

8th annual  
**GREAT**  
Day

April 8, 2014



*Poster designed by Hannah Peterson*

**Geneseo Recognizing Excellence Achievement and Talent**

## Welcome to SUNY Geneseo's Eighth Annual GREAT Day!

Geneseo Recognizing Excellence, Achievement & Talent Day is a college-wide symposium celebrating the creative and scholarly endeavors of our students. In addition to recognizing the achievements of our students, the purpose of GREAT Day is to help foster academic excellence, encourage professional development, and build connections within the community.

### **The GREAT Day Faculty Advisory Council:**

Joan Ballard, Psychology  
Sid Bosch, Biology  
David Levy, Edgar Fellows and Philosophy  
Jennifer Lofkrantz, History  
Jun Okada, English  
Susan Salmon, School of Education  
Aaron Steinhauer, Physics & Astronomy

### **The GREAT Day Committee:**

Anne Baldwin, Sponsored Research  
Tammy Hill, Campus Scheduling and Special Events  
Andrea Klein, Campus Scheduling and Special Events  
Cassidy Lester, GREAT Day Intern  
Samuel Dole, Chamber Music Festival Coordinator  
Chelsea Butkowski, Kinetic Gallery Coordinator  
Efthimia Barbagiannis, Student Association  
Tracy Paradis, Milne Library  
Patty Hamilton-Rodgers, GREAT Day Coordinator

**Thank You for staff contributions that make GREAT Day possible:** Brian Bennett, Betsy Colon, Joe Dolce, Stephen Dresbach, Karie Frisiras, Paul Jackson, Nancy Johncox, Minh Bui, Enrico Johnson, Laura Kenyon, Rose Manzella, Chip Matthews, Sean McGrath, Daniel Ross, Mark Scott, Rio Takemura, and the SA Tech Services.

### **Thanks to Student volunteers:**

Ama Acheampong, Katelyn Baroody, Brittany Bauer, Meara Bowe, Kevin Boyd, Rebekah Brenard, Noah Chauvin, John Coacci, Aideen Dempsey, Shannon Dempsey, Jess Diefendorf, Christopher Eckland, Pamela Emengo, Jordan Fulcoly, Shannon Gallagher, Cara Gannett, Jessica Gil, Mary Kate Ginnane, Abby Golfo, Jessica Halpern, Kyle Hartman, Ashlee Hill, Jackie Ibrahim, Erica Kosmerl, Nicole LeMaster, Michelle Lindner, Tiffany Lui, Alaina Maiorano, Katherine Mannion, Juliana Merluccio, Kelly Miller, Tayler Naeye, Alysha Petrone, Erika Portelli, Zoe Rosen, Ashley Scholes, Nicole Smith, Raysa Sosa, Meagan Turner, Emma Wang, Anna Watson, Staci Weiss, Morgan Wilson

### **Special Thank You:**

**Interim President Carol Long** and Interim Provost Dave Gordon for their support of GREAT Day.

**Jack and Carol Kramer** for their support of Geneseo and the Keynote address.

**Sheri Fink** for delivering the Keynote address.

**Tom Fisher** for the online submission form and web program design.

**Samuel Dole** for organizing the Chamber Music Festival.

**Efthimia Barbagiannis** for serving as liaison to the Student Association.

**The Student Association** for sponsoring the Luncheon.

**Campus Auxiliary Services** for sponsoring luncheon beverages.

**Daniel Ross and the Milne Library Staff** for overseeing the proceedings.

**Anne Baldwin, Andrea Klein, and Tammy Hill** for their special expertise and many hours devoted to planning this event.

**GREAT Day is funded by the Office of the Provost,  
the Student Association, Campus Auxiliary Services  
and the Jack '76 and Carol '76 Kramer Endowed Lectureship.**

*[http://www.geneseo.edu/great\\_day](http://www.geneseo.edu/great_day)*

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Cover design by Hannah Peterson

For more information on the GREAT Day Program Cover design project, see back cover.

**Check out Starbuck's  
GREAT Day Latte**

**It is sweet, bold, and nutty –  
something for everyone, just  
like GREAT Day.**

**SCHEDULE**

<b>7:30 – 8:20 AM</b>	Erwin Lobby
<i>Coffee with Carol &amp; Company</i>	
<i>Stop by for a quick bite before heading to the concurrent sessions</i>	
<b>8:30 – 6:30 PM</b>	CU Kinetic Gallery & Brodie Lederer Gallery
<i>Artwork Exhibits</i>	
<b>8:30 – 9:45 AM</b>	Doty, ISC, Milne, South, Wadsworth, Welles
<i>Concurrent Presentations • Session 1</i>	
<b>9:00 AM – 12:00 PM</b>	College Union Hunt Room
<i>Chamber Music Festival Part 1</i>	
<b>9:55 – 11:10 PM</b>	Doty, ISC, Milne, Newton, South, Welles
<i>Concurrent Presentations • Session 2</i>	
<b>11:15 – 12:45 AM</b>	College Union Ballroom
<i>Poster Presentations</i>	
<i>Sláinte Irish Dance Performance 12:40 pm</i>	
<b>12:00 PM</b>	College Union Lobby
<i>Buffet Luncheon Sponsored by the Geneseo Student Association</i>	
<b>1:00 – 2:15 PM</b>	Wadsworth Auditorium
<i>The Jack '76 and Carol '76 Kramer Endowed Lectureship</i>	
<i>Sheri Fink, author of Five Days at Memorial</i>	
<i>Opening Alma Mater performed by ALEXANDRA IMBROSCI-VIERA</i>	
<b>2:25 – 3:40 PM</b>	College Union, Doty, ISC, Milne, Newton, South, Welles
<i>Concurrent Presentations • Session 3</i>	
<b>2:30 – 4:30 PM</b>	College Union Hunt Room
<i>Chamber Music Festival Part 2</i>	
<b>3:50 – 5:05 PM</b>	Brodie, College Union, Doty, ISC, Milne, Newton, South, Welles
<i>Concurrent Presentations • Session 4</i>	
<b>5:10 PM</b>	College Union Lobby
<i>Special Presentations Winter Guard &amp; Bhangra</i>	
<b>5:15 – 6:15 PM</b>	College Union Ballroom
<i>Keynote Speaker Book Signing, Sheri Fink, Author</i>	
<i>Poster Presentations &amp; Reception</i>	
<i>Closing Remarks, Carol Long, Interim President</i>	
<b>6:30 PM</b>	Wadsworth Auditorium
<i>Geneseo Insomnia Film Festival</i>	

## ARTWORK EXHIBITS

SPECIAL THANKS TO THE FOLLOWING STUDENTS FOR PREPARING THE EXHIBITS: **CARLY FOWLER, HANNAH GLASER, OLIVIA ASCIONE D'ELIA**

### MACVITTIE COLLEGE UNION KINETIC GALLERY

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#### ANNA HOLCOMB

FACULTY SPONSOR: RYOTA TAKEMURA, ART

##### **One Million Bones: Lisl Frank, The**

**Holocaust:** The Holocaust is one of the best known genocides in history. Adolf Hitler brought the Nazis into power in the 1930s. He felt that the Aryans were the master race and therefore all other individuals not of that race should be promptly exterminated. By the end of the Holocaust, nearly 6 million Jews were killed along with millions of other victims. Lisl Frank was born January 22nd 1911 in Prague. She was a well-known singer, dancer and actress. In March, 1944 Lisl and her husband, Otto, were taken from their home and moved to the Westerbork concentration camp. Lisl continued to be a part of a stage troupe there. On October 4th, 1944 at age 33, during a forced march from Christianstadt to Auschwitz, she died due to the torturous actions acted upon her. My project is a model of Lisl's femur, symbolizing her death resulting from the march. The dried rose petals, a rose and burnt tickets represent the dreams that Lisl Frank had that were destroyed by the Holocaust and the injustices that she went through. Her acting and performing careers were ended by the Holocaust.

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#### JHENNELLE DAVIS

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Transformation:** A transformation from scissor to ballerina.

**Ink Interpretation:** Zoomed in interpretation of ink swatches.

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#### LAUREL LINDE

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Seng Im Ung:** It is the C5 vertebrae, meant to be of a man named Seng Im Ung from Cambodia who was killed in the genocide. It is within a circle because in Cambodia the religion is Buddhism and the circle in that religion represents the circle of life, death and reincarnation.

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#### MARIBETH EBBERS

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Imagination is the limit:** A visual exploration of the infinite possibilities in the mind.

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#### KATELYN LAGATELLA

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Eruption:** A series of lines in ink, merging to create an explosion of movement.

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#### HOLLY BIRDSALL

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Brushstroke:** Experimenting with value and pointillism.

**Untitled:** Transformation from hand to cobra.

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#### HANNAH GLASER

FACULTY SPONSOR: LESLIE STROZ, ART

**Danny's Lamb:** Watercolor painting based on a photo my Grampa took in the early 1960's, of my Uncle Danny on the family farm in Milford, NY.

**Michael and Tucker:** Oil on canvas portrait of my brother Michael asleep in an armchair with his cat, Tucker, at age 15.

**Self Portrait:** Ink wash on watercolor paper, self portrait of the artist in her dorm room.

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#### KHILNA SAMAT

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Free Me:** Male femur of a chemist named Maxime Liliental, born 1896 and died of a gunshot at age 48. This bone was carved to commemorate the 6 million Jewish lives that were lost during the Holocaust. Don't forget me but I must go. And so the butterflies carry me to a far, far place... called freedom. Butterflies symbolize a new beginning, lightness, resurrection, hence their usage. The bone is well carved with details, so one never forgets that all the victims left a mark for a better world.

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#### HUSSIEN SUMA

FACULTY SPONSORS: RYOTA TAKEMURA, ART  
LESLIE STROZ, ART

**Transcendence:** Inspired by Lee Jeffries Photography. Charcoal.

**Medusa:** Mixed Media: Charcoal and Pen.

**Cascade:** Media: Sharpie.

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#### JESSICA LOLAKAS

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**The Unseen Eye:** Brush stroke, pointillism abstract work using Sharpie to create different values. Manipulating tiger face to create point of interest while connecting it to the entire image.

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#### LEXI HANNAH

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Time:** This is a watercolor piece that shows the image of a girl being confined to a round enclosure that represents the inevitability of time's passing mirrored with the confines (anxiety, depression) that the mind tends to create as a response to this idea.

**Deep:** This is a Monoprint- The image is a sunset press.

**Becoming:** This is a Monoprint in-progress.

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#### ZACKARY LOMONACO

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Fire Breathes Life:** Using black paper cutouts, this piece follows the rebirth and transformation of the mythological Phoenix, which is constantly being reborn from the fire and ashes of its predecessor.

**Melting Cells:** Using pointillism this piece tries to show microscopic cells and their inner workings, shifting and melting, like how paint would drip, splatter, and run down a canvas.

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#### DAYNA MERCER

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Rising Light:** This art piece was created through the use of pieces of black paper. I decided I liked the idea of a string of christmas lights being broken and formed into something. It wasn't until my friend suggested a hot air balloon, that I realized how interesting the transformation could be.

**Simply Strokes:** This drawing is done completely in Sharpie using pointillism. I tried capturing the movement of a brush stroke with dots in different directions. I tried using the idea of gestalts theory with the globs of black being cut off by the large dark brush stroke.

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#### BONNIE STATHIS

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**From Ice Cream to Giraffe:** This piece demonstrates the transformation from an ice cream cone to a giraffe through three unique phases. As you can see, the sprinkles slowly transform into pieces of cone, to lips, and finally into the pattern of the giraffe. The cone and ice cream in the second transformation break up and melt in order to form a very abstract shape with the addition of lip shapes. I incorporated the lips in order to give the piece a more interesting and unique feature. From the third transformation I made the shape of a giraffe completely composed of lips, which then turned into my end transformation of a giraffe. The little giraffes on the bottom gave the piece more bold shapes to take away some of the whiteness of the paper. The whole composition was completed by cutting each shape out of black paper with an exact knife.

**Flowing Hair Brush Stroke:** For this piece, I first took a brush and ink and made random brush strokes on a piece of paper. A section of the paper that I thought was interesting was then blown up and traced with sharpie to make the art piece. A big part of my artwork was changed from the original piece in order to make it more unique and interesting. Instead of tracing a plain black brush stroke on the right side, I transformed it into a woman's face, with her hair flowing in the way the brush strokes did. I made her hair flow into the other thinner brush stroke lines in order to incorporate it into the whole piece instead of leaving it out on its own. I wanted the whole piece to flow together as one. The entire composition aside from the main dark brush stroke at the top was done using pointillism (small dots).



**DANIELLE ARIENO**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**He loves me?:** Transformation of a flower into a face.**JOSH ABRAHAMS**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Brushstroke Pointillism:** Pointillism used to depict value and Gestalt Theory. Sharpie was used to trace over the original brushstroke piece.**JANICE YOON**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Transition:** Art project.**Brush Stroke:** Art project.**LAUREN LADEAIROUS**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Brush Stroke Adaptation:** Imitation of a small portion ink brushstrokes, enlarged and drawn with pigment liner.**CHRISTINE KIM**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Transformation:** Class assignment.**Brush Stroke:** Class assignment.**MICHELLE MOSHON**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Neptune in the Sands:** Interpret at your own will. The desert holds many illusions, and not all of them kind.**URSULA QUINN**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Untitled 1:** The primary focus of this piece is creating different values with pointillism techniques to create a more visually appealing work. The process was as follows: using ink on a dry brush to mark paper, using a 2"x2.75" window to find appropriate composition, cutting that section out, blowing that image up by 400%, and finally using pointillism skills on a light screen to create the finished product.**CINDY LIN, ERICA LASNICKI, GINA CHUN, HYUKJAE LEE**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Cardboard and Expensive Tape:** This piece of artwork was designed and created by four students enrolled in the 3-D art studio class as a group project. The criteria required us to use only cardboard, tape, and glue to create a large work of art that defied gravity. Our artwork had to come in contact with three different surfaces. We chose the floor, chair, and wall as our three contact points. This work was initially modeled after stairs, but by moving pieces and thinking "out of the box," we

came up with a better idea by tilting the piece more and more as it continued to get taller and taller. To make this piece even more interesting, we gave this piece a little twist by implementing a spiral effect.

**JESSICA KIM**

FACULTY SPONSOR: LESLIE STROZ, ART

**Sunset at the Lake:** Oil painting on canvas.**EMILY WALDMAN**

FACULTY SPONSOR: LESLIE STROZ, ART

**Monochromatic Bucket:** Still life of a bucket in monochromatic color scheme.**MEI YI CHOO**

FACULTY SPONSOR: LESLIE STROZ, ART

RYOTA TAKEMURA, ART

**Monotone Beauty:** Charcoal portrait with a hint of imagination.**When Nature Intervenes:** Paper cutting of black paper.**JULIA CARDILLO**

FACULTY SPONSOR: MICHAEL MASCI, MUSIC

**Midnight Sun:** Acrylic paint on canvas.**BRODIE FINE ARTS – LEDERER GALLERY**

shapes were constructed out of black paper using an X-Acto knife. My idea behind "From Fear to Fearless" was that something that I am most fearful of would be transformed into a state in which I am fearless.

**BRYAN WATSON**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Can you see me meow?:** Wire chameleon that's starting to change color in the legs and underbelly to match the tree branch.**MATHEW RHONEY, BRYAN WATSON, LAURA GOLDEN**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Cardboard Sculpture:** We have constructed this 3D piece using cardboard scavenged from various locations around Geneseo.**KATRINA BUCK**

FACULTY SPONSOR: LESLIE STROZ, ART

**Self Portrait:** This is my self portrait from Drawing I, done in charcoal. It is the first portrait of this caliber that I have completed.**LAURA GOLDEN**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**EMMA JACKSON**

FACULTY SPONSOR: LESLIE STROZ, ART

**Hand:** Drawing of my hand using charcoal.**Self Portrait:** Drawing of myself using charcoal.**Shirt:** Drawing of a person's shirt and shoulder using charcoal.**YULIYA MURADOVA**

FACULTY SPONSOR: LESLIE STROZ, ART

**Copy of Ginevra de Benci:**Monochromatic copy on canvas of Leonardo da Vinci's *Ginevra de Benci*, originally painted in the 1470s.**TARA REBUCK**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**Miley Cyrus:** Inspired by Minjae Lee.**BRIDGET SOVOCOOL**

FACULTY SPONSOR: RYOTA TAKEMURA, ART

**From Fear to Fearless****Transformation Project:** Ryota Takemura, 2D Design. For this project, we had to morph one object or shape into another in five steps. The**Lily:** Galvanized steel wire sculpture.**JESSICA KIM**

FACULTY SPONSOR: LESLIE STROZ, ART

**Cape Cod:** Oil painting on canvas. Artist's original photograph recreated in impressionistic-like style**Naptime:** Figure drawing, charcoal on paper.**EMILY WALDMAN**

FACULTY SPONSOR: LESLIE STROZ, ART

**In the Kitchen:** Still-life in oil on canvas.**Main Street Geneseo:** Landscape of Main Street Geneseo in ink on watercolor paper.**MEI YI CHOO**

FACULTY SPONSOR: LESLIE STROZ, ART

RYOTA TAKEMURA, ART

**Restless:** Tired of holding up?**JULIA CARDILLO**

FACULTY SPONSOR: MICHAEL MASCI, MUSIC

**Vibrant Silhouettes:** Acrylic paint on canvas

**CHAMBER MUSIC FESTIVAL**  
**HUNT ROOM, MACVITTIE COLLEGE UNION**

9:30 am	<b>Geneseo Flute Choir</b>
10:15 am	<b>Wind Quintet</b>
10:35 am	<b>Sax Quartet</b>
10:55 am	<b>Clarinet Choir</b>
11:20 am	<b>Thursday Night Jazz Ensemble</b>
12:00 pm	<b>Geneseo String Band</b>
1:00-2:15 pm	<b>Break for Keynote Address</b>
2:30 pm	<b>Monday Night Jazz Combo</b>
3:10	<b>Emmelodics</b>
3:30	<b>Exit 8, a cappella</b>
4:00	<b>Between The Lines, a cappella</b>
4:30	<b>Geneseo Con Brio</b>



## ***The Jack '76 and Carol '76 Kramer Endowed Lectureship***

### **KEYNOTE ADDRESS**

Wadsworth Auditorium • 1:00 – 2:15 PM

*Introduction by Carol Long, Interim President*

### **Sheri Fink**

#### **“Five Days at Memorial”**

**New York Times Top 10 Book for 2013**

#### ***About Sheri Fink***



As a journalist, Sheri Fink has traveled to every continent except Antarctica. A former relief worker in disaster and conflict zones, she has experienced some of the world's most volatile regions. Ms. Fink has utilized her experiences to become an award winning journalist and author.

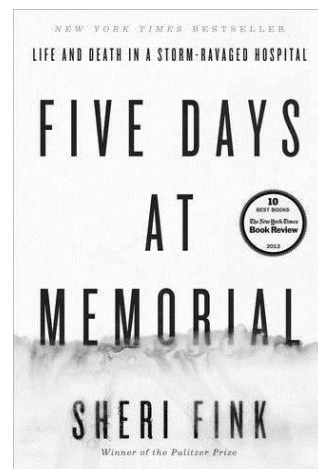
Ms. Fink's most recent success and the topic of her GREAT Day Keynote is her book *Five Days at Memorial: Life and Death in a Storm-Ravaged Hospital*. Originally written as an article published by the New York Times

Magazine, it investigates the deadly choices faced in a New Orleans hospital during the aftermath of Hurricane Katrina. Since its publication it has won the Pulitzer Prize for Investigative Reporting as well as named a New York Times Top 10 Book for 2013.

Success didn't just find her over night, however. Ms. Fink has been a long time humanitarian, with a passion for issues in war and medicine. Even while studying medicine and neuroscience at Stanford, she investigated the Nazi Holocaust and protested genocide in Bosnia. She has used her expertise and experiences to share her knowledge and has taught classes at Harvard, Tulane and the New School.

Ms. Fink is a 1990 graduate of the University of Michigan and received her M.D. and Ph.D. from Stanford University. Her reporting has won the Pulitzer Prize, the National Magazine Award, and the Overseas Press Club Lowell Thomas Award, among other journalism prizes. She has had articles appear in a number of high profile publications such as the New York Times, Discover, and Scientific America.

