomplish this, PCR reactions amplified the first 412 base pairs of the Ser gene in A34 DNA and the last 610 base pairs in the same gene as separate fragments. Tetracycline specific primers and PCR then amplified a tetracycline resistant gene in the plasmid in bacteria strain pBr322. The sticky ends on all fragments would then allow the three fragments to be fused together when put together in a PCR reaction with Phusion Polymerase. The mutant construct was then put into chemically competent E. coli cells to be amplified and then harvested using alkaline lysis. We successfully made the mutant construct and are still working toward successfully amplifying it.

**EXPRESSION OF TIMELESS AND CRYPTOCHROME PROTEINS IN *DAPHNIA PULEX* GIVE EVIDENCE OF CONSERVED CIRCADIAN CLOCK MECHANISMS IN CRUSTACEANS****Christine Reynolds ('12) and Justin Partridge ('12), Biology**

Circadian rhythms are endogenously-driven daily cycles of behavior, physiology, cellular and molecular mechanisms. At the molecular core of the clock are feedback loops of transcription, translation, and negative feedback that occur with a periodicity of approximately 24-hr. The best characterized molecular clock system is that of *Drosophila*. While clock mechanisms vary among species, some components are highly conserved evolutionarily, sharing homologous genes and proteins in species as diverse as fungi and humans. Circadian clocks and rhythms in crustaceans have not yet been characterized. While they express well-studied rhythms of behavior and physiology, the molecular underpinnings are not known. *Daphnia pulex* is the only crustacean whose genome has been sequenced to date; therefore, it serves as a unique model organism for studies of the crustacean circadian clock and its molecular basis. Previous work in our lab identified putative circadian genes in the genome database (clock, cycle, period, timeless, and cryptochrome), many of which show high sequence similarity to their counterparts in *Drosophila*. Surprisingly, *Daphnia* have multiple copies of genes for which other species (invertebrate and vertebrate) have only one or two. For example, eight copies of timeless and four copies of cryptochrome were identified. Phylogenetic analyses of each of these proteins show evolutionary similarity with invertebrate homologs. Using RT-PCR analysis, we confirmed that in *Daphnia*, all eight timeless and four cryptochrome homologs are expressed with potential rhythmicity. These data give further evidence of a functioning circadian clock in crustaceans and provide a basis for future molecular, neurological, and physiological studies.

**ROYAL CRISIS: MASCULINITY IN DISNEY PRINCESS FILMS****Kathleen Ricciardi ('12), American Studies**



My thesis examines masculinity in selective Disney Princess films. I use Masculinities by R.W. as a theoretical framework. His work delineates three main types of masculinity: hegemonic, complicit, and subordinated. Chapter one deals with the Cinderella series, which includes Cinderella (1950), Cinderella II (2002), and Cinderella III (2007). King Charming, the prince's father, represents what Connell calls hegemonic masculinity that continues to depend upon the subjugation and exclusion of women and non-hegemonic men and the acquiring of material wealth and goods. Chapter two examines the the Mulan series, which includes Mulan (1998) and Mulan 2 (2004). These films exemplify Disney's push towards a more nuanced depiction of both gender and multiculturalism that began in the 1990s. Despite this attempt, ideal masculinity remains stringently entrenched in the white, hegemonic ideal in each film. Chapter three looks at The Princess and the Frog (2009), the first film to feature a black princess and prince. The film attempts to circumvent racial and gender issues by re-imagining the film's 1920s New Orleans setting as a place without racial tensions. Disney's effort to neutralize historical racial, social, and economic inequalities breaks down because patriarchal power remains in the hands of Big Daddy La Bouff, a white businessman.

#### **PATHWAYS TO SOCIAL MOBILITY: EDUCATIONAL INEQUALITIES AT WATERVILLE HIGH SCHOOL (GENDER)**

**Hannah Ricketts ('12) and Malcolm Kerr ('13), Sociology**

Inequality is one of the greatest issues facing the United States today, particularly in the area of education. In order to examine mobility through education we conducted a case study of Waterville Senior High School. Despite higher than average high school graduation rates, college matriculation rates in Maine are lower than in New England and in the nation as a whole. Waterville provides an interesting case study because of the socioeconomic heterogeneity of its student population. Using methods of quantitative and qualitative research we investigated the effects of guidance counselors, social networks among peers, parents educational backgrounds, and gender on students post-secondary education plans.

#### **A QUICK DOWNWARD SLOPE: THE POTENTIAL HEALTH IMPACTS OF FLUORINATED SKI WAX**

**Elizabeth Schell ('14) and Sophie Weaver ('14), Environmental Studies**

Fluorinated ski waxes have long been used in professional skiing to give competitors an extra edge by having fast skis. The growing amount of evidence concerning the health impacts of fluorinated chemicals begs the question of how these impacts translate to people who are exposed to similar chemicals through the process of waxing skis. Although no studies have been conducted to directly look at ski waxing technicians to see if they are impacted, there is substantial evidence available that suggests ski waxing has associated health impacts. This study explores this evidence to see if a correlation can be made.

#### **ATLAS OF MAINE: DEER WINTERING AND CONSERVATION AREAS IN MAINE**

**Elizabeth Schneider ('12), Environmental Studies**

This map shows the locations of deer wintering areas in comparison to areas reserved for conservation. Additionally, data from the 2010 Maine Census is presented. As can be seen from the shading, the southern and coastal areas of Maine are more heavily populated. It is interesting to note that deer wintering areas do not often overlap with conservation areas, and many deer wintering areas are found in areas of higher population.

#### **CASCO BAY**

**Elizabeth Schneider ('12) and Michael Whalen ('12), Environmental Studies**

Casco Bay and its surrounding watersheds are threatened by increased impervious coverage in urban areas. Impervious cover, which increase stormwater volume and pollutant loads, is any surface that prevents water absorption by soil. Sensitive fish species can be negatively affected by as little as 4-6% impervious coverage, and at 12% impervious coverage, stream health is compromised. Our map shows the sub-watersheds of Casco Bay and the amount of impervious coverage in each. To provide a more accurate understanding of which stream areas are most in danger, we factored in riparian buffers of 20m around the streams, because impervious surfaces immediately adjacent to watercourses have a greater effect on water quality. Our final product highlights ten areas that hover around an impervious coverage of 6%: five sites are just above impairment level and five sites are just below. These locations may represent targets for efficient allocation of funding for restoration or sustainable management.

#### **KAFKA'S APE**

**Elizabeth Schneider ('12), German/Russian**

This paper discusses Kafkas short work, A Report to an Academy, in which an ape describes the process of becoming human. Although the ape, Rotpeter, is treated as a person in some regards, he can never achieve a place in society outside of being a public spectacle. This paper addresses the question of whether this isolation is forced upon Rotpeter, or whether he himself chooses to remain segregated from humanity.

#### **THE ASSOCIATED HEALTH EFFECTS OF VIETNAM WAR VETERANS FROM EXPOSURE TO AGENT ORANGE**

**Andrea Schweitzer ('14) and Allana Sanborn ('13), Environmental Studies**

Based on our research, there is little evidence to suggest that US combat forces were present when Agent Orange was sprayed in Vietnam.

#### **GENERATION OF FORMYL- AND VINYL CARBENES FROM NONNITROGENOUS PRECURSORS**

**James Shaum ('13), Chemistry**

This work describes our exploratory investigations into the synthesis of phenanthrene based systems to be used as nonnitrogenous precursors for the generation of formyl- and vinylcarbenes. The effectiveness of such precursors at producing such carbenes and the reactions these intermediates undergo will be discussed from experimental and computational perspectives.

#### **OBESOGENS AND THE MATERNAL PROGRAMMING OF OBESITY**

**Zoe Sherman ('12) and Sandra Johnson ('12), Environmental Studies**

Our poster is a review of studies that suggest that prenatal exposure to certain chemicals leads to obesity later in life.

#### **ATLAS OF MAINE: FOREST TYPE AND MAPLE PRODUCTION**

**Matthew Silverman ('12), Environmental Studies**

This map displays maple syrup producing farms derived from the membership listing of the Maine Maple Producers Association. Deciduous, mixed and evergreen forest classes are displayed. Sugar Maple trees fall within the deciduous forest class.

**LINKING FARMS AND FOOD BANKS IN MASSACHUSETTS****Matthew Silverman ('12) and Katherine Murray ('12), Environmental Studies**

Gleaning is the act of harvesting excess produce from farmland during and after the growing season. Organizations like Boston Area Gleaners have found an important niche in which they glean from local farms and deliver to local food pantries. However in order to make each gleaning trip cost effective, enough farms must be located within an affordable driving range of food pantries. The purpose of this project is to use GIS to find the most efficient connections between farms and food banks throughout Massachusetts based on travel cost. Using data from MassGIS we used ArcGIS to map cropland and the four major banks in Massachusetts. We used Network Analyst to build road networks and define driving ranges. These were spatially joined to cropland and the resulting data were summarized to determine cropland acreage and number of agricultural fields related to driving range for each food bank. We found that gleaning initiatives in western and central Massachusetts would only need to drive 10 to 20 miles (one way) to reach 20,000 to 30,000 acres of cropland while initiatives in Boston would need to drive approximately 25 miles (one way) to only reach 10,000 acres of cropland.

**LISTENING BEYOND THE LINES IN A POST 9/11 WORLD: INSIDE MAN AND WHEN THE LEVEES BROKE'S MUSICAL INTERTEXTUALITY****Nicole Sintetos ('12), American Studies**

Spike Lees HBO documentary When the Levees Broke: A Requiem in Four Acts functions as a eulogy to the great city of New Orleans in the aftermath of Hurricane Katrina in many of the same ways that Inside Man functions as Spikes love letter to New York City in the aftermath of the 9/11 attacks. the forced evacuation and forced detainment of the people of New Orleans and the hostages of Inside Man are linked by their identical film scores. Although composer Terence Blanchard did write original music for Levees, the tight production schedule forced Lee to pull music he used in Inside Man for his documentary as well. The musical intertextuality of the two films should not be read as accidental, but as an alternative vocabulary used to critique the corrupted, non-democratic American political system that controlled the populaces social and physical mobility alike. The music is not only an expertly curated blend of jazz, spoken word, and classical music, but the narrative backbone that transforms music into a metaphor for mobility.

**NO PLACE TO HIDE: PARE LORENTZ AND NUCLEAR ANXIETY IN THE ATOMIC AGE****Nicole Sintetos ('12), American Studies**

The overarching goal of my research was to situate an unpublished screenplay by the documentary film director, Pare Lorentz, into a historical narrative that intersects at a radical moment in American history when socialist leaning politics and McCartyism publicly collided. Drawing on primary documents from the archives of Columbia University, Princeton University, and the University of Chicago, my thesis attempts to unravel the political, rhetorical, and social politics of the screenplay, which was financially backed by the United World Federalists and the Emergency Committee of Atomic Scientists. Further, I consider the social implications of the screenplays powerful cast, which included Supreme Court Justice Douglas, Eleanor Roosevelt, Albert Einstein, and many of the original nuclear scientists who worked on the bomb. I accomplish this through an analysis of post-bomb literature between the 1946 Bikini Atoll atomic bomb tests until the demise of Lorentz's film production after the Soviet test bomb in 1949.

**CONTROLLING FOR ENDOGENEITY: THE EFFECT OF DEMOCRACY ON ECONOMIC GROWTH****Amy Slipowitz ('12), Economics**

Considerable study has been directed towards examining the effect of democracy on economic growth. Because the cause of democratization differs across countries, additional research should include the years leading up to a democratic transition. Economic crises, marked by high inflation, depressed economic growth, and financial turmoil, can largely contribute to the decision to establish a democracy. In order to understand how different types of democratization affects subsequent economic growth, thirty-nine transitions were divided into two categories. The first type is an endogenous event, where a country changes its regime primarily due to a deteriorating economy. The second group is an exogenous transition, which occurs when a state undergoes reform for reasons unrelated to its economy. To identify each of the thirty-nine episodes, a narrative approach was used by conducting extensive research on each country's political and economic situation in the years leading up to its democratic transition. Following this, statistical analysis was employed on each group to determine its relationship to economic growth. Thus, the simultaneity bias that results when an endogenous change occurs was eliminated. This study will conclude that there is a difference between each transition type on economic growth: endogenous change corresponds to a statistically significant increase in growth while exogenous transitions have no effect on growth.

**HE SMELLS THE MONEY: CRITIQUING CAPITALISM IN 'HE GOT GAME'****Amy Slipowitz ('12), American Studies**

Spike Lee's 'He Got Game' exposes the weaknesses within professional and college basketball's capitalist structure. Jesus Shuttlesworth, the film's protagonist, becomes dehumanized, turned into a commodity that represents financial security to his friends and family. Basketball's accessibility provides an escape from Coney Island, at the cost of commodifying Jesus and the game itself. In reality, he only receives an athletic scholarship, and will not be compensated for the revenue he will bring to his school. Through its portrayal of Jesus's relationships and basketball as an institution, 'He Got Game' is a critique of America's capitalist structure.

**THE KEY TO ACCELERATED LEARNING?: EXPLORING THE EFFECT OF THOUGHT SPEED ON COGNITIVE PERFORMANCE AND MOOD****Mariah Smith ('13), Benjamin Darr ('14), Shameeka Murphy ('13) and Samantha Slotnick ('14), Psychology**

A great deal of research has been conducted investigating the effects of various elements on mood and cognitive performance, including the effects of thought speed on mood and the effects of musically induced arousal on cognitive performance. Yet, little research has been done on the effects of thought speed on cognitive performance and mood. To manipulate mood, a positive, or happy, video was chosen and a negative, or sad, video was chosen. To effectively induce thought speed, the selected positive and negative visual stimuli were both sped up and slowed down from its normal speed to create four experimental conditions. Participant performance on several cognitive tasks was measured as well as a general mood inventory. As a result of the

experimental manipulations, it was found that an interaction of positive content and increased thought speed had an effect on certain types of cognitive performance.

#### **PATHWAYS TO SOCIAL MOBILITY: EDUCATIONAL INEQUALITIES AT WATERVILLE HIGH SCHOOL**

**Hannah Smythe ('12), Sociology**

Inequality is one of the greatest issues facing the United States today, particularly in the area of education. In order to examine mobility through education we conducted a case study of Waterville Senior High School. Despite higher than average high school graduation rates, college matriculation rates in Maine are lower than in New England and in the nation as a whole. Waterville provides an interesting case study because of the socioeconomic heterogeneity of its student population. Using methods of quantitative and qualitative research we investigated the effects of guidance counselors, social networks among peers, parents educational backgrounds, and gender on students post-secondary education plans.

#### **ELUCIDATING THE EFFECTS OF A NATURAL ENVIRONMENT AND EXERCISE ON EXECUTIVE FUNCTIONING**

**Caroline Southwick ('14), Alexander Baier ('14), Kristina Haney ('13) and Natalie Roher ('14), Psychology**

Based on evidence that both nature and exercise separately act to improve cognitive functioning, and that stress levels also correlate with cognitive abilities, this study aimed to further explore the interaction between nature and exercise on cognitive functioning. In addition, this study observed if nature and exercise affected stress levels, which in turn led to benefits in cognitive functioning. Subjects were assigned to one of four conditions, nature/no nature and exercise/no exercise, completed the State Trait Anxiety Inventory to record stress levels, and performed a backward digit span task to document cognitive functioning ability. We found that nature and exercise only had a combined effect on stress levels, but not on cognitive functioning. Furthermore, only when nature is present does exercise lower stress levels. This suggests that the presence of nature during exercise has a calming effect, however we could not elucidate the previous research findings of nature or exercise benefits to cognitive functioning.

