### MiddSym2014

**APRIL 10 • THURSDAY**

- **C** Class Oral (15)
- **S** Class Oral (75)
- **E** Exhibit
- **I** Individual Oral
- **N** Individual Poster or Display
- **L** Lunch
- **O** Open Studio
- **P** Performance
- **R** Reception

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>6:40pm –</td>
<td><em>a Cappella- D8</em></td>
<td>MCA Concert Hall</td>
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<tr>
<td>7:05pm</td>
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<tr>
<td>7:00pm –</td>
<td><strong>Welcome, Introduction by Tim Spears and Keynote by Vendela Vida ’93</strong></td>
<td>MCA Concert Hall</td>
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<tr>
<td>8:00pm –</td>
<td><strong>Middlebury Swing Club</strong></td>
<td>MCA Lower Lobby</td>
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<tr>
<td>8:00pm –</td>
<td>The Middlebury Swing Club teaches weekly lessons and workshops on the</td>
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<td>8:30pm</td>
<td>Lindy Hop, Charleston, Blues, and more and performs for charity</td>
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<td></td>
<td>benefits and the community throughout the year. The Swing Club is</td>
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<td></td>
<td>run by Melanie Dennis ’14, Lindsey Hunt ’14, and Tim Fraser ’16.</td>
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<td></td>
<td>(Like what you see? Their Spring show, “Swing Express,” premiers</td>
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<td></td>
<td>Friday, April 11 at 8:00pm in the McCullough Social Space, with</td>
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<td>proceeds going to the Middlebury Charter House!</td>
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<td>8:00pm –</td>
<td><strong>P Middjazz</strong></td>
<td>MCA Upper Lobby</td>
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<td>8:30pm</td>
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<tr>
<td>8:00pm –</td>
<td><strong>R Thursday Night Reception</strong></td>
<td>MCA Lower Lobby</td>
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<td>8:30pm</td>
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<tr>
<td>8:00pm –</td>
<td><strong>Books by Vendela Vida Available for Purchase</strong></td>
<td>MCA Box Office</td>
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<td>8:45pm</td>
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<tr>
<td>8:00pm –</td>
<td><strong>E Theatre Costume Display</strong></td>
<td>MCA Upper Lobby</td>
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<td>9:30pm</td>
<td><em>Sponsors: Jule Emerson</em></td>
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<td></td>
<td>Students from THEA0325 will be displaying work in the MCA upper lobby</td>
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<td>for the symposium. Artists displaying: Yvonne Chan ’16, Krista Duke ’15,</td>
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<td></td>
<td>Sophruka Fukukawa ’16, Elisabeth Harmor ’16, Annie MacPherson ’16,</td>
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<td>Cordelia Prouvost ’17, Hayley Singleton ’15</td>
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<td>8:30pm –</td>
<td>*<em>P 'I'd Give It All for You'</em></td>
<td>MCA Concert Hall</td>
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<td>9:30pm</td>
<td><em>Moderators: Greg Vitercik</em></td>
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<td></td>
<td><em>Speakers: Erica Furgiuele ’15, Mike McCann ’15</em></td>
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<td><em>Sponsors: Jeff Buettner</em></td>
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<td></td>
<td>Erica Furgiuele ’15 and Hannah Johnston ’15.5 perform an art song</td>
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<td>by Monteverdi, an excerpt from Erica's upcoming vocal recital on</td>
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<td>Saturday, April 12th in conjunction with Mike McCann ’15. This</td>
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<td>concert is the culmination of her independent study this semester in</td>
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<td>vocal technique and performance. The recital is free and is at 8pm in</td>
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<td></td>
<td>the CFA Concert Hall.</td>
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<td>8:30pm –</td>
<td><strong>P 'Two Roads' A Documentary Short Film</strong></td>
<td>MCA 125</td>
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<td>9:30pm</td>
<td><em>Moderators: Christian Keathley</em></td>
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<td><em>Speakers: Joan Thompson ’14</em></td>
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<td><em>Sponsors: Daniel Houghton</em></td>
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<td>Two Roads Diverged in a Middle School...And we rediscover something</td>
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<td>we thought we already knew. This documentary short film examines</td>
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<td>how middle school students (ages 12-15) feel about Robert Frost's</td>
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<td>&quot;The Road Not Taken,&quot; when they first read the poem and then when</td>
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<td>they are prompted to read it more closely and reexamine their</td>
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<td>initial opinions. As a viewer, we get the same opportunity to</td>
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<td>rethink this classic poem. This film draws on interviews I conducted</td>
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<td>with local middle school students and Middlebury Professor and Frost</td>
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biographer Jay Parini. This film allowed me to combine my academic and extracurricular pursuits of the study of literature and film in a project that had local roots and significance.

8:30pm – 9:30pm
P A Bag of Popcorn Is Acceptable
Moderators: Dana Yeaton
Speakers: Mariam Sultan ’16

8:30pm – 9:30pm
P A Selection of Classical Duets
Moderators: Greg Vitercik
Speakers: Mike McCann ’15, Julianne Wieboldt ’14
Performance of vocal duets from Offenbach’s Les Contes d’Hoffman and Mozart’s Die Zauberflote and a duet with violin by Handel.

8:30pm – 9:30pm
P Acceptance
Moderators: Christian Keathley
Speakers: Elise Biette ’16
Growing up in Middlebury is a unique and wonderful experience. Going to Middlebury College is also a unique and wonderful experience. In the J-term class Sound & Story we were given an introduction to radio storytelling, and I was able to explore where these, my own two worlds, collide. My piece explores the emotional turmoil I felt after deciding to attend college in my hometown. In giving myself time to actually examine my feelings toward my decision to attend Middlebury College, I found the open space of a radio story to be the perfect environment to begin to find words for these emotions that in everyday conversation I am hard-pressed to express. Through this extended period of self-reflection I created a piece in which I talk about the process of coming to terms through comparisons with track events that I ran throughout high school.

8:30pm – 9:30pm
P Andante
Speakers: Harry Rich ’17.5, Dante Francomano ’15, Colin Martin ’15
A performance of Andante from the trio in E flat major, Op. 44 by Johannes Brahms
Harry Rich ’17.5, violin
Dante Francomano ’15, alto saxophone
Colin Martin ’15, piano

8:30pm – 9:30pm
P Eggshells
Moderators: Christian Keathley
Speakers: Sinead Keirans ’14
Sponsors: Daniel Houghton
Eggshells a short fiction film about how an unplanned pregnancy effects a teenage daughter and her mother. This film explores issues of family relationships, making choices, and forgiveness of oneself and others. This film was created as an Independent Project in the Fall of 2013, overseen by Daniel Houghton and Ethan Murphy, and with the help of the Sight and Sound II class.

8:30pm – 9:30pm
P Farm Hands
Moderators: Christian Keathley
Speakers: Stella Holt ’15
I made this film in the fall as my final project for Sight and Sound II. I chose to make a film about Pete’s Greens, an organic farm in Craftsbury, VT because I was intrigued by the relationships between workers on the farm. In making the film, I learned a great deal about the difficulty of documentary filmmaking as I encountered numerous challenges including a language barrier as well as difficulty in getting the subjects of my project to care about the film. I plan to continue to pursue documentary filmmaking as a medium to tell stories that need to be heard.
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<th>Time</th>
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<th>Venue</th>
<th>Details</th>
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| 8:30pm – | **Finding Amos: A Short Film**                                   | MCA 125        | Moderators: Christian Keathley  
Speakers: Anna Mackey ’14  
Sponsors: Daniel Houghton  
“Finding Amos” is a short film about a solitary man who encounters a lone lobster in his driveway one rainy night. What the man does next is a surprise to the audience, and himself. Under three minutes long and without dialogue, “Finding Amos” is a short and sweet piece of purely visual storytelling. I wrote, directed, filmed, and edited the film this fall off an assignment for film production class Sight and Sound II. |
| 8:30pm – | **Flight of the Bumblebee**                                      | MCA Concert Hall | Speakers: Boghos Taslakjian ’17  
A performance of *Flight of the Bumblebee* by Nikolai Rimsky-Korsakov |
| 8:30pm – | **From Script to Screen in 48 Hours: The Making of 'Room for Rent'** | MCA 125        | Moderators: Christian Keathley  
Speakers: Ali Salem ’16  
Sponsors: Ioana Uricaru  
A screening of Room for Rent, Middlebury's submission to The Vermont International Film Festival's "Sleepless in Burlington" competition and winner of "Best Film" and "Audience Choice". This past October, a group of Middlebury Filmmakers (Ben Kramer, Joan Thompson, James Brown, Ben Savard, and Ali Salem) wrote, shot, and edited a short film in 48 hours. They won two of three possible awards from a jury presided over by Colin Trevorrow, director of Safety Not Guaranteed and the upcoming Jurassic World. After the screening, four of the five filmmakers will be on hand to answer questions and explain their process.  
Link to Video: https://vimeo.com/77376085 |
| 8:30pm – | **Grave and Largo e puntato**                                    | MCA Concert Hall | Speakers: JP Miller ‘17, Linnea Meyer ‘14, Nimrod Sadeh ’17.5, Noelle Blose ’17  
A performance of Grave and Largo e puntato from Trio Sonata Op. 1 no. 12 by Arcangelo Corelli.  
JP Miller ’17, violin  
Linnea Meyer ’14, violin  
Nimrod Sadeh ’17.5, cello  
Noelle Blose ’17, piano |
| 8:30pm – | **Hey, Skater**                                                  | MCA 232        | Moderators: Dana Yeaton  
Speakers: Mari Vial-Golden ’14 |
| 8:30pm – | **Kuchipudi-Swing**                                              | MCA 109        | Moderators: Harshita Kamath  
Speakers: Lindsey Hunt ’14, Elise Biette ’16  
This piece is a fusion of two types of dance: an Indian classical dance called Kuchipudi and an American dance form called swing dance. Although swing dance originated during the jazz era of the early-mid twentieth century, this piece was choreographed to “The Invisible Girl,” a song from a new genre of swing dance music called electro swing. The item fuses several forms of swing dance (Charleston, Lindy Hop, the Shim Sham and East Coast) with the rhythmic footwork and expressive hand gestures of Kuchipudi. This item was a wonderful opportunity for us to combine our passion for swing dance, which we learned through Middlebury's swing dance |
club, with our newfound appreciation for Indian classical dance from Professor Kamath's class, "RELI/DANC 0242: Dance and Embodied Knowledge in the Indian Context."

8:30pm – 9:30pm  
P Lorazepam  
Moderators: Dana Yeaton  
Speakers: Alice Oshima ’15

8:30pm – 9:30pm  
P Music in the Museum  
Moderators: Larry Hamberlin  
Speakers: David Chen ’14, Day Robins ’17, Matt Weinert-Stein ’14, Gabriel Antonucci ’17, Kevin Dong ’16  
Haydn, String Quartet in G minor, op. 74, no. 3, 1st movement- David Chen ’14, violin 1, Day Robins ’17, violin 2, Matt Weinert-Stein ’14, viola, Gabriel Antonucci ’17, cello  
Schubert, String Quartet in A minor, 1st movement- Ellen Taylor ’15, violin 1, David Chen ’14, violin 2, Kevin Dong ’16, viola, Gabriel Antonucci ’17, cello

8:30pm – 9:30pm  
P Open Rehearsal for In the Next Room (or The Vibrator Play)  
Moderators: Claudio Medeiros  
Speakers: Students from the Theatre Department  
From his 1880s parlor and consulting room, Dr. Givings specializes in treating women for “hysteria” with the help of the latest technology: the electric vibrator. When a new patient piques Mrs. Givings’s curiosity about the groundbreaking treatment ministered in the next room, she is forced to confront the limits of her marriage and to listen to the music of her own body. An elegant comedy lit by unexpected sparks from the approaching era of electricity, psychoanalysis, and suffragettes, In the Next Room confirms Sarah Ruhl’s status as one of the most imaginative contemporary American playwrights. Directed by Cláudio Medeiros ’90. For mature audiences. Post-show discussion Friday evening. Sponsored by the Theatre Program. For mature audiences. Post-show discussion, Friday night only: Join the cast, director, and designers after the show for a Q&A session about the production and the creative journey leading up to it. Tickets: $12/10/6; on sale April 14.

8:30pm – 9:30pm  
P Quintessential Brass  
Moderators: Greg Vitercik  
Speakers: Scott Gilman ’15, Suzanne Calhoun ’14, Kaitlin Horan ’15, Mike Russo ’16, Asa Julien ’15  
Come hear a unique assortment of brass ensemble music. Our quintet includes Scott Gilman ’15 (trumpet), Mike Russo ’16 (trumpet), Suzanne Calhoun ’14 (horn), Kaitlin Horan ’15 (horn) and Asa Julien ’15 (tuba).

8:30pm – 9:30pm  
P Senior Thesis Dance Concert: A Preview  
Moderators: Chirstal Brown  
Speakers: Hai Do ’14, Cameron McKinney ’14, Rachel Nuñez ’14, Jill Moshman ’14  
Four seniors present a preview of the Senior Dance Concert on May 2nd and 3rd and perform work that demonstrates the power of contemporary dance to communicate diverse ideas. Inspired by depiction of hell in Buddhism, Chinese mythology, and Vietnamese folk religion, Do attempts to realize his vision of life after death through physical movements. Nuñez navigates the complex relationship between self and society and hopes to explore how this junction impacts the way that bodies, particularly female bodies, move through space. McKinney engages the dialogue between hip-hop, modern dance, and traditional Japanese movement; Moshman deploys her study of psychology to discover how physical memory informs her choreographic work.

8:30pm – 9:30pm  
P Sonata for Flute and Piano  
Moderators: Greg Vitercik  
Speakers: Gioia Pappalardo ’16.5  
Sponsors: Anne Janson
I will be performing the Allegretto malincolico of the Sonata for Flute and Piano, written in 1957 by French composer Francis Poulenc (1899 - 1963).

8:30pm – 9:30pm  
P Stand For It  
Moderators: Christian Keathley  
Speakers: Kirsten Aguilar ’14  
Stand For It is a short fictional film that explores the complexities of infidelity and the consequences of impulse. It was written and directed for my final project in Sight and Sound 2.

8:30pm – 9:30pm  
P Take Me or Leave Me  
Moderators: Greg Vitercik  
Speakers: Hannah Johnston ’15.5, Shannia Fu ’17  
Sponsors: Carol Christensen  
Sami Hopkins ’17 and Hannah Johnston ’15.5, accompanied by York Kitajima ’15, perform "Take Me or Leave Me" from the musical RENT. RENT follows a group of friends living in 1990's New York City who find ways to laugh and love amidst poverty and disease. RENT, an MCMP production, goes up next week, April 17th, 18th, and 19th, 8pm nightly, at Town Hall Theater. Tickets at go/boxoffice.

8:30pm – 9:30pm  
P The Will  
Moderators: Dana Yeaton  
Speakers: Josh Brosnan ’16  

8:30pm – 9:30pm  
P Utah  
Moderators: Dana Yeaton  
Speakers: Evann Normandin ’14.5  

8:30pm – 9:30pm  
P Venite, Venite  
Moderators: Greg Vitercik  
Speakers: Erica Furgiuele ’15, Hannah Johnston ’15.5  
Sponsors: Carol Christensen  
Erica Furgiuele ’15 and Mike McCann ’15 perform excerpts from their recital that will take place this Saturday night at 8pm in the Concert Hall. This concert is the culmination of their independent study projects in vocal technique and repertoire this semester and includes such composers as Henry Purcell, John Musto and Ira Gershwin. Free entry.

8:30pm – 9:30pm  
P Whistling as Instrumental Music: Chamber pieces from the 20th century  
Moderators: Greg Vitercik  
Speakers: Shannia Fu ’17, Yuki Takeda ’14  
Sponsors: Fusun Koksal  
This project aims to re-define pucker whistling as a musical instrument suitable for classical music. In interpreting chamber pieces from the 20th century written for instruments such as flute, oboe, violin and recorder, it focuses on the characteristics of whistling including range, volume, pitch control, and unique articulation techniques, notably "warbling" and "in/exhale alternation." While paying close attention to the possibilities and limitations in interpreting pieces written for other instruments, this project seeks to explore the technical and musical boundaries of whistling. Different sets of techniques must be employed to imitate the articulation of the original instrument and/or add a whistling-specific interpretation. Works interpreted in the project include compositions by Debussy, Saint-Saens, Villa-Lobos and Ibert among others. Yuki Takeda ’14 (Whistling), Shannia Fu ’17 (Piano)

Performing Improviso no. 7 Jeux by Heitor Villa-Lobos and Jacques Ibert

APRIL 11 • FRIDAY
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<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>9:00am –</td>
<td>Jim Ralph Opens Friday Events</td>
<td>MBH Great Hall</td>
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<tr>
<td>9:15am</td>
<td>Books by Vendela Vida Available for Purchase</td>
<td>MBH Great Hall</td>
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<tr>
<td>9:15am –</td>
<td>C Resampling from the Permutation Distribution in Two-Sample Comparisons</td>
<td>MBH 219</td>
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<tr>
<td>9:15am –</td>
<td>I Black and White and Red All Over: Communism, the Press and the Trial of Willie McGee, 1950-51</td>
<td>MBH 303</td>
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<tr>
<td>9:15am –</td>
<td>I Philosophy and History in George R. R. Martin's A Song of Ice and Fire</td>
<td>MBH 411</td>
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<tr>
<td>9:15am –</td>
<td>I The Jews of No Religion</td>
<td>MBH 311</td>
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**C Resampling from the Permutation Distribution in Two-Sample Comparisons**

*Moderators: John Emerson*

*Speakers: Liuxfei (Sophie) Yang ’16, Colin McIntyre ’15*

This presentation introduces the use of computer-intensive resampling methods as alternatives to conventional methods that rely on the use of distributional assumptions and probability theory. The comparison of the means of two samples of measurements using t-distributions is a familiar and important problem in statistics. How can we compare results collected from two independent groups, and how can we determine if there is a significant difference between the group means? Computer resampling from a permutation distribution for the differences between the two groups can address the questions without making the traditional assumptions of “normal theory”. By measuring the observed difference against a simulated sampling distribution, we find the P-value, which helps determine if the two groups have a significant difference in their means. The comparison of male and female student GPAs exemplifies the use of a permutation distribution in a two-sample comparison.

**I Black and White and Red All Over: Communism, the Press and the Trial of Willie McGee, 1950-51**

*Moderators: Jim Ralph*

*Speakers: Katie Gill ’14*

Willie McGee was an African-American man accused of raping a white woman in Laurel, Mississippi. The Civil Rights Congress (CRC), a civil rights group that was labeled a “Communist front” by the House Un-American Activities Committee (HUAC), picked up his case, serving as his legal defense team and lobbying for McGee's conviction to be overturned. The press reception to the trial of Willie McGee, from the years 1950-1951, serves as a wonderful example of the complex and intertwined relationship between Communism and the Civil Rights Movement and how different aspects of the press had different reactions to the "threat" of Communism. My thesis serves to explain the regional strands of anti-Communism in the press by comparing the reception of the Willie McGee case in three different types of news media: local Mississippi newspapers, the African-American press, and Northern newspapers, including the niche press.

**I Philosophy and History in George R. R. Martin's A Song of Ice and Fire**

*Moderators: Jessica Teets*

*Speakers: William Prince ’14*

*Sponsors: Kathy Skubikowski*

My thesis explores the sources and analogues of A Song of Ice and Fire by George R. R. Martin and aims to lay the basic groundwork on what directly and indirectly influenced Martin as well as what his contribution is in relation to others who have dealt with similar material. I will examine Martin through this lens in three distinct categories: history, philosophy, and fantasy. At this point in time, I have completed analysis on the history and philosophy sections and am prepared to present on said categories. In the philosophy section I am looking at the relationship between Martin and Machiavelli's The Prince, Thomas Hobbes' Leviathan, and Cervantes' Don Quixote. In the history section I am examining the historical parallel's of The War's of the Roses as well as Shakespearian histories such as Richard III.

**I The Jews of No Religion**

*Moderators: Kemi Fuentes-George*

*Speakers: Toby Israel ’14*

*Sponsors: Ellen Oxfeld*

For my senior work in Anthropology, I conducted an ethnographic study of female Jewish identity at Middlebury College. Fifteen in-depth interviews formed the core of my research, and delved into themes of religiosity,
boundary marking, Israel and the Holocaust, hybridity, American Judaism, and gender. In my first chapter, which I will present at the Symposium, I examine my respondents’ Jewish identity in terms of the recent Pew Study on American Jewish Identity. That is, I categorize them as “religious Jews” and “Jews of no religion,” ultimately demonstrating that the personal definitions of these categories are so varied as to render them useless. And so, I invite you to enter into a dialogue with me on what it means to be religious on this campus, what it means to be secular, and how the two can intersec in individual narratives.

9:15am – 9:45am
I The Social Psychology of Evil: Why Do Good People Do Bad Things?
Moderators: Ian Barrow
Speakers: Hannah Deoul ’14
Sponsors: Carlos Velez-Blasini
In my effort to understand the development of evil, I have researched the social psychology of the Holocaust. By applying that knowledge to more recent genocides, I am making a historical as well as a psychological analysis of the progression of evil. I use psychology as a means to better understand the reality and probability of these genocidal acts, focusing on the evolution from citizen to perpetrator. How can the common person perform such actions, and why do these trends continue across time and culture? A means to understand is not to excuse those who partook in such genocidal murders, but rather to explain the human transformation from normalcy to excessive brutality. It is through the framework of social psychological research on dehumanization, obedience, fear, and group dynamics that I attempt to explain the progression towards genocide in any society.

9:15am – 9:45am
I Variation in Cation Exchange Capacity Across a Humid Tropical Landscape, Pacific Coast, Costa Rica
Moderators: Peter Ryan
Speakers: Lauren Pincus ’14
The archetypal tropical soil is highly leached, with low Ca and high Al. However, 65% of soils from moist-to-wet tropical environments do not fit this description, particularly those in tectonically active environments. Cation exchange capacity (CEC) of soils plays an integral role in nutrient cycling in terrestrial ecosystems. The goal of this study is to investigate variations in CEC as a function of soil age and mean annual precipitation (MAP) along the Pacific coast of Costa Rica. It is expected that older, more weathered soils will have lower CEC relative to younger soils. Higher MAP is expected to increase rate of leaching, causing a more rapid decrease in CEC as a function of age. Preliminary results demonstrate that CEC of smectite rich, ≤10 ka, soils range from 45-90 cmolc/kg, and at the other extreme, CEC of kaolinite dominated 120 ka soils ranges from 1-15 cmolc/kg.