**There will be a book signing and reception in conjunction with the poster session in the College Union Ballroom at 5:15 pm. The bookstore will have copies of “Five Days at Memorial” available for purchase. All are welcome.**



**CONCURRENT PRESENTATIONS MORNING QUICK VIEW GUIDE****SESSION 1 CONCURRENT PRESENTATIONS****8:30 – 9:45 AM**

<b>1A • INTERDISCIPLINARY: ACCESS OPPORTUNITY PROGRAM AND CENTER FOR COMMUNITY</b>	MILNE 105
<b>1B • BIOLOGY I</b>	ISC 115
<b>1C • BUSINESS I</b>	SOUTH 340
<b>1D • EDGAR FELLOWS MISCELLANY 1</b> <i>Political Science &amp; International Relations, English</i>	WELLES 121
<b>1E • EDGAR FELLOWS MISCELLANY 2</b> <i>English, Psychology</i>	WELLES 123
<b>1F • EDGAR FELLOWS MISCELLANY 3</b> <i>Anthropology, Business</i>	WELLES 119
<b>1G • GEOGRAPHY I</b>	WELLES 216
<b>1H • ENGLISH</b> <i>Fairy Tales and Connecticut Yankees: The Works of Sir Thomas Malory and Intertextuality</i>	WELLES 131
<b>1I • HISTORY</b> <i>History Honors Theses: American Political Culture and Democracy from the 1860s to the 1960s.</i>	WELLES 140
<b>1J • ANTHROPOLOGY II</b>	WELLES 133
<b>1K • INTERNATIONAL PROGRAM</b> <i>International Students Present 1</i>	MILNE 109
<b>1L • MATHEMATICS</b> <i>History of Mathematics I</i>	SOUTH 336
<b>1M • MATHEMATICS I</b>	SOUTH 328
<b>1N • MUSIC</b> <i>Good Guys and Bad in Folk Ballad Tradition</i>	WELLES 115
<b>1O • OFFICE OF THE PROVOST</b> <i>Reflections from the 2013 Ambassadorship Program</i>	DOTY 302E
<b>1P • POLITICAL SCIENCE &amp; INTERNATIONAL RELATIONS</b> <i>The Social Costs of Terror</i>	WELLES 26
<b>1Q • POLITICAL SCIENCE &amp; INTERNATIONAL RELATIONS</b> <i>Public Opinion and Voting in American Politics</i>	WELLES 134
<b>1R • THEATRE/DANCE</b> <i>Isadora Duncan and Loie Fuller: Pioneers of Modern Dance</i>	WADSWORTH AUDITORIUM
<b>1S • WOMEN'S STUDIES</b> <i>Senior Capstones in Women's Studies: Research and Creative Projects</i>	WELLES 24

**SESSION 2 CONCURRENT PRESENTATIONS****9:55 – 11:10 AM**

<b>2A • ANTHROPOLOGY</b> <i>Global Health I: Contemporary Issues</i>	SOUTH 338
<b>2B • BIOLOGY &amp; MATHEMATICS I</b>	NEWTON 201
<b>2C • BIOLOGY II</b>	ISC 115
<b>2D • CHEMISTRY</b> <i>Chemistry Honors Research Presentations 1</i>	NEWTON 203
<b>2E • COMMUNICATION</b>	MILNE 105
<b>2F • EDGAR FELLOWS MISCELLANY 4</b> <i>Communication, Psychology</i>	WELLES 121
<b>2G • EDGAR FELLOWS MISCELLANY 5</b> <i>Education, Psychology</i>	WELLES 123
<b>2H • EDGAR FELLOWS MISCELLANY 6</b> <i>Mathematics</i>	WELLES 119
<b>2I • EDUCATION</b> <i>LIVES (Learning Independence, Vocation, and Education Skills) Program at Geneseo</i>	NEWTON 204
<b>2J • ENGLISH</b> <i>Pagan or Biblical? English Poetry and Ancient Systems of Allusion</i>	WELLES 131
<b>2K • ENGLISH</b> <i>Biblical Samson and the Ethics of Suicide Bombers</i>	WELLES 134
<b>2L • HISTORY</b> <i>History Honors Theses: Popular Resistance in times of war and during the Atlantic slave trade</i>	WELLES 140
<b>2M • HISTORY</b> <i>Guns, Graphics, and Gonads: Subjectivity and Structural Critique in the Long 1960s</i>	WELLES 133
<b>2N • INTERDISCIPLINARY: MATHEMATICS &amp; PHYSICS</b>	ISC 131
<b>2O • INTERNATIONAL PROGRAM</b> <i>International Students Present 2</i>	MILNE 109
<b>2P • MATHEMATICS</b> <i>History of Mathematics II</i>	SOUTH 336
<b>2Q • MUSIC</b> <i>Operetta Scenes</i>	DOTY RECITAL HALL
<b>2R • POLITICAL SCIENCE &amp; INTERNATIONAL RELATIONS</b> <i>Human Rights: Challenges and Opportunities</i>	WELLES 24
<b>2S • POLITICAL SCIENCE &amp; INTERNATIONAL RELATIONS</b> <i>Discrimination, Death, and Denial: The Role of Women in South Asia</i>	WELLES 26



**CONCURRENT PRESENTATIONS 1 • 8:30 - 9:45AM****1A • INTERDISCIPLINARY: ACCESS  
OPPORTUNITY PROGRAM AND  
CENTER FOR COMMUNITY**

MILNE 105

SESSION CHAIR: KIM HARVEY, NEW STUDENT  
PROGRAMS**You Must Be Tired, You've Been  
Running through My Mind All Day:  
Cat Calling Experience**

ASHLY DUNWOODY, JONELLE WILLIAMS

FACULTY SPONSOR: FATIMA RODRIGUEZ JOHNSON,  
CENTER FOR COMMUNITY

This presentation will provide an overview of a cat calling social experiment conducted in Rochester, NY on a local college campus. Teams of female students engaged in cat calling toward male students. The male participants were asked follow-up questions like; Have you ever been cat called by a girl before? How did it make you feel? The presentation will also include the examination of gender roles and the societal norms as it applies to cat calling.

**The Negative Portrayal and  
Misrepresentation of Women in the  
Media**ALEXANDRA SALERNO, YANYING LIN, ALYSSA  
MORALES, GNIRE KONE, ELAINE MURRAY, SASHA  
MILLER, REFAT ZAMAN, BRIANNA ALLISON,  
MELISSA MINAYA, CAROLINA FERNANDEZ,  
CAROLINE BERRIOS, JENNIPHER COLAS, KAYLA  
VIALVA, ELIZABETH MORABITO, KIMBERLY  
TORRES, KAIRRA MONROE, SELENA BEAUMONT,  
VICTORIA MORALES, GENESIS DIAZFACULTY SPONSOR: CALVIN GANTT, ACCESS  
OPPORTUNITY PROGRAM

We will present the topic of how women are negatively portrayed in the media with a powerpoint, which will include: video clips from documentaries, examples of negative portrayals, our own research and our own video clips from surveys and possible performances, and show ways in which organizations, people, and other women want to diminish this unattainable ideal of beauty. In addition, we might do an artistic performance in the beginning of our session before the powerpoint.

**1B • BIOLOGY** IISC 115FACULTY SPONSOR AND SESSION CHAIR: GREGG  
HARTVIGSEN, BIOLOGY**Simulating and Assessing Search and  
Capture Strategies for the Pokémon  
Game**

CORTNEY DODGE

Pokémon is a game in which the player travels around a simulated world collecting "pocket monsters" and pitting them against one another in a test of strength, skill, and luck. Catching Pokémon is by no means a simple task when you take into account the mathematical formulas involved. I was interested in determining the most efficient method

of capture, as I am trying to catch all 718 currently existing Pokémon. Using the same equations the game programmers used for Pokémon capture as a starting point, I developed several functions which are able to determine the probability of catching a Pokémon in any situation as well as the average number of poke balls required. Further, they search for and return the best location to capture the Pokémon. This is an incredibly useful tool when playing the game as it provides easily accessible, organized, and player specific real time information.

**Spelling with Your Mind:  
Electroencephalography with  
ModularEEG, Arduino, and BCI2000**

HERB SUSMANN, NICK COLLISSON

The electrical activity that is inherent in the functioning of the brain results in the presence of small voltages at the scalp. These electrical signals can be acquired and amplified using a technique called electroencephalography (EEG) and interpreted by software to form a brain-computer interface (BCI). We assembled a BCI from open source hardware and software (and an Arduino) that enables subjects to spell words in real time. The software, called BCI2000, presents a grid of letters and numbers that flash in sequence. A characteristic electrical potential is evoked when the character that a subject's gaze is focused on flashes. The schematics for the signal amplifier were provided by the OpenEEG project.

**Hunger in Livingston County: Who It  
Affects and What We Can Do About  
It**SHERRY LEUNG, CHRISTOPHER PIKE, RACHEL  
EISENMAN, SHANEKA RODRIGUEZ, CAMERON  
HOUSER, BENJAMIN LINCHUCK, BRITTANY  
TERZAKOS

Our presentation will be about the issue of hunger in the Livingston County area. We will look at hunger from several different lenses. First, we will discuss our experience with completing the SNAP Benefits Food Challenge which limits us to spending only \$36.93 for an entire week on food. The SNAP Benefits Food Challenge provides us with a small insight into the difficulty that families and individuals face living solely on the money that they receive on the SNAP Program. Additionally, we will be sharing findings from our annual event, Livingston County's End Hunger Day. We will disclose information about the number of families and individuals that we were able to help through the various events that we will be hosting that day including a mobile food pantry, a SNAP Benefits Clinic and an informational fair. Finally, we'll be looking at the issue of hunger from two-folds and addressing possible solutions that can be implemented to decrease the rate of hunger in the community.

**1C • BUSINESS I** SOUTH 340FACULTY SPONSOR AND SESSION CHAIR: AVAN  
JASSAWALLA, BUSINESS**Impact of Organizational Learning on  
Innovation/New Product  
Development**ERIC MALDONADO, TYLER CHAUNCEY, KEVIN  
SUGRUE

Questions we sought to answer with our research were the following: How do different levels of organizational learning impact interdepartmental attitudes in an atmosphere that supports innovation? What forms of communication best contribute to an effective and efficient flow of information to facilitate the sharing of knowledge? What types of team structures are best equipped to achieve innovation? We found that an important factor to successful organizational learning and innovation is taking risks and experimentation. The flow of information throughout an organization is vital to their productiveness and efficiency. Creating a structure that ensures the flow of information will lead to more efficient group work and facilitate innovation. Also, hand-picked, multidisciplinary teams whose members work together from start to finish are an effective way to organize new product development. Group members working together on several stages of a project proved to be more effective than an assembly line. Based on our research findings, we were able to determine three effective recommendations for businesses. Our presentation will reveal and explain these recommendations to an intrigued audience.

**Trust in the Supervisor/Manager and  
Its Impact on Employee's Work  
Behavior**JACQUELIN DANGELO, COLLEEN WEINMANN,  
ANDREI POBLAGUEV, BENJAMIN SCHWARTZ,  
DANIEL BENDER

Organizational trust, or the willingness of a party (employee) to be vulnerable to the actions of another party(organization)based on the expectation that the other will perform a particular action important to the trustor (Mayer, Davis,Schoorman,1995), is imperative for efficiency in the workplace. Employee trust in management helps avoid unnecessary road blocks within organizations such as management's excessive oversight over employees, employees' deviant behavior, and employee turnover that can both inhibit innovation and slow productivity of the organization. High levels of trust within organizations can create higher performing teams and thus, allow an organization to be more proficient. This presentation will not only highlight the benefits of employees trusting their supervisors in the workplace, but will also establish how this trust is established in the first place through careful observation of organizational politics, beneficial feedback, turnover intention, and organizational commitment.

**Organizing for Creativity: The Impact  
of Organizational Structure on  
Innovation**

**CARALYN WHITE, LAURA BARNARD, JASON FALK, SAM KELLEY, HYESOO PARK, ZACHARY YEHL**

In today's competitive global economy, structuring organizations to encourage creativity can encourage innovative new products, improved technology, increased employee satisfaction, and effective problem solving and decision making. All of these aspects will lead to an overall advantage over competition, and will help companies stay relevant and successful. This presentation will outline the effects that organizational design and structure have on organizational and individual innovation and creativity. The presentation will present findings that answer three central research questions; what are the benefits of organizational structures that are conducive to a creative organizational culture, what organizational structures and conditions emphasize and increase creativity, and how does leadership and management impact the level of creativity in employees?

## 1D • EDGAR FELLOWS MISCELLANY 1

WELLES 121

SESSION CHAIR: DAVID LEVY, EDGAR FELLOWS AND PHILOSOPHY

### The Stories of the Sex Trade: How Documentaries Tell the Story of Sex Workers and Trafficking Victims

**GABRIELLE CAMPANELLA**

FACULTY SPONSOR: PAUL SCHACHT, ENGLISH

Prostitution has been called the world's oldest profession. In recent years new issues and movements have complicated approaches to addressing prostitution on legal and social levels. At the same time sex workers are advocating for the right to legal and social respect for their work, groups concerned with the freedom of women and children who are being sexually exploited call for greater legal restrictions and attention paid to the system of prostitution in the United States and abroad. Documentaries are a powerful medium through which these groups advocate for change and compel the general public to act. By analyzing films made by various interest groups we can see how these stories are being told, which groups present the most complete picture, and how we can respond to these messages as responsible and compassionate citizens.

### Destroying, Transforming, and Assimilating the Other: Desire and Boundary Transgression in 20th Century Music and Culture

**MAYA HORTON**

FACULTY SPONSORS: BETH MCCOY, ENGLISH AND ANNE-MARIE REYNOLDS MUSIC

In my Capstone Thesis, I examine the dialectical thread between African American culture and the white mainstream through the lens of jazz, rhythm and blues, and hip-hop. While each of these movements was met with an initial wave of derogation, often employing rhetoric vilifying the black community in the accepted formula of the time, the social exclusion of black musicians was accompanied by an equally strong fascination with

their work, which, in each era, was eventually adapted to fit the cultural repertoire of WASP America. This pattern of fixation manifests clearly throughout the 20th century in blackface acts and minstrel shows parodying African American life, the early forays into Harlem's "heart of impulses" to experience "exoticism and hence animality," dramatizations of Louisiana voodoo in everything from old wives tales to modern television series, and the ongoing white consumption and imitation of a so-called "black sound" (Jones 1999:150; Erenberg 1984:113-114; Owens 2013). I discuss this recurrent push-and-pull between cultural devaluation and symbolic centrality in the context of changing culture, politics, and the paradigm of Hegel's Desire, "an emptiness that receives a real positive content...[by] destroying, transforming, and "assimilating" the desired non-I" (O'Shea 2010:103).

### Organ Trafficking and Human Rights in the People's Republic of China

**BETHANY HYLAND**

FACULTY SPONSOR: KEVIN LUCAS, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The Nuremberg Code was written after the horrors of World War II to protect against human experimentation and provide ethical guidelines for medical research in general. Thirty-four years later a Chinese government policy paper officially sanctioned the removal of organs from executed prisoners for the purpose of transplantation. Despite various initiatives by international non-legislative bodies such as the WHO and UNESCO, this horrific practice continues today. Through an investigation of the history of organ transplantation and trafficking in the PRC, including the past three decades of relentless persecution of the Falun Gong, and a careful examination of the reactions, both legislative and not, of the international community, especially in the field of medicine, I plan to show that the liberal approach of the international community has failed to advocate effectively for the rights and lives of thousands of victims of organ trafficking. If principles and guidelines and check-lists were what were necessary to end this new war of a country's government against its people, the problem would be solved. The rules aren't working because there has been no reason for China to play by the rules. It is the duty of the government and medical communities to provide one.

## 1E • EDGAR FELLOWS MISCELLANY 2

WELLES 123

SESSION CHAIR: WENDY POGOZELSKI, CHEMISTRY

### A Modern Approach to Medicine

**EMILY WANAMAKER**

FACULTY SPONSOR: TOM GREENFIELD, ENGLISH

This paper will explore the portrayal of medical professionals in American popular culture from the 1960s to the present. As prologue, the paper will survey portrayals of doctors in major works from the 1800-early 1900s. Although images of the doctor vary widely in this literature, a predominating construct of the doctor as a classical heroic figure emerges repeatedly: a member of society yet a figure above his fellow men and women. Two subsequent chapters explore how

images of medical professionals evolved during the age of mass media and the concurrent rise of patient self-determinism movements. Margaret Edson's play *Wit* and Susan Sontag's essay *Illness As Metaphor*, serve as a platform for addressing medical ethics. Both Sontag and Edson frame their work around the argument that the patient is both object and researcher in cooperative health care. The "cooperative care model" of health care, as advocated in Sontag and Edson, stands notably at odds with media images of doctors in popular television shows and movies. The general public seems wedded to the outdated 19th century literary images of doctors as does popular media, which both feeds and perpetuates the public's taste.

### Why We Want What We Don't Like: A Closer Look at the Brain's Reward System

**RACHEL HARE**

FACULTY SPONSOR: TERENCE BAZZETT, PSYCHOLOGY

It has long been established that dopamine is a major player in the brain's reward system. Its role, however, is far more nuanced. Recent evidence has revealed that dopamine may play a larger role in the anticipatory 'wanting' aspect of reward, as well as the learning process of linking stimuli to potential rewards. Endogenous opioids appear to be associated with the 'liking,' or hedonic, aspect of reward. As separate neurotransmitter systems, the two are not always activated simultaneously and can be modified individually. This delineation has far reaching consequence for not only substance abuse and psychological disorders, but also the routine actions in all of our lives.

### Exploring The Potential Adaptive Benefits of Negative Mood

**JOSEPH FIGLIOLIA**

FACULTY SPONSOR: JENNIFER KATZ, PSYCHOLOGY

Many evolutionary psychologists theorize that negative mood states have adaptive benefits, but little data has been shown to support this. The present project investigated the potential cognitive benefits of negative mood. One such benefit, supported by control deprivation theory, is a reduced susceptibility to judgmental biases. Control deprivation theory posits that this shrewder judgment is the product of a more assimilative, and effortful, form of processing associated with mild depression. The main objective of the present study—a replication and extension of Forgas et al. (2013)—is to evaluate the degree to which subjects in a negatively induced mood state are less susceptible to gender stereotypes. Participants were assigned to one of three mood conditions (neutral, sad, happy) and one of two name conditions (male, female) before being asked to evaluate a fictional job candidate for a statistician position at Geneseo. Although the resume attached to both name conditions was identical, the gender stereotypical response would be for participants to prefer the male candidate. Based on control deprivation theory, participants in the negative mood condition may be less susceptible to stereotyped judgments. If this hypothesis is

supported, these data would support the theory that negative mood may confer adaptive cognitive benefit.

## 1F • EDGAR FELLOWS MISCELLANY 3

WELLES 119

SESSION CHAIR: ROSE-MARIE CHIERICI,  
ANTHROPOLOGY

### Is College Worth the Cost: A Data-Driven Analysis of the Student Loan Bubble

MARTIN ROGACHEFSKY

FACULTY SPONSOR: LEONIE STONE, BUSINESS

The purpose of this paper is to examine the possibility of a student loan bubble. In light of record amounts of student loan debt (recently passing the one trillion dollar mark), there has been much concern as to whether the value of a college education is worth the costs in tuition and interest paid on loans. If the actual value of a college education is much lower than the current value, then this has potential to be an asset-price bubble. The paper begins by defining a bubble as an asymmetric deviation of the market price of an asset from its fundamental value over a period of several months or years, that inevitably leads to a significant reverse correction as seen by a fall in prices. The paper then uses data to calculate the value of college via an earnings differential between high school and college graduates and comparing it to the net cost of college to calculate a cost-earnings ratio. It then examines several other indicators, including cost-earnings ratio by degree, private-public education enrollment, and a potential bubble in for-profit colleges. It concludes that there is little evidence to support a bubble in student loans. *Selected for presentation at Eastern Economic Association Conference, Boston, MA.*

### Shale Play: Weaving an Amorphous Narrative in the Twin Tiers

FRANCIS MANDRACCHIA

FACULTY SPONSOR: CHRIS ANNALA, BUSINESS

This paper examines the differences between New York and Pennsylvania in implementation of hydraulic fracturing. Fracking, a practice that uses water, sand and chemicals to club bedrock to extract natural gas, has been prone to contestation. From economic estimations to environmental impact, the paucity of information has created a situation in which fact and value cannot be separated. A theory of socio-technical networks suggests that the implementation of the technology is not deterministic but is based on both a fixed and fluid identity, relying on economic projections while navigating the rhetoric of social groups and political structures to remain a viable method of resource extraction.

### International Service Learning: Fostering Student-Community Interaction in Haiti

ERIN O'BRIEN

FACULTY SPONSOR: ROSE-MARIE CHIERICI,  
ANTHROPOLOGY

The purpose of the Geneseo - Haiti project is to build a course model that responds principally to the critique that Service Learning favors the student over the community and perpetuates stigmas of social and cultural hierarchies, especially in the developing world. While the usual complexity of intercultural interaction is rendered more delicate by way of the dramatic socio-economic gap that often differentiates university students from community partners in developing countries, this course will create a pedagogy that seeks to overcome this gap and facilitate meaningful connection between the partner institution and host community. In order to do this we will develop a pedagogical approach that promotes project-specific language learning and an interactive and ongoing cultural orientation that endeavors to explore and challenge students' stereotypes about Haiti in the hopes of ultimately transforming the students' perception of not only Haiti, but also their identity and role as world-citizens.