#### **INVESTIGATION OF CONSTRICTION IN DEFORMATION ZONES WITH COMPLEX BOUNDARY CONDITIONS**

**Justin Sperry ('13), Geology**

The flow geometry during the plastic deformation of rocks in complex crustal deformation zones is not well understood. This project created a three dimensional numerical model of a rheologically weak area with complex boundaries subjected to shearing forces using Gale, an open source geodynamic modeling engine distributed by CIG. The boundaries of the rheologically weak area in this model are approximated with Gaussian functions. The materials in the model are viscous to reflect the plastic deformation. This model is designed to determine if complex boundary conditions in deformation zones can create constrictional flow. Particle-based finite element modeling creates challenges in determining flow geometry, as particles are added to and removed from the model periodically. Gale was specifically selected due to its support for tracer particles, which act as silent observers. These tracers must be individually placed in the model in a pseudorandom manner to track the flow of material. This will also help to quantify the distortional strain that develops in the less viscous zone in the center of the model.

#### **REDUCTION OF HISTONE DEACETYLASE ACTIVITY BY SODIUM BUTYRATE IMPROVES MOTOR IMPAIRMENT IN A ROTENONE-INDUCED *DROSOPHILA* MODEL OF PARKINSONS DISEASE**

**Robyn St. Laurent ('12), Biology**

Parkinsons disease (PD) is a neurodegenerative disorder affecting dopaminergic neurons in the nigrastratial pathway characterized by debilitating motor impairment. Both familial and sporadic cases of PD exhibit resting tremor, rigidity, slowness of movement, and postural instability. Histone deacetylase (HDAC) activity is disrupted in PD and other similar neurodegenerative diseases. Thus, HDAC inhibitors have recently been implicated as novel therapeutics because of their ability to correct the disrupted HDAC activity thought to be involved in neurodegeneration. Sodium butyrate, an HDAC inhibitor, reduces apoptosis and dopaminergic degeneration in a transgenic fly model of PD. This study investigated the novel treatment of HDAC inhibitors on motor deficits and lethality in a rotenone-induced PD model using *Drosophila*. In *Drosophila*, chronic exposure to the pesticide rotenone selectively deteriorates dopaminergic neurons and produces motor deficits typical of PD. Sodium butyrate treatment rescued motor ability, but did not increase lifespan. A genetic knockdown of Sin3A, a component of the HDAC machinery, mimicked the rescue induced by sodium butyrate. Additionally, genetic knockdown of HDAC activity had an additive effect with sodium butyrate treatment for rescuing motor deficits. Therefore, sodium butyrate is presented as a promising candidate in PD.

#### **FEELING AS A PRE-EMERGENT SOCIAL AND ECONOMIC STRUCTURE: THE ROLE OF AFFECT IN THE CAPITALIST ORDER IN REBECCA HARDING DAVIS' LIFE IN THE IRON MILLS**

**Kristen Starkowski ('14), English**

The realist literary project of the late nineteenth and early twentieth century developed as authors attempted to accurately portray a changed American landscape that was the result of modernization. The realities of modernization as represented in literature are most appropriately framed through a Marxist theoretical lens. This paper uses Raymond Williams theory of structures of feeling as a means of framing Rebecca Harding Davis Life in the Iron Mills as a text that is both supportive and critical of Marxist superstructure. Feelings, Williams offers, emerge as both a reflection and disruption of fixed historical and institutional forms: the actual alternative to received and produced fixed forms is not silence. It is a kind of feeling thought as felt and feeling as thought (132). Williams encourages us to consider moments when emotion is overtly expressed, seeing these instances as indicative of the normative social and psychological order during a particular historical period. However, he also highlights masked affective performances as radical articulation[s] of presence (135) within a repressive hegemonic context, and states that these articulations are capable of inducing social, political, and cultural change. It is in this context that I will examine overt and relatively concealed affective expressions in relation to the economic structures that Davis represents in her novella. That is, while blatant expressions of feeling as articulated by the bourgeoisie serve to reinforce an inequitable capitalist order in Davis text, underperformed affective slippages as expressed by the working class emerge as either supportive of capitalism or, more interestingly, as foundational to an emergent and progressive cultural order and class dynamic.

#### **UNRAVELING THE NINETEENTH-CENTURY VICTORIAN SOCIAL FABRIC: CLOTHING AND SOCIAL MOBILITY IN CHARLES DICKENS' GREAT EXPECTATIONS**

**Kristen Starkowski ('14), English**

Large population increases in London during the nineteenth-century launched the city into a state of flux, and individuals across social classes struggled to maintain or achieve bourgeois status. Charles Dickens Great Expectations reveals that one realm where this crisis is registered and managed is in depictions of clothing. Sociological theorist Georg Simmel establishes a link

between clothing and mobility in his essays on fashion; he claims that the task of clothing is to facilitate upward social mobility by allowing lower-class individuals to imitate middle-class style. But if we read clothing in relation to literary theorist Homi K. Bhabha's anatomization of the ambivalent postcolonial subject by applying his notion of mimicry to the class struggle, we see a reversal of Simmel's argument that mimetic of hegemonic style can crystallize a lower class man's social inferiority, even as it offers itself as an avenue for resisting this inferiority. By using the theoretical contexts of Simmel and Bhabha to make sense of the characters of Joe, Magwitch, Wemmick, and Pip in *Great Expectations*, I argue that clothing imitative of middle-class style both exposes and masks class struggle in Victorian England. Because mimetic attire appears unnatural on lower-class wearers, it exposes class struggle by highlighting the immobility of these wearers. Yet the very fact that hegemonic clothing seems natural on bourgeois wearers masks the ongoing quality of class struggle; bourgeois wearers must regularly dress customarily to maintain their status, even though this stifles their individuality. In both cases, Dickens critiques the notion that clothing effectively manages class identity by demonstrating that the inflexible nature of fashion renders it unable to promote or preserve bourgeois status.

#### **ATLAS OF MAINE: DEPARTMENT OF DEFENSE INSTALLATIONS AND NATIONAL GUARD ARMORIES**

##### **Michael Stephens ('13), Environmental Studies**

This map displays National Guard Armories and Unclassified Department of Defense Installations in Maine. Department of Defense Installations include: naval shipyards, air stations, communication stations, and Defense Finance and Accounting annexes. The map also includes a layer for Interstate and State Highways. The data was acquired from the Maine Office of GIS and Geo.Data.gov. The map is projected across Universal Transverse Mercator Zone 19 North using North American Datum 1983.

#### **MEDAL OF HONOR: COLBY ON THE FRONTLINE**

##### **Carter Stevens ('13), History**

During the Civil War, many current Colby students, as well as graduates of what was then called Waterville College, served in the Union Army. Those who perished are remembered in our Civil War memorial today, but three actually received the highest award our country can give- the Medal of Honor- for their service. This project looks into their stories, how the Medals were awarded, and why it was that these three men, alongside nearly 700 other veterans, received their Medals in the 1890s, thirty years after their own service.

#### **PLAYING THE PART: AN EXAMINATION OF CIVIL WAR ERA MOURNING AND THE PERFORMANCE OF SOCIAL IDENTITY**

##### **Allison Stitham ('12), Religious Studies**

In Civil War Era America, everyone was touched by a death of some kind, but the responsibility of grieving fell primarily on women. In a time of prescribed rules and customs, there was very little room for individual expression in physical appearance while mourning (Faust, 2008). Society dictated what people should wear and what they should purchase in order to properly mourn and as a result, an industry formed out of the demand for mourning goods. Etiquette and fashion magazines posted advertisements for the latest styles from Paris and stores specializing in mourning attire began popping up (Levins, L.B., 1863). Women purchased specific clothing and accessories indicative of the grieving process and furnished their houses with memorial art (Levins, Lessing, 2011). During this era, the mourning process was commercialized through this accumulation of visual representations of grief. Lauren Lessing claims objects and settings played crucial roles in the mid-nineteenth-century dramatic performance of identity (2011, 57). I will take this theme of performance further to argue that the commoditization of memorial accoutrements allowed women of the Civil War Era to perform and create contrived social identities as mourners.

#### **CHARACTERIZING THE PHAGOCYTIC ACTIVITY OF ZEBRAFISH KIDNEY NEUTROPHILS**

##### **Alexander Storer ('12), Biology**

Circadian rhythms are daily oscillations in physiological or behavioral patterns of an organism. The predictable nature of circadian rhythms allows an organism to anticipate changing conditions and needs throughout the day and alter its physiology or behavior as necessary to compensate. Phagocytosis is an important mechanism by which cells of the immune system can engulf and dispose of pathogens, such as bacteria. Phagocytic activity is an especially important factor in the innate immune response. Previous studies have demonstrated that phagocytic activity in zebrafish (*Danio rerio*) follows a pattern of daily variations. However, the specific contribution of neutrophils to this phenomenon has not yet been described. Using a phagocytosis assay and transgenic mpx:GFP transgenic zebrafish, the ability of kidney derived neutrophils to phagocytose pre-killed *E. coli* was found to vary rhythmically over the course of the day.

#### **CHEMICAL CONTAMINATES IN DAIRY PRODUCTS**

##### **Jared Supple ('13) and William Supple ('12), Environmental Studies**

Through extensive literature review we were able to identify many chemical contaminants that are found in dairy products. These contaminants were found in a broad range of countries and in varying concentrations. The literature also indicated that pasteurization did little to reduce contaminate levels and that no laws exist for the identification, monitoring, and restriction of chemical contaminants in dairy products. Dairy products are consumed in large quantities on a daily basis, so a better understanding of the harmful chemicals found in these products will go a long way to protecting the public.

#### **TRACING PERFORMANCE ENDURANCE GENES THROUGH FAMILIES**

##### **Jared Supple ('13), Chemistry**

The ACE gene has been shown to influence athletic performance. The insertion (I) allele is seen in endurance athletes in high frequency, while the deletion (D) allele is associated with sprinting and power sports. After swabbing test subjects, a DNA extraction kit and PCR were used to amplify the ACE gene and then gel electrophoresis was used to determine I from D allele. This protocol was done with members of three families with the hope of seeing a relationship between particular athletic success and the prevalence of a certain allele. We found that the family with significant endurance athletic success had a high frequency of the I allele, while the two other families had higher frequency of D allele and more sprinting and power athletes. Although these results indicate that the ACE gene plays a role in determining what type of athlete one might be successful as, many genes are involved in the ultimate determination of athletic performance, indicating one of the limitations of our study.

#### **DIFFERENTIAL EFFECTS OF WARNINGS ON DIRECT AND MEDIATED FALSE MEMORY IN YOUNG AND OLDER ADULTS**

##### **Arvia Sutandi ('13), Psychology**

The Deese-Roediger-McDermott paradigm uses lists of semantically related words (e.g., dream, pillow, tired) that converge on a non-presented target word, called the critical item (CI; e.g., sleep). According to the activation/monitoring account of the DRM effect, activation from studied items converges on the CI, increasing its accessibility, and monitoring failures at test result in false recall or recognition. To test this account, the present study included direct lists, in which the words were directly related to the CI (e.g., meteor clean) and mediated lists, in which they were related to the CI through a mediating word (e.g., meteor [shower] clean). Older adults, who have preserved activation processes but deficits in monitoring, and young adults were tested. After each list, participants either completed a recall test, took a recall test after being warned about the DRM paradigm, worked on math problems, or tried to guess the CI. After all lists were presented, a recognition test was administered. Overall, warnings were effective in reducing errors and direct lists resulted in more false memory for CIs. Older adults falsely recognized mediated CIs only in the guess condition, whereas younger adults falsely recognized mediated CIs in the recall and warn conditions as well. In what we term the ironic effect of guessing, guesses and warnings may actually reinforce the semantic connections between the words, promoting CI activation rather than diminishing it when the CI is not easily identified, as in the mediated lists.

#### **THE REACTION OF DIHALOCARBENES WITH ANTHRACENES**

##### **Jamie Suzuki ('14) and Abebu Kassie ('14), Chemistry**

The reaction of anthracene with dibromocarbene (:CBr<sub>2</sub>), under phase transfer catalyzed conditions, results in a remarkable expansion of the central ring. This ring-expanded product is closely related to an important intermediate in the pharmaceutical industry. There are rare reports of an analogous reaction of anthracene with dichlorocarbene but the mechanistic details remain unknown. Our work is focused on investigating the mechanism of this unusual rearrangement by reacting dihalocarbenes with anthracene derivatives bearing electron withdrawing and electron donating groups. This effort is directed toward understanding substituent effects on the course of the reaction. Computational studies on the reaction will be also described.

#### **BITCOIN: THE EVOLUTION OF MONEY INTO THE VIRTUAL SPACE**

##### **Alex Swanson ('12), Computer Science**

With the emergence of the Internet and prominence of online commerce, the idea of a future electronic monetary system must be discussed. From livestock to tools, physical goods to coins, paper money to credit cards, the form of money has been molded by what the market demands; relying less on intrinsic value and more on market value. This paper aims to answer the question: can a universally accepted, electronic form of currency exist in today's economy? The paper begins by discussing the history of money and introducing three forms of currency in circulation today. It then analyzes the potential economic and security impacts of an adoption of an electronic currency. The paper concludes with my opinions of where currency is headed.

#### **CONVENIENCE ON EVERY CORNER: AN ANALYSIS OF THE JAPANESE CONVENIENCE STORE INDUSTRY**

##### **Martin Tengler ('12), Global Studies**

There are over forty-five thousand chain-organized, franchised convenience stores (konbini) in Japan. Unlike convenience stores in the US and Canada, the Japanese konbini provide a wide array of services on an area the size of a classroom. In Japan, the konbini are a way of life. This study analyzes why the konbini are so widespread in Japan, and in what ways their success relates to how the konbini business model attends to the perceived needs of the Japanese consumer and convenience store owner. This study consists of two parts: a literature review, summarizing the findings of other researchers related to the topic, and on-site research in the city of Kyoto, analyzing the businesses themselves, understanding how they are organized, and understanding their consumers and owners, their needs, desires, and life patterns. This study argues that the konbini in Japan are so successful because they are able to serve many diverse groups of customers and at the same time retain their franchisees. This ability rests on the chains ability to gather sales information through their advanced Point of Sales (POS) and customer card systems, adapting instantaneously to changing customer preferences.

#### **THE ROLE OF SUCCESS IN THE RELATIONSHIP OF POSITIVE AFFECT AND ACCELERATED THINKING**

##### **Miia-Liisa Termonen ('14), Jacqueline Charlton ('14), Sarah Donegan ('14) and Arthur Warner ('14), Psychology**

The purpose of this study is to investigate the effects of thought speed and perception of success on overall mood. Several studies have explored the relationship between cognitive speed and mood, concluding that people who think faster about something, regardless of what it is, will be in a better mood afterwards than people who process the same content at a slower pace. None of these studies, however, investigated the possibility that this increase in positive affect might have been due to the perception that fast thinking is more successful than slow thinking. This study serves to investigate whether perceived success or thought speed has a larger affect on overall positive affect by manipulating both speed and perception of success, and then evaluating their effects on mood.