9:15am – 10:30am
S Conservation and Land Management in the San Luis Valley, Colorado
Moderators: Marc Lapin
Speakers: Kurt Alles ’14.5, Sara Amo ’15, Carey Favaloro ’14, Carson Hauck ’14, Eyal Levy ’15, Katie Michels ’15, Paul Quackenbush ’14, Madison Stebbins ’15, Shona Sanford-Long ’14
A class of 12 students spent Winter Term studying conservation and land management practices on Trinchera Ranch and other private and public lands in the San Luis Valley and Sangre de Cristo Mountains in southern Colorado. We will present an overview of the variety of practices and perspectives we were introduced to as well as findings from individual student projects. Our projects investigated wildlife connectivity; use of remote sensing for forest pest detection; water, agriculture, livestock and forest management issues; bison reintroduction; natural history education; cultural influences on land use; and our own changing perspectives on conservation methods and land management practices.

9:35am – 10:00am
C A Simulation Study Comparing the Performance of Three Confidence Intervals
Moderators: John Emerson
Speakers: Alvaro Machuca ’16, Olena Ostasheva ’16, Max Bacharach ’14
Confidence intervals attached to estimates of unknown parameters reveal the precision of our estimates. We use computer resampling and simulation to compare the accuracy of three methods for constructing 95% confidence intervals for normal, exponential, and uniformly distributed data, each with known mean and standard deviation. The construction methods are: (a) traditional theoretical approach using t-distributions; (b) 2*Standard Errors
around the mean; (c) bootstrapping from the observed values in a data set, and using quantiles from the bootstrap samples to find a 95% range in the distribution of sample means. We also varied the size of the samples to understand the impact sample size has on the three estimates. The simulations revealed that the normal theory and the 2*SE methods slightly outperform bootstrapping in terms of confidence intervals covering the true mean.

9:35am – 9:50am

I Aristotle and the Best Life

Moderators: Kemi Fuentes-George

Speakers: Sarah Bates ’14

Sponsors: Stanley Bates

What is the best way of life? Aristotle asks and then answers that question in his Nicomachean Ethics and Politics, presenting two superior ways of life and then discussing their merits throughout both works. He praises the contemplative life, characterized by the study of divine beings, and the political life, characterized by political action and moral virtue. Which life is best—that is, most conducive to one’s happiness? Aristotle attributes different important benefits to each way of life, leading me to conclude that the two ways of life he praises are comparable to two separate summits within the same mountain range: one—the contemplative life—higher than the other, but the political life as a separate pinnacle, not to be dismissed.

9:35am – 9:50am

I From the Acropolis to the Rive Gauche: Gendered Urban Space and the Caryatid

Moderators: Peter Ryan

Speakers: Hannah Ostrow ’14

Sponsors: Pieter Broucke

This talk will explore historical connections between morality and the public/private divide in late-19th-century France, especially as it relates to the whore/virgin dichotomy and spatially expressed gender disparities. As this is an excerpt of my senior thesis, which looks at Rodin’s Fallen Caryatid and its Classical model, the Erechtheion caryatids, I will look here at how these two works fit into the gendered urban landscapes of Haussmann’s Paris and classical Athens. Though the latter afforded women less freedom to navigate space than did modern Paris, the caryatids at the Erechtheion demonstrate a remarkable authority over the space they occupy, whereas Rodin’s caryatid is contorted, marginalized, and disempowered.

9:35am – 9:50am

I I’m Not Clairvoyant, But I’ve Had My Moments

Moderators: Jessica Teets

Speakers: Rebekah Wilson ’14

Sponsors: Karin Gottshall

I want to read an excerpt from my senior thesis in poetry. I’m writing a collection that explores the boundaries of such a collection as a unified text and as a sum of its fragmentary parts. I’m interested in the ways in which we make resonant connections of our experience in verse – what fits and what doesn’t? What kinds of dissonance and consonance do/should we tolerate? Through these queries, the project addresses the tenuous and precocious task of trying to make sense of the recent past while still very young, while still actively living and learning.

(Brief) excerpt:

How important is it to round things off in fives?
I’ve often wondered this, sitting in television light,
turning couches and wisdom teeth over in my mind
like coins. At times, it’s seemed more important
than others.
I’m not clairvoyant, but I’ve had my moments.

9:35am – 9:50am

I Love and Honor in the Middle Ages: A Destructive Force or a Unifying Value of a Repressed Society?

Moderators: Benjamin Heiring

Speakers: Emily Brown ’14

Sponsors: Daniel Stamm

I want to discuss the role of love and honor in the Middle Ages, and how these ideals influenced the development of society. I will focus on how these values were used as a means of controlling the behavior of individuals, and how they contributed to the development of the feudal system. I will also discuss the ways in which these values were used to justify violence and cruelty, and how they contributed to the development of the concept of chivalry.

Moderators: Jessica Teets

Speakers: Rebekah Wilson ’14

Sponsors: Karin Gottshall

I want to read an excerpt from my senior thesis in poetry. I’m writing a collection that explores the boundaries of such a collection as a unified text and as a sum of its fragmentary parts. I’m interested in the ways in which we make resonant connections of our experience in verse – what fits and what doesn’t? What kinds of dissonance and consonance do/should we tolerate? Through these queries, the project addresses the tenuous and precocious task of trying to make sense of the recent past while still very young, while still actively living and learning.

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than others.
I’m not clairvoyant, but I’ve had my moments.
Moderators: Barbara McCall
Speakers: Olivia Hipkins '14
Sponsors: Jennifer Tamas

The goal of this study is to examine the relationship between honor and courtly love in 12th century aristocratic society through the lens of two foundational texts, The Knight of the Cart, or Lancelot, and Tristan and Isolde. Placed within the context of medieval society, which relied heavily on religion and self-control, what was the role of this adulterous courtly love? This study explores how courtly love represented both an utterly destructive force, tearing apart conceptions of religion, feudal relationships and the couple, as well as a unifying value, constructing a coherent image of harmony. Ultimately, honor and love represent conflicting and complementary ideals. Though courtly love, at least in its original adulterous state, faded with the fall of the feudal system, the themes and ideals that these two literary works instilled in society remain pervasive throughout history and continue to influence our modern conceptions of love and romance.

9:35am – 9:50am
Mass Incarceration and Rural Prison Development: The Disempowerment of Urban Centers and Prison-Based Gerrymandering in Louisiana
Moderators: Jim Ralph
Speakers: Alexandria Jackman '14
Sponsors: Peter Nelson

This project is an examination of the consequences of mass incarceration and rural prison development on the political disempowerment of poor urban centers/people of color within a neoliberal framework. Using Louisiana as a case-study, I investigate the effects of prison-based gerrymandering—the process by which prisoners are counted as residents of a prison-hosting district, thus increasing the district's population of non-voters when assigning political apportionment—on communities and individuals in prison-hosting and prison-sending communities. Jim Crow laws, the criminalization of poverty, and the War on Drugs have led to mass incarceration and political disenfranchisement of black and Latino populations over the past four decades. The effects of these policies have created a forced migration stream from urban centers to rural white counties with prisons, where the prisons are being used as tools for economic development of previously industrial or agricultural areas. A huge spike in the percent of the population incarcerated since the 1970s, has led to a simultaneous increase in political misrepresentation, and I will investigate the scales of political empowerment and disempowerment that this process has created.

9:35am – 9:50am
Sikhs in Transition: The Effects of Religious Reform on Colonial Nationalism
Moderators: Ian Barrow
Speakers: Rajsavi Anand '14

In the period from 1940-1947, the Sikh community experienced a profound struggle to situate itself vis-à-vis the other major constituents in the country—the Indian National Congress, All Muslim League, and the British Government—as the idea of Pakistan came to fruition. The Sikhs presented an incoherent front in these years and ultimately saw their homeland vivisected. Little weight has been placed on the period from 1920–1940, during which the Sikhs mobilized as a whole community, as the cause for the divisive and incoherent Sikh responses in the wake of Partition. From 1920-1925, the Sikh community mobilized to reclaim their Gurdwaras from their mahants (managers). In doing so, the Sikh community solidified its Khalsa Sikh religious identity and gained a nationalist political consciousness in joining with the INC for support. Meanwhile, it began to develop a communal identity due to its struggle to pass legislation to reclaim its Gurdwaras. While the extremist Sikh leadership was successful in mobilizing the rural populace during the Gurdwara Reform Movement, it created a struggle for the Sikh community in the following decades when it attempted to increase its political representation. The incompatible communal and nationalist rhetoric that evolved out of the Gurdwara Reform Movement led the Sikh community to alienate the British government and the Indian National Congress, all the while causing internal rifts among themselves. The inability of the Sikh community to balance its two identities as both a religious group and a part of the Indian nation presented the Sikh community with significant problems in the struggle for India’s independence.
C Analyzing Two-by-Two Tables of Counts through R Simulation

Moderators: John Emerson

Speakers: Katharine Reineman ’15, Al Braun ’15, Patrick Devereux ’15, Larson Lovdal ’16.5

Scientists use two-by-two tables to compare responses for two groups. For example, doctors may compare the effectiveness of two medical treatments. Researchers anticipate that the experimental treatment has fewer adverse outcomes than the control treatment. Two common measures for comparing outcomes are the risk difference and the odds ratio. We investigate through simulations in R which technique is a more reliable measure of the treatment effect. A measure is more reliable if, for a fixed significance level (Type-I error rate), the probability of failing to recognize a superior treatment (thus making a Type-II error) is smaller. We conclude that the risk difference produces a lower rate of erroneous conclusions than the odds ratio when the probability of an adverse outcome for the control treatment is less than 0.5. This tendency is reversed in favor of the odds ratio when the probability is greater than 0.5.

I Caliphate Reborn: How the Syrian Conflict Is Redefining Jihad for al-Qaida

Moderators: Ian Barrow

Speakers: David Russell ’15

Sponsors: Robert Greeley

The current uprising against Syria’s Bashar al-Assad has produced little more than a stalemate, largely because external influences and internal rivalries have fragmented and radicalized many of the rebels. In particular, al-Qaida’s growing role among the rebels has received close attention, shaking the confidence of those who might otherwise support the rebels more overtly, including the U.S. What is less acknowledged is that al-Qaida has suffered an internal division in Syria, and that that conflict has become in part a turf war between al-Qaida and its former affiliate the ISIS. In January 2014, rebels including al-Qaida militants banded together to drive the ISIS out of Syria. This campaign was not spontaneous but was in fact preceded by months of ideological bickering between extremist ideologues about the role of the ISIS. An examination of these debates sheds light on important issues such as ISIS exceptionalism and the future of Islamic extremism in the ongoing Syrian conflict.

I Federalism in Environmental Policy-Making: A Tool of Progress or Hinderance?

Moderators: Kemi Fuentes-George

Speakers: Eleni Polychroniadou ‘14

As federalism increases in the European Union, we must wonder about the efficacy of implementing homogenous policy across states of varying economic, political and cultural levels. This presentation explores the implications of having a leader-laggard dynamic within the EU by using Greece as a case study of a laggard state and examining how it has implemented the 20-20-20 directive. Given that the European Union is relatively new in comparison to older federal nations such as the United States, what lessons can we draw from existing case studies and how can those lessons help us predict the future of federalism in the EU? Is progress being made or are we slowing down policy making through the use of this system?

I Gatsby’s Career as Trimalchio: The Great Gatsby and The Satyricon

Moderators: Jessica Teets

Speakers: Caitlin Morton ’16

Sponsors: Christopher Star

Written in the mid-first century AD, The Satyricon by Petronius has heavily influenced F. Scott Fitzgerald’s The Great Gatsby, published nearly two millennia later in 1925. Fitzgerald models his own Jay Gatsby on Petronius’s character Trimalchio, a vulgar, ostentatious, self-made millionaire. Both characters possess a desire for upward social mobility and throw lavish parties to show off their wealth. However, Fitzgerald acknowledges that Gatsby fails as Trimalchio: “It was when curiosity about Gatsby was at its highest that the lights in his house failed to go on one Saturday night—and, as obscurely as it had begun, his career as Trimalchio was over” (The Great Gatsby, 113). I argue that this reference serves to establish the characters’ inherent difference: while Trimalchio’s vulgarity makes him a comic character, Gatsby’s inability to accept reality makes him a tragic
character. Though Trimalchio remains rooted in his existence, Gatsby’s romanticism severs him from reality, causing his downfall.

9:55am – 10:10am  | Land in Mo Yan’s Life and Death Are Wearing Me Out  | MBH 403
**Moderators:** Peter Ryan  
**Speakers:** Alena Shish ‘14  
**Sponsors:** Wei He Xu

In 2012, Chinese novelist Mo Yan won the Nobel Prize for Literature for his unique writing style. This presentation will investigate the relationships between peasants and land in his 2006 novel, Life and Death Are Wearing Me Out, which he believes most represents this unique writing style.

9:55am – 10:10am  | That’s So Gay: Appropriate Contexts for Reclaimed Slurs  | MBH 216
**Moderators:** Barbara McCall  
**Speakers:** Rebekah Moon ‘15  
**Sponsors:** Shawna Shapiro

Slurs are used to marginalize already oppressed groups, but are often later re-appropriated by those same communities. Within the context of the LGBT community, events and slogans like the Dyke March and “We’re here. We’re queer. Get used to it!” show us how powerful these terms become when used as a counter-attack to hate speech. However, not all slurs are created equal, and whether or not they are considered appropriate relies heavily on who is using them and who they are referring to. By analyzing data collected through an online survey posted to various LGBT forums, I was able to investigate the contexts in which “queer”, “dyke” and “fag” were deemed appropriate, namely when used in self-reference, reference to others within the community, and reference to others while outside the community. My presentation aims to illustrate how perceived appropriateness in these contexts differs between terms, and what it means for a term to truly be reclaimed.

9:55am – 10:10am  | The Northern Student Movement: Civil Rights Work in the North  | MBH 303
**Moderators:** Jim Ralph  
**Speakers:** Alexandra Yanson ’14  
**Sponsors:** Jamie McCallum

My project is on the Northern Student Movement, a 1960s Civil Rights group that focused on northern anti-black racism, and the phenomenon of the black urban ghetto. Founded by Peter Countryman (who was actually my great-uncle) in 1962, the group was initially focused on tutoring, and connecting white college students with black students. However, over time, the group expanded its focus, and began to advocate more generally for black rights, eventually espousing a philosophy of black power. This research was the result of a semester long J-Term independent project. I traveled to New York City to examine the archives at the Schomburg Center (part of the New York Public Library), where the majority of information about the group exists. The project was not only a personal exploration of my family history, but also the culmination of four years of interest in anti-racist work and black power.

10:00am – 4:00pm  | Foundation Drawing  | JHN Mezzanine
**Sponsors:** James Butler

10:00am – 4:00pm  | Intermediate Architecture Design  | JHN Fourth Floor Lounge
**Sponsors:** Wendy Cox

10:00am – 4:00pm  | Introduction to Architecture Design  | JHN 405
**Sponsors:** Stephen Kredell

10:00am – 4:00pm  | Color Photography  | JHN 208
**Sponsors:** John Huddleston
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<td><strong>O Introduction to Sculpture- Form &amp; Space</strong></td>
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<td><strong>O Oil Paint &amp; Ceramic Portraits</strong></td>
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<td>10:15am – 10:30am</td>
<td><strong>C Markov Chain Monte Carlo (MCMC) in Bayesian Analysis</strong></td>
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<td><em>Moderators: John Emerson</em></td>
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<td><em>Speakers: Lindong Zhou ’14</em></td>
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<td>Can we predict how many snowfalls will occur in Burlington next winter? If the number of snowfalls has a probability distribution, how can we estimate the mean that measures the center of that distribution? How can we describe and model the uncertainty of our estimate? In Bayesian statistics, the mean itself has a probability distribution. Using data on annual snowfalls for the past 59 years, we modify our prior beliefs about the distribution, and find a new distribution called the posterior. We will introduce Markov Chain Monte Carlo (MCMC) methods which are used to approximate the posterior distribution, and demonstrate two important algorithms: Metropolis-Hastings and Gibbs Sampling.</td>
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<td>10:15am – 10:30am</td>
<td><strong>I Disunited We Stand: District Partisan Bias as a Source of Polarized Voting in Congress</strong></td>
<td>Matthew Dickinson</td>
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<td><em>Moderators: Kemi Fuentes-George</em></td>
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<td><em>Speakers: Katherine Hamilton ’15.5</em></td>
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<td>Examining the 2012 election cycle, my research debunks the popular myth that primaries cause polarization in Congress. My research focuses on the affects of primary challengers and district partisan bias on representatives’ shift in ideological voting from primary period to general election period. Using multivariate regression, I find no statistically significant relationship between primary challenger and vote shift, and a strong correlation between district bias and vote shift. Ultimately, my research highlights the need for competitive general elections in ensuring that the United States Congress is a truly representative institution.</td>
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<td>10:15am – 10:30am</td>
<td><strong>I Emergency Room Tensions: Institutional Design and Public Uses</strong></td>
<td>Marybeth Nevins</td>
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<td><em>Moderators: Jim Ralph</em></td>
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<td><em>Speakers: Molly Benedetto ’14</em></td>
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<td>As the social problems of underserved populations in the United States develop, the systems used to support them must also change. Emergency Departments in the U.S. were established primarily as a center for patients with acute health care problems. Following the financial uncertainty between the 1980s and now, as well as the ever increasing numbers of uninsured Americans, Emergency Departments have morphed into health centers that act as primary care providers and provide healthcare for non-acute health problems. This presentation will illuminate how underserved populations are altering the social function of the Emergency Department system without altering the fundamental structure. I will draw from hospital ethnographies, institutional ethnographies,</td>
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case studies, scholarly literature, and my own auto-ethnography based at an Urban Hospital Emergency Department. I intend to expose this expression of agency by underserved populations through the appropriation of goods uncommonly linked to healthcare in the hegemony that exists in Emergency Departments across the United States between healthcare providers and patients.

10:15am – 10:30am  
**Exploring Literary Translation Strategies in a Trilingual Context**  
*Moderators: Jessica Teets*  
*Speakers: Yuexin Zeng ’16*  
*Sponsors: Stephen Snyder*

Literary translation is an inherently bilingual task, in that a stimulus in one language elicits a response in another language. The mental processes that occur between the stimulus and the response can generally be attributed to two routes: word-mediated translation and concept-mediated translation. In concept-mediated translation, the stimulus word is comprehended (the concept or meaning is accessed) before production (retrieval and articulation) of the response word, while in word-mediated translation corresponding words are retrieved directly without conceptual access. This independent study will further explore the use of translation strategies in a Chinese(L1)-English(L2)-Japanese(L3) trilingual context, by means of translation practices from Japanese to English. Based on the translated work of contemporary Japanese short stories, the study will discuss how L2-L3 translation involves the use of L1 for conceptual access between the comprehension and production, and how such mental processes vary depending on different translation strategies.

10:15am – 10:30am  
**Love Unlimited**  
*Moderators: Barbara McCall*  
*Speakers: Magda Nazer ’17*  
*Sponsors: Hector Vila*

Polyamory “is not a sign of an attachment problem or other disorder” - Tamara Pincus, D.C.-based Clinical Social Worker/Therapist says: “it as a valid relationship choice”. In my essay “Love unlimited: or why polyamory is good for you” I mix personal narrative with research on polyamory to examine the premises and dynamics of the relationship style, building on the work of other individuals who has presented ethical non-monogamy from a variety of perspectives. Contrasting polyamory with monogamy, which is considered a norm in our modern society, I explore both the way people in polyamorous relationships face and overcome jealousy and ownership and embrace personal freedom, conscious sexuality and relating, deepened connectedness and intensified personal growth, but also the criticism of the lifestyle. By presenting this work, I want to create positive dialogue and challenge the public’s preconceived ideas about the subject matter.

10:15am – 10:30am  
**Pudacuo National Park in Shangri-La, China and the Life of Local Tibetans Living There**  
*Moderators: Peter Ryan*  
*Speakers: Jiayi Zhu ’14*  
*Sponsors: Ellen Oxfeld*

National park” is a rather new concept in China. Shangri-La in Yunnan Province, the first place that tried to adopt this system, established Pudacuo National Park in 2007. However, does national park mean the same thing in China as in other places? How has Pudacuo Park impacted local Tibetans and the environment there? What’s the role of local government, scholars and foreign NGOs?

10:15am – 10:30am  
**Violent Crime in Brazil - Breaking Down the Contributing Factors**  
*Moderators: Ian Barrow*  
*Speakers: Catherine van der List ’14*  
*Sponsors: John Maluccio*

Brazil has experienced remarkable growth following economic restructuring programs in the 1990s. Since 1990, Brazil’s GDP-PPP has doubled, and these high levels of economic growth have been coupled with highly successful poverty and inequality reduction programs. Despite these gains, Brazil faces persistent problems, one of the most salient of which is violent crime. As such, understanding the contributing factors to violent crime is
Important both academically and practically. In particular, the regional variation in homicide rates poses an interesting question for researchers. Southeastern Brazil experienced rapid decline in violent crime beginning in 2003, while the northeast experienced a similarly dramatic increase. The project investigates the factors contributing to violent crime in Brazil in order to understand these phenomena, using a constructed panel dataset to analyze the dynamics of violent crime using econometric methods. The possible factors examined include inequality, unemployment, and public policy.