## 1G • GEOGRAPHY I WELLES 216

FACULTY SPONSOR AND SESSION CHAIR: DARRELL NORRIS, GEOGRAPHY

### Student Personal Effects 1989 - 2011: An Analysis of Origins

EUGENIE MA

This presentation reports the origins of Geneseo students' personal effects. The data, collected in 2011, were organized and broken down in categories based on type of good, country of origin, price, quality and retailer. The results reflect the success and impact of a growing number of countries as exporters of consumer goods, focused in my work on the purchasing profile of college students. This sample is comparable to surveys undertaken in 2000 and 1989. The analysis encompasses not only changes in the patterns of production, but also measures previously unexplored themes such as the relationship between origin, quality and price. Because in 2011, clothing items were arranged in sub-categories (shirts, t-shirts, skirts, etcetera) we can determine levels of national specialization and associated retailer sourcing. The results demonstrate the evolving settings and progress of globalization through the narrow lens of college students' possessions. *Selected for presentation at Association of American Geographers Middle States, Buffalo, NY.*

### White Supremacist Ecology in the United States

ALICIA CERQUONE

Focusing on white supremacist groups, I examined aspects of the geography of hate groups in the United States. A white supremacist group is an organization of individuals that considers white people of European descent to be superior to all other races and ethnicities. Close to 700 white supremacist groups operate in the United States. Every hate group identified by the Southern Poverty Law Center has a strong web presence for a national audience. From large national groups, smaller regional groups are organized. Data collected by the Southern Poverty Law Center were used to

determine State level concentrations of white supremacist groups. The relative incidence of such groups ranges from a high of over 12 per million population in Montana to less than one in New York, Kansas, and Massachusetts. I also explore the large urban areas in the States with the highest concentrations of white supremacist groups to attempt to locate physical spaces used by these groups. Some extremist regional groups have a promotional website, but trying to discover a bricks and mortar location for these groups is almost impossible. Other groups want to be conspicuous because they are advertising their community of white supremacists so others can join them.

## 1H • ENGLISH WELLES 131

### Fairy Tales and Connecticut Yankees: The Works of Sir Thomas Malory and Intertextuality

FACULTY SPONSOR: GRAHAM DRAKE, ENGLISH

SESSION CHAIR: REBECCA MILLER

### Once Upon a Time: The Morte D'Arthur's Relationship to the Literary Fairy Tale Canon

SARAH LAWSON

The Morte D'Arthur includes several motifs that are familiar to us because of literary fairy tales. This paper seeks to explore how the motifs connect the two very different genres of literature and identify whether there is a direct heritage between King Arthur legends and later literary fairy tales.

### Worship before Morals: The Cause of Modern Misreadings of Malory's Le Morte D'Arthur

SEAN FISCHER

My argument is that Le Morte operates within a distinct cultural system that places an incredible amount of value on status and the acquisition of status. As such, morals are of little importance in the text. However, writers, such as Tennyson, misinterpreted the system and ascribed their own values to the text. This shift in values in regard to the text led to centuries of misinterpretation and shifting, as seen in Mark Twain's use of Le Morte in his writing of a Connecticut Yankee in King Arthur's Court.

## 1I • HISTORY WELLES 140

### History Honors Theses: American Political Culture and Democracy from the 1860s to the 1960s.

FACULTY SPONSOR AND SESSION CHAIR: JUSTIN BEHREND, HISTORY

### "To Secure Equal Civil and Political Rights to All Men:" The Remarkable Biracial Organization of the Union League during Reconstruction

CLARE FLYNN

The frequently overlooked organization of the Union League played an instrumental role in North Carolina after the conclusion of the Civil War. Aided

by the significant pro-Union sentiment among a minority of whites and the strong desire of freedmen to assert their citizenship rights, the Union League was an important factor in political mobilization during Reconstruction. This organization also presented a unique opportunity for biracial cooperation during a time period that was fraught with contentious racial relations. The study of the Union League ultimately presents a contrasting view of the South, and therefore adds to our overall understanding of Reconstruction.

### **The Orange Riots: The Irish Communities of New York City and Democratic Machine Politics**

#### **Following the Civil War**

LIAM COLLINS

This paper examines the socio-political role that the Irish community of New York City played during the reign of William Tweed and Tammany Hall. Relevant literature has assigned the Irish a secondary role, almost as if they were a puppet to Tammany's puppet master. The situation was quite more complex than most scholarship suggests. The Irish, both passively and actively, exerted pressures on Tweed and Tammany, forcing them to react to the desires and demands of their foreign constituency. This is exemplified best through the Orange Riots of 1870 and 1871. To many, these riots were nothing more than religious conflicts between Irish Catholics and Protestants. In reality, these riots had roots in the notions of true Irish identity, disputes over contributions to the United States, and Constitutional rights. Utilizing primarily newspaper articles both pro and anti-Catholic, as well as a variety of pamphlets contemporary to the time, this paper seeks to dispel the idea that the Irish were mere passengers in city politics following the Civil War. The Irish must be viewed as integral to developments in this period as well as to the story of the ascendancy and downfall of William Tweed and his Tammany Democracy. *Selected for presentation at Phi Alpha Theta West/Central New York Regional Conference, Buffalo, NY.*

### **Freedom Days: Hattiesburg and the Origins of the Mississippi Summer Project**

ELIZABETH DIERENFIELD

Though largely unrecognized, Hattiesburg, Mississippi, played a vital role in the civil rights movement of the 1960s. It was in Hattiesburg where the "Freedom Day" strategy first unfolded, which built on the "Freedom Vote" of unregistered African Americans and anticipated the Mississippi Summer Project ("Freedom Summer") that sought to remake the state's political culture. The Freedom Day strategy called for Student Nonviolent Coordinating Committee activists to rally large numbers of local blacks and northern whites, especially clergymen, on the appointed day to march on the county courthouse to gain access to the polling booth. Designed to draw national attention, Hattiesburg's Freedom Day was soon imitated elsewhere in Mississippi, and provided an important impetus for Freedom Summer throughout the state. Using SNCC papers, local

newspapers, oral histories, and secondary works, this paper discusses Jim Crow in Hattiesburg, the rise of an indigenous civil rights reform movement, the successful lawsuit against Forrest County registrar Theron Lynd, the arrival of SNCC activists and the first Freedom Day, and the role of Victoria Gray Adams in the Mississippi Freedom Democratic Party, as well as the murder of voting-rights activist Vernon Dahmer by the White Knights of the Ku Klux Klan. *Selected for presentation at Phi Alpha Theta West/Central New York Regional Conference, Buffalo, NY.*

**1J • ANTHROPOLOGY II** WELLES 133  
SESSION CHAIR: PAUL PACHECO, ANTHROPOLOGY

### **The L1 in an Immersive L2 Environment: A Case Study of the Puerto Rican Community of Rochester, NY**

AYELET HAREL

FACULTY SPONSORS: DENICE SZAFRAN, ANTHROPOLOGY, AND  
RUSSELL JUDKINS, ANTHROPOLOGY

This study explores the process of acquiring English as a second language, what its cultural implications are, and how this process has changed over time. Specifically, this paper addresses the effect of acquiring English on a United States immigrant's native language. Methods of language acquisition, social and cultural implications, the effect of bilingualism on society, and the idea of language and power will all be discussed, as well as changes in these topics over time, especially over generations. Questions of a native language other than English's role in the U.S., and the immigrant speakers' as well as society's perceptions of it appear multifaceted and often conflicting. Using the case study of the Puerto Rican, Spanish-speaking community in Rochester, New York, this study addresses the dynamic and complex role of immigrant languages other than English in an English immersion environment.

### **Politics and Archaeology in East Asia**

MARNI FRITZ

FACULTY SPONSOR: PAUL PACHECO, ANTHROPOLOGY

Modern day political influences within East Asia are affecting the way archaeological research is conducted within the region. Nationalistic propaganda from North Korea, South Korea, China and Japan contribute to the inability to formulate a clear model of our prehistoric past. This nationalistic viewpoint skews data and binds feelings of national pride to a time when modern borders did not exist. Currently, North Korea does not allow outside archaeologists to conduct research within its borders and national archaeologists clearly promote fantastical data supporting the current regime. Much discrepancy between research found in Mongolia, China and South Korea, three countries bordering North Korea, exists and perhaps research within this area of the peninsula could shed light on such discrepancies, specifically in regards to the migratory patterns of our ancestors in East Asia. My goal with this presentation is to highlight the

political problems affecting archaeological research in East Asia, discuss the current state of research on the Korean peninsula, expose the holes these political problems create, how these holes skew the data presented, as well as potential resolutions that could come of non-political research.

### **Data Organization and Conclusions: Archaeological Evidence Found at Early Contact Era Seneca Sites**

EMILY DIPAULO

FACULTY SPONSOR: PAUL PACHECO, ANTHROPOLOGY

There are multiple theories and methods that are used during an archaeological excavation in order to determine the way of life and culture of a past people such as the early contact era Seneca of Western New York. Through analysis of native artifacts, archaeologists interpret the day to day life of Seneca people. In this presentation, I will go into detail about how archaeologists can reveal daily functions and cultural practices through analysis of Seneca stone tools, settlement patterns, and burial patterns. I will also address how archaeological data are organized and curated once they are done being used for research. I will conclude by relating my own museum experiences, explaining different ways in which archaeological finds can be displayed to the public.

### **1K • INTERNATIONAL PROGRAM**

MILNE 109

#### **International Student Present 1: "Where in the World Is My Country? What You Need to Know Before You Visit Us: Culture, Language, Some Do's and Don'ts." Turkey, The Netherlands, Brazil, and Spain.**

FACULTY SPONSOR: IRENE BELYAKOV AND SESSION CHAIR, INTERNATIONAL PROGRAM

#### **What You Need to Know Before You Visit Turkey: Culture, Language, Some Do's and Don'ts."**

MERIC OZBAY, UGURALP MAVRUK

International students from Turkey will make a power point presentation about their country: interesting facts about its geographical position, culture, language, some Do's and Don'ts for those who are planning to travel or work in Turkey.

#### **"Let's Go Dutch: What You Need to Know Before You Visit The Netherlands: Culture, Language, Some Do's and Don'ts."**

ANNE DEIMAN

Dutch student will present about The Netherlands: interesting facts about its geographical position, culture, language, some Do's and Don'ts for those who are planning to travel or work in her country.

## 10 Things Only Brazil and Brazilians Have. Do's and Dont's for Our Visitors.

DAYVID FERNANDES DA SILVA, ELDER DA SILVA, CAMILLE MENDONCA, MAIRA FERREIRA, YULLI LUNA MARTINS

Brazilian students will make a power point and panel presentation about Brazil and its unique character. Some Do's and Don'ts for those who are planning to travel or work in their country.

## Students From Spain Present: "What You Need to Know Before You Go to Study in Spain: Culture, Language, Some Do's and Don'ts."

DAVID NILSON PERALTA ROJA, BEGONA BERNAL GALLEGO

International students from Spain will make a power point and panel presentation about their country: interesting facts about its geographical position, culture, language, some Do's and Don'ts for those who are planning to travel, work or study in Spain.

## 1L • MATHEMATICS SOUTH 336

### History of Mathematics I

FACULTY SPONSOR AND SESSION CHAIR: JEFF JOHANNES, MATHEMATICS

## The Presence of Rectangular Arrays in Jiu Zhang Suan Shu (Nine Chapters on the Mathematical Art)

LEXI ATHENS

Have you ever wondered when matrices were first used to solve linear systems of equations? This is your chance to learn about the first presence of rectangular arrays in the history of mathematics. The Nine Chapters on the Mathematical Arts is one of the earliest mathematical texts from China. This text includes the explanation of the rectangular array and its presence in solving systems of linear equations. The rectangular array in Chinese mathematics served as a basis for solving linear equations throughout history. The technique used to solve linear equations in Ancient China is very similar to the technique used today.

## Napierian Logarithms: History and Methods

LAURA SHARPE

The invention of logarithms greatly simplified extensive numerical calculations. John Napier developed them in 1614, when he first published *Mirifici Logarithmorum Canonis Descriptio*. This book explained the nature of logarithms and contained a 90-page logarithm table of the natural sines of a quadrant. We will highlight the history of Napier's lifetime leading up to his invention of logarithms, as well as discuss the way Napier thought of logarithms, mathematically. Finally, we will see how Napierian logarithms relate to modern day logarithms.

## Partial Fraction Decomposition

JENNIFER BURDEN

In this presentation you will learn of where partial fraction decomposition came from and why it is important to mathematics. You will learn some of the history of integration in general and we will learn of some of the important players who made the mathematics we have today a possibility. By the end of this you should have a better understanding of where some of the math you use today came from.

## Gaussian Elimination in Modern Europe

HANNAH FETTINGER

The origins of what we now refer to as Gaussian elimination date back to ancient China and similar methods were revisited by mathematicians in Europe beginning in the late Renaissance. This standard method in which we now solve simultaneous systems of linear equations receives its namesake from Carl F. Gauss, although he was not the first to introduce and explore this type of method. This talk will explore the work done by mathematicians in modern Europe, particularly Gauss's Method of Least Squares, and how their work became what we use today.

## 1M • MATHEMATICS I SOUTH 328

FACULTY SPONSOR AND SESSION CHAIR: YUSUF BILGIC, MATHEMATICS, BUSINESS

## Pharma Mutuals

MICHAEL PILOSOV, RYAN ENCO, GREGORY KETCHUM

The state of the biopharmaceutical industry is such that the development of new drugs and therapies is hindered by the economic circumstances related to the high levels of risk associated with early stage testing. The payoff for advances in biomedicine is obstructed by high failure rates that detract potential investors from investing in individual products. In their paper "Commercializing Biomedical Research Through Securitization Techniques," Fernandez, Stein, & Lo propose a "financial structure in which a large number of biomedical programs at various stages of development are funded by a single entity to substantially reduce the portfolio's risk...by employing financial engineering techniques such as securitization" to raise greater amounts of capital for longer-term investment strategies. The authors have made available the source code and data sets with which they ran their simulations in order to invite academic scrutiny. We aim to understand the mechanics of the research and perform various scenarios-namely sensitivity analysis-with the simulation and visualize the stochastic processes involved. Our current progress with this undertaking will be presented. *Selected for presentation at Upstate Chapters of the American Statistical Association, Geneseo, NY.*

## Probably Art

MICHAEL PILOSOV

We will demonstrate an application that allows one to create artistic images using probability distributions with an intuitive GUI. This program will allow users to visually explore the interactions and behavior of randomness using joint probability distributions, which may be of particular interest to

introductory probability classrooms. The images created may also be used to create 'random' music as well. *Selected for presentation at Upstate Chapters of the American Statistical Association, Geneseo, NY.*

## Using R to Predict Stock Market Returns

PATRICK HAMILTON

The aim of the talk will be to exhibit uses of R with regards to data mining of a large data set. I will be working specifically with the S&P 500 index, and using various multivariate regression techniques to predict the return for any given stock in the index. A focal point of the presentation will be on how to work with a large time- dependent database acquired from an external source. The risk associated with some selected stocks will be analyzed.

## 1N • MUSIC

WELLES 115

## Good Guys and Bad in Folk Ballad Tradition

FACULTY SPONSOR AND SESSION CHAIR: JAMES KIMBALL, MUSIC

## The Origins and Incarnations of the Steel Driving Man

ROBERT HELD

At the heart of the John Henry myth there is a simple story of a natural man overcoming insurmountable odds. In both the search for its physical occurrence and its diffusion through folk ballads and hammer songs the story spreads outward in endless variation. I'll explore some of the hypothesis about where the competition took place and illustrate these ideas with letters and tales by people who claim to have second or even first-hand information about the original competition. Naturally, there's no conclusive evidence to prove any of these stories true; they merely become part of the extended folklore of John Henry. Then I'll use recordings and lyric sheets to demonstrate John Henry's journey through the folk mind. When paired, many of the lyrics clearly display the "fixing up" process common to folk music. Others show signs of John Henry's run-in with the similar, although ultimately separate, myth of John Hardy. While the John Henry songs have endless variations, a few stanzas appear more often than others, often together, and when extracted they can perhaps show the heart of the myth.

## Woody Guthrie and Rockefeller Symbolism: The Use of America's Richest Family in American Folk Music and Activism

REGINA CARRA

From the creation of the Standard Oil Company in 1870 into the 20th century, "Rockefeller" was both the name of the richest family in America and a symbol of corrupt capitalism and worker exploitation. Progressives, looking to promote better working conditions, higher wages, and the right to unionize the worker class, latched onto the image of a ruthless business owner who was only

concerned with wealth and power. This image seemed to be confirmed in 1914, when the Colorado Fuel and Iron Company, owned by the Rockefeller family, and the Colorado National Guard attacked a colony of striking mine workers and killed an estimated twenty-five people; most of whom were women and children. The event would be remembered as the Ludlow Massacre, one of the bloodiest instances during the Progressive Era. Almost thirty years later, folk-singer Woody Guthrie used the twisted-capitalistic symbol of the Rockefellers and the Ludlow Massacre as inspiration for his music and activism. While the Rockefeller family themselves had moved away from the oil business years before and was more interested in pursuing philanthropic work through the Rockefeller Foundation, Guthrie saw value in evoking old symbolism and encouraging the collective historical memory of the working class.

### **Narco Corridos: The Music and the Cartels of Mexico's Criminal Empire**

**JOSEPH POTISCHMAN**

This paper will deal with the narco cultura (drug/criminal culture) in Mexico, and focus especially on narco corridos (drug running music) that emerged in Mexican folk music. Influences span European attempts of colonizing Mexico, through the 19th century to the present day when narco corridos have become not just a dominant musical subgenre, but a tool to catalogue cartel activity. This paper chronicles two major figures in Mexican history: Pancho Villa, the Mexican outlaw whose story helped popularize outlaw ballads that would morph into tales of drug trafficking. The second figure is El Chapo, the most notorious drug trafficker currently alive, who is a popular subject not only in narco corridos, but hip-hop culture as well. Hailing from El Chapo's home district of Sinaloa and also discussed in the paper will be Los Tigres del Norte, the most commercially and critically successful group to perform narco corridos. Their music has not only become popular narco cultura; it also addresses, through recordings and popular social media, the problem of the cartels, rather than glorifying them. This is a multifaceted look at how one genre of music has morphed over time and how that music has chronicled the outlaw culture of Mexico.

### **10 • OFFICE OF THE PROVOST**

DOTY 302E

#### **Reflections from the 2013 Ambassadorship Program**

FACULTY SPONSOR: CAROL LONG, INTERIM PRESIDENT

FACULTY SPONSOR AND SESSION CHAIR: CYNTHIA OSWALD, CENTER FOR INQUIRY DISCOVERY AND DEVELOPMENT

#### **Heard@Geneseo Publishing Initiative: Exploring Local History Through Oral Narratives**

**CHELSEA BUTKOWSKI, WILLIAM SCHAEFER, MADELINE SMITH**

Discussion of the purpose and goals of Heard@Geneseo which include reminiscence

therapy, creating a historical archive, building on the strong relationship between the Geneseo campus and community and dispelling ageist stereotypes. How Heard@Geneseo works with interviewers and editors. Also, the making of the magazine and why it's important to show off a copy and describe each step in the process of creating it.

### **Leveraging Differences at Nonprofits in Rochester**

**WILLIAM SCHAEFER**

Discussion of project focused on fournot-for-profits in the Rochester Area, analyzing the effectiveness of each organizations' employees and how they were contributing to the firm's overall output levels.

### **Geneseo Eats Local**

**MADELINE SMITH**

Discussion of the project work with local farms and businesses to promote educational outreach on sustainable consumption. Also, the creation of Think Local Geneseo that is now planning for the Fall 2014 farmers market season and future share programs.

### **Pursuing Racial Equality Through Math Education**

**TODD CHRISTENSEN**

Over the summer of 2013, I worked with the Algebra Project, which is a non-profit organization working to erase racial inequality in the United States through math education. Through a powerpoint presentation, I plan to discuss the history of the organization and its role in the longer black freedom struggle because the Algebra Project is a part a history of black protest against unequal and unfair public education. Also, I plan to discuss the Algebra Project's current programs in detail. Specifically, I want to elaborate on the cohort program which the organization is simultaneously wrapping up and looking to expand, for the project is in a period of transition. And lastly, I will discuss the role of the central office, of which I was a part, of the Algebra Project and its relationship with various other organizations associated with the organization.

### **1P • POLITICAL SCIENCE & INTERNATIONAL RELATIONS**

WELLES 26

#### **The Social Costs of Terror**

FACULTY SPONSOR AND SESSION CHAIR: VICTORIA FARMER, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

#### **A Ticking Time Bomb: Women as Perpetrators of Terror**

**KATIE BECKER**

Women are not widely considered as "typical" perpetrators of terror despite the increasingly common phenomenon of women acting as suicide bombers. This presentation will illuminate the history of women's changing roles in terrorist organizations, while critically examining the enabling forces of global gender stereotypes and the international mass media in furthering female suicide bombers' recent successes. Also considered in this presentation are those societal factors at

work pushing rational women to choose to join terrorist organizations and commit acts of terror. When all is examined, the question will then be asked--what can be done to offset this disturbing trajectory?

### **Reaping the Benefits of September 11, 2001: Culture and Security**

**EMILY SCIOLI**

When two hijacked planes crashed into the World Trade Center on September 11, 2001, the lives of millions of Americans changed, but not all of them for the worse. As strange or uncomfortable as it may be to think about, some sections of society actually benefited, financially or otherwise, from this al Qaeda attack and the subsequent global war on terror. This presentation will focus specifically on American security and culture to provide an in-depth analysis of how American society changed after September 11th to the advantage of these sectors.

### **Torture as an Interrogation Device**

**TEBA HASAN**

Torture is one of the most extreme methods of eliciting information from individuals. Unfortunately, the practice is prevalent worldwide and has been used by countless countries for centuries. The use of torture has most recently been studied with respect to the practices used by the United States government after September 11, 2001, as a counterterrorism strategy. This presentation will illuminate the scientific and psychological research illustrating the ineffectiveness of torture as means of effectively preventing terrorism, including studies of the "ticking-bomb scenario" used by US government officials to justify torture in counterterrorism, and explore the unintended social consequences of this myth. As a result of this study, this presentation will then offer alternative solutions to torture as a counterterrorism strategy.