#### **STABILIZING THE FREQUENCY OF A DIODE LASER USING A LOCK-IN AMPLIFIER**

##### **Ai Phuong Tong ('15), Physics and Astronomy**

The study of quantum mechanics relies significantly on the precision of instruments at atomic and subatomic scales. In this study, the focus is the diode laser, a device that emits electromagnetic radiation with properties that are key to the results obtained by its application. It is often used to provide specific frequencies of light for the purposes of further understanding the quantum world. Unfortunately, the frequency of the laser is easily altered by surrounding noise or motions. Thereby, the accuracy of the results obtained is diminished by the unsteadiness. The purpose of this research is to create a lock-in amplifier that can detect a change in the laser frequency and produce an error signal with a voltage. An input and dither signal enters into the circuit and outputs an error signal that is fed back to the laser to correct the change, stabilizing the laser frequency. The key components to the lock-in amplifier are a differential AC amplifier, a phase shifter, a mixer, a low-pass filter, and a DC amplifier. The objective is to determine the necessary types of electrical components, which include resistors and capacitors, to build the circuit for each component of the lock-in amplifier. The precision provided by this compact and economical instrument can increase the accuracy of results for more reliable data in normal laboratory settings that are generally destabilizing.

#### **SYNTHESIS OPTIMIZATION AND PURIFICATION OF 'DICALIXARENE'**

##### **My Tong ('14), Chemistry**

Calixarene chemistry yields compounds with possible applications in both the pharmaceutical and industrial fields. More intriguing is the mechanism for synthesizing these compounds. Calixarenes are macrocycles consisting of four benzene rings that are attached by heteroatom bridges. The Katz Lab successfully designed a novel one-step synthesis of calixarenes. This mechanism is still widely used in the lab to create these relatively complex structures using a simple procedure. In this project, the mechanism for calixarene synthesis was adapted to synthesize dicalixarenes. Dicalixarenes are essentially two fused calixarenes attached by a tetraphenol. The goal of the project is to optimize on the procedure for making these dicalixarenes in order to yield a cleaner

product. Having a clean product is vital because it will be closer to a pure product. Purification of the product has been tested using column chromatography. Once the pure product is formed, characterization of the synthesized material will provide even more understanding of calixarene chemistry. Understanding calixarene chemistry is important for making complex products from relatively simple reagents and procedures, and will yield high potential for future synthetic reactions involving calixarenes.

### **THE PROCESS OF PLAYWRITING: AN EXPLORATION OF STRUCTURE, CHARACTER AND DIALOGUE**

#### **Michael Trottier ('12), Theater and Dance**

Over the course of one year, I wrote, workshopped, and rehearsed my new work, Nonfatal Terminal Velocity. Told in one scene, the play depicts the lives of four high school students as they navigate love, sex, gender and religion. In order to write this play, I had to conduct research, run workshops and let the play evolve. This presentation is about that evolution and the ways in which artists conduct creative research. By the end of the presentation, people should have a better idea of the academic and creative research that goes into the development of a new work.

### **WHAT CAUSES MINISTERS OF FINANCE TO LOSE THEIR JOBS?**

#### **Bradley Turner ('12), Economics**

Abstract to follow. This is for the Economics Honors Thesis presentations in Roberts in the Hurd Room April 27th 2-4pm.

### **TOXIC FIRE: THE INCREASING RISK ASSOCIATED WITH AN INCREASINGLY SYNTHETIC WORLD**

#### **Erica VandenBerg ('13) and Mackenzie Nichols ('14), Environmental Studies**

In an increasingly synthetic world people are continually surrounding themselves with potentially hazardous materials. These synthetic materials are associated with heightened health risks because these materials emit more fumes and burn at higher temperatures.

### **KINETICS OF PHOSPHINE SUBSTITUTION IN CYCLOPENTADIENYL RUTHENIUM (II) BIS-TRIARYLPHOSPHINE CHLORIDES: A TALE OF TWO MECHANISMS?**

#### **Michael Verschoor-Kirss ('12), Chemistry**

The rate of substitution of  $\text{PAR}_3$  by  $\text{PMePh}_2$  in a series of ruthenium (II) complexes  $\text{CpRu}(\text{PAR}_3)_2\text{Cl}$  ( $\text{PAR}_3 = \text{PPh}_3, \text{P}(\text{p-tol})_3, \text{P}(\text{m-tol})_3, \text{PPh}_2(\text{p-tol}), \text{PPh}_2(\text{o-tol}), \text{P}(\text{p-MeOC}_6\text{H}_4)_3$  and  $\text{P}(\text{p-FC}_6\text{H}_4)_3$ ) has been measured under pseudo-first order conditions in  $\text{CDCl}_3$  solution between 25 and 50C. The activation parameters (H and S) are similar for all seven complexes and consistent with a dissociative mechanism ( $S > 0$ ). The values for the first order rate constants,  $k(\text{obs})$  are found to be in the order  $\text{PAR}_3 = \text{P}(\text{m-tol})_3 > \text{PPh}_3 > \text{PPh}_2(\text{p-tol}) > \text{PPh}_2(\text{o-tol}) > \text{P}(\text{p-tol})_3 > \text{P}(\text{p-MeOC}_6\text{H}_4)_3 > \text{P}(\text{p-FC}_6\text{H}_4)_3$ . With the exception of the  $\text{P}(\text{m-tol})_3$  and  $\text{P}(\text{p-FC}_6\text{H}_4)_3$  complexes the order for  $k(\text{obs})$  reflects the Lewis basicity of the phosphine ligand. The faster rate for the  $\text{P}(\text{m-tol})_3$  complex is attributed to the larger size (cone angle) for the  $\text{P}(\text{m-tol})_3$  ligand increasing the rate of the dissociative reaction. The effect of solvent, added halide and  $\text{PAR}_3$  as well as the rate of halide exchange (iodide for chloride in  $\text{CpRu}(\text{PAR}_3)_2\text{Cl}$  in the absence of  $\text{PMePh}_2$ ) suggest that: a) the mechanism of substitution involves solvolysis of the Ru-Cl bond followed by phosphine exchange from a  $[\text{CpRu}(\text{PAR}_3)_2(\text{solvent})]^+$  cation as the rate determining step for all complexes except where  $\text{PAR}_3 = \text{P}(\text{p-FC}_6\text{H}_4)_3$  and b) the unique behavior of  $\text{CpRu}(\text{p-FC}_6\text{H}_4)_3)_2\text{Cl}$  arises from a change in the rate determining step from phosphine substitution to solvolysis.

### **KINETICS OF PHOSPHINE SUBSTITUTION IN CYCLOPENTADIENYL RUTHENIUM (II) BIS-TRIARYLPHOSPHINE CHLORIDES: A TALE OF TWO MECHANISMS?**

#### **Michael Verschoor-Kirss ('12), Chemistry**

The rate of substitution of  $\text{PAR}_3$  by  $\text{PMePh}_2$  in a series of ruthenium (II) complexes  $\text{CpRu}(\text{PAR}_3)_2\text{Cl}$  ( $\text{PAR}_3 = \text{PPh}_3, \text{P}(\text{p-tol})_3, \text{P}(\text{m-tol})_3, \text{PPh}_2(\text{p-tol}), \text{PPh}_2(\text{o-tol}), \text{P}(\text{p-MeOC}_6\text{H}_4)_3$  and  $\text{P}(\text{p-FC}_6\text{H}_4)_3$ ) has been measured under pseudo-first order conditions in  $\text{CDCl}_3$  solution between 25 and 50C. The activation parameters (H and S) are similar for all seven complexes and consistent with a dissociative mechanism ( $S > 0$ ). The values for the first order rate constants,  $k(\text{obs})$  are found to be in the order  $\text{PAR}_3 = \text{P}(\text{m-tol})_3 > \text{PPh}_3 > \text{PPh}_2(\text{p-tol}) > \text{PPh}_2(\text{o-tol}) > \text{P}(\text{p-tol})_3 > \text{P}(\text{p-MeOC}_6\text{H}_4)_3 > \text{P}(\text{p-FC}_6\text{H}_4)_3$ . With the exception of the  $\text{P}(\text{m-tol})_3$  and  $\text{P}(\text{p-FC}_6\text{H}_4)_3$  complexes the order for  $k(\text{obs})$  reflects the Lewis basicity of the phosphine ligand. The faster rate for the  $\text{P}(\text{m-tol})_3$  complex is attributed to the larger size (cone angle) for the  $\text{P}(\text{m-tol})_3$  ligand increasing the rate of the dissociative reaction. The effect of solvent, added halide and  $\text{PAR}_3$  as well as the rate of halide exchange (iodide for chloride in  $\text{CpRu}(\text{PAR}_3)_2\text{Cl}$  in the absence of  $\text{PMePh}_2$ ) suggest that: a) the mechanism of substitution involves solvolysis of the Ru-Cl bond followed by phosphine exchange from a  $[\text{CpRu}(\text{PAR}_3)_2(\text{solvent})]^+$  cation as the rate determining step for all complexes except where  $\text{PAR}_3 = \text{P}(\text{p-FC}_6\text{H}_4)_3$  and b) the unique behavior of  $\text{CpRu}(\text{p-FC}_6\text{H}_4)_3)_2\text{Cl}$  arises from a change in the rate determining step from phosphine substitution to solvolysis.

### **THEY CAN'T DODGE A BULLET: ANTHROPOGENIC CAUSES OF LEAD TOXICOSIS IN WILDLIFE**

#### **Michael Verschoor-Kirss ('12), Environmental Studies**

Growth in the manufacturing industries created a rise in the amount and concentration of heavy metals used in consumer products that has increased both human and wildlife exposure to toxic elements including lead. While lead is both a cheap and generally effective product, it is also a potent neurotoxicant and known animal carcinogen. Despite regulation that removed lead from many products such as gasoline and paint, protection of wildlife from lead shot and fishing line sinkers is significantly lacking. A scholarly search for 'lead toxicosis' yields far more articles on wildlife than humans, underlining the continuing prevalence and importance of this problem. Understanding the threat lead poses to wildlife requires knowledge in a multitude of fields and specialties from wildlife medicine and conservation ecology to public policy and materials science. Only by examining the research and contributions from each of these fields can we begin to understand the complexity of the lead problem and the need for a holistic and multispecies approach to alleviate the effects of heavy metal pollution for both human and animal alike.

### **WOYZECK ALS COMIC**

#### **Christine Wamsley ('15) and Audrey Lomax ('13), German/Russian**

Our project depicts Georg Bchner's Woyzeck as a comic strip and traces the theme of human character vs. animalistic instinct throughout several scenes of the piece.

### **THE METACOGNITION OF MARGINAL KNOWLEDGE**

**Cale Wardell ('13) and Chelsea Ammons ('13), Psychology**

Marginal knowledge is defined as knowledge that is much easier to recognize than to recall (Berger, Hall & Bahrack, 1999). Likewise, metacognition, or understanding the depth of ones knowledge, is generally very poor among students (Metcalfe, Schwartz, & Joaquim, 1993). The current experiment examined whether accurate metacognition about ones marginal knowledge influenced correct answer persistence. Participants answered general knowledge cued-recall questions and a completed a confidence rating for each question, followed by a multiple-choice test, and final cued recall tests over immediate, 5 minute and 10 minute delays. Of interest is whether participants answered final cued recall questions more accurately when metacognition on the initial cued recall was accurate.

**TIME, LANGUAGE, & THE MYTHOLOGY OF A GREAT SOUTHERN BABEL: A DERRIDEAN READING OF WILLIAM FAULKNER'S ABSALOM, ABSALOM!, THE SOUND AND THE FURY, AS I LAY DYING & 'THAT EVENING SUN'****Dashiell Wasserman ('12), English**

When his roommate Shreve urges him to tell about the South in his frosty New England dorm room in William Faulkner's *Absalom, Absalom!* (1936), Quentin Compson discovers that to do so is to talk about the very fabric of time--to unravel a rich textile that interweaves a history of guilt with the values of faith, race, place, and family into an idea of what it means to be a Southerner in the Modern world. In untangling this fabric, Quentin confronts the underlying reality that past, present, and future are integral conventions of time that define ones relationship to the physical world, but, more importantly, that language is the vehicle that places one within a specific moment in this continuum. Arguably, Quentins concerns with time and language reveal a problematic Modern condition in which memory oscillates between the old world of the past and the ever-present encroachment of Modernity. This project uses Jacques Derrida's principles of deconstruction to explore the instability of time in language and how that ultimately problematizes myth as a linguistic device in Faulkner's fiction, including *The Sound and the Fury* (1929), *As I Lay Dying* (1930), and *'That Evening Sun'* (1931).

**UNION ANTI-SEMITISM FROM TENNESSEE TO MAINE****Samuel West ('12), History**

During the Civil War era the United States was home to approximately 150,000 Jewish residents. Due to their relatively small numbers many forget that they experienced the war in a meaningful and, in many cases, a unique manner. My project especially focuses on the experience of Jews in the Union because of their relatively high numbers and the diversity of their experience. One often thinks of the Union Army as an army fighting for freedom, devoid of prejudice. However, this was far from the truth. In my research, I focused on anti-Semitism during the Civil War, particularly on the Union side. My research entailed an examination of the experience of Jews in Grants military district and a comparison of that to the experience of Lewis Selbing, a Jewish resident of Augusta who fought with the 3rd Maine regiment. I also examined public opinion regarding Grants orders as well as towards the Jews more generally, and whether this attitude varied regionally. Many popular works on the Civil War such as, *Gettysburg*, *The Killer Angels*, *Gods and Generals*, and *Ken Burns Civil War*, tend to depict the war as a conflict between brothers of very similar racial and religious identities. This history ignores the experience of many minority groups, such as the Jews, who dealt with adversity during the course of the war. This experience was varied on a regional basis and, at times, was troubling due to a number of factors.

**ATLAS OF MAINE: ESSENTIAL SEABIRD HABITATS OF THE GULF OF MAINE****Michael Whalen ('12), Environmental Studies**

This map relates seabird nesting habitats with the biophysical regions of coastal Maine. Layers were downloaded from the Maine office of GIS. Biophysical Regions characterize geologic features, climate, soil type, and flora, all of which can affect biodiversity within the region. Seabird Nesting Islands host myriad species including Great Black-backed Gulls, Herring Gulls, Laughing Gulls, Black Guillemots, Razorbills, Atlantic Puffins, Common Terns, Arctic Terns and the critically endangered Roseate Tern. Also represented are overlapping critical habitats for Least Terns and Piping Plovers, the former of which is endangered in the state of Maine. Note that Habitat representations are enlarged for visual clarity.