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<td>10:30am – 11:15am</td>
<td>Book Signing by Keynote Vendela Vida ’93</td>
<td>MBH Great Hall</td>
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<td><em>Speakers: Vendela Vida</em></td>
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<td>10:30am – 11:15am</td>
<td>Pretending to be Poor: Social Mobility and Government Policy in Township Housing</td>
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<td>Poster 9: This thesis uses qualitative research to explore and explain the complexity and pervasiveness of the current housing dilemma in South African townships. Research for this paper consists of interviews acquired through snowball-sampling and ethnographic observation gathered while living in Langa, the nation’s oldest township. Interviewees are all residents of townships, but live in different forms of housing and pose varied points of view on the interconnectedness of housing to other social issues. Low-income families are forced into unsuitable and in many cases squalid living conditions due to a lack of adequate housing. My paper fleshes out the narratives associated with each type of housing, ranging from a shack to an RDP government house, ultimately revealing a highly dysfunctional housing system. Comparing and contextualizing people’s housing narratives moreover presents a sound argument for incorporating micro-level perspectives into macro-level government policy and planning.</td>
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<td>A Theoretical Framework for the Neurobiological Relationship Between Mindfulness Meditation and Compassion</td>
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<td><em>Speakers: Lindsay Boles ’14, Brendan Cullen ’15, Rachel Percelay ’14</em></td>
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<td><em>Sponsors: Kim Cronise</em></td>
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<td>Poster 11: Mindfulness meditation has been linked to enhancement of neural networks related to compassion. Mindfulness involves attention to experience with an attitude of non-resistance and acceptance of the present moment, leading to enhanced awareness of one’s emotions. We propose a theoretical framework in which compassion is linked to neural networks that subserve conscious awareness of both one’s own emotional state and the affective states of others. It seems plausible that the strengthening of these networks through mindfulness potentially lowers the threshold for this awareness. Additionally, mindfulness training has been shown to significantly reduce stress, which seems to facilitate compassion. We propose that emotional self-awareness and stress reduction are precursors of “self-compassion,” which represents a possible starting point for cultivating compassion toward others. Furthermore, it is interesting to consider the evolutionary value of compassion and why the neurobiological mechanisms that underlie it have persisted in spite of the basic need for self-interest.</td>
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<td>Alpine Soil Development in the White Mountains, New Hampshire</td>
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<td><em>Speakers: Katie Schide ’14</em></td>
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<td><em>Sponsors: Jeffrey Munroe</em></td>
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<td>Poster 15: This study will focus on alpine soil formation in the southern Presidential Range of New Hampshire’s White Mountains. Although many publications about the ecology of alpine zones provide an in depth analysis of plant and animal life on the high summits, the soils that support these ecosystems are not well understood. The purpose of this study is to better understand alpine soil development and its relation to underlying bedrock. The Presidential Range provides a unique setting for alpine soil research because its extensive alpine zone includes multiple bedrock types, mapped in the Bedrock Map of the Presidential Range (Dyk Eusden). Using Eusden’s map as a guideline, this study will be able to more accurately compare soil to bedrock by investigating soils on a variety of formations.</td>
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**N An Analysis of the Lithologic and Structural Controls on Radionuclides in Groundwater South of Bristol**

*Speakers: Julia Favorito ’14
Sponsors: Peter Ryan*

Poster 14: Bedrock aquifers are significant in Vermont because ~50% of the population obtain drinking water from bedrock wells. Previous hydrogeologic, geochemical, structural, and cartographic analyses in the Hinesburg-Williston area indicate elevated radionuclides (U and alpha) associated with wells in the Pinnacle, Cheshire, and Fairfield Pond formations (30% of wells exceed EPA guidelines)—these formations comprise the hanging wall of the Hinesburg Thrust fault. The study area of this thesis is the Bristol quadrangle, which is located due south of Hinesburg, but where the dip of the Hinesburg Thrust is much steeper than it is to the north. The goal of this project is to assess occurrence of radionuclides in bedrock and groundwater. Bedrock data indicate elevated U and Th in the Pinnacle and Fairfield Pond formations, and strong correlations between U-Th, U-Zr and U-Th indicate that zircon is the main source of radionuclides. Groundwater compositional analysis is in progress.

10:30am –
11:15am

**N Applications of Renormalization Group Theory to Random Field Markov Processes and the Financial Markets**

*Speakers: Brandon Henry ’14.5
Sponsors: Noah Graham*

Poster 21: Renormalization group theory is used in physical systems to alleviate problems posed by multiple body systems when the behavior of the system at different length scales is of interest. These techniques help demonstrate physical phenomena such as phase changes and critical phenomena that rely on microscopical interactions, which are neglected in elementary statistical mechanical theory. Here I motivate the theory of the renormalization group, primarily through the common non-field theoretic example in the canonical Ising model, and extend the theory to the Random Field Ising Model (RFIM). Being that RFIM is simply a specific case of the generalized Random Field Markov Process, I relax the assumptions of binary magnetization state space to model agent interactions in the context of the microstructure of the financial markets, and show how critical phenomena manifest themselves in the form of liquidity vacuums and macroscopic financial crises.

10:30am –
11:15am

**N Architecture Illustrates the Process**

*Speakers: Rita Croce ’14.5
Sponsors: John McLeod*

Poster 6: By playing on the physical, visceral experience as well as the structural characteristics and components, architecture can shed light on the story that hides behind the scenes of the production, allowing those interacting to comprehend the road.

10:30am –
11:15am

**N Assessing Memory Restorative Effects of an Ependymin Mimetic in a Transgenic Mouse Model of Alzheimer’s Disease**

*Speakers: Joanna Georgakas ’14, Alexander Casler ’14
Sponsors: Mark Spritzer*

Poster 16: Alzheimer’s disease has become one of the most debilitating conditions associated with aging. There are no available medications that treat the causes of the disease. Thus, there is a premium on research to develop effective treatments for Alzheimer’s disease. We assessed the potential memory restorative effects of the drug ependymin by treating the cognitive deficits present in transgenic Alzheimer’s mice with an ependymin mimetic (BTX-1039). Our four treatment groups were: AD mouse/drug, AD mouse/vehicle, wild-type mouse/drug, and wild-type mouse/vehicle. Mice received daily intraperitoneal injections of 0.20 ml saline or BTX-1039 (60mg/kg) for 14 consecutive days. Behavioral testing took place over 10 consecutive days in the Morris water maze. Escape latency, path length, and correct quadrant time (probe trial) were used as measures of spatial learning and memory. We hypothesized that AD mice who received the drug would perform better than those who did not, thereby demonstrating reduced cognitive impairment.
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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
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<tr>
<td>10:30am</td>
<td><strong>Cartographic Analysis of Watershed Scale Surface and Groundwater Interactions in Bristol, VT</strong></td>
<td><strong>Speakers: Kevin Chu ’14</strong></td>
<td><strong>Sponsors: Peter Ryan</strong></td>
<td>MBH Great Hall</td>
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<td>11:15am</td>
<td>Poster 18: This study utilizes geographic information systems (GIS) in conjunction with field measurements (e.g. CFC dating of groundwater age) to construct a model for the movement of water in the Bristol, VT area watershed. The focus is on recharge, groundwater flow, and groundwater age to determine the relationship of these variables to groundwater quality. GIS techniques are employed to analyze mostly free, public datasets and can link the surface to the subsurface in order to reveal interactions between water and geologic features. For example, well logs are used to construct potentiometric surface and well yield maps. This study also uses the Addison County LiDAR data, a new high resolution remotely sensed dataset which greatly increases the detail achievable in future topographic analyses. Although the results only provide insight into local watersheds, the techniques provide a transferable framework for similar analysis to be carried out in any location where data is available.</td>
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<td>10:30am</td>
<td><strong>Creating a New Middlebury Events Calendar</strong></td>
<td><strong>Speakers: Dana Silver ’16, William Moore ’14, Josh Pedowitz ’16, David Cromwell ’16</strong></td>
<td><strong>Sponsors: Ananya Christman</strong></td>
<td>MBH Great Hall</td>
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<td>11:15am</td>
<td>Poster 22: Middlebury College currently lacks an online platform where organizations can easily create and share events. Thus, it also lacks a place where students can browse and search for events. During Winter Term 2014, our team set out to create a simple, user friendly, visually appealing calendar for academic and extracurricular events at Middlebury College. We examine aspects of PHP and SQL, the MySQL database, web security, and user interface design. Our research consists of an iterative approach to optimizing PHP, SQL, and front end design. We will make recommendations about front and back end web development, as well as the rapid development techniques that allowed us to produce a high quality website in under four weeks.</td>
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<td>10:30am</td>
<td><strong>Dosimetry at the TRIGA Mainz Research Reactor</strong></td>
<td><strong>Speakers: Rahul Rakshit ’15</strong></td>
<td><strong>Sponsors: Jeffrey Byers</strong></td>
<td>MBH Great Hall</td>
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<td>11:15am</td>
<td>Poster 4: This study aims to characterize the neutron field in different beam tubes of the Mainz TRIGA research reactor so that accuracy of dosage component calculations in cancer radiotherapy can be improved. Flux assessment was performed by activation of several pure element foils and subsequent measurement in a HPGe gamma-detector. Inhomogeneity arising from irradiation position within the beam tube and self-shielding effects were assessed. Finally, spectral indices were calculated and found to be similar, but slightly less thermal than those of comparable research reactors. Data from this study was found to be consistent and precise enough for a sophisticated algorithm such as SAND-EX to generate a reliable neutron activation spectrum.</td>
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<td>10:30am</td>
<td><strong>Effects of Testosterone on Transitioning Spatial Memory Strategies</strong></td>
<td><strong>Speakers: Tiffany Ting ’14</strong></td>
<td><strong>Sponsors: Mark Spritzer</strong></td>
<td>MBH Great Hall</td>
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<td>11:15am</td>
<td>Poster 31: Two strategies are commonly used to solve navigational tasks. The place strategy, which utilizes a mental map of the environment, corresponds to prominent hippocampus activation. Conversely, the response strategy, which relies on automatic motor responses, is associated mainly with activation of the striatum. I tested the effect of testosterone on transitions between these strategies. Because testosterone has a dose-dependent role in spatial learning, I castrated male rats and injected them with low, medium, and high doses of testosterone to maintain treatment groups within a normal physiological range. Subjects were then trained to perform on a baited T-maze. Five probe trials, each after twenty training trials, tested for the strategy utilized to complete the task. My current results show that different treatment groups have different biases to spatial strategies over time, indicating that testosterone not only influences spatial learning but also the processes by which spatial knowledge is acquired.</td>
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10:30am – 11:15am N Ethnic Identity Development Among Sexual Minority Adolescents

Speakers: Evan Auguste ’14
Sponsors: Robert Moeller

Poster 23: Utilizing data from a longitudinal study of 422 18-19 year old, gay, bisexual, and other young men who have sex with men (YMSM) we explored changes in ethnic identity over a three waves of data collection spaced 12-months apart. Utilizing the Phinney Multigroup Ethnic Identity measure as well as the exploration and acceptance subscales we explored racial/ethnic differences in scores over time and found White Participants scored lower compared to Black, Latino and Asian participants at Baseline, 12-month and 24-month assessments. Stability in ethnic identity is discussed as well as suggestions for future research.

10:30am – 11:15am N Geochemical and Petrologic Analysis of the Alfred Complex in Southwestern Maine

Speakers: Daniel Reed ’14.5
Sponsors: David West

Poster 24: The Alfred Complex in southwestern Maine is one of many Cretaceous-aged igneous plutons in northern New England and adjacent Quebec. The magmatic origin of these widely distributed plutons is unknown and is of interest because the region is generally considered to have been tectonically quiescent during the Cretaceous period. A review of the research on these plutons shows two prominent hypotheses: 1) “hot spot” magmatism; and 2) melting during extensional tectonic plate movement. Analysis of rocks from the Alfred and nearby Tatnic plutons can help clarify the magmatic origin of these complexes. This project is the first to perform modern petrologic and geochemical analysis on these plutons. Data is being processed using a multipronged approach in order to determine 1) the petrologic evolution of the individual plutons, and 2) the tectonic/magmatic origin of the regional New England-Quebec magma series. This research will help in understanding anorogenic igneous processes in general.

10:30am – 11:15am N Intersection: Merging the Landscape and Autoscape in a Chipotle for Middlebury, VT

Speakers: Catie Auran ’14
Sponsors: John McLeod

Poster 27: This design combines elements of the autoscape - the American highway experience - with elements of the Middlebury landscape to create a unique sense of place in a typical New England highway environment. This concept of “intersection” is congruent with Chipotle’s mission: a restaurant program that fits the fast food category, yet embodies the local, green values of Middlebury, VT.

10:30am – 11:15am N Investigating Dinuclear Cobalt(II) Compounds via Magnetic Circular Dichroism Spectroscopy

Speakers: Nicholas Keenan ’14, Ben Coughlin ’14
Sponsors: Jim Larrabee

Poster 8: The study of dinuclear cobalt(II) complexes is important to biochemistry because they mimic the reactivity and structure of enzyme active sites. To characterize the electronic, magnetic, and structural properties of these active sites, we use J, the magnetic exchange coupling constant, which measures the spin interaction of unpaired electrons on the two cobalt centers. Variable temperature variable field magnetic circular dichroism (VTVH MCD) is a relatively new spectroscopic technique that provides distinct advantages in determining the value of J in these dinuclear cobalt(II) complexes over previous techniques, such as magnetic susceptibility. While previous studies have shown that VTVH MCD is accurate in determining J-values for dinuclear cobalt(II) complexes when |J| < 2 cm-1. Our work investigates the accuracy and precision of VTVH MCD in determining J-values for dinuclear cobalt(II) complexes in which |J| > 2 cm-1 through analysis of a variety of cobalt(II) complexes.

10:30am – 11:15am N Mio-Pliocene Erosion Rates in the NW Argentina Andes

Speakers: Jonathan Schell ’14.5
Sponsors: William Amidon
Poster 26: Climate and tectonic activity are known to be the two main controls on erosion rates. This project seeks to produce a long term erosion record for the Andes of Northwestern Argentina, and relate these erosion rates to known climatic and tectonic events occurring in the Central Andes over the past 8 million years, in order to ascertain whether climate or tectonics exerts a more significant control on erosion rates. Erosion rates are determined by measuring cosmogenic $^{10}$Be in quartz, a rare isotope produced in the upper 3m of Earth’s crust through bombardment by cosmic rays. The Rio Iruya Canyon is a perfect site to implement this technique, not only because it has been incised over the course of the past 100 years, ensuring minimal post-burial cosmogenic production, but the strata has been independently dated through paleomagnetostratigraphy.

10:30am – 11:15am
**N Network Impacts of Domestic Airline Mergers**
*Speakers: Daniel Ladd ’14*
*Sponsors: Peter Nelson*
Poster 5: The last twenty years have seen dramatic upheaval and concentration in the domestic airline market. With the approval of the US Airways/American Airlines merger, four airlines will control more than 80% of all domestic traffic. Traditional merger analysis has focused on role of competition the presence of overlapping routes on the price effects of mergers. However, due to the prevalence of hub-and-spoke networks there are few overlapping routes. This project exploits the changes in airport connectivity caused by mergers to examine the price impact of the United-Continental and Delta-Northwest Airline.

10:30am – 11:15am
**N Nom: Fast Food, Fast Cars, and Architectural Intervention**
*Speakers: Ben Mansky ’15*
*Sponsors: John McLeod*
Poster 25: The architecture of a building is only in part about its appearance. The majority of what defines architecture is the experience a building produces. For this year’s Architectural Studies thesis design project, we have examined the gas station and the fast food restaurant as emblems of the “autoscape.” Often, these building types are seen as experience-less, providing no connection to the people passing through. This project, a building type for a fictitious fast-food chain entitled “Nom,” seeks to address a central concern surrounding the rise of mass-manufactured goods, foods, and automobiles: Is there a way to, through architecture, remove the stigma that surrounds mass-production? Is there a way to give people a positive experience of a fast food restaurant without changing the actual price or product?

10:30am – 11:15am
**N Optogenetic Control of Neurotransmitter Transport**
*Speakers: Alison Cook ’16, Emma Polidoro ’14*
*Sponsors: Glen Ernstrom*
Poster 2: We aim to test a model that acidification of synaptic vesicles, the organelle that stores and releases neurotransmitter, is necessary and sufficient for vesicle fusion and exocytosis of neurotransmitters. Previous work has shown that mutations in vesicular proton pumps inhibit fusion. Our project attempts to rescue poorly acidified vesicles with an optogenetic approach. We are using transgenic technology to target a light-activated proton pump from a species of Archaea to C. elegans synaptic vesicles. We are testing the hypothesis that successful reconstitution and light-stimulation of the pump in vesicles should acidify otherwise alkaline synaptic vesicles. We can assay the effects of the re-acidification at the cellular and organismal level by imaging vesicle pH with a pH-sensitive form of GFP targeted to the lumen of vesicles, and by quantifying swimming velocity and turning rates of individuals moving across an agar plate.

10:30am – 11:15am
**N Paleolimnology of High Pond**
*Speakers: Steven Bodine ’16, Jessica Chen ’17, Riley Ebel ’15.5, Cade Schreger ’15, Hayden Shea ’15.5, Nicholas Tuta ’17*
*Sponsors: Jeffrey Munroe*
Poster 32: To track the effects of pollution and climate change on Vermont’s rivers and lakes, the Department of Environmental Conservation designed a number of lakes across the state as sentinel sites—sites to be used as a baseline against which to compare modern observations. To expand knowledge of the baseline and pre-human settlement conditions of these lakes, a paleolimnological approach was applied to one of these sites,
High Pond, in Sudbury. By studying ancient sediments, inferences can be made about the evolution of the watershed, the paleoclimate conditions of the region, the effects of man-made climate change, and the prevalence of pollutants. A percussion core from High Pond was subjected to multiproxy analysis in January, 2014. Radiocarbon dating reveals that the core extends from 9500 to 13,400 years before present, providing a robust pre-historic baseline against which to consider changes in the condition of the watershed revealed by contemporary monitoring.

### N Psychological Need Fulfillment in Enhanced Cognitive Interviews with Children

**Speakers:** Madison Clark '14, Kelsi Morgan '14  
**Sponsors:** Michelle McCauley

Poster 20: This study examined the effect of the fulfillment of psychological needs on the amount and quality of information reported in Enhanced Cognitive Interviews (ECIs) with children. Children (Mage=7yrs) saw and ate foods at an educational event and, after a delay (M=2 days), they were interviewed with ECIs regarding that event. Trained raters then watched video recordings of each interview, giving scores for autonomy, competence and relatedness support as outlined in the self-determination theory. Researchers found that high need support fulfillment was correlated with an increased number of accurate facts recalled. This study replicated the 1999 findings from Köhnken et al that the ECI produces more accurate information with no decrease in the proportion of accurate facts.

### N Raman Spectroscopy

**Speakers:** Duncan Harvey '14  
**Sponsors:** Stephen Ratcliff

Poster 29: Raman spectroscopy involves the observation and measurement of scattered light, with the photonic energy of the scattered light being shifted from that of the incident light by an amount corresponding to energy level differences in the scattering material. The main goal will be to set up a working spectrograph and to collect several spectra.

### N Sexual Orientation and Speech

**Speakers:** Noah Klammer '17  
**Sponsors:** Marcos Rohena-Madrazo

Poster 7: Many share an experience in which they derive an intuition about a speaker’s sexual orientation from even a few spoken words or sentences. Many observations are made subconsciously during conversation with a person, and the listener’s intuition may be the result of the interpretation of many variables. But can a listener deduce sexual orientation solely from speech? Popular culture cleverly refers to one’s ability to deduce sexual orientation from observation as gay-dar. Do listeners possess a gay sonar—that is, can they deduce the sexual orientation of gays, lesbians, bisexuals, and heterosexuals solely from speech? Through statistical analysis in studies like Linville (1998) and Munson et al. (2006) certain linguistic traits were found to correlate with listeners' perception of gayness in a speaker. Pierrehumbert et al. (2004) and Munson et al. (2006) also found that specific language traits are markers of sexual orientation.

### N Snakes vs. Airport: Free Association in Novel and Semantic Associates Over Time

**Speakers:** Elyse Barnard '15  
**Sponsors:** Mark Stefani

Poster 13: Free association norms reflect how related two words are (e.g., AIRPORT and PLANE). These measures also capture changes in the language, such that newly associated words (e.g., SNAKES [on a] PLANE) are generated in free association tasks. We investigated the persistence of these contextually driven associations and found that, over 5 years, the frequency of generating new associations declined significantly, whereas the probability of generating the same semantically related items remained constant.
**The Effects of Testosterone on Stages of Neurogenesis in Adult Male Rats**

*Speakers: Ethan Roy '15  
Sponsors: Mark Spritzer*

Poster 1: Past research has shown that both testosterone exposure and the learning a task enhance adult neurogenesis (growth of new neurons) in the hippocampus. However, the effects of learning depended on the stage of neuronal development when exposure occurred. We explored the effects of testosterone exposure and the stage of neuron development on neurogenesis. Castrated male rats were injected with 5-Bromo-2′ deoxyuridine (BrdU), which marks actively dividing cells. During either days 1-5, 6-10, or 11-15 after the BrdU injection, males were injected with testosterone. After the fifteen-day injection cycle, the brains were stained and newly proliferated cells were counted. The results of these injections showed that five days of exposure to a high dose of testosterone (0.50 mg/kg) increased neurogenesis but the timing of these injections played no significant role in increasing cell proliferation. The results also showed that testosterone injections increased neurogenesis in the dorsal, but not the ventral, dentate gyrus.

**The Gas Basin: A Monument to a Resource That Has Not Yet Expired**

*Speakers: Eleanor Krause '14  
Sponsors: John McLeod*

Poster 17: How can design illuminate the truths behind fueling? The gas basin cultivates a greater understanding of the effects of oil drilling by bringing patrons underground to fuel their vehicles while also using this land works intervention to cleanse asphalt run-off in man-made wetlands.

**The Gas Station Wants to Be a Gas Station**

*Speakers: Alexander Russo '14  
Sponsors: John McLeod*

Poster 28: The gas station wants to be a gas station. It does not want to be a house, or a restaurant, or a factory, or a theater. It wants to dispense gas to vehicles en mass, while refueling drivers with a cool beverage and a salty snack. The dispensary of this elixir of automobility is integral to driving and ultimately the American landscape. By facilitating automobility the gas station enables freedom, while offering respite within its walls. It stands beside bustling movement, a swirling eddy in the swift river of American roadways: cars are drawn in from the steady flow, some stuck in the swirling vortex of nearly stationary movement while others shoot back into the flow again. The gas station is a contradiction of movement: upon arriving at a gas station I want to stay forever and leave immediately.

**The Natural Resource Curse: Does the Dependence on Nature Resource Extraction Inherently Limit Human Development and Institution?**

*Speakers: Jenny Johnston '14  
Sponsors: Phani Wunnava*

Poster 12: Is the dependence upon natural resource extraction a blessing or a curse? This question is highly contentious and has been debated in growth literature for many years. Through the utilization of global cross-sectional panel-data from 2005-2011, this work updates and expands the existing literature regarding the natural resource curse, analyzing the influence of the dependence of point-source resources, fuel and metals, and diffuse-source resources, agriculture, on human development and institutional quality through the volatile growth environment of the 2000s. Evidence suggests that in countries of higher institutional quality natural resource dependence has a positive effect on human development where as in countries of lower institutional quality natural resource dependence shows a generally negative effect on human development. National socioeconomic institutions have a robust effect on the management of natural resource dependence and thus resulting prosperity or poverty.

**The Timeless and Time-less**

*Speakers: Amr Thameen '14  
Sponsors: John McLeod*
Poster 19: This project will discuss the notion of time in architecture, how a time efficient (prefab) restaurant could influence the clients and leave them with a timeless experience. Therefore, this project represents a case study in which fast food franchises could implement in different places around the world, maintaining the volume and plan of the building while changing the exterior to suit the vernacular of the specific site.