### **Definitional-Dilemma: The Korean Provisional Government - Shall We Call It a Terrorist Group?**

**UIHEANG HUR**

During the Japanese occupation of Korean peninsula in the early 20th century, there were numerous groups of Korean freedom fighters. Among them were the Korean Provisional Government that established a government in exile in Shanghai. After decades of passive resistance against the Japanese colonization, the KPG resulted in using two cases of terrorist acts against the Japanese authority in Korea. Because of these two cases, the KPG among many other Korean freedom fighters is classified as a terrorist organization, when it had represented the repressed Korean people against the brutal colonization. As a Korean born student, I had tackled this issue of definition problem - was the KPG really a terrorist organization? In doing so, I have used Hoffman's definition of terrorism that is universally acknowledged as the accepted basis when characterizing a non-state actor as a terrorist. A compared study is made between the KPG and Kim Il-Sung's group and a small case study on George



Washington to show the problem we have in classifying the KPG as a terrorist from the nationalist point of view, in light of the accepted universal definition. By considering the KPG as a terrorist, we shall also consider George Washington as a terrorist.

## 1Q • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

WELLES 134

### Public Opinion and Voting in American Politics

FACULTY SPONSOR AND SESSION CHAIR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

### Economic Voting in the United States

**MATTHEW FITZGERALD**  
This research examines the role of the economy for shaping presidential elections. It will be argued within that indicator models based upon the economic conditions of the nation along with specific foreign policy criteria lend evidence to the thesis that voters are reacting to these conditions when they cast their ballots. I contend that this decision, although seemingly simple, poses serious problems due to a lack of voter sophistication. Finally it will be shown through statistical analysis that these patterns, although problematic, are reliable for predicting the outcome of future election cycles.

### Generational Effects On American Politics

**DEVIN MCCONNELL**  
An examination of the effects that changing generations has on civil engagement, political participation, different political eras and the relative balance of power between political parties in American government. Utilizing studies of public opinion, demographic data, and post materialist thinking to identify the formation of generational identity and track the effect that the rise and fall of different generations has on the course of American politics.

## 1R • THEATRE/DANCE

WADSWORTH AUDITORIUM

### Isadora Duncan and Loie Fuller: Pioneers of Modern Dance

FACULTY SPONSOR: JONETTE LANCOS, THEATRE/DANCE  
SESSION CHAIR: JUSTINE LAZATIN

### The History and Inspirations of Modern Dance Innovators: Isadora Duncan and Loie Fuller

**LINDSAY RATHBUN, TIFFANY HENRIKSEN**  
This presentation will focus on the early years of Isadora Duncan and Loie Fuller. The presentation will pinpoint and analyze their early history, dance training, and their inspirations for the modern dance movement that they laid the foundation for in America.

### Impacts, Innovations, and Irony: An Examination of the Legacies of Isadora Duncan and Loie Fuller

**JESSICA DEROLLER, JENNIE GIARDINO, SARAH SIMON**  
This presentation will focus upon the legacies of Isadora Duncan and Loie Fuller. While Fuller contributed her technological intricacies to help shape dance into a theater art, Duncan pushed to revolutionize the purpose of dance as an outlet for self expression. Loie Fuller changed the art form of dance forever by incorporating costuming and lighting into the performance. In a similar way, Duncan's movement theories and her work with the mental, physical, and emotional zones of the body became the basis and core of American modern dance. Both Fuller and Duncan first emerged as parts of their respective movements, and eventually came to embody the movements. As innovators, they desired to make history, and did so by encompassing all of time in their leaping limbs.

## 1S • WOMEN'S STUDIES WELLES 24

### Senior Capstones in Women's Studies: Research and Creative Projects

FACULTY SPONSOR AND SESSION CHAIR: MELANIE BLOOD, ENGLISH AND WOMEN'S STUDIES

**Constructing Identity: the Investigation and Reconstruction of Gender Narratives in Children's Literature**  
**JULIA ANTENUCCI**

A critical investigation of gender identity within children's literature, and how it is constructed through narrative accompanied by a creative literary manifestation of such ideas represented through general models of storyboard, theme and character study.

### Transnational Feminism and the Internet as the Third Sphere

**BIBI LEWIS**  
I would like to argue that the methodology with which transnationalism has strived to widen the scope of feminism and address the needs of women across the globe runs parallel to the way that the creation of feminist Internet spaces and forums attempts to bridge the gap between the academic and the general. However, whereas I believe transnationalism to be a successful model, the academic/general interest battle being fought over the Internet has many faults because of inequalities with access to these spaces as well as the lack of accountability that comes with a semi-anonymous digital space. In my paper, I will synthesize transnationalism and introduce its theory through a close reading of *We Need New Names* and *Americanah* as well as introduce new texts that are available on the internet.

### Perpetual Girlhood: Adult Women Performing Beauty Labor in Response to Youth Culture

**EMMA JEAN LIBERMAN**  
An exploration of the mass-marketing of cosmetics aimed at adult women that mimic an overtly sexualized performance of girlhood and the demands of women to simultaneously be adults and in a state of perpetual childhood.

### In Vitro Fertilization: New Technologies Raising New Questions

**ZOE DAVIDSON**  
Zoe's research covers those for whom IVF raises difficult questions: is motherhood a new imperative? is IVF an option for low income families, or purely available to the wealthy? What are specific opportunities and challenges for IVF in the LGBT community?

**CONCURRENT PRESENTATIONS 2 • 9:55 AM – 11:10 AM****2A • ANTHROPOLOGY SOUTH 338****Global Health I: Contemporary Issues**

FACULTY SPONSOR: ROSE-MARIE CHIERICI,

ANTHROPOLOGY

SESSION CHAIR: DALYA KEFI

**An Examination of Post-Traumatic Stress Disorder Among Rochester, NY Veterans**

GRACE RIVERA, AMANDA SPENCE, KAITLYN MORGAN, DANIEL RUS, MICHAEL SIU

This project examines the impact of post-traumatic stress disorder (PTSD) among veteran soldiers in the Rochester area. PTSD is a mental disorder that has disastrous effects on both afflicted individuals and their families, as can be seen in the high number of suicides among soldiers completing multiple tours of duty and the increase in reported cases of depression and anxiety. The Veterans Association expects the demand for mental health services amongst veterans to increase in the Rochester area by 13% over the next 20 years (Schumer, 2011). We will evaluate the efficacy of available PTSD treatment options through a review of the literature and by interviewing clinic workers and soldiers via veteran advocacy groups. Our final goal is to offer insight on possible improvements that will better the prognosis for affected veterans and their families.

**"People Get Their Food from Various Sources and for Different Reasons." Nutrition in Newly Industrialized Nations**

EMILY BRESSNER, SAMANTHA CRAMER, JESSICA REED, GABRIELLE ROSATO

Malnutrition comes in two forms, over-nutrition and under-nutrition. Both types are linked to the larger problem of "hidden hunger" --when caloric needs are met but nutrient and vitamin levels are too low for proper bodily functions. This project examines malnutrition and its underlying causes in two provinces from newly industrialized nations Eastern Cape, South Africa and Krung Thep Maha Nakhon, Thailand. It compares the patterns of "hidden hunger" as well as where and how food is obtained in both urban and rural environments. By looking at structural problems that contribute to malnutrition in these systems, this project hopes to propose potential solutions to ameliorate these groups' nutritional status.

**Transplant Tourism and Organ Trafficking**

ERIN DAVIDOWICZ, CHLOE FERNANDEZ, TASMIA NAZ, TARYN BARBER, TUSHARA SURAPANENI

Human organ trafficking is a criminal act with severe ethical implications. The purpose of this study is to examine the illegal global kidney trade. The three involved parties-- sellers, brokers, and buyers--are profiled using the following criteria: socioeconomic status, marginalization, and geographic location. Statistics on sellers, brokers,

and buyers are analyzed in the context of geographic information systems (GIS) to identify regional concentrations and map the flow of kidneys between sellers and buyers. The concept of structural violence is used as a lens to examine the institutions that allow these networks to thrive and trace the links between the spread of transplant tourism and the rising prevalence of chronic kidney disease. Suggestions on how institutions can disincentivize involvement in illegal kidney trade are proposed.

**Syrian Refugee Crisis**

LAURA VICTOR, MARY TORO, BETHANY FRIDAY, CAYLIE HEFFLEY, PETER FARRUGGIA

Since March 2011, Syria has been involved in an ongoing civil war, sparked by violent military action against demonstrators protesting President Assad's oppressive regime. It is estimated that 2.5 million Syrian refugees have fled the country as a result of the conflict. They have found refuge in Turkey, Jordan, Iraq and in countries of the European Union. This influx of refugees has put a strain on the health infrastructure of the receiving countries, making it increasingly difficult for Syrian refugees to access quality treatment, especially those suffering from chronic diseases. As the crisis worsens in Syria, the number of refugees in Jordan and Turkey has been increasing. Critical Medical Anthropology will be used to examine how the political, social, economic, religious, and cultural climate of these countries affects the treatment of refugees, specifically their health and well-being.

**2B • BIOLOGY & MATHEMATICS I**

NEWTON 201

FACULTY SPONSOR AND SESSION CHAIR:

CHRISTOPHER LEARY, MATHEMATICS

FACULTY SPONSOR: GREGG HARTVIGSEN, BIOLOGY

**Modeling the Spread of Chlamydia in Koalas**

JANELLE GOEKE, STEPHEN BARRON, BENJAMIN PARKER

Chlamydiosis has had a detrimental effect on populations of koalas throughout Australia. When untreated, chlamydiosis can cause blindness and infertility in koalas. Since the disease is preventing koalas from successfully reproducing, it is devastating the koala population in parts of Australia. Lattice and differential equations models were used to model the spread of the disease and to determine the effectiveness of various vaccination strategies in controlling and eliminating the disease in an isolated population. We hypothesized that the ring vaccination strategy, where vaccinating females and their offspring in close proximity to infected males was the best method for stopping the spread of the disease. Our other vaccination strategies involve vaccinating a ring with an infected female at the center, vaccinating only uninfected male or female koalas, and vaccinating random koalas throughout the population. Our models have demonstrated that the most effective way to prevent the spread of the

disease is to vaccinate members of a specific gender, as opposed to ring vaccinations, which is contrary to what we hypothesized.

**Modeling the Spread and Potential Control of One of the World's Most Common Viruses: the Epstein Barr Virus**

DEANNA INGRASSIA, NICHOLAS YAGER, DEVON ANDERSON

The Epstein Barr Virus (EBV) is the most common virus found among humans, infecting nearly 95% of the population worldwide. EBV's near ubiquity is thought to be caused by occasional reactivation and infection in previously exposed individuals. Although usually asymptomatic, this herpesvirus is known to be associated with infectious mononucleosis; as well as Hodgkin's disease, nasopharyngeal carcinoma and Burkitt's lymphoma. In order to simulate the spread of EBV in a population, both a differential equation model and a network model were constructed to examine the dynamics of EBV. Our results suggest that age-based vaccinations can be effective if administered to children during early childhood. Due to the widespread nature of the virus, however, vaccination efforts will take decades to make an impact.

**Modeling the Perfect Parasite**

MARINA MASSARO, LAUREN GUTERMAN, CONNOR ROGERS

*Toxoplasma gondii* is referred to as the world's most successful parasite, infecting all warm-blooded vertebrates; each year in the United States, it hospitalizes over 4,400 individuals and costs almost \$3 billion to the economy. Domestic cats are one of few known hosts in which the parasite can sexually reproduce to generate oocytes, which are then shed in the cats' feces. Cats remain infected for a short period of time (1-2 weeks) and then recover. Intermediate hosts, such as mice, acquire this infection by ingesting contaminated soil, water, and plants or through vertical transmission. This parasite is known to induce behavioral changes in its intermediate host, such as inhibiting a mouse's ability to detect a cat, causing an increased risk of the mouse being eaten. Using a differential equation model of the cat and mouse populations, we investigated how the induced behavioral change in mice and changes to cat predation rates affect the proportion of the cat and mouse populations that are infected. Current results suggest an increase in the predation rate coupled with an increased behavioral risk of being eaten will decrease the ratio of infectious to susceptible mice, with no corresponding increase in the proportion of infectious cats.

**Modeling the Black Death: A****Medieval Disease in Modern Times**

CORTNEY DODGE, MATT STRASSMAN, MATTHEW TAYLOR

The Black Death was one of the most devastating diseases in human history, estimated to have claimed 75 to 200 million lives. It is primarily spread by fleas infected with the bacterium *Yersinia pestis*, which is then transferred to their hosts, rats and humans. Two models were used to simulate the spread of the disease; a differential equations model and a lattice-based spatial model. Two strategies, (1) the reduction of susceptible rats and (2) the quick removal of dead humans and rats, were implemented to study the reduction in fatalities as compared to a no treatment control. Our model showed that the quick removal of dead rats and humans had the largest impact on minimizing the number of people infected, and died from the disease. These results suggest that in the event of an epidemic with a similar mode of transmission, the quick removal of dead rats and humans should be implemented to reduce the number of fatalities.

**2C • BIOLOGY II** ISC 115  
SESSION CHAIR: KEVIN MILITELLO, BIOLOGY

### 5-Azacytidine Induces Gene Expression Changes in *Escherichia coli* through Dcm-dependent and Dcm-independent Pathways

ALEXANDRA MANDARANO, ANTHONY DINATALE  
FACULTY SPONSORS: KEVIN MILITELLO, BIOLOGY AND ROBERT SIMON BIOLOGY

In *Escherichia coli*, the second cytosine in the sequence 5'CC(A/T)GG3' is methylated by the Dcm enzyme. Although there is strong evidence that cytosine DNA methylation influences gene expression in higher organisms, there is little information on this potential relationship in bacteria. Therefore, we compared global gene expression changes of cells grown in the absence and presence of the DNA methylation inhibitor 5-azacytidine. We observed >300 gene expression changes and the majority were at stationary phase. We are currently determining if the gene expression changes are due to a loss of DNA methylation, increased DNA damage, or novel mechanisms using qPCR. To demonstrate phenotypic effects of cytosine DNA methylation, we investigated the expression of a membrane drug transporter, *sugE*, which is up-regulated by 5-azacytidine treatment at log and stationary phase. We then compared drug resistance levels of wild-type, *dcm* knockout and *sugE* knockout cells via Kirby-Bauer disc diffusion assays, MIC assays and growth curve analyses. Our data demonstrate that *sugE* expression is increased in the absence of *dcm*. As a result, *dcm* knockout cells are more resistant to *SugE* substrate ethidium bromide, while *sugE* knockout cells are hypersensitive to ethidium bromide.

### Mapping Modified Cytosines in the Epitranscriptome of *Trypanosoma brucei* using Sodium Bisulfite Sequencing

SARAH ACKERMAN  
FACULTY SPONSOR: KEVIN MILITELLO, BIOLOGY

This study characterized the location of modified cytosines in the tRNAs of *Trypanosoma brucei*, a parasitic protozoan. We are interested in these modifications, specifically 5-methylcytosine (5mC), as a first step in characterizing the organisms epitranscriptome. We used sodium bisulfite sequencing to determine the location of modified cytosines in procyclic form tRNA<sup>Asp</sup>(GUC), tRNA<sup>Gly</sup>(GCC), tRNA<sup>Val</sup>(AAC), and tRNA<sup>Tyr</sup>(GUA). Our data show that all analyzed tRNAs have 1 to 4 modified cytosines. Each tRNA has a modification at C48 in the TΨC stem and there is partial modification at C40 present in tRNA<sup>Gly</sup>(GCC) in the anticodon stem. There are no modifications at C38, which is a common site in higher eukaryotes. tRNA<sup>Tyr</sup>(GUA), the only spliced tRNA in *T. brucei*, possess the same cytosine modification pattern in both unspliced and spliced molecules. Thus methylation can occur before splicing and it is unlikely that methylation is involved in splicing. We are now examining bloodstream form tRNAs for significant changes in methylation pattern. We have also found 5mC in mRNA and are attempting confirm the locations. Elucidating the presence of these modifications has developed our understanding of the epitranscriptome in *T. brucei* and we hope to determine the global distribution and purpose of these modifications. *Selected for presentation at Experimental Biology, San Diego, CA.*

### 2D • CHEMISTRY NEWTON 203 Chemistry Honors Research Presentations 1

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY  
SESSION CHAIR: JAMES MCGARRAH, CHEMISTRY

### Thioflavin - T Fluorescence Study on Aggregation of Amyloid β 1 - 40 and Amyloid β 1 - 42 Peptides

CHRISTINA BERTI

Alzheimer's disease is the most common form of dementia witnessed in elderly adults, as it affects over 30 million people worldwide. The essential focus of this research is to study the structure of amyloid β fibril aggregates constituting characteristic extracellular senile plaques detected in the brains of Alzheimer's patients, as well as the mechanism of aggregation (particularly the initial stages of the mechanism). This analysis is executed by utilization of enhanced Thioflavin - T (ThT) fluorescence upon binding amyloid β fibrils. Under the assumption of previously reported means of ThT binding to amyloid β fibrils, we investigate the spectra in an attempt to assign potential conformations of amyloid fibrils to the observed fluorescence peaks. So far, our results provide evidence that enhanced ThT fluorescence in the presence of amyloid β 1 - 40 is most prominently demonstrated in basic solution conditions (~pH 9 - pH 10). In continuation of this study, we plan to test for any reversibility in observed fluorescence with respect to pH fluctuations; we also wish to study the effect of other changes in medium environment. All performed fluorescence tests are to be repeated using amyloid β 1 - 42.

### Structural Characterization of Novel Acetato-bridged (benzene-1,2-diamine-κN)lead(II) Complexes

DYLAN PARSONS

Reaction of lead(II) acetate with 1,2-diaminobenzene (DAB) or 4-substituted-1,2-diaminobenzene derivatives in refluxing ethanol results in the formation of lead(II) complexes that incorporate acetate and diaminobenzene in their coordination spheres. Single-crystal X-ray crystallographic analysis reveals that the complexes exhibit extended structures. When DAB is used, a compound with interlinked chains containing four symmetry independent lead(II) ions is obtained: Pb<sub>4</sub>(DAB)<sub>2</sub>(OAc)<sub>8</sub>. Two of the lead ions have a coordination sphere consisting of one monodentate DAB ligand, two acetate ligands bonded in bidentate fashion and bridging to two adjacent lead ions, and two additional oxygen atoms, each from a different bridging acetate ligand. The other two lead(II) ions each have a coordination sphere composed of a nonbridging, bidentate acetate ligand, a second bidentate acetate ligand that bridges to two different lead ions, and two oxygen atoms from different bridging acetate ligands.

### Supramolecular Host/Guest Chemistry: Soluble Aggregates of Platinum Phosphors

LAWRENCE GERSZ

Luminescent platinum(II) complexes are of interest for use as dopants in organic light emitting devices (OLEDs). Aggregation of these luminescent platinum(II) complexes in the solid-state to form dimer or trimers have been implicated in pronounced red-shifted emission energies compared to isolated complexes in dilute solutions. Self-assembling molecular cages can be used to encapsulate specific numbers of platinum complexes (i.e. dimer and trimers); thus, allowing a way to structurally model aggregates and investigate their photophysical properties in aqueous solution. We have employed Fujita type organic pillared coordination cages to achieve these ends. A series of Pt(N<sup>Ac</sup>)(acac) complexes, where N<sup>Ac</sup> is a monoanionic cyclometallated ligand of either 2-phenylpyridine (ppy) or 2-thienylpyridine (thpy), have been encapsulated and investigated for their luminescent properties in solution. While the tuning of emission energy is possible through ligand substitutions, the Pt-Pt and π-π interactions through aggregation further affect the luminescent character of the compound. Varying the cage components and number of encapsulated guests allows for the study of these complex stacking interactions and their corresponding photophysical effects. 2D-NMR data will be presented showing the formation of the host-guest assembly, along with corresponding steady-state and time-resolved photoluminescence emission studies.

**2E • COMMUNICATION** MILNE 105  
FACULTY SPONSOR AND SESSION CHAIR: ATSUSHI TAJIMA, COMMUNICATION

### It's a Heterotopia After All: Bridging Disney Media and Theme Parks as

## Uniquely Gratifying Guest

### ExperiencesEMILY WAGNER

The Walt Disney Company is known as one of the most successful and unique companies in the entertainment industry. Disney Parks and Resorts annually attract over 120 million guests (Disney, 2012). Walt Disney Entertainment recently reported 2014 movie franchise revenues of \$12 billion, and a net income of \$1.8 billion (Forbes, 2014). In addition to its financial success, Disney has become a worldwide company and household name in promoting its positive, wholesome, and classic brand. What makes Disney unique is the strong relationship and integration between elements in the theme parks and media components. This project looks at how Disney distinctively connects its media and theme parks by bridging the experiences of imaginary and reality worlds. The research suggests four categories that accomplish this goal: 1. Disney theme parks provide media experiences in a tangible, interactive way. 2. Disney promotes positive family and social values that result in psychological gratification. 3. Disney attracts international audiences by presenting America in a comprehensive way as represented in Disney media. 4. Disney simultaneously and synergistically maintains nostalgic classic characters and stories in a contemporary way through integrating movie franchises into theme parks.