**SELF-AFFIRMATION AND MORAL CREDENTIALS ON THE EXPRESSION OF RACIAL PREJUDICE****Brianne Wheeler ('14), Ginger Brooker ('14), Aimee Polimeno ('14) and Natalie Tortorella ('14), Psychology**

The topic of moral credentials has been explored through many previous research studies and the implications that enhanced moral credentials can have is varied depending on previous behavior explored and manipulated. Monin and Miller (2011) found that people who gained moral credentials from previously expressing they were not prejudice were more likely to contradict this behavior and show an immoral opinion in a similar domain. This study explores whether the self-affirmation theory proposed by Claude Steel (1988) has any effect on the immoral opinion expressed. The study will conclude that, though self-affirmation had minimal effect and so did moral credentials, contradicting the findings of Monin and Miller (2011), there was a gender difference between males and females. When women have enhanced moral credentials, they are less likely to show racial prejudice, but when they receive self-affirmation along with moral credentials, the effect was no longer significant. We believed enhanced moral credentials and self-affirmation would heighten ones willingness to express racial prejudice, but this was not the case at Colby.

**LIFE IN COLOR****Lucy Wilhelms ('12), English**

In a collection of short stories all set in Milwaukee, WI, I explore the superficiality and helplessness of modern day big-small city America.

**MEDIUMS CHANGE, FEARS STAY THE SAME****Lucy Wilhelms ('12), English**

Although generally dismissed by scholars as being overly sentimental or superstitious, the gothic genre has survived for over four centuries and maintained significant cultural appeal, outlasting the sentimental novel and the travelogue as popular literature. What, then, makes this genre different? What is so special about the gothic? In my thesis, I examine the evolving cultural appeal of the gothic genre that keeps it attractive and relevant for readers by tracing the gothic text, *The Woman in Black* by Susan Hill, through its initial inception and its subsequent adaptations. As a novel, *The Woman in Black* both repeats and revises the gothic genre, revealing which themes and concerns were still relevant in 1983. The theatrical adaptation of *The Woman in Black* (1987) by Stephen Mallatratt shows how these motifs and anxieties have evolved from the early 1980s to the late 1980s. Finally, James Watkins 2012 film adaptation of *The Woman in Black* further emphasizes the importance and timelessness of Hills original subject, the question of what it means to be a good parent. The gothic genre continuously evolves to express the tacit fears of

each generation, examining the extreme consequences of life's oppositions, retaining its relevance over the ages.

### **THE LOVE POETRY OF THE TROUBADOURS: SOCIO-ECONOMIC COMPARAISONS**

#### **Lucy Wilhelms ('12), English**

In my study of the love poetry of the lyrical troubadours of Middle France, I examined the differences between the works of upper-class troubadours, lower-class jongleurs, and between male and female troubadours. Starting with my translations of King Guillaume IX's poetry in the late tenth century and continuing with Jaufré Rudel, the Comtesse de Dia, Arnaut de Mareuil, and Bertran de Born to the beginning of the twelfth century. Unfortunately, much of the troubadours' once-abundant work has been lost due to the Albigensian Crusades of the twelfth century, but what survives permits us an insider's (entertainment-oriented) view of life, loss, and love in France's Middle Ages.

### **PRENATAL CHOLINE RESCUES COGNITIVE DYSFUNCTION IN A RAT MODEL OF DEPRESSION**

#### **Derek Wise ('12), Kristen Erickson ('12), Lucas Fortier ('15) and Marina Rosengren ('12), Psychology**

Choline, a vitamin and acetylcholine's precursor, has cognitive and neuropathological implications when dietarily manipulated. Prenatal choline supplementation protects against various neurological insults such as status epilepticus (Wong-Goodrich et al., 2008) and fetal alcohol exposure (Thomas et al., 2009) in the rat. A previous study from our lab (Glenn et al., 2012) extended these findings to depression. Beyond neuroprotection, supplementation of prenatal choline also aids memory and therefore performance in cognitive tasks (Meck et al., 1988). An important mechanism of action for choline is to modulate adult neurogenesis in the hippocampus; an effect that is likely promoted by early developmental changes in supplemented or deficient rats (Glenn et al., 2007). The present study focused on choline's potential anti-depressant effects, using a tri-partite model of choline availability; deficient (no choline), standard (1.1g/kg) and supplemented (5.5g/kg) diets were fed to rat mothers during pregnancy. The offspring served as subjects in the study. At weaning they were separated by gender and maintained on the standard choline diet for the rest of the study. As adults, half were exposed to a 14-day battery of chronic variable stressors, used to model depression in rats. Memory was assessed using an object recognition test, depressive-like symptoms with the forced swim paradigm, and neurogenesis with immunohistochemistry. We will present preliminary results arguing for choline's potential antidepressant properties.

### **ZEBRAFISH KIDNEY PHAGOCYTES LACK DIURNAL PATTERNS IN REACTIVE OXYGEN SPECIES PRODUCTION**

#### **Travis Wright ('12), Biology**

The zebrafish (*Danio rerio*) has garnered a wealth of attention as a model for the investigation of vertebrate physiology, especially in determining the presence of circadian patterns. In the present study, the zebrafish serves as a model organism for the exploration into rhythmicity of the vertebrate innate immune system, an individual's first line of defense against an invading pathogen. Especially important in this defense is respiratory burst response, in which increased amounts of reactive oxygen species (ROS) are produced following phagocytosis in an effort to kill the engulfed pathogen. Here we demonstrate a lack of observable diurnal patterns in zebrafish kidney phagocyte ROS production following stimulation with PMA, and the more physiologic stimuli *S. aureus* and zymosan.

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COLBY CELEBRATION OF SCHOLARSHIP

## RESEARCH SYMPOSIUM

**Colby Undergraduate Research Symposium 2012**  
**April 25 - April 27, Colby College, Waterville, Maine**

[Keynote Address](#)

April 25, 7:30 pm Ostrove Auditorium

### Honors Programs

Author	Department	Mentor
<b>Title</b>		
Margaret Kruihoff ('12)	American Studies	McFadden, Margaret T.
<b>Childbirth in American: Hospitals, Home-births, and Women's Rights</b>		
Kathleen Ricciardi ('12)	American Studies	Saltz, Laura
<b>Double Edged Tiara: Disney Princesses and the Sexualization of American Youth</b>		
Ruth Frank-Holcomb ('12)	American Studies	McFadden, Margaret T.
<b>Feminism and Feminist Blogs</b>		
Nicole Sintetos ('12)	American Studies	McFadden, Margaret T.
<b>No Place to Hide: Pare Lorentz and Nuclear Anxiety in the 1950s</b>		
Sarah Janes ('12)	American Studies	Saltz, Laura
<b>Spoken Word Poetry: A Cultural Mapping</b>		
Sandra Johnson ('12)	American Studies	Saltz, Laura
<b>The American Food Movements: A Comparison of the 1960's and '70s Movement versus the Contemporary Movement</b>		
Zoe Sherman ('12)	American Studies	Saltz, Laura
<b>The Growth of Ethnic Media in the United States</b>		
Maureen Quinn ('12)	American Studies	McFadden, Margaret T.
<b>The Integration of Christianity and Politics</b>		
Cordelia Cowan ('12)	American Studies	McFadden, Margaret T.
<b>The Normalization of College Binge Drinking through Young Adult Film and Fiction</b>		
Gordon Lessersohn ('12)	American Studies	Lisle, Benjamin D.
<b>The Unlikely Renovation of Fenway Park: A Triumph of Historic Preservation</b>		
Hannah DeAngelis ('12)	Anthropology	Besteman, Catherine L.
<b>'We Are One Though Not the Same': A Historical Ethnography of the Diversity Leadership Institute</b>		
Sandhya Fuchs ('12)	Anthropology	Mills, Mary Elizabeth
<b>Public Imagery and Social Integration; Reflections on BAPS Swaminarayan Hinduism in the British Diaspora</b>		
Travis Wright ('12)	Biology	Hannum, Lynn
<b>Characterizing patterns of the zebrafish kidney phagocyte respiratory burst response to live and killed bacteria</b>		
J. Storer ('12)	Biology	Hannum, Lynn
<b>Characterizing the Phagocytic activity of Zebrafish Kidney Neutrophils</b>		
Christine Reynolds ('12)	Biology	Tilden, Andrea R.
<b>Investigating the protective effects of melatonin in crustacean x-organ cells</b>		
Justin Partridge ('12)	Biology	Tilden, Andrea R.
<b>The Effect of Dopamine on Neurite Growth in Uca Pugnator X-Organ Cells</b>		

### 2012 Program

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[Research Symposium](#)

Frances Lee ('12)	Biology	Bevier, Catherine R.
<b>The development, morphology, and behavior of Danio rerio under embryonic alcohol exposure</b>		
Vanesa Silvestri ('12)	Chemistry	Millard, Julie T.
<b>Quantitative Real-Time RT-PCR analysis to monitor apoptotic gene expression induced by DNA cross-linkers.</b>		
Emily Kaye ('12)	Chemistry	Rice, Kevin P.
<b>Apoptotic cleavage of poly(ADP-ribose) polymerase by Laromustine and its subspecies</b>		
Catherine Gallagher ('12)	Chemistry	Rice, Kevin P.
<b>Determining the Activation of the JNK-ASK1 apoptotic pathway in HUVECs via the anti-cancer drug Laromustine</b>		
Josephine Thiele ('12)	Chemistry	King, D. Whitney
<b>Sediment Analysis of the Belgrade Lakes: Implications for Eutrophication</b>		
Lindsay Dale ('12)	Chemistry	Rice, Kevin P.
<b>The Effects of Laromustine on DNA Ligase III</b>		
Martha Witick ('12)	Computer Science	Maxwell, Bruce A.
<b>Humanoid Robot Soccer</b>		
William O'Brien ('12)	Computer Science	Skrien, Dale J.
<b>Offline Web Application on Smartphones</b>		
Leah Perlmutter ('12)	Computer Science	Maxwell, Bruce A.
<b>Robot Soccer</b>		
Annie Chen ('12)	East Asian Studies	Weitz, Ankeney
<b>EA484: Corruption within China's News Media</b>		
Fiona Masland ('12)	East Asian Studies	Weitz, Ankeney
<b>Honors Thesis: Qing-Era Manchu Male Identity Through Material Culture</b>		
Michael Doherty ('12)	Economics	Nelson, Randy A.
<b>Are Bad Coaches Better Off in a Bad Economy?</b>		
Kathleen Davis ('12)	Economics	Waldkirch, Andreas
<b>Capital Controls in Emerging Markets</b>		
Amy Slipowitz ('12)	Economics	Vuletin, Guillermo J.
<b>Controlling for Endogeneity: The Effect of Democracy on Economic Growth</b>		
Kelly Potvin ('12)	Economics	Nelson, Randy A.
<b>Gazing at the Stars: A Look Inside 'Star Power' Within Demand for the NBA</b>		
Anne Burton ('12)	Economics	Gunter, Samara R.
<b>Has the Legalization of Medical Marijuana Affected Illegal Marijuana Consumption?</b>		
Bradley Turner ('12)	Economics	Vuletin, Guillermo J.
<b>What causes ministers of finance to lose their jobs?</b>		
Emily Stuart ('12)	English	Boylan, Jennifer Finney
<b>A Collection of Interconnected Short Stories</b>		
Courtney Yeager ('12)	English	Boylan, Jennifer Finney
<b>A Collection of Interconnected Short Stories of Fiction</b>		
Aliya Weiss ('12)	English	Sadoff, Ira
<b>A Study of the Modern and Contemporary Short Story</b>		
Jenna Gundersen ('12)	English	Boylan, Jennifer Finney
<b>Advanced Prose: Fiction</b>		
Veronica Foster ('12)	English	Sadoff, Ira
<b>Bad Girls: Female Transgression In American Literature</b>		
Rachel Goff ('12)	English	Blevins, Adrian
<b>Collection of Poems</b>		
Winsor Wesson ('12)	English	Blevins, Adrian
<b>Creative Writing Honors Thesis: Poetry and Fiction Concentration</b>		

Lindsay Putnam ('12)	English	Harris, Peter B.
<b>Creative Writing Poetry Collection Honors Thesis</b>		
Sarah Hirsch ('12)	English	Blevins, Adrian
<b>Creative Writing Thesis</b>		
Matthieu Nadeau ('12)	English	Boylan, Jennifer Finney
<b>Crucial Hybridity: Exploring the Intersections of Fiction and Poetry</b>		
Hannah Shapiro ('12)	English	Boylan, Jennifer Finney
<b>Graphic Novel</b>		
Elise DeSimone ('12)	English	Blevins, Adrian
<b>Honors Poetry Thesis</b>		
Lucy Dotson ('13)	English	Blevins, Adrian
<b>Laughing in the Dark: A Collection</b>		
Robyn Levin ('12)	English	Bryant, Cedric Gael
<b>Parallel Tragedies: Mirrored Concerns in Edith Warton's House of Mirth and William Faulkner's The Sound and the Fury, Absalom, Absalom! and That Evening Sun</b>		
Jenny Chen ('13)	English	Blevins, Adrian
<b>Poetry Compilation 2012</b>		
Grant Patch ('12)	English	Boylan, Jennifer Finney
<b>Swim Swam Swum</b>		
Lucy Wilhelms ('12)	English	Bryant, Cedric Gael
<b>The Woman in Black: Repetition and Transgression</b>		
Dashiell Wasserman ('12)	English	Bryant, Cedric Gael
<b>Time, Language, &amp; The Mythology of a Great Southern Babel: A Derridean Reading of William Faulkner's 'Absalom, Absalom!', 'The Sound and the Fury', 'As I Lay Dying' &amp; 'That Evening Sun'</b>		
Angelica D'Aiello ('12)	English	Sagaser, Elizabeth H.
<b>Virginia Woolf, a Cognitive Poetics Approach</b>		
Olivia Kefauver ('12)	Environmental Studies	Nyhus, Philip
<b>Factors Affecting Growth of Local Food Networks in Downeast Maine</b>		
Yiyuan Qin ('12)	Environmental Studies	Nyhus, Philip
<b>South China Tiger Reintroduction: Lessons, Plans, and Implications</b>		
Daniel Homeier ('12)	Environmental Studies	Nyhus, Philip
<b>Spatial Analysis of Household and Lake Association Behavior, Land Use, and Water Quality in the Belgrade Lakes Region of Maine</b>		
Dominique Brunelle ('12)	French and Italian	Paliyenko, Adrianna M.
<b>L'Histoire et Renouveau du Heritage Franco-Americain dans le Maine</b>		
Madeleine Purcell ('12)	French and Italian	Mauguiere, Benedicte
<b>Examination Of Spatial Variations In Recrystallization Mechanisms In Quartz</b>		
Nathan Katsiaficas ('12)	Geology	Gastaldo, Robert A.
<b>GEODYNAMIC CONSTRAINTS ON THE FLOW OF SAMOAN-PLUME MANTLE INTO THE NORTHERN LAU BASIN</b>		
Daren McGregor ('12)	Geology	Gastaldo, Robert A.
<b>Gravity Core Geochemistry at the Kronebreen Glacier, Svalbard, Norway: Quantifying Climate Flux in a Glacimarine Setting</b>		
Chishala Kapupu ('12)	Geology	Gastaldo, Robert A.
<b>The Lithological Characterization of a Middle Permian Deltaic Distributary Channel, in the Karoo Basin, South Africa</b>		
Coline Ludwig ('12)	Global Studies	Franko, Patrice M.
<b>Public Health in Latin America</b>		
Charlotte Olena ('12)	Global Studies	Franko, Patrice M.