10:30am – 11:15am

N Toxic Relationships: Widespread Arsenic Poisoning in Bangladesh

Speakers: Jillian Mock ’14, Michael Sheridan

Poster 3: The installation of roughly twelve million tube wells in Bangladesh from the 1970s to the 1990s, an effort funded by the United Nations International Children's Fund (UNICEF) to reduce incidence of pathogenic diseases spread through surface water, exposed 28 to 57 million people in the country to groundwater naturally contaminated with toxic levels of arsenic. This mass poisoning has revealed inequalities on a global scale, between Bangladesh, wealthier countries and international aid organizations, and on a local scale, between genders and different socio-economic groups in Bangladeshi villages and communities. The crisis proved that homogenous solutions created by international aid agencies have severe unintended consequences. These consequences include increased risk of poisoning for poorer communities, which further marginalized already disenfranchised groups of Bangladeshis and women. True solutions to future health and environmental crises will have to be much more nuanced and localized.

10:30am – 11:15am

N Using Integral-Field Spectroscopy of Dust Obscured Quasars to Probe Quasar/Galaxy Co-Evolution

Speakers: Maya Najarian ’14

Sponsors: Eilat Glikman

Poster 10: This project investigates quasar feedback processes with the hope of better understanding quasar/galaxy co-formation and co-evolution. Spectroscopy data of moderately dust obscured quasars and their hosts were previously obtained from the OSIRIS integral field spectrograph combined with the Laser Guide-Star Adaptive Optics. After reducing and calibrating the data, analysis will be performed to model the morphology and kinematics of the galaxies in question. With this information, we hope to not only better understand how galaxies make new stars and feed their blackholes, but also how blackholes influence star formation. These observations, along with others, will inform the nature of feedback processes between quasars and their hosts, ultimately providing implications for quasar/galaxy co-evolution.

10:30am – 11:15am

N What About Me??? - The Filling Station for the Non-Driver

Speakers: Sarah Braithwaite ’14

Sponsors: John McLeod

Poster 30: My approach to this thesis is to explore the idea of how to widen the audience of consumers that a gas station traditionally serves. Coming from a city with access to reliable and efficient public transportation, I occasionally frequent gas stations and most times my experience has been from the passenger seat. I can recall pumping gas about 2 or 3 times in my entire life. However, I think the culture of gas stations could change. What I would ask is the following: Could the gas station be about more than just the driver while still maintaining its efficiency? I think it could be and thus my architecture would be the How? I believe architecture is the redefinition of human nature and understanding, therefore architecture is for everyone. It should create a familiarity that still intrigues and this will be considered in my design as well.

11:15am –

I 'The Most Awesome of Human Experience': An Exploration of Mothers’ Meaning-Makings Throughout the Childbirth Process

Moderators: Rebecca Gould

Speakers: Adina Marx-Arpadi ’13.5

Sponsors: Maria Hatjigeorgiou

In my thesis, I explore the ways in which women make meaning out of their experiences with pregnancy, birth, their newborn, and their transition into motherhood. I pay particular attention to the practices women brought to the process of birth, from preconception through the postpartum period, as well as the reflections and interpretations of their own experiences. I examine the way women incorporate their experiences into their own
religious frameworks—eclectic, traditional, and non-religious—how they change their frameworks in response to their experience, where their frameworks fall short in adequately contextualizing that experience, and how women innovate within, around, and outside of those frames. I found that for these women, meaning-making was not a static process bounded in particular moments in time, but instead was a continual process of reflection, innovation and improvisation, stretching before and beyond actually giving birth. Their narratives were a form of agency, allowing them to push back against the narratives religious and medical authorities prescribe, as well as to claim their own interpretations in the absence of attention to their experiences.

11:15am – 11:30am
I Carrying Us Closer to a Carie-Free Dentition: A Mutational Analysis in the Oral Pathogen, Streptococcus mutans
Moderators: Catherine Combelles
Speakers: Jennifer Melgar ’14
Sponsors: Grace Spatafora
My senior work is centered on investigating the significance of two amino acid substitutions in a 25kDa SloR mettalloregulatory protein, which modulates the cariogenic potential of Streptococcus mutans, an oral pathogen. Each mutation was generated via a Gibson Assembly approach, such that an asparagine at position 161 and a leucine at position 164 were converted into alanines (two non-conservative substitutions). Based on a SloR crystal structure, we hypothesize that these amino acids contribute to essential Mn2+ binding at an ancillary site within the central dimerization domain of the SloR protein. Specifically, the purpose of this investigation is to characterize the putative impact of these mutations on SloR binding to a promoter proximal DNA element at the S. mutans sloABC locus. The effect (or lack there of) of these mutations on SloR-DNA binding could inform rational drug design aimed at alleviating and/or preventing S. mutans-induced cavities on the human dentition.

11:15am – 11:30am
I I Can’t Grow Tomatoes Anymore: Heirlooms, Tilling, and Death
Moderators: Carlos Velez
Speakers: Charles Steinberg ’15
Sponsors: Karin Gottshall
I’ve always felt an inherent closeness to the one member of my family who keeps the most distance: my mom’s dad, Ran, my grandfather, Grampy. In the past few years of his serious disease, I’ve witnessed collapse—of identity, secrets, and pretense. But I’ve also witnessed a blossoming of truth. This collection of poems will explore the complexity of a family’s condition in a time of prolonged illness—how perception of the past and present warp in the face of death, survival, and the desire to move on. Through my own memories, those of my relatives, and the words in a forgotten book of poems, I will attempt to capture the conflicting experience of watching my grandfather’s simultaneous fight for survival and self-isolation, and the glimpses of unmediated truth that slip through the cracks between these battling processes.

11:15am – 11:30am
I Real Food at Middlebury
Moderators: Linus Owens
Speakers: Karma Lama ’17, Robin Weisselberg ’16.5, Forrest Carroll ’15.5
Sponsors: Nick Muller
This past J-Term, Cayla Marvil ’14.5, Forrest Carroll ’15.5, Robin Weisselberg ’16.5, and Karma Lama ’17 conducted a research on the sustainability of the College’s food purchases with the support of the Environmental Council and Dining Services. We used the Real Food Calculator created by the student led non-profit organization Real Food Challenge as a measurement tool. RFC defines sustainable or “real” food as either local, fair, humane, or ecologically sound. Using this definition, we researched all the vendors and cataloged all the invoices for October 2012 onto the calculator. We found that 23% of the food at Middlebury was real (Fair-22%, Local-20%, Ecologically Sound 6%, Humane 3%), which is great compared to other schools involved with RFC. We are currently in the process of finishing March 2013 so we can get a more holistic and accurate picture.

11:15am – 11:30am
I Scouting Bayes: A Bayesian Baseball Forecast with Scouting Priors
Moderators: Suzanne Gurland
The mainstream media, when talking about baseball player evaluation, often notes the tension between scouts and stats (i.e. Moneyball). Even though this tension is overstated, the baseball community treats these two types of information as independent entities. We address this problem with a Bayesian framework. Our method combines quantitative scouting information (grades) with minor league performance to predict a player’s major league performance, yielding an entire distribution of predicted batting performance outcomes. We compare our predictions to those naive of scouting grades and established projection systems.

### State Sovereignty and Human Rights

**Moderators:** Steven Viner  
**Speakers:** Mike Gadomski ’13.5  
**Sponsors:** Steve Viner

In a brief talk adapted from my senior thesis, I will critique a widely held view about state sovereignty that takes adherence to a robust standard of human rights to be at least one of the criteria that a state must meet to be granted the rights and privileges of sovereignty. I argue that proponents of such a view tend to conceive of the individual atomistically and out of context, and that there are moral factors related to cultural and national identity that carry weight in determining whether or not a state ought to be sovereign. Rather than wielding a set of human rights as the ultimate standard, a satisfactory account of sovereignty ought to facilitate a world in which individuals are governed by political institutions informed by cultural, historical, and social factors that are meaningful to them.

### The Dynamics of Social Capital: A Study of Town Clerks as Key Participants in Exchange Relationships in Addison County

**Moderators:** Michael Sheridan  
**Speakers:** Emily Bensen ’14  
**Sponsors:** Emily Bensen ’14

This project examines social capital in Addison County, and looks specifically at town clerks as key agents in the formation and preservation of this social connectedness. Oral histories of current and retired town clerks shed light on how exchange relationships are created, maintained, and deconstructed over time. Bourdieu’s theory of individual social capital and Putnam’s theory of communal social capital are used to understand the complexity of exchange relationships in Addison County. Town clerks are analyzed as soft bureaucrats and emotional laborers, demonstrating their integral role in cultivating social capital. The professionalization of the town clerk and the de-personalization of town government processes are eroding social capital—relationships that town clerks value and work hard to foster. Yet, this project ends on a hopeful note; town clerks have the capacity to exist as both emotional and professional beings, while participating in the construction of social capital in their respective towns.

### Ukraine’s Struggle for Democracy

**Moderators:** Orion Lewis  
**Speakers:** Benjamin Wiggins ’14  
**Sponsors:** Michael Kraus

In 1991, after the fall of the Soviet Union, Ukraine became an independent country for the first time since the early twentieth century. The country selected democracy as its only possible path of governance, and the future appeared promising. However, since 1991 Ukraine has failed to consolidate its democracy and by Freedom House measures has remained one of the most corrupt and most disappointing countries in terms of democratic development in the world. Recently, the country has plunged into turmoil, with hundreds of thousands rioting in the streets and death tolls climbing in the hundreds. Ukraine has suffered because its government has failed to enforce rule of law, control corruption or promote strong regulatory quality. The recent events represent fresh hope for Ukraine’s democratic prospects, but the country remains torn between Russian and Western influence.
11:15am – 12:30pm
S Race and the American Political Regime in Law and Social Science

Moderators: Murray Dry


Justice Harlan famously declared in his dissenting opinion in Plessy v Ferguson (1896) that our constitution is colorblind. He made this declaration in the face of a majority that affirmed the constitutionality of the “separate but equal” doctrine—a doctrine that would prevail in the American social and political ethos for nearly 60 years. Was Justice Harlan right? Is colorblindness possible, or even desirable? Race has always been a divisive issue in American law, politics, and social science. This presentation will focus on a variety of issues and questions that have been raised by social scientists, statesmen, politicians, and Supreme Court Justices. Topics may include slavery and Jim Crow, voting rights, affirmative action, contemporary urban development, education, and capital punishment. There will be a series of short presentations and ample time for questions and discussion.

11:35am – 11:50am
C Casual Conversations

Moderators: Suzanne Gurland

Speakers: Claire Nishioka ’15, Eli Mauksch ’15, Matthew Rothman ’15, Emily Smith ’14

Previous research shows that individuals use a variety of conversational strategies to provide comfort to others seeking emotional support. This study extends this work to examine the use of those strategies in everyday conversations when emotional support is not explicitly sought. We had small groups of participants engage in paired conversations in a round robin format. We rated conversational support in all conversations, and will analyze the variability of this support from person to person. Results will be used to characterize how supportive people are of one another in day-to-day life, with an eye toward identifying the determinants of that support. This work could pave the way toward helping people provide, as well as elicit, support in conversation with others.

11:35am – 11:50am
I Equal Land Rights and Outcomes for Women: Evidence from Ethiopia

Moderators: Steven Viner

Speakers: Kelsey Barton- Henry ’14

Sponsors: Caitlin Myers

Both the United Nations and Universal Declaration of Human Rights recognize property rights as a human right. But in many parts of the developing world, customary practices preclude women from obtaining and exercising these rights, even where nominally protected. Econometric studies suggest that legal protection of property rights is essential to encouraging agricultural investment, and increasing productivity and economic stability. Little research has been done to understand property rights’ effects on health. I use a land certification program from Ethiopia as a natural experiment through which to examine the effects of women’s access to property rights on their ability to bargain within the household, and resultant changes in health and health-related behaviors. I will present findings from my econometric analysis of two datasets about the effects of this land certification program on health outcomes for women, and possible changes in domestic violence and sexual behavior as it relates to HIV/AIDS.

11:35am – 11:50am
I Inducing Subtype-Specific Neuron Differentiation through Direct Protein Transduction

Moderators: Catherine Combelles

Speakers: Ben Mansky ’15

Sponsors: Kim Cronise

Genetics play a large role in neurological disorders, and the most up-to-date method of creating cellular models of genetic causes of disease is through the induction of pluripotence in patient fibroblasts. Currently, differentiation of these induced pluripotent stem cells (iPSCs) into neurons is achieved through lentiviral transfection, a method that provides swift output and high efficiency, but carries several intrinsic risks and disadvantages. We sought to show that by the direct delivery of transcription factor proteins using the macromolecule polyethyleneimine (PEI), induced neurons (iNs) can effectively be derived from iPSCs, circumventing viral agents altogether. Our data, although preliminary, show that mature excitatory iNs can be successfully produced with the delivery of the recombinant protein human Neurogenin 2 (hNgn2). With further
investigation and technique optimization, direct recombinant transcription factor delivery could provide a safer, more accessible, and more malleable process of producing neurons for use in disease modeling and cell therapy.

11:35am – 11:50am
I Religiously Offensive Art and Its Role in Public Discourse
Moderators: Orion Lewis
Speakers: Madeleine Dai ’14
Sponsors: James Calvin Davis
I examined two pieces of art, The Holy Virgin Mary, by Chris Ofili, and Yo Mama’s Last Supper, by Renee Cox. Both pieces depict central figures in Christianity and were greeted with a mix of disgust, praise, acclaim, and calls for censorship. I hope to tease apart the complex political, artistic and religious themes at play. I explored the validity of political art; as a tool to remove the obstacles of established intellectual paradigms, to combine reason with emotion and experience, and to encourage diversity methodologies in public discourse. Secondly, liberation theology and womanist theology will provide a lens to understand the works of the artists as a reflection on the experience of black people within Christianity. The art will serve as a window to explore themes of liberation as salvation and Christology and the flesh as the locus of God’s ultimate act of self-revelation. These conclusions will allow us to expand normative definitions of political and public discourse to more successfully overcome preexisting paradigms of “legitimized” thought.

11:35am – 11:50am
I Revitalizing the Robert Frost Cabin
Moderators: Michael Sheridan
Speakers: Rebecca Hartje ’14
Sponsors: Richard Saunders
As an interdisciplinary joint-thesis with English and American Literatures and History of Art (Museum Studies track), I have written a proposal to revitalize the Robert Frost cabin in Ripton, where the writer lived during the many summers he taught at the Bread Loaf School of English and Writers’ Conference. I have informed my proposal predominately through primary research of the cabin itself, its history from the summers Frost lived there, and Middlebury’s ownership of it, from 1966 to the present. My analysis and arguments are enhanced by visits I made to thirteen writers’ homes and historic house museums, including three Frost homes in New Hampshire and Vermont. From the exposure to these institutions I have synthesized the predominate modes of organization in writers’ homes and determined the most appropriate method of display specifically for the Frost cabin. The conclusion of the presentation will explore my recommendations for design, management, and programming for the Frost cabin’s revitalization.

11:35am – 11:50am
I Ribbons of Concrete: The Impact of the Interstate on Vermont
Moderators: Linus Owens
Speakers: Linnea Burnham ’14.5
Sponsors: Amy Morsman
On September 12, 1964, Romaine Tenney, of Weathersfield, Vermont shocked his town when he burned down his farmhouse, incinerating himself in the process. It turns out that Tenney, the victim of eminent domain, was fighting the Interstate, which was scheduled to pass right through his farm. Though an extreme action, Tenney’s self-immolation was a cry that reflected the price of progress in Vermont. While Tenney could not have known that the Interstate would be the greatest catalyst for change Vermont had ever seen, he did know that the new highway marked Vermont’s transition from one era to another. Drawing on oral interviews as well as articles, petitions, and letters in historical archives, this presentation explores the effects of the construction of the Interstate and the social, economic, demographic, and cultural changes it brought to Vermont.

11:35am – 11:50am
I Service, Story and a Shared Meal: A Summer at the Charter House
Moderators: Rebecca Gould
Speakers: Catherine Costley ’15
Sponsors: Catherine Collins
This past summer, I served as a MiddCOREplus intern at the Charter House Coalition. MiddCOREplus is a project-based internship model where students work with community partners on a strategic project or question that they are considering. Specifically, I worked with the Charter House Coalition, a nonprofit community-based group that alleviates hunger and homelessness in Addison County by providing meals and housing to those in need. My goal was to share the work of the Charter House through narrative and newspaper articles. My time at the Charter House opened my eyes to the poverty that exists here in Middlebury, but it also showed me that there is incredible strength, kindness and a desire to serve in this community. My deep engagement with the Charter House was a rich and powerful experience, and it has influenced my decision to continue pursuing themes of poverty in my academic and extracurricular work.

11:35am – 11:50am
The Rise of Syrian Nationalism During the Early French Mandate
Moderators: Carlos Velez
Speakers: Cole Ellison '17
Sponsors: Febe Armanios
Syria is, at the present moment, embroiled in a devastating Civil War. As of February 2014, the rebellion against the Assad regime has cost more than 140,000 lives. This revolution has outlived the turbulent Arab Spring beginning in Egypt and Libya, although all three were initiated within a month of each other. However, this conflict cannot be fully understood looking only through the present lens. Much of the strife being experienced in this day can be traced back to the 1920s and the French Mandate of Syria. Established in 1920 on agreements during Paris Peace Talks, the Mandate was designed to assist the Syrians toward autonomy. However, the humanitarian goal of the French was rapidly discarded for their economic and political interests in the region. Devolving into the immoral treatment of the Syrian people, the oppressive French Mandate would become a major spark for the civil conflict of recent years.

11:55am – 12:10pm
Circlesong Vocal Improvisation: My Week with Bobby McFerrin
Moderators: Rebecca Gould
Speakers: Suzanne Calhoun '14
Sponsors: Larry Hamberlin
Bobby McFerrin is a world renowned vocal artist, singing in a large range of genres, ensembles, vocal sounds, and certainly pitches he is able to sing. Famous for "Don't Worry Be Happy" and singing all the different musical lines of a song at once, he especially loves vocal improvisation, both solo and with other talented musicians. Last August I spent a week singing with Bobby and several of his amazing friends and colleagues as part of a workshop on a group vocal improv technique called Circlesongs. The experience of singing and becoming more comfortable leading improvisation with these mentors and the other attendees has informed my own musicianship and made me push my own limits, away from sheet music. The practice of Circlesongs is a constructive musical collaboration, and this presentation will give a live demonstration of the process and what we can learn from it with fellow students.

11:55am – 12:10pm
Defining the Role of Proton Pumps at the Synapse
Moderators: Catherine Combelles
Speakers: Kai Lee '14
Sponsors: Glen Ernstrom
Synaptic vesicles are neuronal secretory organelles that are filled with uniform quantities of neurotransmitters. Deficient vesicle filling leads to impaired neurotransmission and neurological disorders. Recent studies suggest synaptic vesicles need to be acidified by the vacuolar ATPase (V-ATPase) proton pump before vesicles filled with neurotransmitter can fuse with the plasma membrane. Mutations in the V-ATPase in the round worm Caenorhabditis elegans, decrease vesicle acidification in neurons and block vesicle fusions. Animals with these V-ATPase mutations display abnormal, impaired locomotion. While these preliminary studies suggest the cellular focus of the locomotion defect is neuronal, a muscle defect is also possible. We are testing the model that the expression of neurotransmitter receptors in muscles is normal in animals with a defective V-ATPase. We are measuring the distribution of fluorescent-tagged postsynaptic neurotransmitter receptors in V-ATPase mutants. If receptor expression is normal, receptors cluster to produce discrete fluorescent regions opposed to synaptic
active zones. Abnormal receptor expression will show altered fluorescence levels and abnormal density of receptor clusters. Results from quantitative confocal fluorescence microscopy will be presented.

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**Development or Disaster?: An Audio Documentary Contextualizing the NEKEDI in the History of Tourism in Vermont**

_Moderators: Linus Owens_  
_Speakers: Scott Gilman ’15, Maggie Morris ’15, Catherine Hays ’15_  
_Sponsors: Kathy Morse_

At the beginning of summer 2013, we set out to produce an audio documentary about the ongoing and future effects of the Northeast Kingdom Economic Development Initiative (NEKEDI), with the specific aim of contextualizing the project in the wider history of Vermont tourism development. After interviewing over 50 Vermonters across the state, we have compiled an audio piece which reveals residents’ hopes and hesitations concerning not only the broad economic implications of this project but its personal impacts on Vermonters and their state’s sense of place.

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**Putin's Pronatalist Policies: Tackling the Russian Demographic Crisis, One Baby at a Time**

_Moderators: Steven Viner_  
_Speakers: Jacqueline Voluz ’14_  
_Sponsors: Guntram Herb_

This presentation draws from an International and Global Studies thesis regarding fertility patterns and the rise of pronatalism in modern Russia to focus on the national Maternity Capital program. This “baby bonus” program was introduced by Vladimir Putin in 2007, and consists of a state-issued certificate (currently amounting to $430,000 rubles, or approximately $11,900 dollars) issued to women for each child after their firstborn. This research explores the relative effectiveness of the program across the vast regions of Russia, and in comparison to other European countries’ attempts to escape steady demographic decline. Geographic principles typically underutilized by Russian academics help to supplement a synthesis of national census data, Ministry of Health statistics, longitudinal surveys from the Higher School of Economics and University of North Carolina Chapel Hill, and World Bank data in order to examine the question of whether any policy can really induce Russians to substantially increase their fertility.

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**Sex & Stigmas: Examining the Role of Prostitution Policies in Explaining HIV/AIDS Variations Across Sub-Saharan Africa**

_Moderators: Suzanne Gurland_  
_Speakers: Mikaela Perry ’14_  
_Sponsors: Nadia Horning_

In 2012, 25 million of those infected with HIV/AIDS resided in Sub-Saharan Africa. Multiple explanations have been proposed to explain these high HIV rates, yet little literature has focused on the role of prostitution policies. Curiously, while prostitution remains illegal in South Africa, HIV prevalence rates are 17.9%, while Senegal, the only African country to completely legalize prostitution, has the lowest HIV prevalence rate on the continent at 0.5%. What explains this seemingly paradoxical situation? This thesis discusses the "intersectionality" of prostitution policies, poverty, corruption, tourism, and religion to explain HIV variations between Kenya, Uganda, South Africa, and Senegal. In explaining these variations, the research indicates that an overarching factor in the HIV epidemic is the stigmatization of both HIV and prostitution, which might be eliminated through the legalization of prostitution in various African countries.