## Bridging the Gap: Negotiating Communication and Perceptual Discrepancies Among International and American Students

### DENA SPANOS

This study focuses on the intercultural perception gap between international and American students studying at a small liberal arts university in Western New York. Both international and American students report a lack of intercultural communication that fosters friendship at American universities. Although universities design programs intending to unify and acculturate international students, these programs fail to effectively communicate the cultural and lingual diversity engrained in the upbringings of American and international students. The researcher discusses what these cultural and lingual differences are, and how their effects on intercultural communication are perceived by both sets of students. Lastly, through the analysis of perceptions and experiences of the international and American students, the researcher suggests how students and universities can attempt to bridge the gap of intercultural understanding. *Selected for presentation at Eastern Communication Association Conference, Providence, RI.*

## 2F • EDGAR FELLOWS MISCELLANY 4

WELLES 121

SESSION CHAIR: LISA MEYER, SOCIOLOGY

## The Mental Magnitude Line with Uncrossed and Crossed Hands: A Replication of Holmes & Lourenco (2011)

### LAUREN AULET

FACULTY SPONSOR: JEFFREY MOUNTS, PSYCHOLOGY

Originally established in Dehaene et al. (1993), evidence for the SNARC effect (spatial numerical association of response codes) has been put forth in a variety of psychological and neural research. Further, Holmes and Lourenco (2011) suggest that this effect may be generalizable to any stimuli with magnitude, such as emotional facial expressions. In the present study, participants responded to a series of emotional facial expressions, as in experiment two of Holmes and Lourenco (2011). Participants completed half the experiment with their hands uncrossed and the other with their hands crossed (order counterbalanced). Results for the uncrossed condition replicated Holmes and Lourenco (2011), such that magnitude (less/more) is spatially organized (left/right) and that this organization significantly effects responses, even when they are unrelated to magnitude. In the crossed hands condition, response times were reversed, suggesting that this mental magnitude line exists in internal space (response hand) not external space (response key). These findings support the idea, proposed by Holmes and Lourenco (2011), that the SNARC effect is not limited to explicit numerical values, but is exhibited for anything with discernable magnitude. Additionally, this information is extracted and utilized even when magnitude is unrelated to the task being performed.

## Working with Social Media in the Nonprofit Sector

### LAUREN PSZONAK

FACULTY SPONSOR: ANDREW HERMAN, COMMUNICATION

The research for this project was largely through hands-on experience. The researcher completed research in existing literature. Through this, the researcher sought to gain insight into how nonprofit and profit-seeking corporations use social media to further their campaign, and advertise their organization. With the background knowledge of existing trends in using social media, the researcher was able to use these theories in practice through an internship as a social media manager for LoGOFF, a small nonprofit business based out of New York City. As the internship progressed, the researcher was able to compare how the theoretical compared to the hands-on experience involved in producing the social media necessary to remain relevant. The internship focused mainly on Twitter and Pinterest. These platforms were used to make the LoGOFF brand more relevant to followers and potential supporters.

## 2G • EDGAR FELLOWS MISCELLANY 5

WELLES 123

SESSION CHAIR: AARON STEINHAEUER, PHYSICS & ASTRONOMY

## Diversifying Assessment

### CHRISTINE NASSAR

FACULTY SPONSOR: PATRICIA BARBER, EDUCATION  
In the field of elementary education, personalizing instruction to the individual student is crucial to effective teaching. However, no such individuality is

taken into consideration in assessment. Students are all required to take one uniform test, which may or may not be representative of what they have actually learned. Taking this into consideration, this study was designed to test the feasibility of allowing students to choose their own assessment format, at both the elementary and college level.

## Rote Learning to the Guided Math Framework

### MEGAN WHITEHURST

FACULTY SPONSOR: KATHRYN ROMMEL-ESHAM, EDUCATION

This project serves two main purposes. The first is to analyze traditional math pedagogy, or rote learning, and understand why a change in pedagogy is needed to better prepare our 21st century learners. The second purpose is to discuss why Guided Math is the instructional model that will fit this needed change, through the following lenses: mathematics, national education reform (Common Core State Standards) and special education. According to the National Council of Teachers of Math's "Guiding Principles for Mathematics Curriculum and Assessment" from 2009, we need our young mathematicians to acquire an understanding of math concepts, become proficient with procedures and skills, and have a positive attitude towards mathematics. In this project, it becomes clear that Guided Math is a strong instructional program to fit those goals, based on the Foundational Principles of Guided Math and recent research on today's best practices in education.

## The Personality Correlates of Mental Toughness

### ADAM SHAFIK

FACULTY SPONSOR: DOUG RAYNOR, PSYCHOLOGY

Mental toughness has been studied extensively in the realm of athletics, and has been shown to be a critical factor in athletic success. However, few studies have examined mental toughness in an academic setting. Furthermore, the research on personality factors related to mental toughness is limited. It is reasonable to assume that certain personality characteristics may predispose one to having a higher or lower amount of mental toughness. The purpose of this study is to determine whether mental toughness is linked to certain personality dimensions. Specifically, I will use the 5 Factor Model of Personality, which includes Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. I will also utilize the 48 Item Mental Toughness Questionnaire to measure student's levels of mental toughness. I will then statistically analyze the data to look for links between personality factors and mental toughness levels.

## 2H • EDGAR FELLOWS MISCELLANY 6

WELLES 119

SESSION CHAIR: OLYMPIA NICODEMI, MATHEMATICS

## A Philosophical Survey of the Foundation of Mathematics

### ALEX CHICHESTER

FACULTY SPONSOR: CHRISTOPHER LEARY,  
MATHEMATICS

Mathematics has often been hailed as the "queen of the sciences". Whereas the empirical sciences rely on the fallible faculties of human experience and perception, mathematics can be done in an armchair with eyes closed. It has earned this reputation through its use of deductive reasoning, which provides a sense of certainty to mathematical "truths". However, one might naturally wonder what these mathematical "truths" are based on. Should mathematics be founded on self-evident and logical truths that we assume to be true without proof? Or, should all of mathematics be based on possibly unintuitive statements that we take to be true for practical reasons? This presentation will take a look at the so-called foundational crisis of mathematics in the early twentieth century where mathematicians encountered difficulties that challenged the belief that mathematics had a consistent foundation. Specifically, this presentation will analyze the intuitionists and formalists, who were two radically different groups that attempted to provide a foundation for mathematics in the early twentieth century.

### **Hilbert's 10th Problem: A Guided Tour of What We Can and Cannot Calculate**

SURAJ UTTAMCHANDANI

FACULTY SPONSOR: CHRISTOPHER LEARY,  
MATHEMATICS

In 1900, David Hilbert put forward twenty three problems that he hoped the mathematical community would attack in the coming century. Of these, the 10th is the only one that asks for an algorithm - specifically, one to find solutions to any polynomial. In 1970, Yuri Matiyasevich completed the work that others began and proved that no such algorithm exists. In this talk, we will look at what all this means. What is an algorithm, really, and how does our intuition line up with mathematical rigor? And how, exactly, can one go about proving that an algorithm doesn't exist? This talk will be accessible to an audience without a significant mathematical background.

### **Using Wavelet-based PCA and ICA to Analyze fMRI Images**

KATHERINE WEBER

FACULTY SPONSOR: CAROLINE HADDAD,  
MATHEMATICS

My project was to investigate the theory behind both wavelet analysis and the statistical analysis of fMRI images, and to explore how these analysis techniques can be used in conjunction with one another. Wavelet analysis is a branch of applied mathematics that uses basis functions, called wavelets, to decompose signals into time-frequency space. fMRI is one of the most recently developed brain imaging procedures. It involves taking MRI images in quick succession and measuring the BOLD (blood oxygen level dependent) signal, which is an indicator of neural activity in the brain. This imaging procedure creates a hefty amount of data to be analyzed. Many statistical methods have been applied and created for the analysis of fMRI images. In my project, I focused on Principal Components

Analysis (PCA) and Independent Components Analysis (ICA), which are mathematical techniques used to eliminate noise in fMRI data, reduce the dimension of the data, and to isolate statistically independent neural networks contributing to the BOLD response. In this talk, I will start off by discussing wavelets. Then, I will describe PCA and ICA in more detail, and describe how wavelets can be used with these techniques to help researchers accurately interpret psychological data.

### **2I • EDUCATION NEWTON 204**

#### **The Students in the LIVES (Learning Independence, Vocation, and Education Skills) Program at Geneseo - Our Strengths/Struggles, What We Have Learned, Who We Are, and Where We Will Go Next**

FACULTY SPONSOR AND SESSION CHAIR: ELIZABETH HALL, EDUCATION

#### **Our Strengths and Struggles - Similarities and Differences Between College Students with and without Disabilities**

AMANDA CROSS, BRENDEN PORTER, JOSHUA COBB, BEATRICE RHOADS

The Freshmen in the LIVES Program surveyed fifty Geneseo college students to determine their strengths and struggles as college students. The LIVES students then compared/contrasted the college student's answers to their own strengths/struggles as being first year college students. The LIVES students found that the Geneseo college students had similar strengths and struggles as they did; thus helping the LIVES Program students that college students have similar experiences regardless of ability.

#### **Road Map to a Successful Life - What Skills We Need to Learn to Be Successful**

TYLER BUSH, JONATHAN KEE,

This presentation will focus on an exploration of skills college students need to be successful in college and how these skills generalize to life after school. Living in a rural area and jobs being very competitive, having the right qualifications and experience is no longer enough to ensure the right job. The LIVES Program students have learned that they have to differentiate themselves from the next person, convey a professional working image, and project their best qualities in the way they look, sound, and behave.

#### **Our Disability - It Is a Part of Who We Are and Does It Significantly Impact Us?**

ANDREW SASS, PATRICK CHMELA, MARIELY VAZQUEZ

The students in the LIVES Program researches his/her own disability. In this presentation, each student will present: the current definition of the disability, tell how common is that disability, what

are the signs of that disability, educational implications of that disability, tips for teachers/professors, and tips for students. The presentation will conclude with the LIVES Program student telling how the disability has/has not impacted his/her life.

### **Skills Learned in LIVES and at Geneseo And How They Will Help Me In the Future**

MELISSA PRICE, CHRISTOPHER SCHEIB, FREDERICK YOUNG, ELLEN BEISHEIM, LAUREN DALY, ANDREW MACDONALD, EMILY COOK

This presentation will be summary of the students four years at Geneseo in the LIVES Program. Each student will present the skills/he has learned in the LIVES Program, audit classes, non-paid internships, clubs/activities, and social skills.

### **2J • ENGLISH WELLES 131**

#### **Pagan or Biblical? English Poetry and Ancient Systems of Allusion**

FACULTY SPONSOR: GRAHAM DRAKE, ENGLISH  
SESSION CHAIR: DEAN TRIPP

#### **Spenser's Epithalamion: A Representation of Colonization through Marriage**

EMILY ERCOLANO

Edmund Spenser drew heavily upon his experience of living Ireland, using the colonization of the island as a thematic parallel to marriage in his poem the Epithalamion. Throughout the poem, the reliance on allusions to both Classical mythology and Irish folk lore as well as the use of simile produces a view of the speaker as a misogynistic, colonist who seeks to dominate his new bride who he imbues with symbolic qualities related to pre-colonial Ireland.

#### **Reading Rossetti: Biblical Style and Content in Christina's Freshman Collection**

TIMOTHY MALONEY

The essay focuses on Christina Rossetti's first collection of non-religious poetry, Goblin Market and Other Poems, discussing the similarities between a handful of these poems and the Bible. Poems are compared to stories from the Old Testament, certain lines compared to Psalms or excerpts. There are clear instances of Christina remembering her favorite tales and using these memories to influence her writing. Stylistic similarities are mentioned too - chiasmus, antithetical parallelism, relative clauses are found in both this collection and the Bible. A little of Christina's childhood and homelife are delved into at the start, giving credence to why Christina included so many of the features from the Bible in her poetry. With some of the works she put out in Goblin Market, it is impossible to ignore the influence of the biblical readings Christina enjoyed as a child. Some information about her family found in biographical works is used throughout the paper to back certain points and provide info that I find useful to really get into the head of Christina. It is a great lens to read the poems through.

**2K • ENGLISH**

WELLES 134

**Biblical Samson and the Ethics of Suicide Bombers**FACULTY SPONSOR: JULIA WALKER, ENGLISH  
SESSION CHAIR: VINCENT STOWELL**Judges**

EVA LAU

In the book of Judges, Samson destroys an entire population while they are gathered in their temple, and he prays for the strength to do so, citing the need for revenge. Problems?

**Milton**

EVE ANDERSON

Milton makes Samson mass-murder less personal, but that raises a sharper ethical question about God's permission.

**Suicide Bombers**

TYLER DERUBIO

What does it say about the Jewish/Christian/Muslim culture that the Samson narrative is generally considered heroic?

**2L • HISTORY**

WELLES 140

**History Honors Theses: Popular Resistance in Times of War and During the Atlantic Slave Trade**

FACULTY SPONSOR AND SESSION CHAIR: JUSTIN BEHREND, HISTORY

**To Have First 20 Blows with a Cat of Nine Tails, and 19 More...: The Story of Abuse and Evolving Resistance in the Slave Trade After the Fall of Piracy**

ALEC TARE

This paper is a part of an honors thesis that looks into the various abuses that seamen faced in their profession during the eighteenth century. The paper shows that seamen not only resisted authority consistently throughout the eighteenth century, but also that this resistance evolved over time as more direct forms were suppressed. Starting with the golden age of piracy the paper will show the changes in the resistance of sailors with the growth of the merchant slave trade, culminating in the Liverpool sailor strikes in the late eighteenth century. *Selected for presentation at Phi Alpha Theta West/Central New York Regional Conference, Buffalo, NY*

**The Original Guerrillas: Unconventional Warfare in the French Revolutionary and Napoleonic Eras**

PAUL KENNEDY

The era of the French Revolution and Napoleonic Wars was a major transformative period in the development of modern warfare. In the course of twenty two years of tumultuous violence European methods of war making underwent a dramatic

transformation. The growth of state power during the French Revolution enabled the French, with the help of levee en masse, to produce a seemingly invincible military machine that rapidly overwhelmed the traditional militaries of continental Europe. However, even as the invincible legions of the Republic and Empire gained conquests not seen in Europe since Roman times, a strong countercurrent was already gathering momentum. In the hedgerows of western France, in the mountains of Spain, and on the barren Russian steppes, the invincible Revolutionary and Imperial armies were badly mauled by frustratingly effective popular insurgencies that utilized unconventional tactics and strategies. This paper will examine the emergence of guerrilla warfare during this period and address the conditions that produced popular resistance on such an unprecedented scale. This study will also evaluate the authenticity and effectiveness of the major insurgent movements, and assess the role that they played in transforming the manner in which modern wars are fought.

**A Question of Union and Devotion to the Cause; Factional Conflict in the 104th NY Infantry during the American Civil War**

ROBERT TERRERI

In late fall of 1861, the call for volunteers went out in Livingston County to form a new regiment of volunteer infantry. Nearly 600 men from the area enlisted into what would become the 104th NYVI "The Wadsworth Guards". However being 400 men short of a full regiment, they were forced to consolidate with 4 companies of men from Troy, NY and their officers. From the onset of this consolidation, the officers of Troy and Geneseo formed into factions coming into later conflict over various issues, resulting in numerous attempts to court martial and force opposing officers out of the army. The formation of these factions and the conflict which affected the daily activities of the regiment will be explored as well as the underlying issues surrounding loyalty to the Union and views on devotion to "the cause".

**2M • HISTORY**

WELLES 133

**Guns, Graphics, and Gonads: Subjectivity and Structural Critique in the Long 1960s**

FACULTY SPONSOR AND SESSION CHAIR: TODD GOEHLE, HISTORY

**An Auter's Aesthetic: The Revolutionary Ideology and Design of Jean-Luc Godard's Early Feature Films, 1960-1967**

JANNA NUNZIATO

Within the larger context of a mutating French culture, I explore the inspiration and ideology behind the feature films of director Jean-Luc Godard's early career, from 1960 to 1967. A close analysis of both the content and editing of these films reveals a reoccurring critique of commodity-obsessed, Americanized, and industrial France. I discuss the factors that influenced Godard's

philosophy on both film and society, including his association with the French New Wave movement, his reverence of German playwright and theorist Bertolt Brecht, and his subsequent blending of these elements with Marxist thought. I argue that Godard's ideology, and consequently the content and editing of his films, became increasingly radical throughout his early career, predominately inspired by increasing tensions within Paris before the 1968 protests. Although he began his career with more mainstream works, Godard quickly abandoned these "bourgeois" tendencies, using a variety of unique film techniques to foster critical, sociopolitical inquiry within his audience. In particular, my talk explores how the abrupt placards employed by Godard throughout his films are integral to his didactic purpose; the message, design, and typography of the cards embody Godard's revolutionary ideology while supporting the development of his notoriously radical aesthetic.

**Burn!: Fanon, Vietnam, and the Gaze**

THOMAS MULHOLLAND

Pontecorvo's *Burn!* (1969) depicts the transforming nature of colonial exploitation through the use of Fanonian images amplified by unique film techniques and decisions, and, in doing so, makes a case for total revolution constituted by a rejection of Western frameworks of 'progress'. In my presentation, I will discuss Pontecorvo's use of Fanon, reference the extra local parallels in *Burn!* and evaluate Pontecorvo's role as a director of 'Third (World) Cinema'. My discussion of Fanon will center on the concepts of violence, 'the new man' and the reordering of society. The discussion will be positioned in a global context through the film's allusions to contemporary Vietnam, historical Guadalupe, and the international language of dissent. The evaluation of Pontecorvo as a director of 'Third Cinema' will concentrate largely on Lacan's concept of 'gaze' as it has come to be used in cinematic and postcolonial theory. The presentation will be largely in the form of a lecture but will require a projector to display excerpts from the film.

**The Desiring Fascist: Discourses of Sexuality and Terror in West Germany's "Red Decade"**

NIKITA RUMSEY

In this paper, I examine the intersections between discourses on sexuality and fascism that permeated the public sphere of West Germany's tumultuous "Red Decade." Using Klaus Theweleit's 1977 psychoanalytic analysis of fascism, in which he investigates the proto-fascist mind of the Weimar-era Freikorps soldiers, I argue that the crisis of post-1968 West Germany mirrors Theweleit's construction of the Freikorps. I will explore how the radicalization of political violence, the emergence of alternative, anti-authoritarian, sexually discursive spaces, and the ensuing battle between left-wing "terror" and the West German police function for Theweleit as an unsettling recursion of Germany's fascist past.



## 2N • INTERDISCIPLINARY: MATHEMATICS & PHYSICS ISC 131

SESSION CHAIR: CHARLES FREEMAN, PHYSICS & ASTRONOMY

### Complete Analysis of a Stack of Radiochromic Film

JEFFREY STEIDLE, DREW ELLISON

FACULTY SPONSOR: CHARLES FREEMAN, PHYSICS & ASTRONOMY

An experiment was performed at the University of Rochester's Laboratory for Laser Energetics (LLE) using the OMEGA EP Laser System. An 80 TW, 10 ps pulse was incident on a 20 micron thick copper target resulting in target-normal sheath acceleration of protons from the rear of the target. A Thompson Parabola Ion Spectrometer containing a 30 MeV stack of Radiochromic Film (RCF) was placed behind the copper target allowing the protons to deposit some of their energy in the film. RCF changes color based on the amount of energy that it absorbs. The resulting films were scanned and the red color values for each pixel were converted to optical density. The 2D array of optical densities was converted to a 1D spectrum by summing each column of the array. These data, along with a RCF response calibration were used to determine proton energy spectrum. *Selected for presentation at Omega Laser Facility Users Group Meeting, Rochester, NY.*

### Matrices Meet Modulus

ANDREW SAMER

FACULTY SPONSOR: PATRICK RAULT, MATHEMATICS  
We will define and discuss properties of infinite rings, which are sets with the familiar operations of addition and multiplication. I focused on the ring of diagonal matrices whose coefficients are in  $\mathbb{Z}_4$  and are only 0 or 2. This ring had the fascinating feature that for all elements  $x$ ,  $x+x=0$ . I studied this ring to find an answer to a more general question posed by the December 2013 edition of Mathematics Magazine. The problem asks whether or not the existence of two elements  $s$  and  $t$  in  $R$  such that  $st=0$  implies that there exists a nonzero ideal (a type of subring)  $I$  such that the size of  $R$  equals the size of  $R/I$ . I also look at whether a stronger hypothesis changes this answer by assuming that the sets  $R_s$  and  $R_t$  are both nonzero. This talk will be accessible to anyone who has taken MATH 233.

## 2O • INTERNATIONAL PROGRAM

MILNE 109

### International Students Present 2: "Where in the World Is My Country? What You Need to Know Before You Visit Us: Culture, Language, Some Do's and Don'ts." Japan, China, S. Korea, Dominican Republic

FACULTY SPONSOR AND SESSION CHAIR: IRENE BELYAKOV, INTERNATIONAL PROGRAM

### Students from Japan Present: "Where in the World Is My Country? What You Need to Know Before You

### Visit Us: Culture, Language, Some Do's and Don'ts"

LIURAN CHEN, MARIKA TANI, MIKO MOMOI, MIZUNA INOUE, ZHI LI

International students from Japan present about their country: interesting facts about its culture, holiday celebrations, language, some Do's and Don'ts for those who are planning to travel or work in Japan.