<b>Relationships between indigenous groups and governments in Latin America</b>		
Martin Tengler ('12)	Global Studies	Franko, Patrice M.
<b>Why did 7/11 not expand in the same way in the US as they did in Japan?</b>		
Julie Kafka ('12)	Global Studies	Franko, Patrice M.
<b>Women-run NGOs and access to information about mining operations in affected communities</b>		
Mason Roberts ('12)	Government	Reisert, Joseph R.
<b>Anti-Intellectualism in American Politics:</b>		
Justin Rouse ('12)	Government	Maisel, L. Sandy
<b>Biased Justice: Judicial Elections in the United States</b>		
Laura Maloney ('12)	Government	Maisel, L. Sandy
<b>Should I run? An investigation into the obstacles facing female candidates running for federal office in America and a plan of action to bolster recruitment and increase representation of women serving our nation's government</b>		
Samantha Bassman ('12)	Government	Yoder, Jennifer A.
<b>The Impact of Party Systems on Secessionist Movements in Quebec and Flanders</b>		
Susannah Hufstader ('12)	History	Scheck, Raffael M.
<b>Deutsche Schrift? The Question of German Typography and Nationalism Until 1941</b>		
James Hubbard ('12)	History	Scheck, Raffael M.
<b>From the Liffey to the Sheepscot: Pre-Famine Irish Immigration in Whitefield, Maine</b>		
Margaret Winthrop ('12)	History	Webb, James L.A., Jr.
<b>Set in Stone: South Africa's Afrikaans Language Monument and the Struggle for Afrikaner Sovereignty</b>		
M. Shayer ('12)	Independent Studies	Turner, John P.
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Lena Frostestad ('12)	Independent Studies	Taylor, Larissa J.
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Heidi Blair ('12)	Latin-American Studies	Fallow, Ben W.
<b>Protecting Patagonia: Action and Inaction against the HidroAysén Dam Proposal in Chile</b>		
Kathryn Wassam ('12)	Latin-American Studies	Fallow, Ben W.
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Sarah Harmon ('12)	Mathematics and Statistics	Holly, Jan E.
<b>Recurrence Relations, Fractals, and Chaos</b>		
Anika Lindemann ('12)	Mathematics and Statistics	Gouvea, Fernando Q.
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Jennifer Beatty ('12)	Mathematics and Statistics	Von Herrmann, Alan
<b>The Radon Transform and the Mathematics of Medical Imaging</b>		
Clare Saunders ('12)	Philosophy	Gordon, Jill P.
<b>The Material Roots of Catholicism's Attitude Towards Women, Sexuality &amp; Family</b>		
Andrew McDonough-Lee ('12)	Physics and Astronomy	Campbell, Murray F.
<b>Comprehensive Models of High-Mass Protostellar Objects</b>		
Daniel Pennachio ('12)	Physics and Astronomy	Conover, Charles
<b>Excitation of Ultra-Cold Potassium Using Frequency-Locked Cavity Diode Lasers</b>		
Austin Hoag ('12)	Physics and Astronomy	Bluhm, Robert T., Jr.
<b>Spontaneous Lorentz Symmetry Breaking and Cosmology in Five Dimensions</b>		
Christopher Hoder ('12)	Physics and Astronomy	Conover, Charles
<b>Theoretical study of the Manipulation of Entanglement with laser pulse sequences</b>		
Nirakar Poudel ('12)	Physics and Astronomy	Tate, Duncan A.
<b>Ultra Cold Neutral Plasmas</b>		
Greg Merritt ('12)	Physics and Astronomy	Bluhm, Robert T., Jr.
<b>Vacuum Solutions in General Relativity</b>		

Stephanie-Ann LaRose ('12)	Psychology	Sheets, Erin S.
<b>Facial Recognition of Positive and Negative Emotion in Various Mood States</b>		
Kristen Erickson ('12)	Psychology	Glenn, Melissa J.
<b>Neuroprotective qualities of supplemental choline against DISC1 gene mutations</b>		
Sarah Falkof ('12)	Psychology	Pittman, Thane S.
<b>Social Psychology and Public Health</b>		
Jenifer Goldman ('12)	Psychology	Soto, Christopher J.
<b>The Effects of Parenting Style on Personality Outcome</b>		
Spencer Kasko ('12)	Religious Studies	Parker, Julie Faith
<b>A Righteous Man, Blameless in His Generation: The Portrayal of Noah in Genesis 6-9</b>		
Allison Shepherd ('12)	Religious Studies	Singh, Nikky-Guninder K.
<b>Holy Books for a Holy Earth</b>		
Sierra Medling ('12)	Religious Studies	Campbell, Debra
<b>Let There Be Sex: How Restrictions on Sex and Sexuality in Conservative Catholicism Provokes Corruption and Scandal</b>		
Todd Curcuro ('12)	Religious Studies	Singh, Nikky-Guninder K.
<b>Religious Poetry</b>		
Katherine Graichen ('12)	Science, Technology, and Society	Fleming, James R.
<b>Container Shipping and the Maritime Enterprise: an STS Inquiry into Today's Shipping Industry</b>		
Thomas Meehan ('12)	Science, Technology, and Society	Fleming, James R.
<b>Doctorpreneurship: Healthcare &amp; Medicine as a Business</b>		
Christopher Kasprak ('12)	Science, Technology, and Society	Fleming, James R.
<b>Hurricanes as Social Probes</b>		
Margie Weiner ('12)	Science, Technology, and Society	Fleming, James R.
<b>Is Technology the Great Equalizer? Technology in Classrooms as an Agent for Social Justice</b>		
Robert Canning ('12)	Science, Technology, and Society	Fleming, James R.
<b>STS Senior Project</b>		
Nicole Sintetos ('12)	Science, Technology, and Society	Fleming, James R.
<b>The Science of Dr. Simon LeVay: The Politics of Essentializing a Queer Identity</b>		
Michael Trottier ('12)	Theater and Dance	Conner, Lynne
<b>The Process of Playwriting: An Exploration of Structure, Character and Dialogue</b>		
Alison Reader ('12)	Theater and Dance	Coulter, Todd James
<b>Two He(arts) Are Better Than One: Ten Years of Intermedia Art in New York City</b>		
Ashley Oliver ('12)	Women's, Gender, and Sexuality Studies	Arellano, Lisa
<b>Queer Sex Gods or Patriarchs with Fangs? Gender and Sexuality in Modern Vampire Narratives</b>		

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COLBY CELEBRATION OF SCHOLARSHIP

## RESEARCH SYMPOSIUM

**Colby Undergraduate Research Symposium 2012**  
 April 25 - April 27, Colby College, Waterville, Maine

*Students from the following departments/programs have already submitted titles for papers and posters:*

### 2012 Program

- [Keynote Speaker](#)
- [Schedule - Wednesday](#)
- [Schedule - Thursday](#)
- [Schedule - Friday](#)
- [Poster Program](#)
- [Associated Sessions](#)
- [Abstracts](#)
- [Honors Program](#)
- [Participating Departments/Programs](#)

[Research Symposium](#)

Sponsoring Dept/Prgrm	Lead Author	Title	Date Time	Project Type	Mentor
African Studies	<a href="#">Kyle Brown</a> ('12)	<b>Jungle Fever</b>	April 27 12:30 pm	Presentation	<b>Margaret T. McFadden</b>
African Studies	<a href="#">Christian Bertelsen</a> ('12)	<b>Searching For 'Mo' Better Blues'</b>	April 27 11:00 am	Presentation	<b>Margaret T. McFadden</b>
African Studies / Education and Human Development	<a href="#">Gordon Fischer</a> ('13)	<b>Students Protest for Social Justice</b>	April 25 1:40 pm	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Clay McMickens</a> ('12)	<b>'Clockers'</b>	April 27 11:15 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Edwin Torres</a> ('12)	<b>Spike Lee's Summer of Sam and How People React to Social Change</b>	April 27 08:45	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Margaret Kruthoff</a> ('12)	<b>'Called Her Women Together': Homebirth in Maine</b>	April 26 3:00 pm	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Tyler Cash</a> ('12)	<b>'Just Like He Planned': Spike Lee's Inside Man</b>	April 27 12:15 pm	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Ruth Frank-Holcomb</a> ('12)	<b>'This Is MY Reality': Fantasy and Reality in Spike Lee's Girl 6</b>	April 27 11:45 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Michael Perreault</a> ('13)	<b>'Whose [Movie] is This?': Foundations for a Different Authorship in Spike Lee's 'She's Gotta Have It'</b>	April 27 9:30 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Ruth Frank-Holcomb</a> ('12)	<b>A Room of Our Own: Making Spaces for Stories of Sexual Violence, from Consciousness-Raising to the Feminist Blogosphere</b>	April 26 3:45 pm	Presentation	<b>Lisa Arellano, Lyn Mikel Brown</b>
American Studies	<a href="#">Devlin McConnell</a> ('12)	<b>Do the Right Thing</b>	April 27 9:15 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<a href="#">Sandra Johnson</a> ('12)	<b>Edible Activism: Food and the Counterculture of the 1960s and 1970s</b>	April 26 4:00 pm	Presentation	<b>Benjamin D. Lisle</b>
American Studies	<a href="#">Benjamin Foreman</a> ('12)	<b>He Got Game</b>	April 27 12:00 pm	Presentation	<b>Margaret T. McFadden</b>

American Studies	<u>Amy Slipowitz</u> ('12)	<b>He Smells the Money: Critiquing Capitalism in 'He Got Game'</b>	April 27 08:30	Presentation	<b>Margaret T. McFadden</b>
American Studies	<u>Cosme Del Rosario-Bell</u> ('12)	<b>Joe's Bed-Stuy Barbershop: We Cut Heads</b>	April 27 10:15 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<u>Nicole Sintetos</u> ('12)	<b>Listening Beyond the Lines in a Post 9/11 World: Inside Man and When the Levees Broke's Musical Intertextuality</b>	April 27 9:45 am	Presentation	
American Studies	<u>Nicole Sintetos</u> ('12)	<b>No Place to Hide: Pare Lorentz and Nuclear Anxiety in the Atomic Age</b>	April 26 4:45 pm	Presentation	<b>Steven James Wurtzler</b>
American Studies	<u>Gabriel Callaghan</u> ('12)	<b>Post-9/11 Anxiety in Spike Lee's 25th Hour</b>	April 27 12:45 pm	Presentation	<b>Margaret T. McFadden</b>
American Studies	<u>Ashley Oliver</u> ('12)	<b>Queer Sex Gods or Patriarchs with Fangs? Gender and Sexuality in Modern Vampire Narratives</b>	April 26 3:15 pm	Presentation	<b>Lisa Arellano</b>
American Studies	<u>Mark Collins</u> ('12)	<b>Racialized Drug Enforcement Laws as Seen Through Clockers and Summer of Sam</b>	April 27 9:00 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<u>Kira Novak</u> ('12)	<b>Rewriting History: Spike Lee's Malcolm X</b>	April 27 11:30 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<u>Kathleen Ricciardi</u> ('12)	<b>Royal Crisis: Masculinity in Disney Princess Films</b>	April 26 4:15 pm	Presentation	<b>Laura Saltz</b>
American Studies	<u>Eva Ludwig</u> ('12)	<b>Spike Lee's Girl 6: Deconstructing the Narrative of African-American Women in Hollywood</b>	April 27 10:45 am	Presentation	<b>Margaret T. McFadden</b>
American Studies	<u>Cordelia Cowan</u> ('12)	<b>The Normalization of Alcohol Abuse through Popular Media</b>	April 26 4:30 pm	Presentation	<b>Margaret T. McFadden</b>
American Studies	<u>Gordon Lessersohn</u> ('12)	<b>The Unlikely Renovation of Fenway Park: A Triumph of Historic Preservation</b>	April 26 3:30 pm	Presentation	<b>Benjamin D. Lisle</b>
American Studies	<u>Catherine Donovan</u> ('12)	<b>When The Levees Broke: A Requiem in Four Acts</b>	April 27 10:30 am	Presentation	<b>Margaret T. McFadden</b>
Anthropology	<u>Hannah DeAngelis</u> ('12)	<b>Maine's History of Hate and Hate and Violence Prevention: The Rise, Tenure, Fall and Future of the Diversity Leadership Institute</b>	April 26 12:30 pm	Presentation	<b>Mary Elizabeth Mills</b>
Anthropology	<u>Sandhya Fuchs</u> ('12)	<b>Public Imagery and Multicultural Integration; Reflections on BAPS Swaminarayan Hinduism in the British Diaspora</b>	April 26 1:15 pm	Presentation	<b>Mary Elizabeth Mills</b>
Anthropology	<u>Alexandra Offer</u> ('12)	<b>Art, Perception of Self and Body Image</b>	April 27 1:00 pm	Presentation	<b>Catherine L. Besteman</b>
Biology / Environmental Studies	<u>Sylvia Doyle</u> ('12)	<b>A Guide to Trees on Campus: Digital Media and Walking Tours</b>	April 29	Poster	<b>Judy L. Stone</b>
Biology	<u>Karyn King</u> ('12)	<b>Behavioral and Morphological Effects of Phytosterol, Progesterone, and Androstenedione Contaminated Water on Mosquitofish, <i>Gambusia affinis</i></b>	April 28	Poster	<b>Catherine R. Bevier</b>