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**The Personality Psychology of Evil**

_Moderators: Carlos Velez_
Speakers: Megan McNamara ’14
Sponsors: Carlos Velez-Blasini

My project aims to summarize and synthesize research on personality aspects of different political dictators during the 21st century. I will compare and contrast the personalities of different leaders, using the case studies of Adolf Hitler, Saddam Hussein, and dictators from modern Africa and North Korea. Focusing on dimensions such as upbringing, culture, and personality traits, I will try to explain how evil is similar among these individuals. Specifically, my emphasis will be on possible personality disorders and the pathological aspects of these leaders' personalities. Are there commonalities in these dictators' pathological makeup? What does this imply? I want to combine my Political Science major and Psychology minor to better understand what makes these leaders do terrible things, if and how they are similar to each other, and what we can do as policy makers to stop atrocities from happening in the future.

11:55am – 12:10pm
The Power of Linear Programming: Using Mathematics to Solve Housing at Middlebury
Moderators: Michael Sheridan
Speakers: Duncan Levear ’15
Sponsors: Steve Abbott

Linear Programming (linear optimization) is a widely applicable mathematical tool, that is used to solve numerous optimization problems related to housing, scheduling, budgeting, packing, dieting, transportation, rational strategy making, and more. Interestingly, these problems are ubiquitous and undertaken every day by people with no knowledge that efficient algorithms exist to solve them. In this talk, I will present two applications (budgeting and housing) to showcase the utility of this model and its ability to uncover the optimal solutions.

11:55am – 12:10pm
“One Dark Night”: A New Look at Robert Lowell’s Confessional Persona
Moderators: Orion Lewis
Speakers: Taylor Scott Berkley ’16.5
Sponsors: Kathy Skubikowski

Just a century ago, American readers were captivated by the High Modernist poetry of T.S. Eliot and Ezra Pound. Nowadays, our most valued poetic voices are far more personal and intimate. In large part, this shift must be ascribed to the work done by the midcentury “confessional” poets. Foremost among this group is Robert Lowell, whose 1959 volume Life Studies played a pivotal role in launching the movement. In my presentation I will use a close reading of three of Lowell’s poems as a lens into his work as a whole. In turning away from the flawless persona toward the fallible individual in “Waking in the Blue” and “Skunk Hour,” Lowell’s speakers experience an honest and humanizing fall from grace that lays bare their inner lives. Furthermore, I will argue for a similarly confessional reading of “For the Union Dead,” commonly seen as one of Lowell’s more public and celebratory poems despite its overtones of interiority.

12:15pm – 12:30pm
Can Establishing a Regular Meditation Practice Reduce College Students’ Physiological Responses to Stressful Testing Situations?
Moderators: Rebecca Gould
Speakers: Hana Kahn ’14
Sponsors: Kim Cronise

Meditation positively affects the emotional and cognitive responses of adults. Fewer studies have examined mindfulness training with adolescents or young adults. This pilot study explores the impact of loving kindness meditation (LKM) on college students. As part of a course, students underwent a brief LKM training twice per week for 14 weeks. The semester progressed normally for the control class. After 9 weeks, students completed surveys assessing stress, social adjustment, narcissism, and mindfulness. Meditating males showed lower narcissism and higher mindfulness scores. After 14 weeks, blood pressure and electrodermal responses were measured while students took a subtest of the graduate record exam. No differences were seen between groups on any stress measure. Pre- and post-test, salivary cortisol samples were collected and are being analyzed. This study is a preliminary investigation to determine if a meditation practice can attenuate the stress and social issues of college students.
12:15pm – MBH 303
12:30pm  
**Cruelties Well Used? The Efficacy of Coercive Violence in Counterinsurgency**

*Moderators: Carlos Velez*

*Speakers: Max Kagan '14*

*Sponsors: Amy Yuen*

US military doctrine dubs counterinsurgency the “graduate level of war”: a complex political and military effort to win the “hearts and minds” of the population. But is this necessarily the case? Although “hearts and minds” may be one way to win a counterinsurgency, there are numerous examples of states trying a wholly different approach focused on mass violence and repression. This study seeks to determine under what circumstances counterinsurgency tactics that deliberately target noncombatants can be successful. I depart from previous examinations of the subject by deploying a two-stage selection model that allows us to investigate the likelihood of success while also looking at the factors that cause states to adopt this method of counterinsurgency. Consistent with other works on the subject, the uncomfortable conclusion may be that brutality – despite being morally reprehensible – is a rational approach to counterinsurgency under certain circumstances.

12:15pm – MBH 104
12:30pm  
**Flying the Unfriendly Skies: Price Effects of Domestic Airline Mergers**

*Moderators: Linus Owens*

*Speakers: Daniel Ladd '14*

*Sponsors: Caitlin Myers*

The last twenty years have seen dramatic upheaval and concentration in the domestic airline market. With the approval of the US Airways/American Airlines merger, four airlines will control more than 80% of all domestic traffic. Traditional merger analysis has focused on role of competition the presence of overlapping routes on the price effects of mergers. However, due to the prevalence of hub-and-spoke networks there are few overlapping routes. This project exploits the changes in airport connectivity caused by mergers to examine the price impact of the United-Continental and Delta-Northwest Airline.

12:15pm – MBH 220
12:30pm  
**Mary Annette Anderson: Middlebury’s First Black Female Graduate**

*Moderators: Michael Sheridan*

*Speakers: Samantha Sidhu '15*

*Sponsors: Amy Morsman*

In 1899, Mary Annette Anderson graduated from Middlebury College as valedictorian. She was the first black woman to attend the college, and the first black female member of Phi Beta Kappa, the national academic honor society. Interestingly, Anderson’s race is not mentioned in her graduation announcement, nor in her 1922 obituary in the Middlebury Campus. So why did Anderson, a Vermont native, move to New Orleans immediately after graduating, and why did she eventually settle in Washington, D.C.? What challenges would she have faced in New England that made moving south to face racism and segregation a better alternative? This presentation uses Mary Anderson’s life as a lens through which to evaluate Vermont’s paradoxical image as the “whitest state” and a haven of tolerance. I will also explore the state of African Americans in education in the North and the South around the turn of the 20th century.

12:15pm – MBH 403
12:30pm  
**Putting a Price on Security Council Membership: Vote Buying at the UN**

*Moderators: Orion Lewis*

*Speakers: Alec MacMillen '14*

*Sponsors: Erick Gong*

Does serving as a nonpermanent member of the UN Security Council affect the amount of aid that low-income nations receive from the US and UN? I will replicate and extend a paper written by Ilyana Kuziemko and Eric Werker that investigates vote buying at the UN. Their econometric analysis reveals that service of a two-year term on the security council contributes to an increase in aid from the US, presumably as an attempt to “buy” votes necessary to pass security council resolutions. This constitutes a potentially serious breach of the neutrality all UN member states pledge to uphold. I will recreate and extend the dataset to include years from
2002-present to see whether the effect the authors find holds true for the most recent decade, test for heterogeneous effects of UNSC membership between nations of different types, and examine alternate specifications and robustness checks to more rigorously evaluate their claims.

12:15pm – 12:30pm
The European Union Instrument of Conditionality and Its Effect on Turkey’s Kurdish Question
Moderators: Steven Viner
Speakers: Martin Naunov ’17
Sponsors: Febe Armanios
The European Union has created concrete requirements concerning human rights that must be met by each applicant country in order for it to attain a membership. At the very core of the EU conditionality regarding Turkish accession is the requirement for the Government to provide minority rights to its Kurdish population. This paper assesses the capacity of the EU instrument of conditionality to act as a political stimulus for the Turkish government to address one of Turkey’s biggest taboos: acknowledgement of a distinctive, independent Kurdish identity. I argue that while from 1999 to 2004 the instrument of conditionality improved Kurdish rights, since 2004, the decline in credit given to the Copenhagen Criteria and the simultaneous emphasis to non-political criteria – e.g. EU’s absorption capacity and the Cyprus problem - diminished the credibility of the EU conditionality, therefore weakening its capacity to induce democratization and changes to the rights of Kurdish people.

12:15pm – 12:30pm
Wood or Manure? The Future of Middlebury’s Energy
Moderators: Suzanne Gurland
Speakers: Yuan Zhang ’14
Sponsors: Jon Isham
What does a college need to know before deciding to use biomass? Is biomass plant really carbon neutral? Is it economically efficient to choose biomass energy? This study gives a quantitative analysis of the net carbon emission of the biomass plant, including combustion, transportation and leakage emissions as well as carbon capture. By assigning dollar value to the net carbon emissions, this research combines the financial and environmental costs and benefits of the biomass plant and gives an synthetic review on wether biomass plant is efficient. Additionally, since bio-methane energy is the upcoming supplement of biomass plant, this study also evaluates the potential economic and environmental impacts of bio-methane project. In the end, a profile that specifies the costs and benefits of biomass and bio-methane energy is provided for other North Eastern colleges to decide which type of renewable energies fits their needs.

12:30pm – 1:30pm
L Lunch for Presenters, Sponsors, & Moderators
Special presenters’ lunch in Atwater available from 11:30 a.m.-2:00 p.m. Lunch will be served for all others at regular hours in Proctor and Ross dining halls.

1:30pm – 1:45pm
A Bidirectional Blessing: Contemporary Jewish Synagogues and the U.S. Sustainable Food Movement
Moderators: Charlotte Tate
Speakers: Rebecca Wasserman ’14
Sponsors: Rebecca Gould
Drawing from twenty interviews with rabbis and lay leaders, this thesis presentation will illuminate how and why sustainable food programs have become meaningful in an institutional Jewish context. It will elaborate on the ways in which synagogue initiatives create a space for individuals to express their contemporary Jewish values through intersecting religious and secular practices. I argue that Jewish communities give a lot to a predominantly secular sustainable food movement through their focus on food justice. Inversely, synagogues gain a lot from implementing sustainable food programming by giving less traditional Jews an access point to engage with their religion. Generally, the involvement of Jewish synagogues in the sustainable food movement serves to enhance food access, reinforce traditional Jewish values through contemporary applications, and build engaged and active communities.
1:30pm – 1:45pm

Contemporary Chinese Literary Prose Nonfiction—Sanwen

Moderators: Thomas Moran
Speakers: Jialu (Audrey) Fang ’16

This presentation will provide a brief overview of the contemporary Chinese literary genre of Sanwen (literary prose nonfiction) based on the ongoing research project in CHNS 0500, taught by Professor Thomas Moran. By examining the way in which this contemporary form of writing has evolved and elucidating key features of this literary tradition through the survey of works by Wang Zengqi, Shen Congwen, Hu Lanchen and some other authors, this project intends to initiate the discussion of the sense of literariness manifested in this unique genre, its relationship with other similar genres, and last but not least, how various features contribute to the reception of works written in this particular genre. The research method employed mainly involves close reading analysis and literary translation of some passages.

1:30pm – 1:45pm

Egypt, Turkey, Greece: 19th Century Travel Photography

Moderators: Cynthia Packert
Speakers: Lily Miao ’14

This thesis is a study on the 19th century photo album Egypt, Turkey and Greece recently acquired by the Middlebury Museum of Art. Presented with very limited information about the object, I plan to uncover some basic knowledge such as time period of photos taken, who it might have belonged to, etc—to contextualize this work. My research will look specifically at images of Turkey. I will explore the western perception of these "exotic" foreign places and see if ideas of Turkey changed for the traveler over time and how these images shape the way contemporary tourists see the Middle East today. I will also explore the study of Orientalism and how photography, a new medium of its time, influenced the way foreign people and places were represented.

1:30pm – 1:45pm

Methane Production in Coarse Woody Debris

Moderators: Helen Young
Speakers: Clifton Bueno de Mesquita ’14
Sponsors: Marc Lapin

In 2012 researchers discovered that the heartwood of living trees had elevated levels of methane, a potent greenhouse gas. The purpose of my work was to do a related study to see if coarse woody debris contained elevated methane concentrations, compare these values to the data for live trees, examine differences in methane levels across species, decay stages, and size, and draw conclusions for forest management. Following established methodology, I extracted gas from red oak, red maple, and black birch logs in four forests in the west-central Green Mountains. The oak and maple logs had higher methane concentrations than black birch. Recently fallen logs had higher concentrations than more rotted logs. The range of concentrations was 30-4920ppm, well above ambient (1.8ppm). This has important implications for calculations of forest carbon sinks, forests’ impact on the global carbon cycle, and managing forests based on species and amount of coarse woody debris.

1:30pm – 1:45pm

Songs from Solitude

Moderators: Leger Grindon
Speakers: Dustin Lowman ’15
Sponsors: Karin Gottshall

It is natural to divide personal activities and goals into those social, and those solitary. Social activities are generally of a more pleasurable nature, while solitary activities are generally of an administrative or reflective nature. Times social feature the mind focused primarily on the external world, interacting with and being shaped by what is happening around it. Solitude, however, finds the mind focused squarely on itself, either in personal work or personal reflection. It is interesting, then, to examine the mechanisms of the solitary mind, the methods by which it synthesizes personal experiences, and the types of conclusions it draws from different . Creative writing allows us a window into this process. In performing, and then examining various aspects - including rhythm and rhetoric - of my own songs, poems and stories, I will provide a thorough examination of the mechanisms of solitude, and what can be gathered from spending time alone.
The Effect of Reminders and Goal Setting on Environmental Behavior

Moderators: Kathy Skubikowski
Speakers: Abigail Karp ‘14
Sponsors: Michelle McCauley

Most previous research on the effect of feedback on energy consumption has used single-family households and only one type of feedback. This experiment looked at the effect of goal setting and reminders on self-reported pro-environmental behavior (PEB) and energy consumption in a college dormitory. All of the freshmen on floors 3 – 6 of Hadley Hall at Middlebury College were personally asked to set environmental goals and had energy saving tips presented on posters in their halls. Two of the floors – the experimental group – also had iPads installed that displayed a historical comparison of their floors’ energy use. The other two floors – the control – were only exposed to the posters and goal setting. Self-reported PEB and the amount of energy consumed per group were measured in comparison to a baseline as the dependent variable. Results will be discussed.

The Orange Revolution Revisited

Moderators: Michael Kraus
Speakers: William Gevertz ‘14.5

This proposed project examines the 2004 Orange Revolution in Ukraine and determines whether this movement was a genuine example of ‘third-wave democratization’. I would like to share this research at the Spring Student Symposium because I feel that it has particular pertinence given the recent developments in the region. In researching for this project, I borrow the framework from previous scholarship on civic action in democratic transitions in order to answer two guiding questions: (1) There are examples of other nations in the region failing and succeeding at their own attempts at post-Soviet democratization before and after 2004; why did the Orange Revolution occur when it did? And (2) In what manner did the Ukrainian youth influence the outcome of the Orange Revolution? My presentation at the Spring Symposium will allow me to share my findings and evaluate the 2004 Ukrainian Revolution in the context of the 2014 Ukrainian Revolution.

Thrift Shop: A Sociological and Linguistic Analysis

Moderators: Marcos Rohena-Madrazo
Speakers: William Painter ‘17

In the last twenty years hip hop and rap have developed a number of associations, including violence, objectification of women, criminal activity, and flaunting of wealth. Recently however several rappers have begun to challenge these associations including the acclaimed duo Macklemore and Ryan Lewis. This presentation will compare the sociological and linguistic aspects of modern hip hop with Macklemore and Ryan Lewis’s breakout hit Thrift Shop. The comparison will focus on the theories of hypermasculinity and Hip Hop National Language as described in various articles published in sociology and linguistics journals and the documentary Hip Hop: Beyond Rhymes and Beats by Bryon Hurt, and supplemented by analysis of music videos by Bone Crusher, Nelly, Dr. Dre, and Snoop Dogg among others, and of course Macklemore and Ryan Lewis.

A Woman’s Stance: Titian’s ‘La Schiavona’

Moderators: Thomas Moran
Speakers: Audrey Martino ‘14
Sponsors: Katy Smith Abbott

Titian’s La Schiavona(1510-1512) epitomizes the confluence and dissonance of artistic traditions, social norms, and aesthetic theories present in Venice at the beginning of the sixteenth century. In this portrait, the tension between tradition and innovation that permeates La Serenissima takes the form of a magnetic woman who invites - and perhaps challenges - her viewers to engage in a visual conversation with her through an aesthetic dialogue. A distinctive feature of La Schiavona’s figure is her remarkable physical dimension that renders her a matron-like character that placidly, yet assertively, takes full ownership of her space, a bold stance for a woman. In La Schiavona, Titian deliberately engages in the popular debate of the “paragone,” the comparison between the art of painting and that of sculpture. The artist seals his statement of the superior nature of painting by depicting his fictitious carved initials “T.V.,” for Tiziano Vecellio.
Alexander Hamilton—Mercantilist, Smithian or Both?

Moderators: Michael Kraus
Speakers: Taylor Custer ’15
Sponsors: David Colander

Alexander Hamilton is one of the most enigmatic figures in the story of America’s founding. He fought ardently to wrest the republic’s independence from the British Empire, and yet later fell victim to accusations of being a monarchist. Although himself born an impoverished and illegitimate child, he came to be seen as an advocate of the American aristocracy. Few areas of Hamilton’s life, however, evoke as much debate and complexity as his views about economics. Some label him a mercantilist, others an adherent of Adam Smith. Few, unfortunately, discuss how his views changed over the course of his public life. By drawing on work from throughout Hamilton’s lifetime, this presentation aims to illustrate the evolution of his economic thought. It will show that although he started out as a mercantilist, Hamilton largely adopted Adam Smith’s views after reading the Wealth of Nations.

Assessing Internet Censorship in China: Weibo, Sensitive Discourse, and Collective Action

Moderators: Cynthia Packert
Speakers: Julia Madden ’14
Sponsors: Orion Lewis

The Chinese government currently operates one of the most extensive and sophisticated Internet censorship programs worldwide. Large-scale censorship is enforced by the “Great Firewall,” which restricts citizens’ access to controversial foreign websites like Google, Twitter, and Facebook. On a more specific level, an estimated 50,000 government-hired Internet police monitor and delete sensitive content online content, while an additional 300,000 government employees post positive content aimed at supporting the Party line. For many, this sparks important questions: why does the government dedicate so many resources to controlling online discourse? How do CCP fears of social unrest motivate censorship? How does censorship differ by topic area and geographical location? Through an empirical study of Weibo, a Chinese equivalent of Twitter, this project aims to investigate the current state of Internet censorship in China, including government motives for censorship, Weibo’s most censored topics, and questions of censorship efficacy.

Charles Baudelaire and Leopoldo Lugones: The Moon in Relationship to Melancholia and Poetic Inspiration

Moderators: Charlotte Tate
Speakers: Maria Macaya ’14
Sponsors: Patricia Saldarriaga

The moon has long been a source of curiosity, inspiration and contemplation. A comparative study examines how specific poems by French symbolist poet Charles Baudelaire (1821-1867) and Argentinian modernist poet Leopoldo Lugones (1874-1938) portray the figure of the moon and follow and/or break the traditional and previous uses of this image. Emphasis will be placed on the connection between the moon and themes such as melancholia and poetic inspiration. Greek mythology depicts the moon as a beautiful goddess, Selene, which often captivated artists and scientists alike. However how has her image changed over time and how is she presented in French and Latin American modern poetry? What kind of relationship do the portrayed poets establish with the moon? How does this rapport relate to poetic creation or a melancholic state? These and other similar questions will be discussed by looking at selected poems by Baudelaire and Lugones.

Examining Catholic ‘Ad hoc Theologies’ in American Public Discourse

Moderators: Marcos Rohena-Madrazo
Speakers: Peter Murray ’13.5
Sponsors: James Calvin Davis

This project is a critical examination of Catholic participation in the public debate over the proposed constitutional ban on same-sex marriage on the 2012 ballot in Minnesota. Specifically, I examine statements in social media posts, blog rolls, and letters to the editor made by the St. Paul/Minneapolis Catholic Archdiocese, laity, and theologians in the debate. I term these statements, “ad hoc theologies” and contextualize them within the larger
tradition of 20th century Catholic social thought. I show how individual Catholics assert their own theological
ethical frameworks in a dialogical engagement with the Magisterium, the social teaching tradition, and with
ecclesial authorities. These theologies rely heavily on personal experience and often lead individuals to reject
parts of Catholic teaching, particularly on sexuality, without rejecting the tradition entirely. I argue that a greater
inclusion of dissenting opinions and lived experience is essential to the Catholic vision for social justice.

<table>
<thead>
<tr>
<th>1:50pm – 2:05pm</th>
<th>Expectations vs. Reality for Character and Viewer in (500) Days of Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBH 216</td>
<td><strong>Moderators: Leger Grindon</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Speakers: Benjamin Savard ’14</strong></td>
</tr>
</tbody>
</table>
|                 | Who in their right mind begins a romantic comedy with the line “This is not a love story?” By examining the
|                 | nonlinear structure, use of romantic comedy tropes, and most recurrent themes of Marc Webb’s 2009 film (500)
|                 | Days of Summer, we as an audience can come to a better understanding of how the film functions and
distinguishes itself as a great movie. Most specifically, I will examine how motif of reality contradicting
expectations creates meaning on several levels, most notably by: Defining the dynamic between the lead
characters within the narrative; Undermining the audience’s understanding of how the narrative will develop;
Complicating how the film fits into Hollywood’s genre landscape; The presentation will include a close reading of
a key scene from the film, and a breakdown of the script’s scene structure. |

<table>
<thead>
<tr>
<th>1:50pm – 2:05pm</th>
<th>Illiteracy and Its Implications for Today’s Pakistan</th>
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<tbody>
<tr>
<td>MBH 311</td>
<td><strong>Moderators: Kathy Skubikowski</strong></td>
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<tr>
<td></td>
<td><strong>Speakers: Zeest Hassan ’17</strong></td>
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<td></td>
<td>Pakistan today is facing immense problems with terrorism, poverty, political instability, public health and nutrition. A root cause of these problems is the low literacy rate of Pakistan. Only 57 percent of people living in Pakistan have the ability to read and write (Hetland, 2012). Pakistan’s literacy rate is lower than the all of its neighboring countries except Afghanistan. India, which shares its south western border, and gained independence in the same year a, 1947, has a literacy rate of 74 percent, even though the population of India is 5 times greater than the population of Pakistan (State Department Documents, 2012). This presentation will explore how the low literacy rate in Pakistan is caused by poverty, the status of women, and a lack of demand for schools, and how illiteracy contributes to the problems of terrorism, a high child mortality rate and stunted economic growth.</td>
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<tr>
<th>1:50pm – 2:05pm</th>
<th>Organic Modification of Clay for Environmental Water Remediation</th>
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<tbody>
<tr>
<td>MBH 403</td>
<td><strong>Moderators: Helen Young</strong></td>
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<tr>
<td></td>
<td><strong>Speakers: Lauren Pincus ’14, Elaine Dellinger ’14, Connor Stoll ’14</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Sponsors: Molly Costanza-Robinson</strong></td>
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</tbody>
</table>
|                 | Increasing urbanization and wastewater disposal have resulted in rising contamination of freshwater sources by
|                 | organic contaminants such as pharmaceuticals and insecticides, making investigation of alternate methods to
|                 | conventional water treatment and point-source containment increasingly necessary. One such emerging and
|                 | cost-effective method is sorbing contaminants into the interlayer of organo-modified clays. In order to examine
|                 | the fundamental mechanism of contaminant sorption by these organo-clays, we are first characterizing the
|                 | organically modified clay montmorillonite using X-ray diffraction, infrared spectroscopy, sodium-ion release data,
|                 | transmission electron microscopy, and total carbon analysis in conjunction with contaminant sorption
|                 | experiments. Our results suggest that the level of organic modification and organo-clay hydration affect the
|                 | crystallinity of the organo-clay interlayer environment. Understanding the chemical environment of the organo-
|                 | clay interlayer and its influence on the mechanism of contaminant sorption should allow for optimization of
|                 | organo-clay design for environmental water remediation. |

<table>
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<th>2:10pm – 2:25pm</th>
<th>A Voice of Their Own: Bongo Flava Music and Youth Identity in Contemporary Tanzania</th>
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<tr>
<td>MBH 216</td>
<td><strong>Moderators: Leger Grindon</strong></td>
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<tr>
<td></td>
<td><strong>Speakers: Lucas Avidan ’15</strong></td>
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<td></td>
<td><strong>Sponsors: Damascus Kafumbe</strong></td>
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</table>
The genre of hip-hop has always been associated with social consciousness and subversion of authority. By the late 1990s, hip-hop eventually made its way to Tanzania, and was a key influence in the creation of “Bongo Flava”. Bongo Flava, and the artists that created the genre, idolizes an already established canon of rappers and artists in American music. But, their revision of the genre combines both a fantasy-like obsession with the American hip-hop culture and an urge to create music that is pertinent to their own social issues and opinions. I am interested in how these rappers mix “Western” and African clothing styles, ideals, words, and sonic textures. Young Tanzanians have a complicated relationship with globalization, simultaneously embracing and rejecting its effects on their home country. Bongo Flava is an instrument for a younger generation to create its own culture, and establishes Tanzania’s voice in the musical and political world.