### Students from China Present: What You Need to Know Before You Visit: Culture, Language, Some Do's and Don'ts"

SHATANATI KUERMANAILI, DI YE, MINGYA MA

International students from China present interesting facts about its culture, language, some Do's and Don'ts for those who are planning to travel or work in China.

### The Dominican Republic: What You Need to Know Before You Visit: Culture, Language, Some Do's and Don'ts"

LEINNI MEIJIA

Presenter was born in the Dominican Republic, raised in New York: interesting facts about the DR, its culture, language, some Do's and Don'ts for its visitors.

### Students from S. Korea Present: What You Need to Know Before You Visit: Culture, Language, Some Do's and Don'ts"

SANGYUP LEE, JUNG DAM JADE KIM, DOHYUN KIM, SOOHYUN JULIA LIM, JISOO YOO, SEONGSIL HONG, SUJIN PARK, SUHYEON YU, YEON BRIANNA CHOI, CHAE YOUNG OH

International students from South Korea present interesting facts about its culture, language, some Do's and Don'ts for those who are planning to travel or work in Korea.

## 2P • MATHEMATICS SOUTH 336

### History of Mathematics II

FACULTY SPONSOR AND SESSION CHAIR: JEFF JOHANNES, MATHEMATICS

### George Green: A Discussion of Humility in Genius

REBECCA MASSÉ

While a thorough discussion of the greatest mathematical minds of the 19th Century would be far from completely if it were to lack an exploration of George Green, it is highly unlikely that this is a name many will jump straight to when thinking of 1800s' geniuses. Many are familiar with Green's Theorem, but few know the full extent to which George Green influenced both the study of mathematics and that of physics. Being, for the most part, self-educated and rather secluded in his personal mathematic endeavors, it is easy to see why this man is never given all the credit he deserves. This talk will highlight the vast

achievements of this unappreciated genius. The profound effect of his work on the communities of mathematics and physics will be discussed alongside the man's life story. His humble roots in education held him back from getting the full recognition for his greatness at the time. A full explanation of his background and his sense of curiosity which led him to such abundance of mathematical understanding will solidify his place as one of the greatest minds of the 19th century.

### LU Decomposition: A Closer Look

MIRIAM HAASE

The decomposition, or factorization, of a matrix into an upper triangular matrix and a lower triangular matrix is a technique that has expedited the process of solving systems of equations. This paper will provide some insight on the man who first thought to factor a matrix in such a way, Alan Turing, and his contributions to mathematics and subsequently the burgeoning world of computer science. It will also describe various methods to decompose a matrix to upper and lower triangular matrices. Finally, it will look at some of the uses of LU decomposition and why it is an important technique.

### Dedekind Rings: Theory and Applications

TIM KELLY

Richard Dedekind was a brilliant mathematical mind of the 19th and 20th century who developed a notion that regarded rings and ideals. Through his time spent with other great mathematicians such as Johann Carl Friedrich Gauss and Johann Peter Gustav Lejeune Dirichlet, this notion was able to take the principle ideals of rings and make them into prime ideals. The purpose for this talk is to go deeper into the creation and proof of Dedekind's contribution and explore its theory. To expose what it truly means to take one ideal and comprise it into another and to look at what applications arose from his contributions to mathematics.

### Giuseppe Peano and His influence on Mathematical Logic

CARMEN STAUB

Giuseppe Peano was an Italian mathematician who flourished in the nineteenth and twentieth centuries. He is famously known for the creation of Peano Arithmetic which is the current system used in mathematical logic today. His axioms on the natural numbers and use of induction were groundbreaking and served as a necessary tool for other prominent mathematicians and logicians of the time.

## 2Q • MUSIC DOTY RECITAL HALL

### Operetta Scenes

FACULTY SPONSOR AND SESSION CHAIR: MELANIE BLOOD, MUSIC

FACULTY SPONSOR: PAMELA KURAU, MUSIC

### The Gondoliers by Gilbert and Sullivan

JANE COONS, GABRIELLA GARCIA, ALYSSA CONTE, LOGAN KING, MELISSA NIKNAM, MATT BURLEY

Casilda and her parents, the Duke and Duchess of Barataria, arrive with their servant, the drummer Luiz, in Venice to find the man to whom Casilda was betrothed in infancy. Gondoliers Marco and Giuseppe select Venetian maidens Gianetta and Tessa to marry. Unfortunately, one of the gondoliers appears to be Casilda's missing husband. Casilda: Jane Coons Duke: Logan King Duchess: Melissa Niknam Luiz: Matt Burley The Grand Inquisitor, Dona Alhambra: Gabriella Garcia Gianetta: Alyssa Conte Tessa: Melissa Niknam Marco: Matt Burley Giuseppe: Logan King Vocal Coach, Accompanist: Alan Case Vocal Instructor: Pamela Kurau Acting Instructor: Melanie Blood

### ***Die Fledermaus* by Johann Strauss**

**MATTHEW BURLEY, LOGAN KING, MELISSA NIKNAM**

On the evening Eisenstein must report to jail to serve 8 days, his wife Rosanlinda's ex-lover, the opera singer Alfred, shows up to keep her company. Falke, their friend, chooses this evening to even an old score and distracts them all away to the Russian Count Orlovsky's ball, including their maid, Adele, who dreams of being an actress. Rosalinda: Jane Coons Adele, a maid: Alyssa Conte Alfred, an opera singer: Matt Burley Eisenstein: Logan King Orlovsky: Gabriella Garcia Blint, a lawyer: Melissa Niknam Falke, the jailor: Logan King Vocal Coach, Accompanist: Alan Case Vocal Instructor: Pamela Kurau Acting Instructor: Melanie Blood

## **2R • POLITICAL SCIENCE & INTERNATIONAL RELATIONS**

WELLES 24

### **Human Rights: Challenges and Opportunities**

FACULTY SPONSOR AND SESSION CHAIR: JOANNA KIRK, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

### **Legalized Homophobia: The Persecution of LGBT Individuals South of the Sahara**

**MARTIN BEACH**

With the realization of universal gay rights seemingly in sight, it is increasingly easy for Americans to forget that intractable homophobic attitudes still dominate popular culture in a large portion of the world. As anti-gay legislation is consistently being struck down state by state across the United States, prominent anti-gay American evangelicals are joining forces with socially conservative elements worldwide to persecute and marginalize LGBT individuals on a global scale. In this context, sub-Saharan Africa has become one of the latest flash points in the battle for gay social, political, and economic equality. South Africa and Uganda dominate any discussion of African gay rights; South Africa legalized gay marriage in 2006, while Uganda's president recently signed into law one of the world's strictest set of penalties for homosexual acts. The fate of LGBT individuals in sub-Saharan Africa may well be one of the twenty-first century's most defining narratives, which makes an in-depth look at the history of gay

persecution in Uganda and South Africa especially timely.

### **Women's Rights in New Regimes**

**CARLY BIONDI**

Women's Rights in New Regimes" Honors Thesis will focus on the history of women's rights in Iraq and Rwanda from the 1950's through the present day. It intends to examine the effects of major societal shifts on women's rights following The United States invasion of Iraq in 2003 and the Rwandan Genocide in 1994. It will analyze specific economic, social and political factors that have allowed domestic revolution and international intervention (or non-intervention) to drastically alter women's roles within these societies. By analyzing the cross-cutting cleavages that intersect women's identity, it will evaluate their ability to represent themselves politically and economically within and, in the case of Rwanda, without male patriarchy. Foci will include, why women's rights in Iraq have fallen short of U.S. goals, as well as how Rwanda transformed from a society that contained a political system based on patriarchal ethnic identity to having the highest elected female leadership in the world. I intend to use feminist international relation theories to examine how male patriarchy in society was constructed within Iraq after 2003 and broken down in Rwanda after 1994.

### **Asylum, International Law, and Regional Practice**

**KATIE BECKER**

This presentation will examine the right of asylum in the context of states' rights and obligations under international law. States are sovereign and have the ability to selectively choose who enters into their borders, but they are also obligated under international law to consider all asylum-seekers for refugee status. This balance between international obligations and state sovereignty is further complicated when it is put in the place of a regional political context, like in Europe and Africa. The major question explored by this presentation is if participation in a regional political asylum regime will shift the balance between obligation and sovereignty to induce states to host more asylum seekers and refugees. Is the promise of regional "burden sharing" enough to overcome states' scruples in granting asylum? An answer to this question will be sought from examining the European Union, the African Union, and South Asia (where no regional regime exists) in order to better understand if regional "burden sharing" lives up to its promise in the asylum context and if it may be an answer to greater asylum protection on a global scale.

### **Refugee Determination and International Law**

**EFTHIMIA BARBAGIANNIS**

The United Nations 1951 Convention Relating to the Status of Refugees and its 1967 Protocol define a refugee as a person who is outside of the "country of his nationality" and who has a "well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion." This system of determining

refugee status and the subsequent granting or denial of asylum for persons fearing such persecution is gender blind. However, a gender blind system has been shown to be largely ineffective in regards to gender based persecutions such as forced marriages or female genital mutilation. There has been an effort of some countries, such as Canada, the United States, and Sweden to address this issue by altering their system of refugee determination in order to account for gender disparities. This paper will examine how these policies are applied towards asylum cases and their effectiveness, in comparison to countries without such guidelines.

## **2S • POLITICAL SCIENCE & INTERNATIONAL RELATIONS**

WELLES 26

### **Discrimination, Death, and Denial:**

#### **The Role of Women in South Asia**

FACULTY SPONSOR AND SESSION CHAIR: VICTORIA FARMER, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

### **Inadequate Provision of Toilet Facilities for Women in India**

**NICOLE THEAL**

Gender discrimination, or the denial of basic human rights and freedoms based on gender, occurs in a variety of ways every day across the globe. This discrimination can range from cruel and excessive violence, to women receiving less pay for equal work. While every single type of discrimination has a harmful effect on women worldwide, some issues gain less attention than they deserve. For example, inadequate provision of public restroom facilities has become a major concern for women in South Asia. Throughout this area, various political socioeconomic constructs have exacerbated this pertinent and pervasive problem. Poor representation within government agencies, coupled with changing economic trends and rigid patriarchal ideologies, have rendered it nearly impossible to exact necessary change. This obstacle has led to a plethora of related complications, including increased rates of urinary tract infections and decreased school attendance among young girls. In addition, many toilet facilities are demanding payment, further dramatizing the feminization of poverty. In order to gain an in-depth analysis of this egregious problem, I conducted a case study of Mumbai, a major city in India.

### **Gender Discrimination and Violence against Women in Pakistan**

**SAARAH SHAKEEL**

Gender discrimination in Pakistan has helped perpetuate violence against women, based on deeply embedded social and cultural beliefs. Women have become targets of inequality and physical abuse due to misconceptions about female roles in Islam. Based on statistics ranking Pakistan as the least gender-equitable country in the world, many individuals accept the patriarchal and cultural norms that restrict women's basic human rights. This form of tolerance leads to spousal abuse such as being beaten, threatened, or even burned with

the acid. Through the continuous reinforcement of suppressive male authority, many women in Pakistan have been subordinated and suffer from extreme and sometimes violent prejudice.

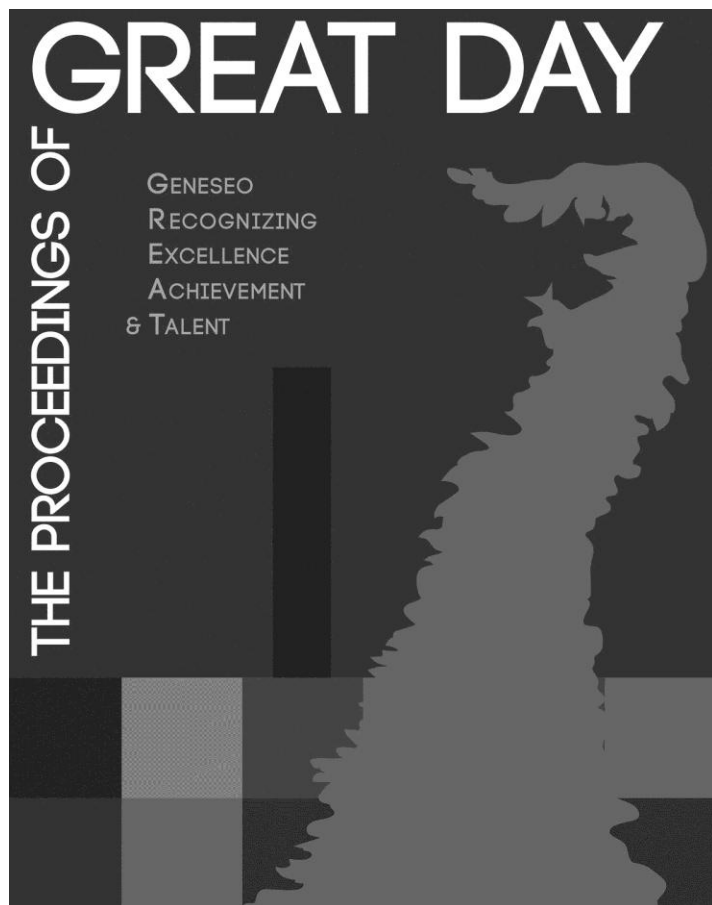
### India's Dowry Deaths: An Increasing Problem

JIA WEN ZHU

Gender discrimination is prevalent all over the globe, and in the past century has gained much attention. Common practices have come under the classification of gender discrimination, such as

dowry. Many people in India still practice dowry, the classic gift of money or goods to the husband's family before marriage. Dowries were used traditionally by newlyweds to secure their financial status, but greed and corruption have led to outrageous demands, often continuing even after the wedding. Economic pressure has contributed to an increase in dowry deaths, the reckless murder and suicide of brides whose families cannot fulfill their promised endowment. This problem has been going on for decades, yet little is done to prevent it. Laws have been passed, but still do not always protect females from this terrible calamity. In

addition, young women, and sometimes girls, often have no power over their own marriages. Some are being tortured, harassed, and killed over increasing demands for consumer goods. Within India, a number of grass-roots movements are working to combat this problem and create greater awareness of it. They have also gained much media attention lately, forcing more attention from the rest of the world.



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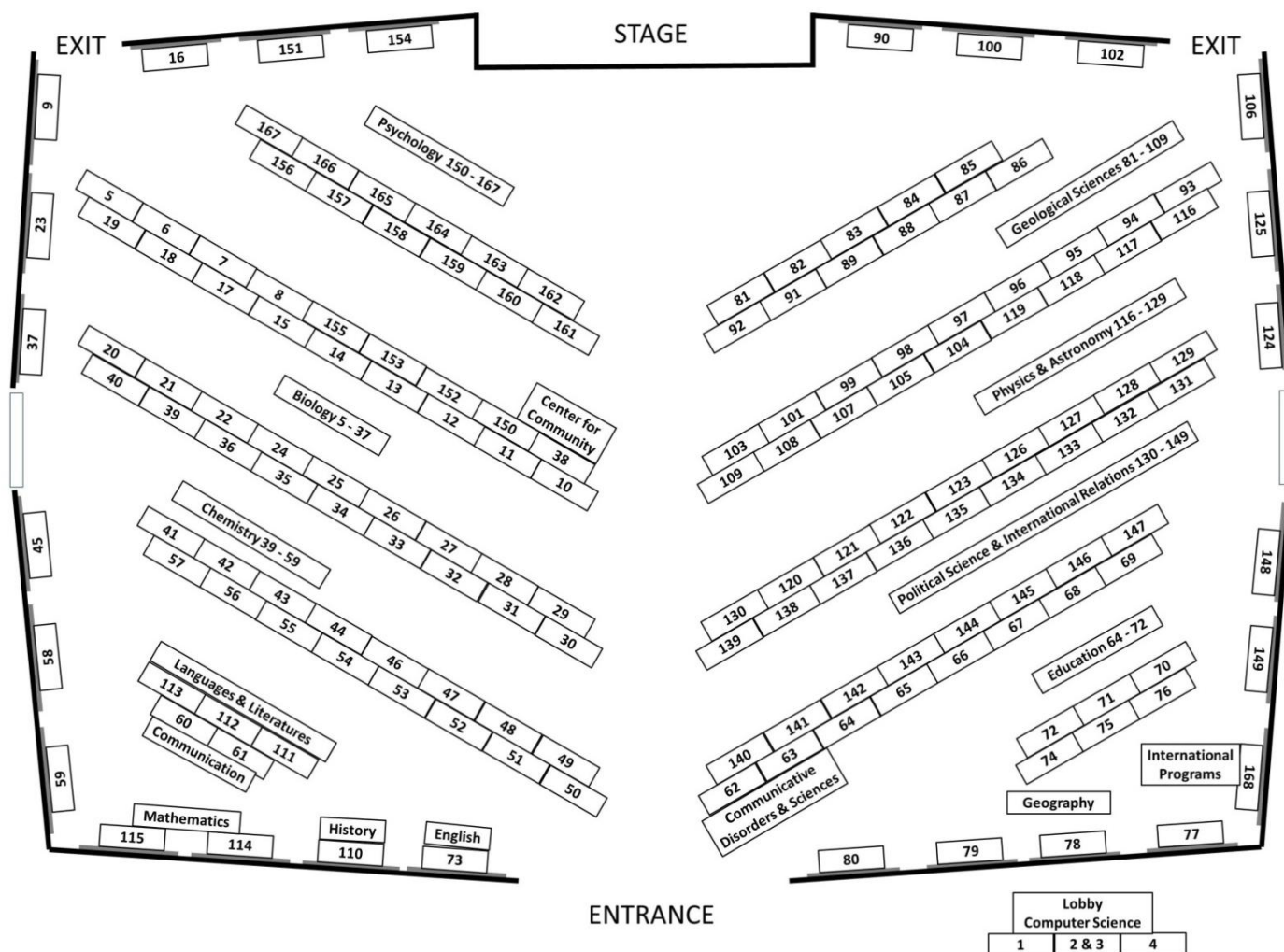
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## GREAT Day Ballroom Poster Locations



## POSTER SESSIONS

11: 15 AM – 12:45 PM with Lunch at noon

5:15 PM – 6:16 PM with Reception, Booksigning with Keynote Speaker, Sheri Fink and Closing Remarks by Interim President Long

## SPECIAL PRESENTATION



### Great Day Balloon Sculpture

JUSTIN IAQUINTA , AMY CHAN, GREAT DAY VOLUNTEERS

FACULTY SPONSOR: SHARON PECK, EDUCATION

Students will work together with regional balloon artists to create a six to twelve foot Seuss Spruce out of latex 260 balloons. The sculpture will be at the entrance of the College Union Ballroom

# POSTER ABSTRACTS

COLLEGE UNION BALLROOM • 11:15 AM – 12:45 PM, 5:15 PM – 6:15 PM

## COMPUTER SCIENCE

### 1 • Comparison of Wired and Wireless HPC Networking Methods

WYATT GORMAN

FACULTY SPONSOR: HOMMA FARIAN, COMPUTER SCIENCE

Wired networking, either via ethernet or infiniband, has been the standard method of networking for clustered computer systems since their inception. However, given recent advancements in wireless technology, such as WiFi and Bluetooth, there are more options than traditional wired networking. These solutions offer low-cost, low resource usage alternatives to the ubiquitous switch and cable topology known in HPC labs throughout the world. I took up the task of evaluating these various methods in a clustered computing environment, by comparing the performance, resource overhead, and management costs associated with Ethernet, WiFi, and Bluetooth networking solutions. Link speed, bandwidth, latency, scalability, reliability and cost of ownership will be balanced to determine the most advantageous networking method while detailing the benchmarks and statistics used to reach this conclusion. In the end, wireless networking may prove itself as a feasible alternative, in some applications, to wired networking which mandates large overhead costs where wireless solutions may not. *Selected for presentation at Consortium for Computing Sciences in Colleges Northeastern Region 2014, Providence, RI.*

### 2 • Interactive Visualization of the Mandelbrot Set Using Parallel Computation

SHAWN WARD

FACULTY SPONSOR: HOMMA FARIAN, COMPUTER SCIENCE

Unlike some common fractals, the Mandelbrot set cannot be generated by hand, nor are many of its self-similar components easily observed. By using the Message Passing Interface on a cluster of 16 processors to perform the numerous calculations, and Simple DirectMedia Layer libraries to display the results, the program captures the detail and complexity of the infinite nature of the fractal. Each processor determines which portion of the complex plane it is responsible for by mapping each pixel to a point in the complex plane. The processor performs calculations to see if after the specified maximum number of iterations, the point should be displayed in black as a point in the set. Otherwise, it is displayed in a color corresponding to how close it came to being included. Once a processor finishes its allocated portion, it requests part of the uncalculated section from a processor that has not yet finished. Because the computational burden is more equally shared between processors, the program shows a noticeable decrease in the time required to generate the set as compared to statically dividing the work among the processors.