Biology	<a href="#">Alexander Storer</a> ('12)	<b>Characterizing the Phagocytic Activity of Zebrafish Kidney Neutrophils</b>	April 29	Poster	<b>Lynn Hannum</b>
Biology	<a href="#">Christine Reynolds</a> ('12)	<b>Expression of TIMELESS and CRYPTOCHROME Proteins in <i>Daphnia pulex</i> Give Evidence of Conserved Circadian Clock Mechanisms in Crustaceans</b>	April 27 2:30 pm	Presentation	<b>Andrea R. Tilden</b>
Biology	<a href="#">Susan Gagliardi</a>	<b>Interspecific Trends of Increasing North American Bird Populations</b>	April 28	Poster	<b>Cathy D. Collins</b>
Biology	<a href="#">Ian Bettencourt</a> ('12)	<b>Maine State Crime Laboratory and CODIS</b>	April 29	Poster	<b>Julie T. Millard</b>
Biology	<a href="#">Madelyn Renzetti</a> ('14)	<b>Making the Mini Mutant: Constructing a Mutation in a Gene Encoding a Selenate Reductase</b>	April 28	Poster	<b>Susan Childers</b>
Biology	<a href="#">Robyn St. Laurent</a> ('12)	<b>Reduction of Histone Deacetylase Activity by Sodium Butyrate Improves Motor Impairment in a Rotenone-Induced <i>Drosophila</i> Model of Parkinsons Disease</b>	April 28	Poster	<b>Syed Tariq Ahmad</b>
Biology	<a href="#">Mark Chaffin</a> ('12)	<b>Small Rodent Population Dynamics and Movement in a Fragmented Landscape</b>	April 28	Poster	<b>Cathy D. Collins</b>
Biology	<a href="#">Frances Lee</a> ('12)	<b>The Development, Morphology, and Behavior of <i>Danio rerio</i> After Embryonic Alcohol Exposure</b>	April 27 2:00 pm	Presentation	<b>Catherine R. Bevier</b>
Biology	<a href="#">Travis Wright</a> ('12)	<b>Zebrafish Kidney Phagocytes Lack Diurnal Patterns in Reactive Oxygen Species Production</b>	April 27 2:15 pm	Presentation	<b>Lynn Hannum</b>
Chemistry	<a href="#">Emily Kaye</a> ('12)	<b>Changes in Apoptotic Gene Expression in Human Leukemia Cells Treated with the Anticancer Drug Laromustine</b>	April 28	Poster	<b>Kevin P. Rice</b>
Chemistry	<a href="#">Stefan Davatz</a> ('13)	<b>Determining Where Para-Calixarenes Gain an Additional Degree of Freedom</b>	April 29	Poster	<b>Jeffrey L. Katz, Nicholas P. Bizier</b>
Chemistry	<a href="#">Katherine Murray</a> ('12)	<b>Dynamic Interactions Between Thermocline Depth and Internal Nutrient Loading in Central Maine Lakes</b>	April 28	Poster	<b>D. Whitney King</b>
Chemistry	<a href="#">James Shaum</a> ('13)	<b>Generation of Formyl- and Vinylcarbenes from Nonnitrogenous Precursors</b>	April 29	Poster	<b>Dasan M. Thamattoor</b>
Chemistry	<a href="#">Michael Verschoor-Kirss</a> ('12)	<b>Kinetics of Phosphine Substitution in Cyclopentadienyl Ruthenium (II) Bis-triarylphosphine Chlorides: a Tale of Two Mechanisms?</b>	April 28	Poster	<b>Thomas W. Shattuck</b>
Chemistry	<a href="#">Michael Verschoor-Kirss</a> ('12)	<b>Kinetics of Phosphine Substitution in Cyclopentadienyl Ruthenium (II) bis-triarylphosphine Chlorides: a Tale of Two Mechanisms?</b>	April 27 1:00 pm	Presentation	<b>Thomas W. Shattuck</b>
Chemistry	<a href="#">Lloyd Liang</a> ('13)	<b>One-pot Syntheses of Structurally Rigid Ring Compounds</b>	April 28	Poster	<b>Jeffrey L. Katz</b>
Chemistry	<a href="#">Samantha Lessard</a> ('13)	<b>Spiropentanes as Sources of Cyclic Allenes</b>	April 28	Poster	<b>Dasan M. Thamattoor</b>
Chemistry	<a href="#">My Tong</a> ('14)	<b>Synthesis Optimization and Purification of 'Dicalixarene'</b>	April 28	Poster	<b>Jeffrey L. Katz, Nicholas P. Bizier</b>
Chemistry	<a href="#">Alex Hymanson</a> ('12)	<b>Synthesis of Ortho and Para Bridged Tetraaza[1,4]cyclophanes</b>	April 28	Poster	<b>Jeffrey L. Katz</b>
Chemistry	<a href="#">Jamie Suzuki</a> ('14)	<b>The Reaction of Dihalocarbenes with Anthracenes</b>	April 29	Poster	<b>Dasan M. Thamattoor</b>
Chemistry	<a href="#">Beatrice Nakiryowa</a> ('13)	<b>Toward a Stable and Crystalline 1,2-Cyclooctadiene</b>	April 28	Poster	<b>Dasan M. Thamattoor</b>
	<a href="#">Jared</a>	<b>Tracing Performance Endurance Genes Through</b>	April		



Chemistry	<u>Supple</u> ( '13)	<b>Families</b>	29	Poster	<b>Julie T. Millard</b>
Chemistry	<u>Simran Jaising</u> ( '12)	<b>Gastronomy Reinvented: An Investigation Into Modern Cuisine In The Chemistry Lab</b>	April 27 1:23 pm	Presentation	<b>Dasan M. Thamattoor</b>
Computer Science	<u>Bogumil Giertler</u> ( '12)	<b>Augmenting Your Daily Reality</b>	April 25 5:35 pm	Presentation	<b>Bruce A. Maxwell</b>
Computer Science	<u>Alex Swanson</u> ( '12)	<b>Bitcoin: The Evolution of Money Into The Virtual Space</b>	April 25 5:15 pm	Presentation	<b>Bruce A. Maxwell</b>
Computer Science	<u>Leah Perlmutter</u> ( '12)	<b>Humanoid Robot Soccer</b>	April 25 4:50 pm	Presentation	<b>Bruce A. Maxwell</b>
Computer Science	<u>George Carpenter</u> ( '12)	<b>Lazy Genius: Improving Fact Recall Using Social Flashcards</b>	April 25 4:25 pm	Presentation	<b>Dale J. Skrien</b>
Computer Science	<u>William O'Brien</u> ( '12)	<b>The Intended Architecture of Web Applications - An Implementation of REST</b>	April 25 4:00 pm	Presentation	<b>Dale J. Skrien</b>
East Asian Studies	<u>Fiona Masland</u> ( '12)	<b>Qing-Era Manchu Male Identity Through Material Culture</b>	April 25 1:00 pm	Presentation	<b>Ankeney Weitz</b>
East-Asian Studies	<u>Kathy Wan</u> ( '12)	<b>Cherry Blossoms</b>	April 26 3:05 pm	Presentation	<b>Tamae K. Prindle</b>
East-Asian Studies	<u>Kayla Diaz</u> ( '14)	<b>Mise-en-scène in Summer Wars</b>	April 26 2:35 pm	Presentation	<b>Tamae K. Prindle</b>
East-Asian Studies	<u>Michael Kellar</u> ( '13)	<b>Plot in Summer Wars</b>	April 26 2:45 pm	Presentation	<b>Tamae K. Prindle</b>
East-Asian Studies	<u>Christopher Curtis</u> ( '14)	<b>Soup Kitchen</b>	April 26 3:15 pm	Presentation	<b>Tamae K. Prindle</b>
East-Asian Studies	<u>Max Cushner</u> ( '14)	<b>The Sounds of Summer</b>	April 26 2:25 pm	Presentation	<b>Tamae K. Prindle</b>
East-Asian Studies	<u>Levin Zars</u> ( '14)	<b>Wars in Summer Wars</b>	April 26 2:55 pm	Presentation	<b>Tamae K. Prindle</b>
East-Asian Studies	<u>Nicholas Balsbaugh</u> ( '13)	<b>Virtual Reality: Color in Summer Wars</b>	April 26 2:15 pm	Presentation	<b>Tamae K. Prindle</b>
Economics	<u>David Oxnard</u> ( '12)		April 25 2:45 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Kathleen Davis</u> ( '12)	<b>Capital Controls in Emerging Markets</b>	April 27 2:20 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Xinyi Chen</u> ( '12)	<b>Does Bilateral Economic Interdependence Promote Post-War Reconciliation</b>	April 25 1:00 pm	Presentation	<b>Andreas Waldkirch</b>

Economics	<u>Patrick Dolan</u> ('12)	<b>Does Tax Progressivity Affect FDI</b>	April 25 3:15 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Michael Doherty</u> ('12)	<b>Economic and Racial Influences on Coaching Change Decisions?</b>	April 27 2:40 pm	Presentation	<b>Randy A. Nelson</b>
Economics	<u>Kathleen Davis</u> ('12)	<b>Exploring Horizontal vs. Vertical Determinants of FDI: Evidence from US Multinationals</b>	April 25 2:00 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Kento Momma</u> ('12)	<b>FDI, Inequality, and Growth: An Empirical Study</b>	April 25 3:00 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Michael Doherty</u> ('12)	<b>Financial and Racial Influences on Coaching Change Decisions in NCAA Basketball</b>	April 27 1:30 pm	Presentation	<b>Randy A. Nelson</b>
Economics	<u>Kathy Wan</u> ('12)	<b>Foreign Direct Investment Into Industries in Taiwan</b>	April 25 1:45 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Gemma Yie</u> ('12)	<b>Foreign Direct Investment and Human Development: An Examination of FDI as a Predictor of HDI in Developing Countries</b>	April 25 3:30 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Brady Lenahan</u> ('12)	<b>Huge at Home, Big Abroad: A Case Study of Walmart</b>	April 25 2:30 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Matthew Boyes-Watson</u> ('12)	<b>Illegal Activity and the Composition of Foreign Ownership: Study of Firm-Level Data from the World Bank Enterprise Surveys</b>	April 25 1:30 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>John O'Brien</u> ('12)	<b>The Link between Exchange Rates and Foreign Direct Investment: A BRIICKSS Panel Analysis</b>	April 25 1:15 pm	Presentation	<b>Andreas Waldkirch</b>
Economics	<u>Bradley Turner</u> ('12)	<b>What Causes Ministers of Finance to Lose their Jobs?</b>	April 27 3:20 pm	Presentation	<b>Guillermo J. Vuletin</b>
Economics	<u>Amy Slipowitz</u> ('12)	<b>Controlling for Endogeneity: The Effect of Democracy on Economic Growth</b>	April 27 3:40 pm	Presentation	<b>Guillermo J. Vuletin</b>
Economics	<u>Kelly Potvin</u> ('12)	<b>The Limits of Superstars: A Look Inside 'Star Power' Within Demand for the NBA</b>	April 27 3:00 pm	Presentation	<b>Randy A. Nelson</b>
Economics	<u>Anne Burton</u> ('12)	<b>Has the Legalization of Medical Marijuana Affected Illicit Marijuana Consumption?</b>	April 27 2:00 pm	Presentation	<b>Samara R. Gunter</b>
Education and Human Development	<u>Peter Randall</u> ('12)	<b>Initiating Cultural Shift: A Study of Higher Education</b>	April 26 1:15 pm	Presentation	<b>Jed W. Wartman, Joseph E. Atkins</b>
Education and Human Development / Psychology	<u>Nicole Hewes</u> ('12)	<b>More Than Just Nonsense Verse?: The Language of Dr. Seuss and Children's Literacy</b>	April 29	Poster	<b>Mark B. Tappan</b>
Education and Human Development	<u>Adrienne Bowles</u> ('12)	<b>Leisure, Work and Opportunities: Reflections of Social Class in Colby Students' Time Off the Hill</b>	April 27 2:00 pm	Presentation	<b>M. Adam Howard</b>
Education and Human Development	<u>Nicholas Nowak</u> ('13)	<b>Male Humor in Library Graffiti: What's Funny With Masculinity</b>	April 27 2:40 pm	Presentation	<b>Mark B. Tappan</b>

Education and Human Development	<u>Nicole Hewes</u> ('12)	<b>More Than Just Nonsense Verse?: The Language of Dr. Seuss and Children's Literacy</b>	April 27 3:00 pm	Presentation	<b>Mark B. Tappan</b>
Education and Human Development	<u>Annie Chen</u> ('12)	<b>Privileged Identities: Exploring Affluent Adolescent's Understandings of Self and Others</b>	April 27 2:20 pm	Presentation	<b>M. Adam Howard</b>
English	<u>Kristen Starkowski</u> ('14)	<b>Feeling as a Pre-Emergent Social and Economic Structure: The Role of Affect in the Capitalist Order in Rebecca Harding Davis' Life in the Iron Mills</b>	April 27 4:10 pm	Presentation	<b>Katherine M. Stubbs</b>
English	<u>Lucy Wilhelms</u> ('12)	<b>Life in Color</b>	April 26 1:45 pm	Presentation	<b>Jennifer Finney Boylan</b>
English	<u>Lucy Wilhelms</u> ('12)	<b>Mediums Change, Fears Stay the Same</b>	April 25 1:20 pm	Presentation	<b>Cedric Gael Bryant</b>
English	<u>Winsor Wesson</u> ('12)	<b>Reading from 'Noisome' and other poems</b>		Presentation	<b>Adrian Blevins</b>
English		<b>Reading from her poetry</b>	April 25 4:00 pm	Presentation	
English		<b>Reading from his poetry</b>	April 25 5:00 pm	Presentation	
English	<u>Lucy Wilhelms</u> ('12)	<b>The Love Poetry of the Troubadours: Socio-Economic Comparisons</b>	April 29	Poster	<b>Phyllis F. Mannocchi</b>
English	<u>Kristen Starkowski</u> ('14)	<b>Unraveling the Nineteenth-Century Victorian Social Fabric: Clothing and Social Mobility in Charles Dickens' Great Expectations</b>	April 27 4:25 pm	Presentation	<b>David B. Suchoff</b>
English	<u>Dashiell Wasserman</u> ('12)	<b>Time, Language, &amp; The Mythology of a Great Southern Babel: A Derridean Reading of William Faulkner's Absalom, Absalom!, The Sound and the Fury, As I Lay Dying &amp; 'That Evening Sun'</b>	April 27 1:45 pm	Presentation	<b>Cedric Gael Bryant</b>
Environmental Studies	<u>Elizabeth Schell</u> ('14)	<b>A Quick Downward Slope: The Potential Health Impacts of Fluorinated Ski Wax</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies / Biology	<u>Brianna Lind</u> ('12)	<b>A Survey of Termite Genera Along a Catenal Gradient in Southern Kruger National Park</b>	April 29	Poster	<b>Cathy D. Collins</b>
Environmental Studies	<u>Kathryn Lee</u> ('13)	<b>Analysis of Proposed East-West Highway in Maine</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>William Benjamin</u> ('14)	<b>Are the Wrinkles in Your Clothes Leading to Wrinkles in Your Health? Risks of Using and Living Near Dry Cleaners</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Rachael Mack</u> ('12)	<b>Aspartame: Good for the Body, Bad for the Brain?</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Elizabeth Schneider</u> ('12)	<b>Atlas of Maine: Deer Wintering and Conservation Areas in Maine</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Avery Beck</u> ('14)	<b>Atlas of Maine: Concentration of Arsenic Contamination in Township Water Resources</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Matthew LaPine</u> ('13)	<b>Atlas of Maine: Critical Habitat of the Atlantic Salmon</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Helaine Linden</u> ('14)	<b>Atlas of Maine: Deer Wintering Areas and Fragmented Forests in Maine</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Michael Stephens</u> ('13)	<b>Atlas of Maine: Department of Defense Installations and National Guard Armories</b>	April 28	Poster	<b>Philip Nyhus</b>