2:10pm – 2:25pm

I Analysis of the Role of the Chinese Military in a Changing China

Moderators: Michael Kraus
Speakers: Zhenyu Li ’14

Bridging two fields of study--adaptive authoritarianism and civil-military relations in Leninist states--this research project examines how modernization of the PRC (People's Republic of China) affects the civil-military relations between the Party/state and the PLA (People's Liberation Army). In conclusion, we evaluate the possible future roles of the PLA in a changing China.

2:10pm – 2:25pm

I Reflections on Japanese Dystopia: A Collection of Translated Japanese Science Fiction Short Stories

Moderators: Thomas Moran
Speakers: Stewart Hoffmann ’14
Sponsors: Stephen Snyder

My project is to translate previously un-translated short stories by Japanese science fiction writers and compile them into an anthology. I plan to have each decade in the post-war period represented by at least one story so that I can track the progression of Japanese science fiction subject matter and styles over the years. I will include an analysis of this progression of thought among Japanese science fiction authors as well as a description of my translation methods in an essay featured at the beginning of the collection. For the symposium I will explain the origins of this project, my interest in Japan and translation, why I chose science fiction, and what the genre of science fiction reveals about Japanese culture over the past few decades. I will also read one of the translated short stories as sample of the work I’ve done for the project.

2:10pm – 2:25pm

I Relation between the Jones and Q Polynomial Knot Invariants

Moderators: Charlotte Tate
Speakers: Melanie Dennis ’14
Sponsors: Frank Swenton

Knots are an integral part of our daily lives: we use knots to tie our shoes, to untangle headphone cords, to braid our hair, or to sail on Lake Dunmore. Knot theory uses math to study these knots. One of the most fundamental questions of knot theory is whether or not two knots are the same. Knot invariants are fundamental properties of knots that help us determine the answer to that question. This presentation focuses on two polynomial knot invariants: the Jones polynomial and the Q polynomial. We begin by defining these polynomials and then provide a relationship between the two that proves their relative strengths as invariants.

2:10pm – 2:25pm

I Social and Linguistic Effects on the Pronunciation of (r) in Buenos Aires Spanish

Moderators: Marcos Rohena-Madrazo
Speakers: Madeline Gilbert ’14

Language reflects, at both a conscious and unconscious level, the societal divisions of the people who use it. Differing pronunciations of a specific sound often encode information about a speaker’s age, biological sex, and social class. In this study I examine the phonetic realizations of the simple vibrant (/ɾ/) followed by consonant in Buenos Aires Spanish (for example, in the word “taɾde”) with the goal of describing the properties of the distinct pronunciations, establishing in which phonetic contexts they occur, and investigating their distribution in
terms of the sex, age and social class of the speakers. The wide variety of pronunciations, not yet studied in Buenos Aires Spanish, calls into question the traditional, “canonical” form of /ɾ/ and implies that the pronunciation of this segment may carry information about personal characteristics of the speaker.

2:10pm –
2:25pm

I The Evolution of Electronic Dance Music

Moderators: Cynthia Packert
Speakers: John Sprague ’14
Sponsors: Larry Hamberlin, Christian Keathley

For a senior research project, I am making a short documentary film about the evolution of electronic dance music. A movement that originated with the disco craze of the 1970s, electronic dance music has transformed over time and come to reach profound global popularity in recent years. I am currently spending five weeks in Los Angeles, California - the heart of much of America's music scene - conducting research and interviewing DJs, historians, musicologists, professors, record executives, and others. Upon my return to campus in mid-March, I will spend the rest of the spring producing the film. At the Spring Symposium, I will give a talk about my research experience and my findings on the topic, and will also debut a trailer for the film.

2:10pm –
2:25pm

I The Impact of State Environmental Policy on Carbon Emissions

Moderators: Helen Young
Speakers: Jeremy Janson ’14
Sponsors: Caitlin Myers

Using a difference-in-difference regression analysis model, I estimate the effects on carbon emissions from Renewable Portfolio Standard policies. These policies require state utilities to generate a percentage of their electric power from renewable sources. This policy approach is relatively new, and as such the research on its effects are limited. This study aims to provide information on the effects of quota policies, and on potential long-term environmental benefits.

2:10pm –
2:25pm

I The Neurobiology of Nurture: Strengthening Resilience in 'High-Risk' Youth through Mindfulness, Compassion, and Empowerment

Moderators: Kathy Skubikowski
Speakers: Simran Sabharwal ’14
Sponsors: Jonathan Miller-lane

Cumulative negative experiences such as maltreatment or growing up in poverty take a harsh toll on the mind, body, and spirit. However, because humans are largely resilient, shaped by genes but also by environmental context, early adversity does not always lead to negative outcomes. In fact, youth labeled as “high risk” often demonstrate tremendous resilience. Research on neuroplasticity intertwines with the field of education in fascinating ways, shedding new light on the role of mentors like teachers in developing resilience in youth. Recent studies have found that the influence of a supportive environment can physiologically alter the brain, impacting neural circuitry, emotion regulation, and even the immune response. The environment that teachers create may help protect developing brains from the toxic effects of excessive stress. Paying more attention to students’ social and emotional needs in schools could empower the next generation to overcome challenges they will inevitably face in life.

2:30pm –
2:45pm

I A Collector’s Perspective: Henry James and Edith Wharton

Moderators: Thomas Moran
Speakers: Audrey Martino ’14
Sponsors: Deb Evans

The works by Henry James and Edith Wharton revolve around the display of the cultural, social, and psychological palette of the American and European elite during the nineteenth century. Considering these novels from the perspective of a collector allows for further insight into the social workings of the time, particularly with regards to the aesthetic realm. Spatial settings assume museum-like features and objects of fine art become the main cause of actions and reactions of the protagonists who are driven to acquire, collect, and preserve...
“things” in accordance to their own personal impulses. Women, the ultimate collectibles, alternate between states of true human characters and those of pure aesthetic articles, while maintaining a sophisticated touch of realness in both dimensions. Museums, objects, and collections constitute the three faces of a cultural triangle, each showing different sides to the world but together making up the whole.

2:30pm – 2:45pm
I Could Arts Education be Important for Economic Development?
Moderators: Kathy Skubikowski
Speakers: Sebastián Fica-Contreras ’17
One of the factors that define the structure of current educational systems is the focus on accounting for an increasing demand for professionals in specialized academic fields in order to target needs related to economic development. In their educational systems, governments thus tend to focus more strongly on teaching students some areas of knowledge, while other areas are less privileged. Educational systems currently focus more strongly on teaching the STEM subject areas (science, technology, engineering and mathematics), with no parallel focus on teaching the arts (visual arts, dance, music and theater). This study examines data 1) on the role of the arts in the International Baccalaureate Diploma Programme (IBDP) and in US Elementary and High Schools, 2) a 2010 IBM study with 1,500 CEOs representing 33 companies in 60 countries, and 3) data from primary and secondary sources, in order to determine if arts education could prepare individuals to approach the challenges of the future, and how those personal skills could potentially translate into the further development of national economies.

2:30pm – 2:45pm
I Exploring an Artist's Role in Society
Moderators: Cynthia Packert
Speakers: Mari Vial-Golden ’14
Sponsors: Alex Draper
For my senior project as a theatre major I have been producing and performing in a one woman show titled Land Without Words, by German playwright Dea Loher. This piece chronicles an artist’s experiences traveling to a war-ridden and poverty-stricken city in the middle east, and examines how those experiences have impacted her ability to create art now that she has returned home. As I have taken on the role of a woman who is grappling with the purpose of her art, I have been forced to explore my own responsibilities as an artist. What roles do privilege and our experiences at an institution like Middlebury play in our lives as artists? What kind of art do I want to create, and what do I hope this art achieves? This presentation will include aspects of my process, excerpts from the piece I performed, and a discussion of these questions.

2:30pm – 2:45pm
I Networked, Faceless, and Everywhere: The Information Revolution and Global Terrorism
Moderators: Charlotte Tate
Speakers: Ben Kallas ’14
Sponsors: Orion Lewis
Iraqi insurgents cripple an oil pipeline, and Basra’s port shuts down for a week. Google Earth showed them exactly where to place the explosives and they post their strategy online so that insurgent groups around the world can learn from their success. The internet and cell phones have a dark side, for they allow insurgents to coordinate, inspire, finance, and train one another on a global scale. They need no clear leaders, because groups can access enough information to function autonomously. Terrorist organizations like al-Qaeda manipulate the freedom of our media to terrify civilians with images of burning buildings and brutal murders, which our military and politicians are powerless to prevent. This presentation draws upon statistical and network analysis, along with existing literature to examine the new tactics and targets that modern technology affords insurgents, and how governments can fight a networked, adaptable enemy without curtailing our civil liberties.

2:30pm – 2:45pm
I Social Media and the Egyptian Revolution of 2011
Moderators: Michael Kraus
Speakers: Ben Tindall ’17
Sponsors: Febe Armanios
During and after the Egyptian Revolution in 2011, many analysts celebrated the use of technology, specifically social media, as causing the overthrow of Mubarak’s regime. Pointing to the rapid expansion of Internet users in the years preceding and the use of social media during the revolution, this is a tempting claim to make. However the reality is not so simple. While social media and other Internet services provided a powerful tool for activists, they remained only tools. These technologies had been in use as political weapons for years and were well established as methods for protesting against authoritarian regimes. During the Egyptian Revolution, oppression and discontent fueled unrest and social media provided an organizing platform that activists capitalized on. Political and social grievances caused Egyptians to revolt against their government, not their access to Facebook.

2:30pm – 2:45pm

I The Effect of Invasive Garlic Mustard (Alliaria petiolata) on Northeastern Tree and Fungal Communities

Moderators: Helen Young
Speakers: Morgan Childs ’14

Research has shown that garlic mustard, an invasive species originally from Europe, poses a threat to forest communities in North America by disrupting a crucial mutualism between tree roots and the soil fungi mycorrhizae. The purpose of my research is to assess the impact of garlic mustard on hardwood forests in New York and Vermont. With the help of my research partner Ethan Strayer, this past summer I sampled trees in forest areas that were invaded with garlic mustard and in adjacent uninvaded areas of forest. We found that there was a significantly lower abundance and diversity of young trees in the areas invaded with garlic mustard. In the fall, I collected soil and root samples and extracted mycorrhizal spores from the soil samples. I found a significantly lower number of spores and a significantly lower species richness for invaded soil in one out of three sites. In the spring, I quantified mycorrhizal associations on the root samples.

2:30pm – 2:45pm

I The Youth in Protest (Again): Emplacing the Shahbag Riots in Narratives of Transnational Youth Resistance

Moderators: Leger Grindon
Speakers: Parker Ziegler ’16
Sponsors: Kacy McKinney

This project takes a critical look at the voices underlying the 2013 Shahbag riots in Bangladesh, a youth-led movement that sought to retroactively hang war criminals of the Jamaat-e-Islami for crimes against humanity during the Bangladeshi Liberation War of 1971. Viewing the protests through the lens of generational struggle rather than traditional discourses of political discontent or religious prejudice, connections are drawn between the rhetoric, technologies, and outcomes of Shahbag and similar youth movements of the Arab Spring. Ultimately, these linkages give indication of a growing ethos of transnational, generational struggle, in which today’s global youth are collectively opposing the entrenched regimes and antiquated institutions of their elders. Through the use of new technologies and systems of “citizen journalism” these conflicts are further being transplanted into diaspora communities, with potential for global participation across gender, ethnicity, race, and religion.

2:30pm – 2:45pm

I “Boston Strong” Commodified Participation and the Construction of City Unity: Perspectives from Linguistic Anthropology

Moderators: Marcos Rohena-Madrazo
Speakers: Lee Schlenker ’16
Sponsors: Marybeth Nevins

Through a discussion of theoretical insights offered by linguistic anthropology, this presentation will deconstruct the “Boston Strong” phenomenon that came to characterize public response to last year’s Boston Marathon Bombings. More broadly, it will explore how commodities and slogans erect the illusion of civic participation, drawing on key concepts from semiotics and cultural criticism. Through the incorporation of linguistic anthropological scholarship into a study of popular culture, I will show how “Boston Strong” has constructed a perceived unity within Boston’s moral and cultural landscape - ultimately deceiving its residents into believing that the commodification and moralization of tragedy bring communities closer together. By no means a comprehensive analysis, my paper will focus on just one iteration of a broader cultural trend, seeking to
illuminate the relevance of linguistic anthropology in general debates surrounding culture, language, tragedy and consumerism.

2:45pm – 3:30pm  
**Book Signing by Keynote Vendela Vida ’93**  
*Speakers: Vendela Vida*  

**N A Decade of the Journal IMPULSE: Growth and Impact**  
*Speakers: Ben Mansky ’15*  
*Sponsors: Kim Cronise*  
Poster 35: IMPULSE, the premier undergraduate neuroscience journal, was founded in 2003 to fulfill a need for training in scientific publishing and peer review. It is an online, international journal for reports and reviews from undergraduate neuroscientists. While research expectations of undergraduate education programs have increased, work completed by undergraduates is still not often published. IMPULSE is intended to give students the opportunity to experience the entire research process, including publication. Furthermore, undergraduates may not be exposed to peer review, an important component of scientific publishing. IMPULSE also provides a mechanism for students to learn about the reviewing and editing side of research. The current report summarizes a survey of undergraduate experiences with IMPULSE over the last decade and demonstrates that IMPULSE is a useful teaching tool, serving as a way to provide authentic experience for undergraduate neuroscientists on the publication side of science.

2:45pm – 3:30pm  
**N A Gas Station for Middlebury, VT**  
*Speakers: Thomas Hyde ’14.5*  
*Sponsors: John McLeod*  
Poster 33: Architecture is a bridge between man and the environment.

2:45pm – 3:30pm  
**N Analyzing Initial Observations of Laser-Cooled Atoms**  
*Speakers: Colleen Harper ’14*  
*Sponsors: Anne Goodsell*  
Poster 36: We are working toward being able to trap and cool rubidium atoms with lasers. To achieve this, we send multiple intersecting laser beams into a vacuum chamber containing the atoms. The atoms are then trapped at the single intersection point of all the beams. To successfully cool the atoms, the incoming laser beams must have frequencies close to the atoms’ resonant frequency. We are updating our setup for locking the master laser, which will increase our confidence that the master laser is tuned appropriately to the resonant frequency. Once we are successful in laser cooling, we will focus on determining the velocity of the cold atoms through the time-of-flight method.

2:45pm – 3:30pm  
**N Assessing Attentional and Expectancy Biases in PTSD Using an Eye-Tracking Paradigm**  
*Speakers: Cade Schreger ’15*  
*Sponsors: Matthew Kimble*  
Poster 43: This work seeks to use eye tracking technology to assess attentional and expectancy biases in individuals with PTSD - as they may play major roles in the dysfunction present in the disorder. Using a visual quadrant paradigm designed to assess such biases, we compare data from individuals with PTSD to those of an undiagnosed trauma group and a control group. The primary focus of the work has been to both find support for and address challenges to some of the most widely accepted theories for the maintenance of PTSD – predominantly the hypervigilance/avoidance model as well as the cognitive model of Ehlers and Clark (Ehlers & Clark, 2000). While many facets of PTSD have been explored using a variety of behavioral, cognitive, and therapeutic tasks, few studies have addressed this disorder using eye tracking. This research may also yield findings that could contribute to future treatment of the disorder.

2:45pm – 3:30pm  
**N Assessing the Determinants of Gun Ownership in Vermont**  
*Speakers: Brianna Morse ’14*  
*Sponsors: Matthew Dickinson*
Poster 40: Recent debates over gun control versus the gun rights provided by the Second Amendment of the U.S. Constitution focuses interest on what motivates American citizens to own guns. To find out, a random sample of Vermont voters received a mail survey. Hoping to fill a gap in existing gun research by testing for the impact of political ideology, among more typical predictors such as age, gender, income, and education, the survey asked respondents to rank their political identification on a scale from extremely liberal to extremely moderate and answer questions about gun ownership and their reasons behind owning, or not owning a gun. Results indicate that the decision to own guns, and how many, strongly correlates with political ideology, education and gender, suggesting important implications for passing gun control legislation.

2:45pm – 3:30pm

N Autumn and Her Dad Walk to Dinner
Speakers: Ian Stewart '14
Sponsors: John McLeod

2:45pm – 3:30pm

N Capturing High Resolution 3D Scenes Using Structured Lighting
Speakers: Greg Krathwohl '14, York Kitajima '15
Sponsors: Daniel Scharstein
Poster 34: The Middlebury Computer Vision Benchmark is a widely known resource for hosting stereo image datasets which researchers use to generate depth maps from pairs of stereo images. By comparing algorithmically generated depth maps with our high resolution solutions, researchers can test, improve, and compare their algorithms. The high resolution depth map, or “ground truth”, is computed using structured lighting, a technique in which binary code patterns are projected onto a scene. We captured a variety of new scenes with this existing setup, including new locations and new objects. We also made improvements to the setup and processing software, including an error catching program, a system that filters problematic pixels, a system for separating complex foreground objects from the background, and a new website design. Other contributions included testing the limits of the system and increasing its robustness and reliability. The long term goal of this research is to provide stereo vision researchers with reliable and challenging benchmarks to advance the research in this field.

2:45pm – 3:30pm

N Chemical Reactions and Mineralogical Pathways in Soils of an Arid Tropical Climate Along the Pacific Coast of Ecuador
Speakers: Daphnee Tuziak '14
Sponsors: Peter Ryan
Poster 38: Understanding rates of chemical reactions and mineralogical pathways in tropical soils is important as they typically undergo intense leaching and become nutrient-depleted, yet they also support approximately three-quarters of the world’s population. This study examines chemical reactions and mineralogical pathways of arid tropical soils from marine terraces along the Pacific Coast of Ecuador, compares the dry climate of coastal Ecuador to moister soils in Costa Rica and Colombia and also observes whether soil mineralogy/geochemistry is effective in correlating terraces to aid in tectonic interpretation. Mineralogical and geochemical analyses were collected using XRD, ICP-AES, SEM, TEM, grain size and pH. Lab results show that smectite formation occurs within 10 ka and that smectite dominates soils as old as 330 ka; also, pedogenic carbonates form in deeper parts of soil profiles. Formation of kaolinite is prohibited by high evaporation and low precipitation which makes it difficult to correlate terraces for tectonic interpretation.

2:45pm – 3:30pm

N Chinese Model Cities for Environmental Protection: A Model for the Future?
Speakers: Skylar Dallmeyer Drennen '14
Sponsors: William Pyle
Poster 58: Facing rapid urbanization, environmental degradation, and a commitment to continued economic development the Chinese implemented a program in 1997 to incentivize cities to lower emissions, reduce waste, and improve other general measures of environmental quality. Since its inauguration some 86 city units have been designated as “Model Cities for Environmental Protection.” While this is nominally an impressive commitment to environmental protection, some literature suggests that in order to achieve this designation city
governments are relocating not reducing net pollution. This thesis seeks to use regression analysis and primary source case study to investigate both what makes a model city and what happens in a city and its surrounding area when it achieves model designation.