*Selected for presentation at Consortium for Computing Sciences in Colleges Northeastern Region 2014, Providence, RI.*

### 3 • Visualization of Diverse Cellular Automata on a Computer Cluster

LUCAS GROENENDAAL

FACULTY SPONSOR: HOMMA FARIAN, COMPUTER SCIENCE

The Game of Life falls under an area of study known as Cellular Automata (CA) and is probably the most well known example of a cellular automaton. There are many different varieties of cellular automata which are obtained by changing, among other things, the dimensions of the grid of cells, the number of states for each cell, and the transition rule. My research has involved investigating different varieties of cellular automata and writing programs that visualize them. Towards this end I have studied three different kinds of cellular automata known as Elementary CA, Life-Like CA, and SmoothLife. I have written programs in C utilizing the MPI and SDL libraries to visualize these cellular automata on a computer cluster, which allows larger simulations to be viewed. Future research will involve investigating other varieties of cellular automata as well as expanding on the work I have already done. *Selected for presentation at Consortium for Computing Sciences in Colleges Northeastern Region 2014, Providence, RI.*

### 4 • Comparing the Performance of Distributed Machine Learning Algorithms

HERB SUSMANN

FACULTY SPONSOR: HOMMA FARIAN, COMPUTER SCIENCE

Machine learning (ML) is a field of growing interest in artificial intelligence. Of key interest is the application of machine learning algorithms to "big data". When data are larger than available RAM the speed of machine learning algorithms can be negatively impacted. Popular "big data" paradigms such as MapReduce are not well suited for iterative ML algorithms as implementations such as Apache Hadoop are fundamentally hard disk oriented. An alternative approach is to adapt ML algorithms to run in parallel on multiple computers with the data segmented between the RAM of the computing cluster. The speed of sequential and parallel versions of batch linear regression and k-means clustering algorithms was compared. The algorithms were implemented MPI C with MPI and in Scala on the distributed processing environment Apache Spark. For large and medium sized datasets, the sequential algorithms were found to outperform the parallel versions. In the case of large data, however, the results favored the parallelized algorithms. *Selected for presentation at Consortium for Computing Sciences in Colleges Northeastern Region 2014, Providence, RI.*

## BIOLOGY

### 5 • Investigations of Habitat, Behavior, and Genetic Variation of Slavemaking Ants and Their Hosts in Roemer Arboretum

HANNAH DOHERTY, ERICA LEICHT, LAURA PRENDERGAST, BRIANNA SHARES

FACULTY SPONSOR: JENNIFER APPLE, BIOLOGY  
Slavemaking ants raid colonies of other ant species to obtain pupae which will become the labor force in the slavemaker nests. The Roemer Arboretum hosts two species of slavemaking ants, *Formica subintegra* and *F. pergandei*, which both parasitize the locally abundant ant, *F. glacialis*. This year our lab has been investigating the habitat preferences and colony structure of the host species, *F. glacialis*, and the raiding behavior and genetic variation in the slavemaking ant, *F. subintegra*. We used hemispherical photography to determine whether the light environment differs among inactive, mature, and recently founded nests of *F. glacialis*. We genotyped workers from eleven recently founded *F. glacialis* colonies using microsatellite genetic markers to determine whether colonies are founded by multiple queens or initially have single queens and accumulate additional queens over time. The activities of three focal slavemaker nests were monitored using video cameras to quantify the amount of brood captured during each raid as well as the rate of brood capture. We developed primers for amplifying mitochondrial DNA in the slavemaker *F. subintegra* that can be used to determine the number of female lineages in each colony and assess the potential for restricted dispersal of young slavemaker queens. *Selected for presentation at Northeast Natural History Conference, Springfield, MA.*

### 6 • Hitchhiking Behavior of Leaf-cutter Ants at Blue Creek Rainforest in Southern Belize

HANNAH DOHERTY, ALICIA CHISHOLM

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY  
Leaf-cutter ants (genus *Atta*) retrieve leaf fragments from trees and bring them to their nests to feed a fungus that is used for food and only exists in the leaf-cutter ant nests. The smallest workers in the leaf-cutter colony are called minims. Minims serve an important role as "hitchhikers" that travel on the leaf fragments that have been cut by the medium-sized ants to protect the leaf-carrying ants from parasitoid flies (family Phoridae). We observed the hitchhiking behavior in four leaf-cutter ant colonies at Blue Creek Rainforest in southern Belize in January and counted hitchhikers on the leaves the leaf-cutter ants were bringing back to their nests. Using a Pearson's product-moment correlation test, we found a significant positive correlation between the number of hitchhikers and the total of ants counted ( $t = 4.5273$ ,  $df = 2$ ,  $p\text{-value} = 0.04549$ ). These results suggest that colonies have similar ratios of ants with hitchhikers to the total amount of ants in trail. To get a better understanding of

hitchhiker behaviors, studies could be conducted at varying times of day and the year to relate these behaviors to the activity of the parasitoid flies.

## 7 • Animals' Response to the Color of Observers' Clothing

CAYLEY HALLAHAN

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

Animals respond to a variety of observer stimuli, influencing behavioral ecology. Observers are recommended to wear "neutral" colors, which compare to the natural environment, opposed to "bright" colors, which contrast. We examined this in Blue Creek, Belize, a neotropical rainforest. We hypothesized that we would observe significantly less wildlife while dressed brightly compared to neutrally. We sat for four trials at 1.5h intervals and tallied select species at two sites. On the first day, "neutral colors" were worn for trials 1 and 2. On the second day, "bright colors" were worn for trials 3 and 4. Trials 1 and 3 were performed before noon in the same location; trials 2 and 4 were performed after noon. A chi-square test showed no significance existed between "neutral colors" and "bright colors" in the overall tally ( $p > 0.05$ ). Birds were the only species that showed a significant difference in numbers tallied between "neutral colors" and "bright colors" ("Neutral Colors" =  $20 + 1$ , "Bright Colors" =  $9.5 + 0.5$ ,  $\chi^2 = 7.47$ ,  $df = 1$ ,  $p < 0.01$ ). This data suggest that species perceive and/or respond to color differently. In the future, tests will be done to create an inventory of animals' response to colored clothing in different environments.

## 8 • Cell Proliferation Increases in the Accessory Olfactory Bulb following Vomeronasal Nerve Lesion

ERIN DAVIDOWICZ, MARGARET GERARDI

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

Studies done in adult fish, frogs and rodents have demonstrated decreased cell proliferation in the main olfactory bulb when the olfactory nerve was cut. We hypothesized that vomeronasal nerve lesion (VNX) would decrease cell proliferation in the telencephalon, especially the accessory olfactory bulb (AOB). One hour before sacrifice, snakes were injected with tritiated thymidine to label proliferating cells. Data were obtained from 6 sections/snake after receiving complete bilateral or unilateral VNX and surviving 2 ( $n = 4$  for bilateral,  $n = 3$  for unilateral), 4 weeks post-lesion ( $n = 3$  for both bilateral and unilateral) or sham surgery ( $n = 3$ ). Welch 2-sample  $t$  tests showed no significant difference in cell proliferation between lesioned and unlesioned sides for the AOB or posterior telencephalon ( $p > 0.05$  for both). A Kruskal-Wallis test showed no differences in cell proliferation within the posterior telencephalon between the groups ( $p > 0.05$ ). Cell proliferation increased in the AOB from  $1.50 \pm 0.45$  cells/section (sham controls) to  $3.69 \pm 1.24$  (2-week survival) to  $7.60 \pm 2.21$  (4-week survival), with only the 4-week survivors having significantly more dividing cells than the sham controls (Mann-Whitney  $U$  test,  $W = 2$ ,  $df = 1$ ,  $p < 0.05$ ). Thus, VNX in snakes may cause reactive neurogenesis. **Selected for presentation at National Conference on Undergraduate Research, Lexington, KY.**

## 9 • Damselfish Patch Choice in Belize's South Water Caye Coral Reef

WILLIAM FUGINA, KEVIN BRODERICK

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

Damselfish are territorial, herbivorous reef-dwelling fishes that are known for their behavior in farming algae. Damselfish activity often results in the death of coral species so that their preferred algae can colonize it. This behavior can drastically alter and shape the coral reef systems in which they reside in, increasing the overall coral algal biomass. Depending on the species of damselfish, preferences of coral can vary. But damselfish generally prefer to inhabit species of branching corals. Due to the damselfish's relentless territoriality, we predicted that similar species will inhabit similar corals due to interspecific competition. This competition would force different species into coral niches, regardless of their preferred coral (branching corals). For our experiment, 10 m transect lines were extended from a central point. Damselfish species and the types of corals that they inhabited were recorded. Predominantly two damselfish species, the Cocoa (*Stegastes variabilis*) and Long Fined Dusky (*Stegastes diencaeus*) were found. Overall, these species preferred branching corals. However, the Long Fined Dusky were found primarily on the Knobby Sea Finger while the Cocoas were found on the Common Sea Fan. Thus, there appeared to be a correlation between reef patch choice and species type.

## 10 • Detrimental Effects of Man-made Disturbances on Leaf-cutter Ant Trails

MARIANNE MACALUSO, ALISON BROCKETT

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

Studies on leaf-cutter ant species (genus *Atta*) allude to the use of pheromones to orient the ants along a trail from plants back to the nest. We tested whether different types of disturbances to the pheromone trail were equally detrimental to the ants maintaining that trail. Two different sizes each of four disturbances were tested along five different leaf-cutter ant trails. Time was taken with a limit of 300 sec for the ants' ability to recover from disturbances, and Kruskal-Wallis test was used to determine if there were differences among the treatments. Results show the large water droplet, trench, and branch ( $300 \pm 0$  sec) were the most disturbing. The small trench ( $202 \pm 45.57$  sec) was the most detrimental small scale disturbance, followed by the small water droplet ( $177.6 \pm 51.11$  sec), large rock ( $173 \pm 52.09$  sec), small rock ( $90.6 \pm 19.26$  sec), and lastly, the small branch ( $81.4 \pm 7.51$  sec). A Kruskal Wallis test was used to determine the variability among results, giving a  $\chi^2$  value of 23.3863,  $df = 7$ , and  $p$ -value  $< 0.005$ . Pairwise comparisons were then made using Mann-Whitney  $U$  tests, which revealed non-zero differences among small scale disturbances. Results suggest trenches and water droplets were most detrimental to ant trails.

## 11 • Investigation of Patch Quality on the Distribution of Wolf Spiders in Blue Creek, Belize

CARLEY WENDERLICH, AMANDA CAIFANO, RANDY CHEUNG

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

Wolf Spiders (Lycosidae) are known to rarely make nests and often use the "sit-and-wait" technique to hunt. This makes patch choice crucial to survival. If the spider picks the wrong location, it may not eat or may be eaten by a predator. In this study, we wanted to see if the proximity to water affected the distribution of wolf spiders. Water proximity may affect distribution because previous studies have shown that substrate structure was involved in site selection because of predation risk. Also, areas near flowing water are provided with a constant influx of minerals, nutrients, and organisms from other parts of the forest, which influences prey distribution. We hypothesized that the cost of living near water outweigh the benefits because areas far away from water offer more protection from predators due to higher density of the forest. Eight plots were made: four were within 10 m of the creek, and four were 20-150 m away from the creek. The number of wolf spiders in each plot was recorded. Data were analyzed using R. Plots 20-150 m away from water had significantly more wolf spiders ( $13.75 \pm 0.75$ ) than plots within 10 meters of the creek ( $6.75 \pm 0.25$ ).

## 12 • Morphology of Ometepe Island Boa Constrictor Imperator

MARGARET MILANO

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

Boa constrictor inhabits a large range spanning from Mexico to Argentina. In contribution to an international initiative to refine a species-wide phylogeny, we have examined snakes of the subspecies *B.c. imperator* from Ometepe Island, Nicaragua. Scale counts of the occulars, infralabials, and supralabials from adult specimens captured in 2001 and 2002, and the snout-vent length (SVL) was measured when captured. We compared the measures from the Ometepe boas with those from museum specimens of *B. c. imperator* from oceanic island and mainland populations using nonparametric Kruskal-Wallis tests to determine if gigantism in island populations, as reported previously, is exhibited by the Ometepe Island boas. No significant differences were found among the number of ocular ( $\chi^2 = 1.73$ ,  $df = 2$ ) and supralabial ( $\chi^2 = 1.12$ ,  $df = 2$ ) scales ( $p > 0.05$  for both). However, the number of infralabials differed significantly among the Ometepe ( $23.21 \pm 0.06$ , Mean  $\pm$  SEM), other island ( $21.27 \pm 0.18$ ), and mainland ( $23.32 \pm 0.06$ ) specimens ( $\chi^2 = 7.53$ ,  $df = 2$ ,  $p < 0.03$ ). Ometepe males had a significantly larger SVL ( $145.00 \pm 6.17$ ) than mainland boas ( $92.35 \pm 2.31$  cm). Ometepe boas are more similar to mainland boas in the number of infralabial scales but different from these populations in terms of SVL, possibly reflecting a population in transition that occasionally interacts with mainland individuals more than populations on oceanic islands. **Selected for presentation at National Conference on Undergraduate Research, Lexington, KY.**

## 13 • Potential Use of Nonvisual Cues for Predation of Jackson's Chameleons

DANIELLE CLARK, RANDY CHEUNG, ALYSSA SMITH



FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

Chameleons are visual animals with reduced chemosensory structures. Invasive, diurnal Jackson's chameleons (*Chamaeleo jacksonii*) in Hawaii eat nocturnal terrestrial snails, suggesting they can hunt stationary prey and may utilize nonvisual cues. We hypothesize 1) *C. jacksonii* are diurnal; and 2) utilize nonvisual cues. Two observations were made per night for one week, confirming *C. jacksonii* are diurnal. Opaque, perforated containers containing odor-emitting crickets (dead or alive) were used to test nonvisual cues as stimuli. The following data were collected: 1) latency to orient toward container, 2) time spent approaching container, 3) time to reach within 5cm of container, 4) time spent within 5cm of container, and 5) whether chameleon touched container with tongue or head. Data were analyzed using R. No statistical differences were found between trials; however, in 9/36 trials, chameleons showed definitive orientation towards live crickets, while in 6/36, chameleons turned their heads toward dead crickets. Orientation towards dead crickets suggest use of olfactory cues while orientation towards live crickets suggest auditory and olfactory cues. This suggests *C. jacksonii* may use nonvisual in conjunction with visual cues. Further testing will be done using dead and live crickets in clear containers to determine if visual cues facilitate hunting. **Selected for presentation at National Conference on Undergraduate Research, Lexington, KY.**

#### 14 • *Pseudomyrmex ferruginea* Mutualism is Required for *Vachellia cornigera* Maturation in Blue Water Creek, Belize

MICHAEL HARTNETT, RACHEL COOPER

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

The symbiotic relationship between the bull-horned acacia, *Vachellia cornigera*, and the ant, *Pseudomyrmex ferruginea*, has been widely studied as an example of symbiosis. Early findings suggest that their interspecies interactions was not only mutually beneficial, but necessary for acacia maturation. However, recent research suggests that the costs of supporting the ants may sometimes be greater than any sort of benefit acacias may receive from hosting the ants. Therefore, older and/or healthier acacias may be able to support those costs better than younger acacias. Here, we surveyed the population of acacias in Blue Water Creek, Belize for the presence of *Pseudomyrmex ferruginea* to determine if ant occupancy is correlated with the height of the acacias in the area, assuming height is positively correlated with age and health. We hypothesized that most acacias would still be heavily reliant on ants for protection in order to grow into fully mature trees. A Kruskal-Wallis test showed a significant difference in the heights of acacias that are occupied (o), unoccupied (u), or abandoned by ants ( $H=33.3$   $p<0.05$ ). Further analysis showed that occupied acacias were significantly taller than unoccupied or abandoned trees, suggesting that ant occupancy may be necessary for acacias to reach full maturity.

#### 15 • Territoriality and Density of *Thalassoma bifasciatum* on Belizian Reefs

MARK BUCHHOLZ, THOMAS COLLINS

FACULTY SPONSOR: DAVID HOLTZMAN, BIOLOGY

The Bluehead wrasse, or *Thalassoma bifasciatum*, are a protogynous fish living in the shallow reefs, grassbeds and bays along the tropical coasts of the Americas, Australia and Indo-Pacific Islands. Males will mate guard a suitable mating territory which contains females loyal to the territory. Following a similar methodology used by Wheatley (2012) for Damselfishes, we observed the reef, examining the territories controlled by males. Our study focused on a population of *Thalassoma bifasciatum* on a patch reef off the east coast of South Water Caye, Belize. We hypothesized that terminal males would be evenly distributed across the reef. Since terminal male territories were fluid and not measurable by any instrumentation we possessed, we considered male presence and territorial behavior to be indicative of a territory. We determined a confidence interval at 95% to be between (.1857, 3.3143) and a prediction interval at 95% to be between (-2.94, 6.44). While our prediction interval is inconclusive and requires further research to be more helpful, the confidence interval allows us to make assumptions about ensuing transects on the rest of the reef. This provides a starting point for research on the preferred microhabitats for Belizean populations of Bluehead wrasse.

#### 16 • Foot Muscle of the Sea Slug *Aplysia californica* Expresses a 5-HT<sub>2</sub> Serotonin Receptor

BENJAMIN SCHUMAN, LAURA DUCLOS

FACULTY SPONSORS: DUANE MCPHERSON, BIOLOGY

JANICE LOVETT, BIOLOGY

Serotonin (5-HT) has strong modulatory effects on foot and body-wall muscle in the opisthobranch slug *Aplysia*. These effects include increased force of muscle contraction and increased rate of muscle relaxation. At the cellular level, 5-HT causes a dose-dependent increase in the cyclic adenosine monophosphate (cAMP) content of foot muscle. Our laboratory has previously isolated and cloned from *Aplysia* foot muscle a 5-HT receptor belonging to the 5-HT<sub>7</sub> family, which stimulates adenylyl cyclase and could account for the increase in cAMP. More recently, a 5-HT<sub>2</sub> receptor has been cloned from sensory neurons in the CNS of *Aplysia* (Nagakura et al., 2010). Using the information from that receptor sequence, we have discovered that foot muscle in *Aplysia* also expresses a 5-HT<sub>2</sub> receptor. We are presently at work to clone the complete mRNA for this receptor to determine whether it is identical to the one previously described. It is possible that 5-HT<sub>2</sub> and 5-HT<sub>7</sub> receptors act synergistically in the serotonergic modulation of muscle function. **Selected for presentation at Society for Integrative and Comparative Biology, Austin, TX.**

#### 17 • Allelopathy in *Brassica*

AUSTIN LAMB

FACULTY SPONSOR: GEORGE BRIGGS, BIOLOGY

*Brassica rapa* is a fast growing plant which is known to produce glucosinolate. When the plant becomes damaged the glucosinolate is degraded into nitriles. Nitriles then act as a natural herbicide. Since the nitriles act as an herbicide we wished to investigate if they were released into the soil throughout the plants life via the root system. To investigate this further four groups were established. Two groups had *B. rapa* that was being grown on second growth soil. One of the second growth groups was fertilized the other was not. As a control two groups of *B. rapa* were grown on virgin soil. Again one group was fertilized the other was not. The addition of fertilizer was intended to help eliminate the possibility that the rate of growth was not affected by lack of nutrients in the soil. Early results indicate that there is an allelopathic effect that inhibits the growth of the second growth plants. This experiment's results can then be used in further experiments to determine the exact cause of the growth impediment.

#### 18 • *Brassica* Seed Yield

AARON SAXTON

FACULTY SPONSOR: GEORGE BRIGGS, BIOLOGY

The effects of pruning pol ated flowers on *Brassica* plants are being measured in regards to a plant's seed yield. A sample of *Brassica* plants are fertilized, then through random assignment, a determined amount of flowers are pruned off. The total number of seeds of each plant, the total weight of each plant's seed yield, the average number of seeds per pod, and the average weight of seeds per pod are measured.

#### 19 • Effect of Herbivory by *Pieris rapae* on Photosynthetic Rate and Seed Yield of *Brassica rapa*

JANELLE GOEKE

FACULTY SPONSOR: GEORGE BRIGGS, BIOLOGY

The larvae of *Pieris rapae*, or white cabbage butterflies, eat the leaves of *Brassica rapa* plants. This project investigates the effect that this herbivory has on the seed yield and photosynthetic rates of the plants. Herbivory by the caterpillars may be expected to decrease the photosynthetic rate and seed yield of the plants, but it is possible that these factors increase in order to compensate for the loss of leaf area. This is tested by measuring the photosynthetic rate of both leaves that have been eaten by caterpillars and leaves on uneaten plants. Additionally, after the plants have bloomed and been pol ated, the number of seed pods, and the total number of seeds per plant is counted. The results are then measured in the statistical program, R, in order to test if there is any significant differences between plants that experience herbivory and those that don't.