Environmental Studies	<u>Michael Whalen</u> ('12)	<b>Atlas of Maine: Essential Seabird Habitats of the Gulf of Maine</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Matthew Silverman</u> ('12)	<b>Atlas of Maine: Forest Type and Maple Production</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Anna Hess</u> ('14)	<b>Atlas of Maine: Income Per Capita in Maine</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Colin Cummings</u> ('14)	<b>Atlas of Maine: Location of Dams Along Atlantic Salmon Habitats in Maine</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Rebecca Forgrave</u> ('14)	<b>Atlas of Maine: Maine Water Features and Drinking Water Sources</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Lydia Ball</u> ('13)	<b>Atlas of Maine: Marine Worm and Molluscan Habitat</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Kathryn Lee</u> ('13)	<b>Atlas of Maine: Moose Management in Conserved Areas</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Meagan Hennessey</u> ('14)	<b>Atlas of Maine: Police Stations in Relation to Population</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Sylvia Doyle</u> ('12)	<b>Atlas of Maine: Predicted Lynx Habitat and Conserved Lands</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Dominique Kone</u> ('13)	<b>Atlas of Maine: State of Maine Abundance of Hospitals in Populated Areas</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Katherine Murray</u> ('12)	<b>Atlas of Maine: Surficial Materials</b>	April 28	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Avery Beck</u> ('14)	<b>Availability of Biomass for Colby's Steam Plant</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Katherine Houser</u> ('13)	<b>BPA and Behavioral Disorders</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Daniel Homeier</u> ('12)	<b>Cameras, Satellites, and Surveys: A Multi-Platform Approach to Monitoring Lake Conservation Behavior</b>	April 25 1:00 pm	Presentation	<b>Philip Nyhus</b>
Environmental Studies	<u>Elizabeth Schneider</u> ('12)	<b>Casco Bay</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Jared Supple</u> ('13)	<b>Chemical Contaminates in Dairy Products</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Jillian Howell</u> ('12)	<b>Church Forests in Ethiopia</b>	April 25 2:40 pm	Presentation	<b>Travis W. Reynolds</b>
Environmental Studies	<u>Lauren Kerr</u> ('13)	<b>Connections Between Environmental Exposures to Lead and Late-onset Neurodegenerative Disease</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Susan Gagliardi</u>	<b>Criteria for a Successful Large Mammal Reintroduction</b>	April 29	Poster	<b>F. Russell Cole</b>
Environmental Studies	<u>Lydia Ball</u> ('13)	<b>Distribution of Atlantic Forest Fragments in Relation to Probable Water Sources</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Jessica Blais</u> ('12)	<b>Do Aluminum-based Antiperspirants Increase Risk of Breast Cancer?</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Rebecca Mayer</u> ('13)	<b>Does BPA Exposure During Pregnancy Lead To Behavior Problems In Young Girls?</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Caroline Maguire</u> ('12)	<b>Does Paraquat Exposure Lead to Parkinson's Disease?</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Catherine Gallagher</u> ('12)	<b>Does Phthalate Exposure Impair Reproductive Development?</b>	April 29	Poster	<b>Gail Carlson</b>

Environmental Studies	<u>Megan Flaherty</u> ('13)	<b>Does Prenatal Polychlorinated Biphenyls Expure Affect Intelligence?</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Trevor Poole</u> ('12)	<b>Ecological Considerations in National Park Design</b>	April 29	Poster	<b>F. Russell Cole</b>
Environmental Studies	<u>Lydia Ball</u> ('13)	<b>Effect of Wild Pig, <i>Sus scrofa</i>, Populations in the United States</b>	April 29	Poster	<b>F. Russell Cole</b>
Environmental Studies	<u>Lindsay Jarrett</u> ('14)	<b>Effects of Arsenic as a Carcinogen in Drinking Water</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Anna Hess</u> ('14)	<b>Effects of Phthalates on Children</b>	April 29	Poster	<b>Gail Carlson, Philip Nyhus</b>
Environmental Studies	<u>Laura Gigliotti</u> ('12)	<b>Elephant Management in Africa</b>	April 29	Poster	<b>F. Russell Cole</b>
Environmental Studies	<u>Charles Davis</u> ('13)	<b>Impact of Nuclear and Fossil Fuel Energy on Human Health</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Matthew Silverman</u> ('12)	<b>Linking Farms and Food Banks in Massachusetts</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Lucy O'Keefe</u> ('14)	<b>Links between Food Colorings and Incused Hyperactivity in Children</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Zoe Sherman</u> ('12)	<b>Obesogens and the Maternal Programming of Obesity</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Rachael Mack</u> ('12)	<b>Obstacles to Replacing Lawn with Buffer: Barriers to Implementation of the LakeSmart Program on Maine's Lakes</b>	April 29	Poster	<b>F. Russell Cole</b>
Environmental Studies	<u>Jillian Howell</u> ('12)	<b>Out of the Mountains and into Your Body: Mountaintop Removal Mining and Heart and Lung Disease</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Yiyuan Qin</u> ('12)	<b>Parks as a Biodiversity Conservation Strategy in Urban Environments</b>	April 29	Poster	<b>F. Russell Cole</b>
Environmental Studies	<u>Sylvia Doyle</u> ('12)	<b>Predicted <i>Witheringia solanacea</i> Habitat in Costa Rica</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Matthew LaPine</u> ('13)	<b>Sea Level Rise Impacts and the Value of Affected Properties in Barnstable, MA.</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Yiyuan Qin</u> ('12)	<b>South China Tiger Reintroduction: Lessons, Assessments, and Implications</b>	April 25 2:00 pm	Presentation	<b>Philip Nyhus</b>
Environmental Studies	<u>Helaine Linden</u> ('14)	<b>Suitable Land Cover Habitats for Elephant and Cheetah Populations</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Siya Hegde</u> ('13)	<b>The Adverse Effects of Urban Air Pollutants on Child Health</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Andrea Schweitzer</u> ('14)	<b>The Associated Health Effects of Vietnam War Veterans from Exposure to Agent Orange</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Erin Love</u> ('14)	<b>The Impact of War on Biodiversity</b>	April 29	Poster	<b>F. Russell Cole</b>
Environmental Studies	<u>Michael Verschoor-Kirss</u> ('12)	<b>They Can't Dodge a Bullet: Anthropogenic Causes of Lead Toxicosis in Wildlife</b>	April 28	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Erica VandenBerg</u> ('13)	<b>Toxic Fire: The Increasing Risk Associated with an Increasingly Synthetic World</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Colin Cummings</u> ('14)	<b>Viewshed Analysis of Proposed Wind Farms in Maine</b>	April 29	Poster	<b>Philip Nyhus</b>
Environmental Studies	<u>Meagan Hennessey</u> ('14)	<b>Visitation Effects on Reid State Park</b>	April 29	Poster	<b>Philip Nyhus</b>
	<u>James</u>				

Environmental Studies	<u>O'Brien ('12)</u>	<b>What's In Your Bedroom?: The Negative Health Effects of Sexual Lubricants</b>	April 29	Poster	<b>Gail Carlson</b>
Environmental Studies	<u>Anna Leavitt ('12)</u>	<b>From Pond to Pump: Microalgae as a Feedstock for Biodiesel</b>	April 25 1:30 pm	Presentation	
French and Italian	<u>Dominique Brunelle ('12)</u>	<b>The Myths of Infertility</b>	April 27 3:45 pm	Presentation	<b>Adrianna M. Paliyenko</b>
French/Italian	<u>Madeleine Purcell ('12)</u>	<b>Franco-Americans and French Education in Maine</b>	April 27 4:00 pm	Presentation	<b>Benedicte Mauguiere</b>
Geology	<u>Justin Sperry ('13)</u>	<b>Investigation of Constriction in Deformation Zones with Complex Boundary Conditions</b>	April 27 2:03 pm	Presentation	<b>Walter A. Sullivan</b>
Geology	<u>Daren McGregor ('12)</u>	<b>Gravity Core Geochemistry at the Kronebreen Glacier, Svalbard, Norway: Quantifying Climate Flux in a Glacimarine Setting</b>	April 27 1:48 pm	Presentation	<b>Robert A. Gastaldo</b>
Geology	<u>Brian Morgan ('13)</u>	<b>Virtual Geologic Field Guide to the Kennebec Highlands, Central Maine</b>	April 28	Poster	<b>Bruce F. Rueger</b>
German/Russian		<b>A Few Issues in Translating From Russian To English In Kazakov's Goluboe i Zelionoe</b>	April 27 3:15 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian	<u>Nathan Lord ('12)</u>	<b>Bird Imagery in Bulgakov's Master and Margarita</b>	April 27 2:30 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian	<u>Allison Brown ('12)</u>	<b>Color Symbolism in Mikhail Bulgakov's 'Master and Margarita'</b>	April 27 2:45 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian	<u>David Oxnard ('12)</u>	<b>Das Tier Nennt Sich Mensch: Menschen und Tiere in Franz Kafkas 'Ein Bericht für eine Akademie' / The Animal Calls Itself Human: Humans and Animals in Franz Kafka's 'A Report to an Academy'</b>	April 27 11:40 am	Presentation	<b>Arne Koch</b>
German/Russian	<u>Susannah Hufstader ('12)</u>	<b>Feminine Felines: Constructions of Cats and Women in German Literature</b>	April 27 12:00 pm	Presentation	<b>Arne Koch</b>
German/Russian	<u>Mallory Livingston ('12)</u>	<b>Feudalismus, Volksmärchen, und Verstädterung: Über die zunehmende Distanz der Menschen von der Natur und der natürlichen Ordnung in der westlichen Kultur durch die Linse der Rolle der Tiere in Märchen</b>	April 27 11:20 am	Presentation	<b>Arne Koch</b>
German/Russian	<u>Jason Parrett ('12)</u>	<b>Head Imagery in Bulgakov's Master and Margarita</b>	April 27 4:15 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian		<b>Russian Roulette: Subtitling Azazel</b>	April 27 3:00 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian	<u>Rebecca Chenard ('12)</u>	<b>Schuld in Akif Pirinccis Felidae (Guilt in Akif Pirincci's Felidae)</b>	April 27 12:20 pm	Presentation	<b>Arne Koch</b>
German/Russian	<u>Jamie Curley ('12)</u>	<b>The Objectification of Women in German Literature</b>	April 28	Poster	<b>Cyrus Shahan</b>
German/Russian		<b>The Russian Civil War: A Maine Soldier's Story</b>	April 27 3:45 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>

German/Russian	<a href="#">Rebecca Chenard</a> ('12)	<b>The Sun and the Moon in Bulgakov's Master and Margarita</b>	April 27 4:00 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian		<b>Translational Problems In Toon Tellegen's Novel Not Everyone Could Fall Over</b>	April 27 3:30 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian	<a href="#">Alina Nakos</a> ('13)	<b>Water Imagery in Bulgakov's 'Master and Margarita'</b>	April 27 2:15 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
German/Russian	<a href="#">Jessica Moore</a> ('14)	<b>Worker_x: Suffering and Subordination</b>	April 28	Poster	<b>Cyrus Shahan</b>
German/Russian	<a href="#">Christine Wamsley</a> ('15)	<b>Woyzeck als Comic</b>	April 28	Poster	<b>Cyrus Shahan</b>
German/Russian	<a href="#">Katherine MacNamee</a> ('14)	<b>Woyzeck_X: Die Doppelte Natur der Gesellschaft der Aufklaerung</b>	April 28	Poster	<b>Cyrus Shahan</b>
German/Russian	<a href="#">Elizabeth Schneider</a> ('12)	<b>Kafka's Ape</b>	April 27 11:00 am	Presentation	<b>Arne Koch</b>
German/Russian	<a href="#">James Lasher</a> ('12)	<b>Музыка в романе Булгакова 'Мастер и Маргарита' (Music in Bulgakov's 'Master and Margarita')</b>	April 27 2:00 pm	Presentation	<b>Elena I. Monastireva-Ansdell</b>
Global Studies / East-Asian Studies	<a href="#">Martin Tengler</a> ('12)	<b>Convenience on Every Corner: An Analysis of the Japanese Convenience Store Industry</b>	April 27 2:15 pm	Presentation	<b>Mary Elizabeth Mills, Patrice M. Franko</b>
Global Studies	<a href="#">Coline Ludwig</a> ('12)	<b>Intricacies of Organ Trafficking: Lessons from Chennai, India</b>	April 27 2:45 pm	Presentation	<b>Matthew E. Archibald, Patrice M. Franko</b>
Government	<a href="#">Alexander Orleans</a> ('12)	<b>In Extremis: Operational Lessons from the War on Terror</b>	April 25 2:20 pm	Presentation	<b>Guilain P. Denoeux</b>
Government	<a href="#">Andrew Estrada</a> ('12)	<b>Single-Issue Elections and Public Perception: How Unemployment, Presidential Approval Rating, and Military Casualties Determine Whether an Election will Focus on One Defining Issue</b>	April 25 2:00 pm	Presentation	<b>L. Sandy Maisel</b>
Government	<a href="#">Charles Diamond</a> ('12)	<b>The Electoral Success of Ethnic Minority Candidates in Local London Politics</b>	April 25 2:40 pm	Presentation	<b>Jennifer A. Yoder</b>
History	<a href="#">Susannah Hufstader</a> ('12)	<b>Die Deutsche Schrift? Typography Between Tradition and Modernity in Weimar and Nazi Germany</b>	April 26 4:30 pm	Presentation	<b>Raffael M. Scheck</b>
History	<a href="#">James Hubbard</a> ('12)	<b>From the Liffey to the Sheepscot: Pre-Famine Irish Immigration in Whitefield, Maine</b>	April 26 5:00 pm	Presentation	<b>Raffael M. Scheck</b>
History	<a href="#">Geoffrey Bell</a> ('12)	<b>Richard Cutts Shannon: Colby Student and Civil War Soldier</b>	April 27 4:00 pm	Presentation	<b>Elizabeth D. Leonard</b>
History	<a href="#">Lindsay Peterson</a> ('13)	<b>The Evolution of the Ambulance Corps During the Civil War</b>	April 26 5:30 pm	Presentation	<b>Elizabeth D. Leonard</b>
History	<a href="#">Samuel West</a> ('12)	<b>Union Anti-Semitism from Tennessee to Maine</b>	April 27 5:30 pm	Presentation	<b>Elizabeth D. Leonard</b>

History	<u>Carter Stevens</u> ( '13)	<b>Medal of Honor: Colby on the Frontline</b>	April 27 4:30 pm	Presentation	<b>Elizabeth D. Leonard</b>
History	<u>Julia Deutsch</u> ( '12)	<b>Post Civil-War: Blacks in the North and Colby's Janitor Sam</b>	April 27 5:00 pm	Presentation	<b>Elizabeth D. Leonard</b>
International Studies	<u>Julie Kafka</u> ( '12)	<b>'El Machismo es Violencia!: Interrogating Cultures of Gendered Violence within Ecuador's Pluriculturalist State</b>	April 26 1:00 pm	Presentation	<b>Karin Ulla Friederic</b>
Latin American Studies	<u>Kathryn Wassam</u> ( '12)	<b>Return from Exile: The Process of Pinochet-Era Exiles Reintegration in Chile</b>	April 26 3:30 pm	Presentation	<b>Ben W. Fallaw</b>
Latin American Studies	<u>Heidi Blair</u> ( '12)	<b>Protecting Patagonia: Action and Inaction against the HidroAysén Dam Proposal in Chile</b>	April 26 3:00 pm	Presentation	<b>Ben W. Fallaw</b>
Mathematics	<u>Jennie Buskin</u> ( '13)	<b>Combinatorial Vector Calculus: A New Proof of Green's Theorem</b>	April 29	Poster	<b>Scott A. Taylor</b>
Mathematics	<u>John Dixon</u> ( '14)	<b>Fibonacci Matrices</b>	April 27 2:18 pm	Presentation	<b>D. Benjamin Mathes</b>
Mathematics	<u>Eli Dupree</u> ( '13)	<b>Functions with Dense Graphs.</b>	April 27 2:43 pm	Presentation	<b>D. Benjamin Mathes</b>
Mathematics	<u>Abigael Cheruiyot</u> ( '12)	<b>Integration of Multisensory Signals to Create Motion Perception</b>	April 28	Poster	<b>Jan E. Holly</b>
Mathematics	<u>Emily Niemi</u> ( '12)	<b>Mental Health Screening in Rural Maine Primary Care</b>	April 29	Poster	<b>Liam O'Brien</b>
Mathematics	<u>Arjumand Masood</u> ( '13)	<b>Perception of Motion during Dix-Hallpike Maneuver</b>	April 29	Poster	<b>Jan E. Holly</b>
Physics and Astronomy	<u>Nirakar Poudel</u> ( '12)	<b>Electronic Detection of Ultra Cold Neutral Plasmas</b>	April 25 3:05 pm	Presentation	<b>Duncan A. Tate</b>
Physics and Astronomy	<u>Greg Merritt</u> ( '12)	<b>Isometries and Spontaneous Lorentz Violation in General Relativity</b>	April 25 3:45 pm	Presentation	<b>Robert T., Bluhm</b>
Physics and Astronomy	<u>Austin Hoag</u> ( '12)	<b>Spontaneous Lorentz Symmetry Breaking and Cosmology in Five Dimensions</b>	April 25 3:30 pm	Presentation	<b>Robert T., Bluhm</b>
Physics and Astronomy	<u>Ai Phuong Tong</u> ( '15)	<b>Stabilizing the Frequency of a Diode Laser Using a Lock-In Amplifier</b>	April 29	Poster	<b>Charles Conover</b>
Psychology	<u>Jenifer Goldman</u> ( '12)	<b>Attitudes of College Students on Race/Racism</b>	April 27	Poster	<b>Tarja Raag</b>
Psychology	<u>Samuel Helm</u> ( '12)	<b>BDNF Knockout Compromises Addiction Related Reward Pathway Functioning</b>	April 27	Poster	<b>Melissa J. Glenn</b>
Psychology	<u>Kira Novak</u> ( '12)	<b>BFFs or Frenemies? : The Effect of Conflict Style Self-Reports, Personality Self-Reports, and Personality Similarity on Conflict Resolution Between Friends</b>	April 27	Poster	<b>Christopher J. Soto</b>
Psychology		<b>Comparing Survival Processing and School Processing: An Analysis of Self-Referencing and Relevance Between Different Survival Scenarios on Recall</b>	April 27	Poster	<b>Jennifer Coane</b>
Psychology	<u>Chelsea Nickerson</u> ( '13)	<b>Dietary Choline Supplementation During Adolescence Enhances Adult Hippocampal and Prefrontal Cortical Function in Male Rats</b>	April 27	Poster	<b>Melissa J. Glenn</b>