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<th>Time</th>
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<tbody>
<tr>
<td>2:45pm –</td>
<td>Comparing Two High Strain Zones Along the Norumbega Fault System in Central Coastal Maine</td>
<td>MBH Great Hall</td>
</tr>
</tbody>
</table>
| 3:30pm     | **Speakers:** Jeffrey Colt ’14.5  
**Sponsors:** David West                                                                 |
|            | Poster 44: Strain localization displacement structures such as shear zones and faults occur at any type of tectonic regime and are important manifestations of plate tectonic activity. This study focuses on two high strain zones within the central portion of the Norumbega fault system in Maine (a 450km long and up to 30km wide dextral transcurrent fault system) and provides a multipronged approach to comparing the rocks within each of these zones. Understanding and differentiating between the various types of high strain rocks in these zones provides insight to their timing, conditions of deformation and displacement history. Despite being in close proximity to one another (within 2 km), results thus far indicate significant differences in these two zones at a variety of scales. These results can be used to expand the story of the Norumbega fault system and are a useful analog for the processes of active transcurrent faults elsewhere. |
| 2:45pm –   | Eating Together in the Autoscape: A Fast Food Restaurant for Middlebury | MBH Great Hall            |
| 3:30pm     | **Speakers:** Sydney Haltom ’14  
**Sponsors:** John McLeod                                                                 |
|            | Poster 42: Since the mid-20th century, the automobile has profoundly shaped both the physical and social landscapes of towns and cities throughout the world. The spread-out development patterns of the “autoscape” tend to isolate the individual: a fragmented world of shopping centers, parking lots and subdivisions creates few opportunities for the routine face-to-face interactions on which a community is built. In this project, the fast food restaurant is reimagined as a setting for community interaction and fellowship. The proposed restaurant would be built on an unused land parcel bordering Route 7, south of downtown Middlebury. Each aspect of the design, from its open floor plan to its central fireplace and washbasin, encourages customers to connect with one another and linger over their meal. |
| 2:45pm –   | Effects of the Neurosteroid Pregnenolone Sulfate and NMDA Antagonist MK-801 on Rat Spatial Working Memory | MBH Great Hall            |
| 3:30pm     | **Speakers:** Elyse Barnard ’15, Daniel Prior ’14  
**Sponsors:** Mark Stefani  
Poster 39: Schizophrenia is associated with impaired working memory and cognitive flexibility. These “executive functions” depend on the intact functioning of the prefrontal cortex (PFC). The neural basis of these cognitive deficits remains unclear. Recent studies suggest that decreased inhibitory signaling by the neurotransmitter GABA within the PFC may be a causal factor. This study examined the effects of the neurosteroid pregnenolone sulfate (Preg-S) on spontaneous alternation behavior (SAB), a measure of spatial working memory. Preg-S (0.01, 0.05, 0.10 µg/hemisphere), alone or combined with MK-801, was injected into the PFC 20 min before rats were tested for SAB. Preg-S is a negative modulator of GABA receptors. MK-801 is an NMDA glutamate receptor antagonist that produces schizophrenia-like cognitive deficits in rats, putatively by reducing GABA neuron activity. We hypothesized that Preg-S would exacerbate SAB deficits caused by MK-801, and that at higher doses would impair alternation performance on its own. |
| 2:45pm –   | Grocery GIS: Exploring How to Map Trade Areas of Whole Foods Market using GIS | MBH Great Hall            |
| 3:30pm     | **Speakers:** Ashali Bhandari ’14  
**Sponsors:** Peter Nelson                                                                 |
|            | Poster 46: This analysis utilizes GIS techniques to evaluate different trade areas for high-end grocery retailers (Whole Foods) in the Washington, DC Metropolitan Area. An array of techniques were used to assign census tracts to a single store based on different measures of proximity and then provide summary characteristics of the |
tracts assigned to any particular store. The analysis provides a way to estimate the minimum consumer base required to support a particular store as well as assess the feasibility of locating a new store in a set of potential locations. The analysis determined the ‘service area’ function in ArcGIS combined with network capabilities resulted in the most realistic market areas, and it appears that the potential for additional Whole Foods establishments in the DC area is limited.

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<thead>
<tr>
<th>2:45pm – 3:30pm</th>
<th>N Identification of Protein-Sterol Interactions Regulated by Constitutively Active EGFR in Glioblastoma Multiforme Cells</th>
</tr>
</thead>
</table>
|                 | Speakers: Michael Martini ’15  
                | Sponsors: Rick Bunt  
                | Poster 41: Cholesterol acts and is regulated via specific interactions with sterol-binding proteins; however, the full extent of specific protein-sterol interactions remains to be determined. Recently, activation of the Liver X Receptor (LXR) with the synthetic agonist LXR-623 has been shown to disrupt cholesterol homeostasis in glioblastoma multiforme (GBM), the most aggressive brain cancer that is metabolically dependent on cholesterol. In this investigation, we implement a chemoproteomic method for sterol affinity-based protein profiling to characterize the alterations in the protein-sterol interactome in the LXR-623-treated GBM cells. We have identified and quantified the extent of a number of the regulatory effects induced by LXR treatment, including suppression of cholesterol biosynthetic and uptake processes, and enhancement of efflux proteins. This work will contribute to a more thorough understanding of the metabolic cross-talk between growth-signaling pathways and cholesterol homeostasis in a GBM model, and may identify druggable pathway nodes leading to novel GBM therapies. |

| 2:45pm – 3:30pm | N Identifying Red Quasar Host Galaxy Morphologies  
                | MBH Great Hall |
|-----------------|--------------------------------------------------------------------------------------------------|
|                 | Speakers: Madeline Mailly ’14  
                | Sponsors: Eilat Glikman  
                | Poster 47: This project investigated galaxies containing dust-reddened quasars (rapidly accreting supermassive black holes) at a redshift of z ~ 2. We used GALFIT software to analyze Hubble Space Telescope images of these high luminosity quasars. Previous studies at a lower redshift of z ~ 0.7 have found that a significantly higher proportion of galaxies hosting red quasars are merging systems than otherwise. Similar results at z ~ 2 (the peak epoch of black hole growth and star formation) would support the hypothesis that mergers drive the co-evolution of quasars and their host galaxies. |

| 2:45pm – 3:30pm | N Incidence of the Intestinal Parasite Strongyloides Robustus in the Southern flying squirrel (Glaucumys Volans) in a Vermont Mixed Conifer-Hardwood Forest  
                | MBH Great Hall |
|-----------------|--------------------------------------------------------------------------------------------------|
|                 | Speakers: Carson Hauck ’14  
                | Sponsors: Steve Trombulak  
                | Poster 60: Vermont lies within the zone of overlapping geographic ranges of the two species of North American flying squirrels, the northern flying squirrel (Glaucumys sabrinus)and the southern flying squirrel (Glaucumys volans). A species of parasitic hookworm known as Strongyloides robustus has been documented in both species in Wisconsin, New York, Pennsylvania, and other regions of co-inhabitance. Past studies have found that the parasite negatively affects the health of the northern flying squirrel more than the southern flying squirrel. As such, the parasite may play a significant role in the species’ competition for habitat and resources. Fecal analysis for S. robustus, collected from 18 southern flying squirrels trapped in Cornwall, VT, revealed 100% prevalence among individuals. This is the first documentation of S. robustus in Vermont, and the relatively high prevalence may be due to G. volans isolation resulting from a high degree of forest fragmentation within the Champlain Valley. |

| 2:45pm – 3:30pm | N Investigation of Anti-CD47 Monoclonal Antibody Conjugated to Gold Nanoparticles for Cancer Therapy  
                | MBH Great Hall |
|-----------------|--------------------------------------------------------------------------------------------------|
|                 | Speakers: Brian Ayers ’14  
                | Sponsors: Jeffrey Byers  

Poster 48: The extracellular protein CD-47 has been discovered to be a “Don’t Eat Me” signal expressed by cancer cells to avoid detection by macrophages. Using an anti-CD47 monoclonal antibody, researchers were able to inhibit tumor growth and metastasis of ten different types of cancer, making it a promising as a potential “silver bullet” treatment. The objective of this investigation is to increase the effectiveness of anti-CD47 treatment by utilizing gold nanoparticles as a directed delivery system. All cells, both healthy and cancerous, express CD47 making it a highly unspecific treatment. Gold nanoparticles naturally accumulate in tumors because their size causes them to experience an enhanced permeability and retention rate. In this study, we investigate the effectiveness of anti-CD47 conjugated to gold nanoparticles in inducing tumor cell death via phagocytosis.

2:45pm – 3:30pm

I’m sorry, I’m a man

Speakers: Alexander Russo ’14

Sponsors: Sanford Mirling

Poster 61: Through the personal dualities I struggle to embrace I yarn a story of childhood memories and teenage dreams overwhelmed with a blunt reality of the misogynist I must become to live out my uber-masculine fantasies. Power tools are my allies – chainsaws the ultimate weapon – diesel my blood. I use dimensional lumber strung together with drywall screws – I can build sh*t too – and plastic trash bags hastily tacked with hot glue and filled with diesel exhaust – no its not suicidal, IT’S F***IN’ ROLLIN’ COAL B***H. Nothing I make is too far removed from the stick walled, drywall covered, plastic sided structure I have grown up around. So my sculpture litters space from the gallery to my parent’s basement, to my grandmother’s garage, and in the process manages to get in your way. It’s MY property though, not yours. Look at it, but don’t f***ing touch it. I didn’t mean that. Can we talk about it?

2:45pm – 3:30pm

Mapping Garbage Flows in the Metropolitan Region of Buenos Aires

Speakers: Daniel Barnes ’15

Sponsors: Anne Knowles

Poster 49: This project, completed on my semester abroad in Argentina, is a combination of a research paper and several maps that I created as part of a larger investigation on waste production, recollection, and deposition in the metropolitan region of Buenos Aires. The project is broken down into three parts, illustrated by the three primary maps. First, I looked at the production of trash per month in every municipality in the region. Second, I mapped where this unequal distribution of trash is officially collected and deposited. The flow and agglomeration of trash, and its ultimate deposition in the socioeconomic periphery of the city, shows how the effects of garbage production in the region are unequal and concentrated. The most interesting, and final part of my project, looked at unofficial collection and deposition of garbage by informal garbage networks. This unique spatial pattern is reflected in my final map.

2:45pm – 3:30pm

Mindfulness and Flow: Dissecting the Optimal Experience

Speakers: Rufus Raghunath ’15

Sponsors: Kim Cronise

Poster 50: Mindfulness, a state of non-responsive attention focused on immediate experience, and flow, a state of extreme focus, may share some mechanisms of action. The extent to which a person is mindful demonstrably predicts their propensity for flow, though causality in this relationship is currently unclear. It has been proposed that the connection between flow and mindfulness may be explained by a shared factor: attentional self-regulation. In this presentation, I introduce a model of reciprocal influence of mindfulness and flow in which attentional skills form a cognitive overlap that is common to both states but does not wholly encompass either. I propose a survey-based pilot study that will investigate the feasibility of this model and predict that mindfulness and propensity for flow will be positively correlated, and that this correlation will be moderated by attentional skills. These results would pave the way for more rigorous experimental testing.

2:45pm – 3:30pm

On the Magmatic History of Banks Peninsula, New Zealand

Speakers: Sarina Patel ’14.5

Sponsors: David West
Poster 51: Situated southeast of Christchurch, New Zealand, Banks Peninsula represents a massive accumulation of 5.8-12 million year old basaltic volcanic rocks of ambiguous origin. These volcanics erupted in the center of the Zealandia tectonic plate, but existing literature is conflicted on the driving mechanisms of magma production. Twenty rock samples have been collected and analyzed to produce all-new petrographic and geochemical data for the Mt. Herbert region of the peninsula. This new data has been combined with previously published data from the region and, for the first time, allows for a comprehensive evaluation of the nature of volcanism on Banks Peninsula. Using this large database of information, a model for the origin of this volcanic activity can be formulated and compared with previous published models that have been based on a more fragmentary record.

2:45pm – 3:30pm

**N Origin and Deglacial History of Fine-Grained Sediment from Weybridge Cave, VT**

*Speakers: Zachary Perzan ’14.5*

*Sponsors: William Amidon*

Poster 54: A complex deglacial history has been interpreted for the Champlain Valley following the retreat of the Laurentide ice sheet but few records of climatic conditions exist for northern New England prior to this retreat ~14 kyr ago. To begin filling this gap, we are conducting a detailed chronological, sedimentological and geochemical examination of clastic sediment within Weybridge Cave, in the Champlain Valley. Cave passages are partially filled with a sequence of silty clay (mean grain size of 10 µm) with mm-scale and sub-mm scale laminations. Optically Stimulated Luminescence (OSL) evidence from fine sand at the base of the section suggests that the laminated fines were deposited before the Last Glacial Maximum. Ongoing work comparing paleomagnetic variations to existing, dated records may help to narrow this age estimate. The sediments described here offer a paleoenvironmental record that could aid interpretation of New England landscape evolution prior to the most recent glaciation.

2:45pm – 3:30pm

**N Properties and Origin of Fine Sediment within Late-Lying Snowbanks in the Uinta Mountains, Utah, USA**

*Speakers: Emily Attwood ’14*

*Sponsors: Jeffrey Munroe*

Poster 65: Interest in modern dust deposition has risen as the effects of anthropogenic modification of the landscape have been brought to the forefront of climate change discussions. Increased deposition of atmospheric dust within alpine environments has strong implications for soil development, vegetation growth, nutrient cycling, surface water chemistry, and snowpack properties. Concentrations of dark, fine-grained sediment are commonly observed at the surface of snowbanks and typically assumed to be of eolian origin, however this interpretation has not previously been tested. This thesis aims to study the rates of atmospheric dust deposition in late-lying snow banks and its effects on alpine ecosystems in the Uinta Mountains in northeastern Utah. Analysis of 14 dirty snow samples, along with 14 samples from the soil surface in the vicinity of these snowbanks was completed with the primary objective of determining whether the fine-grained sediment in the snow is exotic eolian dust or locally sourced material.

2:45pm – 3:30pm

**N Rates of Soil Formation and Tectonic Uplift of Marine Terraces, Osa Peninsula**

*Speakers: Kristoffer Falcons ’14*

*Sponsors: Peter Ryan*

Poster 59: This thesis focuses on soil formation by chemical weathering of uplifted coastal terraces in a high precipitation region. Soil maturity is often reflected in the soil’s smectite-kaolinite ratio. Younger soils are generally more smectite-rich and older soils, which have experienced more weathering and more leaching, are generally more kaolinite-rich. However, other factors, rainfall especially, also affect the maturation process. This can cause different rates of maturation within different soils that are dated to be the same age. In this thesis I seek to test three main hypotheses: 1) that tropical soils in a rainy environment evolve rapidly from Holocene smectite-dominated to Pleistocene kaolinite-dominated; 2) that the mineralogy and geochemical fingerprint of the Osa terrace soils can be used to identify and correlate distinct terraces; and 3) that point 2 will reveal spatial relationships that exhibit consistent terrace characteristics (i.e. uplift from sea level, soil mineralogy, soil geochemistry, age, and elevation).
### Seasonal and Sex Differences in Cell Proliferation and Cell Death in the Dentate Gyrus of Wild Meadow Voles

**Speakers:** Joanna Georgakas ’14  
**Sponsors:** Mark Spritzer  

Poster 52: We examined seasonal and sex differences in cell proliferation and cell death in wild meadow voles (Microtus pennsylvanicus). Breeding males (n=12) and females (n=11), and non-breeding males (n=10) and females (n=10), were collected in the fall and summer respectively. Brain tissue from the voles was stained with Ki-67 and cresyl-violet to measure cell proliferation and death, respectively, in the dentate gyrus. Fall voles had more Ki-67 labeled cells and pyknotic cells in the granular cell layer and subgranular zone (GCL+SGZ) than did summer voles, regardless of sex. Overall, our findings suggest that there is a seasonal effect in cell proliferation and cell death independent of sex among wild-caught meadow voles. Currently, we are staining tissue with an additional marker of cell proliferation: pHisH3. This marker will allow us to measure a broader range of the cell cycle, thus allow us to better determine the magnitude of the effect.

### Senior Architectural Design

**Speakers:** Veronica Maisch ’14  
**Sponsors:** John McCleod  

Poster 53: Poetry of reorientation.

### Simplify! Simplify!

**Speakers:** Cathryn Manduca ’14.5  
**Sponsors:** David Kauchak  

Poster 57: Simplification is the process of reducing the reading level of a text while preserving the content and can benefit children, second language learners, and those with cognitive disabilities by increasing the accessibility of the text. Lexical simplification is the process of simplifying text by replacing complex words with simpler words. This poster covers two aspects of lexical simplification. First, we examine what role the context of the word plays when simplifying. We analyzed human-generated simplifications based on varying amounts of context and we found that context matters in simplification choice. Second, we created a lexical simplification system. Our system generates and ranks potential simplifications for words based on an alignment between English Wikipedia articles and their Simple English Wikipedia counterparts. 63.4% of the simplifications generated by our system agree with those given by humans.

### STEM Innovation Project 2013: Building an Automated BTEX Biosensing Device

**Speakers:** Emma Polidoro ’14, Maya Najarian ’14, Will Henrique ’16, Andrew Goulet ’16, Alison Cook ’16, Jack Desmairais ’16, Spencer Egan ’15.5  
**Sponsors:** Jeremy Ward  

Poster 55: The 2013 STEM Innovation Team designed and worked to develop an automated biosensor to detect the carcinogenic aromatic hydrocarbons: benzene, toluene, ethylbenzene, and xylene, (BTEX) in water. A DNA sequence was designed utilizing regulatory elements of the evolved aromatic catabolic pathway found in Pseudomonas putidato induce expression of green fluorescent protein (GFP) in the presence of BTEX compounds. Escheria coli were then transformed with this plasmid and lyophilized for long-term storage. In addition, a mechanical sensing apparatus was designed to automatically reconstitute lyophilized bacteria with a water sample and detect for BTEX contamination through the measurement of relative fluorescence.

### Stop, Think: Filling Up the Car and Mind

**Speakers:** William Lones ’14  
**Sponsors:** John Macleod  

Poster 56: An exploration of the gas station as a necessary pause in the continuous movement of automotive culture and how such rest can replenish both car and driver
**The Effect of Sexual Experience on Cell Proliferation in the Hippocampus of Adult Male Sprague-Dawley and Longs-Evans Rats**

*Speakers:* Melissa Childs ’14  
*Sponsors:* Mark Spritzer

Poster 64: Cell proliferation and neurogenesis in the sub-granular zone of the dentate gyrus of the hippocampus has been implicated in hippocampal-dependent functions such as learning and memory. This study builds upon previous research in our laboratory testing the effects of sexual interactions on neurogenesis while also analyzing the confounding effects of rat strain differences. Twenty-four adult male Sprague-Dawley rats and 24 Longs Evans rats were used, and each strain was divided into a “sex group” and a “no-sex group”. The sex groups were exposed to one 30 min sexual encounter with a female rat with induced estrus. Immediately after the interaction, males were injected with the DNA synthesis marker 5'-bromo-2'-deoxyuridine (BrdU). During the same time period, no-sex rats of the same strain were also injected with BrdU. Peroxidase immunohistochemistry was performed to stain proliferating cells, which were then examined under light microscopy. Data collection is currently in progress.

**The Impact of Journaling on Psychological and Physical Health**

*Speakers:* Rita Pfeiffer ’15  
*Sponsors:* Matthew Kimble

Poster 62: Writing about emotional and stressful events has been shown to improve psychological and physical health (Baike and Wilheim, 2005). The present study assesses whether an individual would experience the same health benefits from journaling if writing in a language in which he or she is not fluent. Forty-one Middlebury College students were recruited by email; most of them were freshmen concurrently taking an introductory language course. Participants confidentially wrote for twenty minutes each day over a four-day period about a stressful event in their lives either in their native language, the foreign language they were currently studying, or abstained from journaling altogether. On the fifth day, participants completed the Depression, Anxiety and Stress Survey (DASS) and the Pennebaker Inventory of Limbic Languidness (PILL) to determine their psychological and physical wellbeing, respectively; a month later, the participants filled out the same surveys to evaluate long-term health benefits. Preliminary findings will be discussed. Additional contributor: Kaleigh Spollen ’13.5

**The Refill Station**

*Speakers:* Eshetu Feleke ’14  
*Sponsors:* John McLeod

Poster 63: Architecture is a Form of Light - Inspiring, Simple and Pure

**Trends of Gender Gap in Education in Rural and Urban Areas in China**

*Speakers:* Sicheng Luo ’14  
*Sponsors:* Phani Wunnava

Poster 45: The paper uses two interactive models to evaluate the different aspects of the trends of gender gap in education. The paper also illustrates the effects of various socio-economic factors of the households on education outcome of the children. The results indicate that gender gaps in both rural and urban areas have been closing and reversing between 1991 and 2006, while most of the reversing power comes from the rural areas.

**Carceral Queerness: Sexual Citizenship, Slow Death, and the Abolition of Prisons**

*Moderators:* Laurie Essig  
*Speakers:* Jenny Marks ’14  
*Sponsors:* Jamie McCallum

In recent years, LGBTQ people in the United States have been seduced by the appeals of (neo)liberalism. Despite a long history of anti-state queer resistance, increasingly, queers are looking to the state for (sexual) citizenship, validated via the criminalization of others. This trend is reflected in sweeping support of hate crimes legislation, the individualization of punishment, and the professionalization of LGBTQ identities and organizing.
My research shows that the administering of life and citizenship for some queers are contingent upon the slow death of others, and exposes prisons as necropolitical sites of infinite gender and sexual violence. I make the case that, in the face of a growing prison industrial complex and the continued criminalization of queer and trans* people, gender violence is best addressed in the register of prison abolition. I draw on trans?queer critiques of the PIC, as well as queer theorists’ writing on rights and citizenship.

3:30pm – 3:45pm
Chinese Transboundary Water Agreements: The Politics of Water Scarcity and Their Environmental Repercussions
Moderators: Marybeth Nevins
Speakers: Timothy Fraser ’16
Sponsors: Kemi Fuentes-George
China today faces a critical modern issue: how to provide for 1.35 billion people’s food and energy needs in light of environmental hazards—not just air pollution, but dire water scarcity. New York Times reporter Edward Wong even went so far as to write, “North China is dying.” China’s proposed solution, the gargantuan South North Water Transfer Project, will use dams and diversions to harness hydropower and rejuvenate the Yellow River, but it may come at the expense of transboundary rivers and inhabitants of their river basins—namely the Brahmaputra in downstream India and Bangladesh. Transboundary river agreements exemplify the complex issues linking energy production, GHG emissions, water pollution and scarcity, and biodiversity. I will discuss the role of soft-power in Chinese water politics and how China can avoid international conflict with India without sacrificing new hydropower projects.

3:30pm – 3:45pm
Conquering the Ghost of Andrew Jackson: How Nelson Aldrich Laid the Foundation for the Federal Reserve System
Moderators: Tom Root
Speakers: Deidre Miller ’14
Sponsors: Amy Morsman
This project examines the educational campaign carried out by Senator Nelson Aldrich and the National Monetary Commission between 1908 and 1912 and its impact in rallying the support of the American banking community in favor of centralized banking reform. The National Monetary Commission’s educational efforts aimed to eliminate the existing political prejudice against central banking put in place by Andrew Jackson after he abolished the Second Bank of the United States. By educating bankers, Nelson Aldrich laid the foundation for the Federal Reserve System. The work for the National Monetary Commission is often overlooked due to an inauspicious sequence of political events that dismantled Aldrich’s political authority. A close analysis of the work of the National Monetary Commission, however, suggests that Senator Aldrich deserves credit for laying the foundation for the Federal Reserve System.

3:30pm – 3:45pm
Following an Impulse: Pursuing Self, Body, and Performance
Moderators: Christal Brown
Speakers: Aoife Duna ’16.5
Though I only began dancing a year ago, the impact of dance on my life has been immeasurable. It has given me a rich corporeal education, new linguistic and spatial understandings, a more attuned eye for movement, and a greater sense of humanity. My presentation will speak to these explorations, touching on my work both on and off campus. My research has included participating in summer intensives, developing a dense personal sketchbook, and choreographing my own work. I will also talk about my role in directing Flicker, an evening-length showcase of twelve diverse student performances. My dance experiences have directly influenced my choice to create an independent major titled “Origins of Body and Gesture”. Dance has and will continue to serve as an interdisciplinary edification and personal exploration.

3:30pm – 3:45pm
James Turrell: Art for a New Age of Enlightenment
Moderators: Vendela Vida, Greg Vitercik
California Light and Space artist James Turrell was raised as a Quaker, studied art, psychology and geology, works part-time as a cattle rancher and pilot, and owns a volcano in the Arizona desert. His work, while decidedly modern, employs elements of art both centuries and millennia old – most notably by reappropriating the spiritual qualities of Quaker, Buddhist, and Christian architecture. Ultimately, I argue that Turrell creates an art for a new age of Enlightenment, centered on a 21st century spirituality. Rooted in religion, psychology, and perception, Turrell’s art allows viewers to experience the world with a heightened sense of awareness and consciousness of self, place, and surroundings.

Medicare and Utilization of Preventive Care: The Effects of Universal Health Care Coverage

I examine the effect of Medicare eligibility on the utilization of preventive care. Many preventive care measures are underutilized in the United States despite their recognized positive effects on health. An analysis of the use of these services by Medicare beneficiaries could provide insight into the importance of health insurance coverage in the decision to pursue preventive care measures. The data come from the Medical Expenditures Panel Survey (MEPS), and the identification strategy I use is a regression discontinuity design targeting the age 65 eligibility threshold as an arbitrary discontinuity in insurance coverage. This design is contingent upon the assumption that all other factors affecting the use of health care trend smoothly around the age 65 cutoff.

Reality, Perception, and Representation: Notions of ‘The Wild’ in American Culture

While taking Nature’s Meanings (ENVS 215) last fall, I began an independent project using the digital tool Prezi to create a dynamic concept map of my reflections on the course material. As I compiled social, cultural, and artistic elements of American environmental history from a variety of media, a narrative of the role of “nature” in American culture began to become clear to me. This narrative—unbounded by certain constraints of traditional forms of academic assessment—helped me to situate these elements within a wider context which visually clarified the interconnections between different accounts of environmental attitudes over time. Within these interconnections, one can better understand how people currently imagine themselves within American “natural” landscapes and behave towards them and, perhaps, how they will continue do so in the future.

Bjerre: Excerpts from a Creative Nonfiction Memoir

For the 2014 Spring Symposium, I will be presenting excerpts from a memoir that I am writing about the life of my grandmother, Nina Bjerre Owens, in World War II-stricken Europe. Her flight from London to Paris, through Spain to Portugal, and then finally to safety in Stockholm, has inspired our family for generations, and it brings me great pleasure to be able to shed light on the perilous details of her journey. The full collection of narratives recounts these childhood experiences in Nina’s own offhand tone in such a way that reflects both her strong-willed personality as well as how she and many individuals like her have been able to cope with traumatic, tragic, and terrifying life events. Transcribing her story has been an incredible journey for me as well, and I look forward to sharing it with her and to a larger reading audience when I have finished.

Self-Reported and Observed Person-Centeredness in Conversation

For the 2014 Spring Symposium, I will be presenting excerpts from a memoir that I am writing about the life of my grandmother, Nina Bjerre Owens, in World War II-stricken Europe. Her flight from London to Paris, through Spain to Portugal, and then finally to safety in Stockholm, has inspired our family for generations, and it brings me great pleasure to be able to shed light on the perilous details of her journey. The full collection of narratives recounts these childhood experiences in Nina’s own offhand tone in such a way that reflects both her strong-willed personality as well as how she and many individuals like her have been able to cope with traumatic, tragic, and terrifying life events. Transcribing her story has been an incredible journey for me as well, and I look forward to sharing it with her and to a larger reading audience when I have finished.
Person-centeredness, a characteristic of communication, is the extent to which one attends to the feelings and experiences of another. Though particularly useful for comforting messages, person-centeredness has implications for many day-to-day encounters. Yet, individuals may not be as skilled at person-centeredness as they perceive themselves to be. This study examines self-reported versus observed person-centeredness in conversation. It was hypothesized that individuals would not perceive their own person-centeredness skills accurately, and further that they would overestimate these skills. Person-centeredness was recorded and rated in three-minute conversations in a college population. Person-centeredness was found to have no correlation with self-report measures, but participants did not tend to systematically over- or underestimate their person-centeredness skills. Possible explanations for this unexpected finding are discussed, including the applicability of the above-average effect and the specific design used in this study. Overall, this study demonstrates that individuals may not be accurate in perceptions of their person-centeredness.

### 3:50pm – 4:05pm

**Sudan and South Sudan: From Civil War to Secession**

*Moderators: Marybeth Nevins*

*Speakers: Floor El Kumeshi ’14*

*Sponsors: Nadia Horning*

On July 9th 2011 the newest African state, the Republic of South Sudan, emerged. Having suffered the longest conflict in African history, South Sudan challenged predictions on the likelihood it would one day become a state. Pierre Englebert, a notable Africanist, argued prior to 2009 that African states were doomed to suffer ongoing civil war in the glaring absence of secessionist movements on the continent. In 2005, the Sudanese warring parties signed a peace accord that stipulated that South Sudan be allowed to secede through a referendum if its economic and political demands of equality were not met. Englebert did not believe that this could ever happen. How, then, did South Sudan defy the skeptics? The 2005 peace accord became the point of no return. Sudan failed to meet its obligations, and therefore South Sudan could either secede or lose all political legitimacy and leverage.

### 3:50pm – 4:05pm

**The Bridge or the Cliff: Stories of Natural Gas, Fracking, and Vermont’s Energy Future**

*Moderators: Jack Byrne*

*Speakers: Isaac Baker ’14.5*

*Sponsors: David Bain*

Natural gas and hydraulic fracturing have dramatically altered the North American energy landscape. My thesis research includes news stories, scholarly sources and interviews from Alberta, Canada, Bradford County, PA, and Vermont. Through these stories, I examine the role of the Vermont Gas pipeline for Middlebury College and Vermont, detailing the complexity of the issue for a state that is both economically challenged and environmentally minded. Ultimately, I have concluded that, despite its significant financial benefits, the pipeline is an irresponsibly large fossil fuel investment for the state to make in the face of climate change. Regarding the College, I argue that we have jeopardized our image as an environmental leader by associating our carbon neutrality plan with this unsustainable and unethical infrastructure.

### 3:50pm – 4:05pm

**The History of the UN’s Response to the Palestinian Refugee Crisis**

*Moderators: Caitlin Myers*

*Speakers: Ben Hawthorne ’17*

*Sponsors: Febe Armanios*

After the 1948 Arab-Israeli War displaced about 700,000 Palestinian Arabs, the United Nations established the United Nations Relief and Works Agency for Palestinian Refugees in the Near East, or UNRWA, to administer to the needs of the Palestinian refugees and work towards ending their refugee status. UNRWA has since broadened its aims significantly, to the point where some describe it as a quasi-state. In this paper, I attempt to explain the development of UNRWA by examining its origin and historical trajectory. At various times, UNRWA has provided sustenance, education, and healthcare to the refugees. While assessing the organization’s successes and some of its shortcomings, this paper engages with several pivotal events in UNRWA’s history –
its formation, the Six Day War, the Lebanese Civil War, the First Intifada, and the Hamas-Fatah split – to show how and why UNRWA has changed.

3:50pm – 4:05pm
I The Relationship between GDP and Unemployment Before and During the Global Financial Crisis of 2008
Moderators: Tom Root
Speakers: Ayaka Sasaki ’14.5, Naina Qayyum ’15
Sponsors: John Maluccio
The financial crisis of 2008 to 2009 is considered to be the worst economic crisis faced by the United States in the last seventy years. Overall, GDP during the crisis fell to 4.7% and unemployment stayed at or above 7.8% for 46 consecutive months. The question to consider is whether the behavior of Unemployment and GDP changed before and during the 2008 global financial crisis. Previous empirical research by Arthur Melvin Okun suggests that there is a correlation between Unemployment and GDP by the ratio of 1: 0.815, respectively. However, the magnitude of this relationship is hotly debated in the field of economics. This drove us to do our own empirically analysis using observed data on the state-level. In our talk, we present empirical evidence to test the relationship between Unemployment and GDP before and during the 2008 financial crisis in the U.S.

3:50pm – 4:05pm
I Women in Science
Moderators: Laurie Essig
Speakers: Joanna Georgakas ’14
Sponsors: Sujata Moorti
As a female science major (and a Gender, Sexuality, and Feminist studies major!) at a fairly progressive institution, it is hard to believe that I know very little about women in science. Yes, I know who Marie Curie and Rosalind Franklin are, but aside from those two astounding women, not a single female scientist has ever been mentioned in any of my courses throughout my four years here (at least that I can remember). In this talk I hope to celebrate women in science who have paved the way for women like me to pursue careers in the field.

4:10pm – 4:25pm
I Between Rhetoric and Reality: Russian and Georgian Leaders’ Perspectives on the Future of Bilateral Relations
Moderators: Tom Root
Speakers: Connor Wakayama ’14
Sponsors: Thomas Beyer
This project explores the differences between Russian and Georgian leaders’ assessments of the prospects for reestablishing diplomatic relations, which were severed after the 2008 August War. News reports from Russian, Georgian, and Western mass media and scholarly articles served as the main sources for this study. An analysis of these sources reveals that the Russian leadership speaks optimistically about the future of bilateral relations, while the Georgian leadership has been more measured in its outlook. I argue that incompatible interpretations of the 2008 war have caused this difference in perspectives. In spite of any optimistic rhetoric, disagreement persists between Russia and Georgia over the status of the separatist regions of South Ossetia and Abkhazia. This issue will likely hinder the restoration of diplomatic relations in the foreseeable future.

4:10pm – 4:25pm
I Case Studies in Mathematical Models and Wilderness Medicine
Moderators: Caitlin Myers
Speakers: Raquel Reisinger ’14.5
Sponsors: Bill Peterson
This project began as an independent MATH 0500 project. Blood-oxygen saturation levels of patients in various high altitude (>7,000 ft) were collected with the goal of using statistical analysis and mathematical models to answer two questions in the field of high-altitude wilderness medicine—1) for a given person, how does altitude affect blood-oxygen saturation? and 2) what additional factors affect individuals’ blood-oxygen saturation differently? Results are now being used to refine future experimental design and as a representation of the greater scope of the field. Factors such as energy expenditure at altitude and injury likelihood as it relates to
backpack weight have been accurately predicted with the use of models. The goal of the project is to create a forum to share ideas and research in wilderness medicine that uses mathematical models. Results would allow others to see the potential of mathematical models to quantify seemingly unapproachable backcountry health issues.

4:10pm – 4:25pm  I Code-Switching and Cultural Identity Among Bilingual Speakers of Korean and English  
Moderators: Marybeth Nevins  
Speakers: Lydia Kim ’17  
Sponsors: Marcos Rohena-Madrazo  
The speech dynamics of conversations in the Korean language are largely affected by the relational differences between speakers. The distinctions are grammatically encoded in the morphology and syntax of the language. English, on the other hand, has few grammatically encoded specifications for addressing those of different ages, degrees of familiarity, or socioeconomic backgrounds in relation to the speaker. My research explores how this difference may influence the use of code-switching—shifting between two languages—among bilingual speakers of Korean and English in various social situations. By the use of secondary sources, I study the extent to which language can reinforce a society’s cultural values and the effect that code-switching can have on negotiating, consolidating, or shaping a bilingual speaker’s cultural identity.

4:10pm – 4:25pm  I Community Engagement with MiddCOREplus: Fostering Entrepreneurship with the Vermont Center for Emerging Technologies  
Moderators: Vendela Vida, Greg Vitercik  
Speakers: Naila Jahan ’15  
Sponsors: Catherine Collins  
This past summer, I worked at the Vermont Center for Emerging Technologies (VCET) through MiddCOREplus, a program that provides project-based internships to students who have completed a MiddCORE Immersion course. Through this internship, I learned more about the entrepreneurial community here in Vermont and explored its creative economy. Through conducting surveys and personal interviews, I immersed myself into what being an entrepreneur in Vermont is like. Since the summer, I have continued working with VCET to further entrepreneurship in the community both on the Middlebury College campus and in the community in general. For example, I worked closely with MiddVentures to engage more students in entrepreneurial opportunities. I also organized and executed a women-focused networking event for people involved in the technology and innovation field. This has been a very rewarding experience because it has given me the opportunity to connect with the community here on campus and beyond in Vermont.

4:10pm – 4:25pm  I Great Poets Do Not Die: The Works of Shakespeare Reborn in Virginia Woolf’s Mrs. Dalloway  
Moderators: Christal Brown  
Speakers: Alison Lewis ’14  
Sponsors: Stephen Donadio  
For my senior thesis in English and American Literatures, I have studied the influence and resonance of three plays of Shakespeare—Cymbeline, Hamlet, and King Lear—in Virginia Woolf’s novel Mrs. Dalloway. Shakespeare to Woolf represented the supreme writer and the “incandescent, unimpeded mind,” for since Shakespeare the man remains largely unknown to us, his writing and identity are unconstrained by the vexing distinctions of gender and personality. Similarly, the concrete and abstract references to Shakespeare’s plays in Mrs. Dalloway serve to overflow the boundaries between male and female, madness and sanity, life and death. Basing my research in Woolf’s published work and unpublished manuscripts, with the support of secondary historians and literary critics, I am exploring the expansive and elusive perception of self which Woolf develops under the influence of Shakespeare.

4:10pm – 4:25pm  I Loud and Proud: Social and Academic Experiences of Black Women Voiced  
Moderators: Laurie Essig
Speakers: Veronica Coates ’14
Sponsors: Sujata Moorti

In an effort to understand the complexity and struggle, but also the strength, that comes from being a woman of color at predominantly white, liberal arts colleges I argue that the minority status of Black women has defined their social and academic lives at these colleges, focusing on Middlebury, Pomona, Wellesley, Hampshire and Bowdoin Colleges. This project is highly personal, but also deeply necessary for both Sociology and Gender, Sexuality and Feminist studies as a means for Black women to have a voice, to show their multiplicity in experiences, to show how being a Black woman may offer a sense of pressure and violence at an institution that is supposed to uplift and educate. But the constant refrain from students of color has been who is educating whom? I interviewed eight self-identified Black women about their experiences at small elite liberal arts colleges, with a predominantly white and wealthy student body. Their experiences reveal tales of isolation, confusion, anxiety, and alienation, but also a sense of empowerment, security and solidarity. Their stories speak for themselves.

Volcano Ecology: Mechanisms of Plant Recolonization after the 2008-9 Eruption of Volcán Chaitén, Chile

Moderators: Jack Byrne
Speakers: Leif Castren ’14
Sponsors: David Allen

During the years of 2008 and 2009 Volcán Chaitén, a volcano in the lakes region of northern Patagonia in Chile, underwent a series of eruptions that had dramatic effects on the adjacent plant communities. During January, February, and March of 2013 I made a series of trips to the volcano to monitor and study the restructuring of the ecological community in the ‘blow-down zone’ in which the lateral force of the eruption toppled and killed a dense, old-growth temperate rainforest and deposited between 15 and 50 centimeters of nutrient-deplete tephra on top of the rich pre-eruption soils. I would like to tell the succession story as I know it through work as a field hand for Chilean and American scientists working on a variety of volcano ecology monitoring projects and to present data I collected as a part of an individual project to study the root morphologies of the colonizing plants.

Dramaturgy and The Vibrator Play

Moderators: Vendela Vida, Greg Vitercik
Speakers: Gabrielle Owens ’17, Divesh Rizal ’17
Sponsors: Claudio Medeiros

Dramaturges study every facet of the wide and varied theater world. They focus on researching, providing historical context, and textual analysis. Dramaturges communicate to actors, directors, tech teams, and audiences what is hidden in the playwright’s words. They are valuable assets to any production, yet the definition of “dramaturgy” is still debated. We, Divesh and Gabrielle, are dramaturges for the spring production In the Next Room by Sarah Ruhl. This play, also called The Vibrator Play, tells the story of a doctor treating hysteria using the newly invented vibrator. Our research and work with the company has led us to explore the 1880s, hysteria, electricity, vibrators, the rich and surprising history of Saratoga Springs, and more. This dramaturgical work revealed much about the characters and story, helping those involved better understand the play. In this presentation, we demonstrate the importance of dramaturgy by sharing what we have discovered.

American Photographer Eliot Porter and the Glen Canyon Dam Controversy

Moderators: Jack Byrne
Speakers: Sophia Green ’14.5
Sponsors: Kirsten Hoving

This presentation will explore American modernist photographer Eliot Porter’s documentation of Glen Canyon, a canyon located in Utah and northwestern Arizona. In 1963, after years of polarizing debates, court battles, and public appeals, the 710-foot Glen Canyon dam was constructed and 255 miles of canyonland was flooded to create present day Lake Powell. With the support of David Brower, recognized as an important leader in the modern environmental movement, and the Sierra Club, Porter created the commemorative volume, The Place No One Knew: Glen Canyon on the Colorado. We will closely investigate Porter’s photographs, the dam
controversy, and the history of conservationist photography. We will examine the ways in which Porter’s photography of Glen Canyon impacted—and continues to influence—the tradition of photography as environmental activism.

### Civic Engagement, Christian Virtue, and Webster’s Enlightened American English

**Moderators:** Marybeth Nevins  
**Speakers:** Sophie Bufton ’15  

This paper concerns an 1818 American pronunciation book containing The Rudiment of the English Language for the Use of Schools in the United States. Authored by Noah Webster, this humble book is a time-capsule of Webster’s transition from his earlier secular doctrine of language, to his later innovations of a doctrine that aligned standard American English with Christian virtue. Religious notions of hierarchy and purity brought the language closer to Enlightenment notions of rational order and logic. The book facilitates the negotiation of civic discourse and civic engagement, by having pronunciation tables filled with vocabulary derived from French Law marked with a high prestige. Webster, ambitious to innovate American Standard English and cast America as superior to its British ancestor, attempted to trace the English language back “to the moment God graced Adam with the faculty of speech” (Bonfiglio 2002: 83), thus infusing American English of the New World with a greater anteriority and purity than the British English of the Old World.

### Experiencing Isolation: Can Xue’s Short Fiction

**Moderators:** Christal Brown  
**Speakers:** Mary Behan ’14  
**Sponsors:** Thomas Moran  

This presentation will be an explanation of my two-semester Chinese literature thesis, which focused on the contemporary Chinese author Can Xue. Can Xue writes avant-garde fiction, and through a close reading of her short stories in both English translations and the original Chinese, I attempt to offer an explanation of her works as “experiential fiction.” In this presentation, I will explain what I mean by “experiential fiction” and that the type of “experience” that Can Xue creates is an isolating, lonely one. This will include an introduction and explanation of some of the elements and techniques Can Xue uses in her short fiction.

### How Genealogical Arguments Fail

**Moderators:** Caitlin Myers  
**Speakers:** Blake A. Harper ’15  
**Sponsors:** Laurie Essig  

Genealogy is a method of social-historical inquiry popularized in the 19th century by thinkers like Nietzsche, Marx and Freud with further applications in the 20th century by poststructuralists like Michel Foucault. These genealogists attempt to ‘unmask’ the pretensions of reason by revealing the hidden structures of contingent causes that have been the truly operative forces in the history of human motivation. My research highlights the fatal assumptions about conceptual content that genealogists depend upon to make their claims. I will give classic examples of genealogical method and then - drawing on recent work by the philosopher Robert Brandom - I will assess the weaknesses that I believe ultimately lead to the failure of this method.

### Mathematics of Voice & Music in Parkinson's Disease Diagnosis and Monitoring

**Moderators:** Tom Root  
**Speakers:** Suzanne Calhoun ’14  

In music, timbre is the quality of a particular sound, differentiating a clarinet from a violin, determined by volume differences of the harmonics above the fundamental pitch. In my Math thesis last fall, I researched methods to mathematically detect, understand and manipulate timbres. We see these concepts everyday in organs, synthesizers, drum vibrations, musical illusions, and especially when our brains distinguish vowels in speech. We can use such voice analysis for improved care for Parkinson's Disease (PD) patients, who experience changes in their voice timbre. Researchers recently discovered that analyzing recordings of patients' voices may help accurately diagnose and monitor Parkinson's. In a Neuroscience project this spring conducted at UVM with Dr. Robert Hamill, I recorded the phonation of PD patients on spoken vowels and their abilities to change pitch and
express emotions through inflection. Perception was investigated to see if PD patients distinguish between timbres, as in emotional speech.

4:30pm – 4:45pm
I The Curious Case of Richard A. Conaway: The 1950s, the Red Scare, and the Man Who Wore Makeup
Moderators: Laurie Essig
Speakers: Caroline Kahlenberg ’14
The 1950s in America, a favorite period of historians and pop culture enthusiasts alike, was riddled with paradoxes. On the one hand, the decade is remembered by unparalleled prosperity and family stability; on the other, it was rattled by existential nuclear threats and internal communist purges, well-known today as the “Red Scare.” But throughout these purges, the federal government was not only after communists: the government also implemented a tremendous effort to eliminate any perceived homosexuals, or “sex perverts,” from its ranks. They equated the “homosexual menace” with the communist threat in what has become known as the “Lavender Scare.” This presentation explores the era’s heightened anxieties around sexuality and gender (non)conformity through specific case of Richard A. Conaway, a civilian Naval employee in Philadelphia who was fired from his job because he wore makeup and clothing “unbecoming of a male employee.”

4:50pm – 5:00pm
I The Under/The Over?: Behind the Scenes
Moderators: Vendela Vida, Greg Vitercik
Speakers: Hai Do ’14
This presentation is a sneak peek into the creative process behind my senior thesis work. I found the inspirations in the question “Where do we go after we die,” and more specifically, the concept of “hell.” Hell has been defined in many mythological, folklore, and religious traditions as a place of eternal torture and punishment in an afterlife. Âm, the group piece, is my visual interpretation of “hell” through body movements, inspired by naraka in Buddhism, and d?a ph? in Vietnamese folk religion. Together with working with five talented dancers, I bring in set design, costumes, and media projection to realize my vision. Duong?, the solo, explores the idea of “living hell,” diving into moments of strong human emotions. The solo relies completely on the movements and the emotions of the performer to deliver the message. Duong? is not about holding onto the “living hell.” Duong? is about letting go and finding the way out.

5:00pm – 6:00pm
R Friday Reception