Psychology	<u>Arvia Sutandi</u> ('13)	<b>Differential Effects of Warnings on Direct and Mediated False Memory in Young and Older Adults</b>	April 27	Poster	
Psychology	<u>Jacqueline McLaughlin</u> ('13)	<b>Do Learning Styles Exist? The Effect of Learning Styles versus Matching Modalities on Memory</b>	April 27	Poster	<b>Andrea N. Eslick</b>
Psychology	<u>Shamika Murray</u> ('14)	<b>Effects of Moral Credentials on Ingroup/Outgroup Biases</b>	April 27	Poster	<b>Martha Arterberry</b>
Psychology	<u>Julie Levine</u> ('13)	<b>Effects of Physical Attractiveness on Moral Blame and Memory</b>	April 27	Poster	
Psychology	<u>Caroline Southwick</u> ('14)	<b>Elucidating the Effects of a Natural Environment and Exercise on Executive Functioning</b>	April 27	Poster	<b>Thane S. Pittman</b>
Psychology	<u>Amanda Carbonneau</u> ('14)	<b>Engagement with the Elements: Restorative Effects of Imagery and Various Sensory Aspects of Nature</b>	April 27	Poster	<b>Martha Arterberry</b>
Psychology	<u>Madeline Caplan</u> ('12)	<b>Evaluating the Effectiveness of a Pro-social Intervention Program for Pre-schoolers</b>	April 27	Poster	<b>Tarja Raag</b>
Psychology	<u>David Kaufman</u> ('14)	<b>Face Familiarity Phenomenon</b>	April 27	Poster	<b>Thane S. Pittman</b>
Psychology	<u>Iris Kim</u> ('14)	<b>Facial Expressions on Morality and Memory: The Differences in the Perception of Gender and Emotion</b>	April 27	Poster	<b>Martha Arterberry</b>
Psychology	<u>Stephanie-Ann LaRose</u> ('12)	<b>Facial Recognition of Negative Emotion in Various Mood and Processing States</b>	April 25 5:15 pm	Presentation	<b>Erin S. Sheets</b>
Psychology	<u>Adam LaViolet</u> ('13)	<b>Go with the Flow: Shared Literal and Figurative Meanings Influence Memory for Idioms</b>	April 27	Poster	<b>Jennifer Coane</b>
Psychology	<u>Ian Leitch</u> ('14)	<b>Is it a Bunting or a Warbler? Eye Movement Analysis in a Memory and Categorization Task</b>	April 27	Poster	<b>Jennifer Coane</b>
Psychology	<u>John Gardner</u> ('12)	<b>Modulation of Behavioral Outcomes by Choline in Male Rats with Extensive Hippocampal Damage</b>	April 27	Poster	<b>Melissa J. Glenn</b>
Psychology	<u>Adam Drago</u> ('14)	<b>Moral Credentials and the Licensing of Racist and/or Homophobic Behavior</b>	April 27	Poster	<b>Thane S. Pittman</b>
Psychology	<u>Ines Castro</u> ('14)	<b>Nature and Cognition</b>	April 27	Poster	
Psychology	<u>Angelica D'Aiello</u> ('12)	<b>Neuroprotection by Postnatal Choline Supplementation in a Rat Model of Fetal Alcohol Syndrome</b>	April 27	Poster	<b>Melissa J. Glenn</b>
Psychology	<u>Kristen Erickson</u> ('12)	<b>Prenatal Choline Availability Influences Stress-vulnerability and Emotional Responses Differently in Adult Male and Female Rats</b>	April 25 4:35 pm	Presentation	<b>Melissa J. Glenn</b>
Psychology	<u>Derek Wise</u> ('12)	<b>Prenatal Choline Rescues Cognitive Dysfunction in a Rat Model of Depression</b>	April 27 3:05 pm	Presentation	<b>Melissa J. Glenn</b>
Psychology	<u>Brianne Wheeler</u> ('14)	<b>Self-Affirmation and Moral Credentials on the Expression of Racial Prejudice</b>	April 27	Poster	<b>Thane S. Pittman</b>
Psychology	<u>Cynthia Garvin</u> ('12)	<b>Streamlining PSAs: Effects of Ad Framing and Regulatory Focus on Message Persuasiveness</b>	April 27	Poster	<b>Christopher J. Soto</b>
Psychology	<u>Shannon Kooser</u> ('14)	<b>Testing Through the Ages: A Comparison of Testing and Encoding Strategies on Immediate and Delayed Retention Between Different Age Groups</b>	April 27	Poster	<b>Jennifer Coane</b>
Psychology	<u>Devin O'Brien</u> ('12)	<b>The Effect of Emotion on Curiosity</b>	April 27	Poster	<b>Erin S. Sheets</b>
Psychology	<u>Lisa Hoopes</u> ('13)	<b>The Effect of Emotional States on Social Behavior</b>	April 27	Poster	<b>Erin S. Sheets</b>

Psychology	<u>Hillary Keach</u> ('13)	<b>The Effect of Feedback Type on the Hypercorrection Phenomenon</b>	April 27	Poster	<b>Andrea N. Eslick</b>
Psychology	<u>Shelley Kind</u> ('13)	<b>The Effects of Emotion on False Memory</b>	April 27	Poster	<b>Erin S. Sheets</b>
Psychology	<u>Brittany Hughes</u> ('12)	<b>The Effects of Racial Stereotypes on Childrens' Actor Judgments</b>	April 27	Poster	
Psychology	<u>Abigail Cooper</u> ('15)	<b>The Interpersonal Effects of Natural Versus Urban Backgrounds on our Perception of Others</b>	April 27	Poster	<b>Thane S. Pittman</b>
Psychology	<u>Mariah Smith</u> ('13)	<b>The Key to Accelerated Learning?: Exploring the Effect of Thought Speed on Cognitive Performance and Mood</b>	April 27	Poster	<b>Martha Arterberry</b>
Psychology	<u>Cale Wardell</u> ('13)	<b>The Metacognition of Marginal Knowledge</b>	April 27	Poster	<b>Andrea N. Eslick</b>
Psychology	<u>Miia-Liisa Termonen</u> ('14)	<b>The Role of Success in the Relationship of Positive Affect and Accelerated Thinking</b>	April 27	Poster	<b>Thane S. Pittman</b>
Psychology	<u>Jenifer Goldman</u> ('12)	<b>The Self-Esteem Conundrum: Mediating Mechanisms between Parenting Style and Children's Aggression</b>	April 25 4:15 pm	Presentation	<b>Christopher J. Soto</b>
Psychology	<u>Reesa Kashuk</u> ('12)	<b>Validating a Measure of Positive Acceptance in College Students</b>	April 27	Poster	<b>Tarja Raag</b>
Psychology	<u>Josef Broder</u> ('13)	<b>Welcome to the Grasslands: Memory for Inherently Survival Relevant Information</b>	April 27	Poster	<b>Jennifer Coane</b>
Psychology	<u>Stephanie-Ann LaRose</u> ('12)	<b>What? You don't remember me? Surprise modulates the own-age bias in young, but not old adults.</b>	April 27	Poster	<b>Jennifer Coane</b>
Psychology	<u>Sarah Falkof</u> ('12)	<b>The Influence of Regret and Framing Effects on Health Decision Making</b>	April 25 4:55 pm	Presentation	<b>Thane S. Pittman</b>
Religious Studies	<u>Allison Stitham</u> ('12)	<b>Playing the Part: An Examination of Civil War Era Mourning and the Performance of Social Identity</b>	April 26 2:00 pm	Presentation	<b>Debra Campbell</b>
Religious Studies	<u>Katherine Murray</u> ('12)	<b>Prayer in Matthew: an Old Jewish Tradition or a Radical Christian Beginning?</b>	April 26 2:15 pm	Presentation	<b>Julie Faith Parker</b>
Religious Studies	<u>Simran Jaising</u> ('12)	<b>Tale Of Two Devis: Using The Dakshineswar Kāli Temple In Kolkata And Mumbadevi Temple In Mumbai As Influential Sites To Examine The Socio-Religious Politics Of Food Production And Consumption</b>	April 26 1:30 pm	Presentation	<b>Nikky-Guninder K. Singh</b>
Religious Studies	<u>John Holman</u> ('13)	<b>The Multicultural Art of the Singh Twins</b>	April 26 11:30 am	Presentation	<b>Nikky-Guninder K. Singh</b>
Religious Studies	<u>Lauren Fisher</u> ('13)	<b>Tzedek Chevrat: Social Justice Protesting in Israel</b>	April 27 4:40 pm	Presentation	<b>Linda J. Maizels</b>
Sociology	<u>Isadora Alteon</u> ('14)	<b>(Tentative Title) 'Panama, Where the World Meets: An Exploratory Study of Healthcare systems in Panama City, Panama'</b>	April 29	Poster	<b>Matthew E. Archibald</b>
Sociology	<u>Uzoma Orchingwa</u> ('14)	<b>Black on The Hill</b>	April 27 3:45 pm	Presentation	<b>Cheryl Townsend Gilkes</b>
Sociology	<u>Joshua Balk</u> ('14)	<b>Learning By Giving: Maine Children's Home Summer Camp Scholarship Program</b>	April 29	Poster	<b>Thomas J. Morriane</b>
	<u>Kelsey</u>				

Sociology	<u>Werner ('12)</u>	<b>Learning by Giving: Strengthening Families Program for The Family Violence Project</b>	April 29	Poster	<b>Thomas J. Morrione</b>
Sociology	<u>Allison Ehrenreich ('12)</u>	<b>Pathways to Social Mobility: Educational Inequalities at Waterville Senior High School</b>	April 26 3:30 pm	Presentation	<b>Victoria L. Mayer, Victoria L. Mayer</b>
Sociology	<u>Amanda Ferguson ('12)</u>	<b>Public Health Through a Sociological Lens: Using the Social Determinants of Women's Health to Combat HPV and Cervical Cancer in Women Throughout sub-Saharan Africa</b>	April 27 3:30 pm	Presentation	<b>Thomas J. Morrione</b>
Sociology	<u>Patrick Adams ('13)</u>	<b>Women Unlimited: Grant Proposal for Financial Literacy Courses in Maine's Correctional Facilities</b>	April 29	Poster	
Sociology	<u>Hannah Smythe ('12)</u>	<b>Pathways to Social Mobility: Educational Inequalities at Waterville High School</b>	April 26 3:50 pm	Presentation	<b>Victoria L. Mayer</b>
Sociology	<u>Hannah Ricketts ('12)</u>	<b>Pathways to Social Mobility: Educational Inequalities at Waterville High School (Gender)</b>	April 26 4:30 pm	Presentation	<b>Victoria L. Mayer</b>
Spanish	<u>Oscar Mancinas ('12)</u>	<b>Franco's Legacy: Birds, Children, and Other Beasts in Contemporary Catalan-Language Film</b>	April 27 3:30 pm	Presentation	<b>Bobby Dean Allbritton</b>
Theater and Dance	<u>Michael Trottier ('12)</u>	<b>The Process of Playwriting: An Exploration of Structure, Character and Dialogue</b>	April 26 2:30 pm	Presentation	<b>Lynne Conner</b>
Theater and Dance	<u>Delaney McDonough ('13)</u>	<b>Move: The Summer of 1963</b>	April 26 7:30 pm	Presentation	<b>Ann Marie Kloppenberg, Todd James Coulter</b>
Women, Gender, Sexuality	<u>Morgan Lingar ('13)</u>	<b>'Against Nature? - Women who Murder Family Members'</b>	April 25 1:15 pm	Presentation	<b>Lisa Arellano</b>
Women, Gender, Sexuality	<u>Veronica Foster ('12)</u>	<b>A Modern Faith: Religion and Feminism in the Public Sphere</b>	April 25 2:00 pm	Presentation	<b>Lisa Arellano</b>
Women, Gender, Sexuality	<u>Bailey Girvan ('12)</u>	<b>Breaking Barriers?: The Illusion of Progress for Women in Primetime Comedies</b>	April 25 2:15 pm	Presentation	<b>Lisa Arellano</b>
Women, Gender, Sexuality	<u>Lindsay Putnam ('12)</u>	<b>Capitalism as Antifeminism in Sex and the City</b>	April 25 1:30 pm	Presentation	<b>Lisa Arellano</b>
Women, Gender, Sexuality	<u>Berol Dewdney ('13)</u>	<b>Intersections of Female Embodiment and Feminism through the Decades</b>	April 25 1:45 pm	Presentation	<b>Lisa Arellano</b>
Women, Gender, Sexuality	<u>Ashley Oliver ('12)</u>	<b>Of Men and Monsters: Masculinity and Vampires in Buffy the Vampire Slayer</b>	April 25 1:00 pm	Presentation	<b>Lisa Arellano</b>
Women, Gender, Sexuality	<u>Caitlin Burchill ('12)</u>	<b>Opening the Gridiron to Girls: Women and Pro Football</b>	April 25 2:30 pm	Presentation	<b>Lisa Arellano</b>
Women, Gender, Sexuality	<u>Hannah DeAngelis ('12)</u>	<b>Queering the Colby Archive: Combating Queer Erasure with Narratives of Queer Survival</b>	April 25 2:45 pm	Presentation	<b>Lisa Arellano</b>

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