#### 20 • pH and Seed Yield in *Brassica*

LAUREN HERSCHBEIN

FACULTY SPONSOR: GEORGE BRIGGS, BIOLOGY

Plants have a tendency to grow to the largest size, and produce the greatest number of seeds in slightly acidic soil, with an ideal pH ranging from 6 to 7. In this study we investigated the influence of solution pH on plant growth and seed production. The plant *Brassica Rapa*, was grown in different pH solutions to study this relationship. *Brassica* is a

fast-growing plant and because of its rapid life cycle it is often used for research in educational institutions. *Brassica* seed gs were grown in a vermiculite medium and then transferred to a hydroponic Hoagland solution. The seed gs were divided into three different groups to examine the tolerance of *Brassica* to a pH of 4, 6, and 8. Plant pH tolerance was analyzed by leaf area, and number of seeds produced. Preliminary results have shown that the best growth was at a pH of 6, and the worst growth was at a pH of 4. In addition, we wanted to investigate if *Brassica* had any effect on the pH of the solution. Plants can often alter the pH of a hydroponic solution, as they are typically negatively charged as compared with their surroundings, and are able to acidify their

## 21 • Analysis of the Effects of Network Structure on the Spread of an Influenza Epidemic Modeled on a College Campus

THOMAS HARTVIGSEN, DENNIS HUFF, KATHLEEN RUSNAK

FACULTY SPONSORS: GREGG HARTVIGSEN, BIOLOGY  
CHRIS LEARY, MATHEMATICS

We test the dynamics of the spread of influenza (H1N1) on a theoretical college campus. We simulate the campus as many connected individuals living in larger groups of residence halls. Individuals within each hall are connected using a Watts-Strogatz small-world, undirected graph. We also connect "residence halls" with a constant number of randomly placed edges connecting "students". Edges connecting vertices represent the pathway influenza may pass between individuals. Our entire network contains twelve hundred people divided equally among the number of "dorms" tested. Individuals are classified as susceptible (S), infectious (I), or recovered (R). All individuals start out susceptible except for an original random five individuals who start out infectious. Infectious individuals recover after three days. Four main vaccination strategies were tested: random, hubs, betweenness, and closeness. We found that effectiveness of vaccination strategies changes as the number of "residence halls" in a network increases.

## 22 • Impact of Acetate on cAMP Levels of *Astrephomene gubernaculifera*

KEITH MORRIS-SCHAFER, DANIEL GREENBERG, EMILY REDINGTON

FACULTY SPONSOR: HAROLD HOOPS, BIOLOGY

*Astrephomene gubernaculifera*, a colonial alga, requires acetate for growth. We have previously shown that acetate is a chemoattractant for this alga suggesting that it detects acetate and initiates a signal cascade altering flagellar behaviour. cAMP is commonly involved in intracellular signal cascades, and is involved in a different behavioral response in *Chlamydomonas reinhardtii*, a closely related unicellular alga. Therefore, we hypothesize that the chemotactic signal pathway involves alteration of intracellular cAMP levels. To test this, we first starved *A. gubernaculifera* of acetate to maximize the chemoresponse. This sample was then split into two; one treated with 10 mM acetate

for 45 seconds and the other with acetate-free medium. Cells were lysed, and cAMP levels were measured with an ELISA. Protein concentrations were measured with a detergent- and acid-compatible protein assay. In preliminary results, the acetate-treated cells had a cAMP concentration of 17.7 pmoles/mg (standard deviation = 7.3) and the acetate-free cells had a cAMP concentration of 13.4 pmoles/mg (standard deviation = 4.1). Although the means suggest acetate exposure increases cAMP concentrations by 32%, there was substantial variability of the replicates. We anticipate more replicates will reduce the uncertainty and allow us to determine if acetate exposure changes the cAMP concentrations.

## 23 • Species Identification of *Synechococcus Cyanobacteria* Involved in Symbiosis with Sea Star Larvae

ANDREA JERABEK, FRANKLIN HERNANDEZ, KELSEA FLANNERY, PATRICK DITTMER

FACULTY SPONSOR: ISIDRO BOSCH, BIOLOGY

The goal of our work is to identify the dominant species of symbiotic photosynthetic bacteria associated with clonal sea star larvae that are widely distributed in the tropical North Atlantic Ocean. Students using 16S ribosomal DNA sequence analysis have identified the dominant microbes to the genus *Synechococcus*. For our project we are sequencing the beta prime subunit of the RNA polymerase gene (rpoC) to identify the bacteria to species. Microbial DNA is extracted from larvae and from isolated cultures and amplified by the polymerase chain reaction (PCR) to produce multiple copies of the rpoC gene fragment. The PCR product is cloned in *E. coli* and sequenced at the Genomics Center, University of Rochester. Sequences of the rpoC gene have been used extensively to identify strains of *Synechococcus*. To date we have identified one strain from culture to be most closely related to *Synechococcus* strain WH8012 from the Sargasso Sea, where the larvae are widely distributed. Additional research will allow us to characterize other dominant species and ultimately lead to experimental work on the interaction between the symbiotic partners.

## 24 • Microsatellite Analysis of Genetic Diversity in Clonal Sea Star Larvae

NICK PIEDMONTE, RACHEL MOORE

FACULTY SPONSORS: ISIDRO BOSCH, BIOLOGY  
JENNIFER APPLE, BIOLOGY

Sea star larvae that are widely distributed in the tropical North Atlantic are unusual in having the capacity to reproduce repeatedly by cloning. Genetic sequencing studies indicate that the source adult population for these larvae is likely a cushion sea star that is native to the west coast of Africa. Despite the possible gain in longevity and dispersal in the open ocean, clonal reproduction may incur a cost by reducing the genetic variation of the larval populations. The goal of this study is to document the genetic diversity of clonal larvae using microsatellite DNA analysis. Larvae were collected from the Gulf Stream 15 miles off the coast of Florida in August 2013. DNA was extracted from

individual larvae and amplified by PCR using microsatellite primers published for closely related sea star species. Amplified microsatellite DNA samples are sent to the University of Rochester for fragment analysis, and subsequently analyzed using GeneMarker software to genotype the individual larvae at each of the several microsatellite loci. Microsatellite polymorphisms will be used to characterize the genetic diversity of the larval population and to compare it to that of non clonal species to test for the possible loss of genetic variation.

## 25 • Characterization of Putative ESP Specifier Proteins in *B. rapa*

MAX MACBARR, DJONI ELKADY

FACULTY SPONSOR: JANICE LOVETT, BIOLOGY

*Brassica rapa* is an important model plant that is closely related to important functional food plants such as kohlrabi, cauliflower, and broccoli. Specifier proteins (SPs) are an important component in the myrosinase-glucosinolate pathway, which produce different secondary metabolites. These biologically active compounds are used primarily in plant defense and also contribute to the plant's nutritional benefits hence, "functional plants." In this project we found two putative SPs in *Brassica rapa* genome by comparing known SPs in the *Arabidopsis thaliana* sequenced genome. The gene was cloned into an expression vector for *E. coli* from which epithiospecifier proteins (ESPs) were harvested to assess their directing effects on the myrosinase-glucosinolate pathway via High Performance Liquid Chromatography (HPLC). Collecting this data will allow future research to find out if nitriles/epithionitriles have protecting properties in plants, or if they possibly play a role as a transcription factor. Finally we can test the relationship between up regulation of these genes and stressful conditions of the plant.

## 26 • 5-HT7 Serotonin Receptor in *Helix* Snail Species: Restriction Digest and Southern Blot Analysis

ALEXA KREBS, LIZ TOBISON

FACULTY SPONSOR: JANICE LOVETT, BIOLOGY

The 5-hydroxytryptamine receptor in molluscan species is a neurotransmitter involved in muscle contraction and movement. The goal of our research is to sequence the receptor from *Helix* snails for the purpose of comparison to known sequences of the 5-HT7 receptor in other molluscan species. In order to isolate the complete gene, we initially extracted and purified DNA from snail brain and buccal tissue. The DNA then underwent restriction endonuclease digestion using HindIII in order to run a Southern blot. The enzyme HindIII was chosen because it cut outside of the gene of interest as opposed to other restriction enzymes which cut within the gene. Previously identified primers, 6b forward and 8 reverse, were used to amplify the gene and provide probes for the Southern blot analysis. From the Southern results, DNA from comparable regions of the gel were isolated and used to clone into a plasmid vector for subsequent transformation. As the semester continues, we hope to screen for the proper sequence utilizing our selected probes and eventually isolate the complete gene for the 5-HT7

receptor. **Selected for presentation at Northeast Regional Tribeta Conference, PA.**

## 27 • A Map of 5-methylcytosine Residues in *Trypanosoma brucei* tRNA Revealed by Sodium Bisulfite Sequencing

LEANNE CHEN

FACULTY SPONSOR: KEVIN MILITELLO, BIOLOGY

In protozoan parasites, there is little information on the presence of covalent RNA modifications which comprise the epitranscriptome. Therefore, we determined if *T. brucei* tRNA<sup>Asp</sup>(GUC), tRNA<sup>Gly</sup>(GCC), tRNA<sup>Val</sup>(AAC), and tRNA<sup>Tyr</sup>(GUA) contain 5-methylcytosines via RNA bisulfite sequencing. Most tRNAs examined have at least one 5-methylcytosine at the variable region-TΨC junction. Only tRNA<sup>Gly</sup>(GCC) displayed methylation of C40 in the anticodon stem, and there was partial methylation at this site. There is no evidence for methylation of C38 in the anticodon loop in the tRNAs analyzed. Analysis of tRNA<sup>Tyr</sup>(GUA) demonstrates that both unspliced and spliced molecules contain C48 methylation, indicating tRNA cytosine methylation can precede tRNA splicing. Overall, our data indicate that *T. brucei* tRNAs contain 5-methylcytosine residues in some, but potentially not all standard eukaryotic positions. The levels of cytosine methylation of different *T. brucei* tRNAs vary, suggesting the presence of a mechanism for methylation control. **Selected for presentation at Experimental Biology, San Diego, CA.**

## 28 • Paleoecology of Forest Ecotone Between Lake Ontario Lowlands and the Allegheny Plateau

TIMOTHY MATEER, ERIN FIEN

FACULTY SPONSOR: RAY SPEAR, BIOLOGY

Studies of the pre-settlement forests of western New York have shown an ecotone between the lowlands to the north and the uplands to the south. Differing contemporary forest structures have been observed to correspond with differing geographical regions. Maple-beech-basswood forests dominate the Lake Ontario lowlands of northwestern New York. To the south Northern hardwood- hemlock dominate the Allegheny Plateau. We have demonstrated that it is possible to identify these forest types using paleoecological techniques (pollen analysis) and we are working to identify shifts of this boundary over the past several millennia. We examined the pollen record from sediment cores collected at sites along a north south transect, Round Pond in the northern lowland and Hanging Bog in the upland. Pollen percentages were calculated to reconstruct the forest history.

## 29 • Trends Between Atmospheric Pollen and Climate in Western New York

STEPHEN RUSWICK, THOMAS CLARK, STELLA LEE

FACULTY SPONSOR: RAY SPEAR, BIOLOGY

The pollen rain in Geneseo shows large variations over the growing season. There are distinct peaks in tree pollen in the spring, grass in the early summer and ragweed and other weeds in the late summer

and fall. We are attempting to correlate seasonal and daily variation in pollen concentrations with weather patterns. Over the past year we collected daily atmospheric samples using a roto-rod centrifuge sampler. The patterns observed in the 2013 growing season are present in the data collected over the past 4 years. The pollen seasons occur at similar times and it is possible to correlate some daily variability to weather patterns.

## 30 • Comparative Mutagenicity Amongst C-Family Bacterial DNA Pol III's

JUSTIN MORRIS

FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY

As evidence points to the use of multiple DNA Pol III's by gram-positive bacteria, a question remains: which biochemical factors (domain composition, DNA oligonucleotide(oligo) length, etc.) serve as the strongest determinants of fidelity? We have characterized various patterns of relative mutagenicity amongst the essential C-family bacterial DNA polymerases found in *Staphylococcus aureus*. These include two PolC constructs: PolC-Exomut and PolC- $\delta$ N  $\delta$  Exo, as well as DnaE. In vitro assays were performed using various primer-template(p/t) DNA substrates and nucleotides. Additional assays paired the polymerase with the  $\beta$  clamp. DnaE showed the highest frequency of nucleotide misincorporation, especially on longer p/tDNA substrates, as well as in bypassing 8-oxoguanine lesions. PolC-Exomut, the construct with both N-terminal and Exonuclease (Exo) domains, consistently showed the most fidelity. A direct relationship between fidelity and DNA substrate length was also observed. The presence of secondary proteins consistently increased overall addition, but not fidelity. Overall, these assays indicate DnaE as a more error-prone polymerase compared to its PolC counterparts. Additionally, oligo length was shown to influence the accuracy of nucleotide addition. Future assays will further examine the effects of oligo length as well as fidelity patterns specifically attributable to the N-terminal domain. **Selected for presentation at Experimental Biology, San Diego, CA.**

## 31 • Chemotherapeutic Effect of Sulforaphane on HL-60 Leukemia Cell Line

JENNIFER GROM, PETER FIELDS

FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY

Sulforaphane is a chemotherapeutic drug that is derived from cruciferous vegetables like broccoli. While preliminary data has shown Sulforaphane to be an anticancer agent, its exact mechanism remains uncertain. The goal of this experiment is to further investigate the mechanism of Sulforaphane in the HL60 leukemia cells using cell cycle analysis, chromosome preparations, apoptosis assays and cytotoxicity assays.

## 32 • Determining the Kinetics of DnaE, an Enzyme for DNA Replication in *S.aureus*

GABRIELLE KOSOY

FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY

DnaE is an DNA polymerase of the C family polymerases. It is used in DNA replication in *S.aureus* where this enzyme has been found to be crucial for lagging strand replication. We conducted pre-steady state and steady state assays to look at the kinetic nature of DnaE in the replicative pathway. Pre-steady state condition assays showed that the affinity of the enzyme to bind to DNA. Single-turn over condition assays gave the affinity of a nucleotide to be added to the duplex with enzyme complex. A rate was found for the disassociation of the enzyme from the binary structure. These values helped to determine that the rate which must be the rate limiting step in DnaE replication. Comparing these values to PolC, the enzyme that replicates the leading strand in *S.aureus*, and other C family polymerases may help analyze the importance of DnaE. **Selected for presentation at Experimental Biology, San Diego, CA.**

## 33 • Dissecting the Role of IKK $\beta$ in Tumor Specific Cell Death

PETER FIELDS

FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY

The TAK1 cell signaling pathway has been found to be very important for tumor invasion, metastasis, and angiogenesis in breast cancer. Disruption of TAK1 signaling in breast and prostate carcinoma cells reduces invasive and angiogenic capacities of tumor cells. In addition, disruption of TAK1 reduces the ability of tumor cells to metastasize. Our recent studies indicate that TAK1 is also involved in tumor specific cell-death. Inhibition of TAK1 sensitizes tumor cells to TNF $\alpha$  and cytotoxic drugs such as doxorubicin. TAK1 signaling is mediated via Mitogen-activated protein kinases (MAPKs) and the heterotrimeric IKK $\alpha$ /IKK $\beta$ /NEMO complex, activating NF $\kappa$ B transcription factor. Given that NF $\kappa$ B is required for pro-invasive and angiogenic activities of TAK1, we hypothesized that the IKK $\alpha$ /IKK $\beta$ /NEMO complex may play a significant role in TAK1-mediated survival of tumor cells. To address the role of IKK $\beta$ , we downregulated IKK $\beta$  using an RNA interference. In addition, we assessed the balance between the non-canonical and canonical pathways by comparing levels of NF $\kappa$ B subunits such as RelA/p65 and p100/p52 in the nucleus and in the cytosol. It was found that a knockdown of IKK $\beta$  did not sensitize cells to TNF $\alpha$ . It was also found that a disruption of TAK1 increased non-canonical NF $\kappa$ B activity in tumor cells.

## 34 • Effect of Resveratrol and Radiation on 435 Cells

KENT UPHAM, MICHAEL GARONE, MITCH GILLARD

FACULTY SPONSORS: ROBERT O'DONNELL, BIOLOGY  
WENDY POGOZELSKI, CHEMISTRY

Previous studies indicate that pre-treatment of cancerous cells with resveratrol enhances the killing of these cells after undergoing radiation treatment. Using doses of resveratrol from 0.025 to 0.0025 mg/ml of resveratrol in combination with and without radiation, we used an MTT assay to assess the effects on the survival of the cells. Preliminary results show that a 48 hour pre-treatment with Resveratrol and 4 Gray radiation treatment increased cytotoxicity. In addition, cell cycle analysis demonstrates that Resveratrol alters the distribution of cells within the G1, S, and G2 phases

of the cell cycle. In future experiments, we will examine the effects of resveratrol on cytotoxicity and cell cycle distribution using an optimized radiation dosage.

### 35 • Effects of 5-azacytidine on the *In Vitro* Colony Growth of the MDA-MB 435 Cancer Cell Line

JACLYN HELLREICH, JENNIFER GASPAREK

FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY  
DNA Methyltransferase inhibitors such as 5-Azacytidine have shown promise in cancer treatment because of their ability to allow re-expression of tumor suppressor genes in cancer cells. Our preliminary studies showed that high doses of 5-Azacytidine are cytotoxic to MDA-MB 435 tumor cells and that the cells grow well as colonies in methylcellulose. We are now treating the MDA-MB 435 cells with a low dose of 5-Azacytidine in order to initiate epigenetic reprogramming. This low concentration (1.95 µg/mL) still allows 90% survival of the cell line. MDA-MB 435 cells are currently being grown in the presence of 1.95 µg/mL 5-Azacytidine for three weeks and will be compared to control cells for their ability to form colonies in methylcellulose and to determine if the cells will revert to a more normal phenotype. We will also determine if resistance to 5-Azacytidine is generated by comparing the drug treated population versus the untreated population of cells in a cytotoxicity assay. If the treated MDA-MB 435 cells fail to gain a resistance and also fail to colonize in methylcellulose, it would support the potential use of 5-Azacytidine for the treatment of solid tumors. *Selected for presentation at Experimental Biology, San Diego, CA.*

### 36 • Investigating SFN Effects on Gene Regulation and Protein Expression in HL-60 Cells

JULIA SANGER, KRISTEN LEHNER

FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY  
Sulforaphane (SFN), a naturally occurring isothiocyanate, has shown promising chemopreventive and anti-cancer potential. Preliminary studies have shown that SFN has a positive effect on apoptosis induction in HL-60 cells. These data show a significant increase in apoptotic and dead cells, as well as slowed cellular division over 72 hours when treated with SFN. However, the mechanism by which SFN effects HL-60 cells to induce these results is not well understood. Microarray data for HL-60 cells treated with SFN provided evidence to suggest the changes in gene regulation which may account for SFN's mechanism of action. Of particular interest was a 3.52 fold upregulation of Bcl-2 and other Bcl-2 related genes in the presence of SFN and a 0.01 fold downregulation of Myc after treatment with SFN. Using FITC labeled monoclonal antibodies and flow cytometry we are currently investigating SFN's effects on protein expression of Bcl-2 and Myc to determine the consistency or inconsistency with microarray data. Preliminary data has suggested a difference in Myc expression between SFN treated and untreated HL-60 cells while no difference was observed in Bcl-2. Subsequent experiments will look

at different doses of SFN and exposure times. *Selected for presentation at Experimental Biology, San Diego, CA.*

### 37 • Drop Your Gloves: National Hockey League and Evolution of Left-Handedness

CARSON SCHELL

FACULTY SPONSOR: SUSAN BANDONI MUENCH, BIOLOGY

Left-handedness is heritable and has been linked to several fitness-lowering attributes such as low birth rate and increased susceptibility to certain diseases. The fighting hypothesis suggests left-handers hold an advantage in combat due to a surprise effect, resulting in the maintenance of left-handedness by frequency dependent selection. Researchers have looked to sport to evaluate this idea, with studies showing an overrepresentation of left-handedness in tennis, boxing, wrestling and mixed martial arts. This overrepresentation has been attributed to ability as an athlete, and yet, there has been no evidence supporting differential success. However, these studies have not accounted for the tendency of athletes from these particular sports to train for contests against left-handed opponents. To eliminate the effects of training, I examined over 400 fights of 131 players in the National Hockey League over the past 17 seasons. Left-handers were found to be even more overrepresented amongst these players than previous studies have shown in their respective sports. Unfortunately there was no statistically significant difference in the overall success of left-handed fighters relative to their right-handed counterparts.

### CENTER FOR COMMUNITY

#### 38 • Student Fake ID Use in the Geneseo Community

ALEXANDRA ROCKWOOD, OLIVIA LEWIS

FACULTY SPONSOR: TAMARA KENNEY, CENTER FOR COMMUNITY

The poster will include survey data, information about student knowledge and use of Fake IDs, and strategies for continuing to educate the Geneseo population on Fake ID use.

### CHEMISTRY

#### 39 • Conversion of Cellulose Into Glucose in Ionic Liquids: A Comparative Study on the Efficacy of Microwave Heating

CODY ORTON

FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

A comparative and quantitative study on the effects of microwave heating of cellulose using various ionic liquids was carried out. Cellulose is insoluble in water and most organic solvents. The intent of this experiment was to use unique properties of these organic salts to break down the cellulose into the constituent monomeric glucose units. This is a process normally done by enzyme action or concentrated acid at very high temperatures. The ionic liquids used were 1-Ethyl-3-methylimidazolium chloride ([Emim]Cl), 1-Butyl-3-methylimidazolium chloride ([C4mim]Cl) and 1-hexyl-3-methylimidazolium chloride [Hmim]Cl.

While they only differ by length of the alkyl chain on the cation, the physical and chemical properties of these compounds proved to be quite different. The final glucose concentrations were quantified using a glucose refractometer. The results suggest that EmimCl was the most effective at converting cellulose into glucose, 23.2% greater than acid hydrolysis alone. Also, it was determined that microwave burst heating was most effective in 4 second increments with more than a 5% advantage over 3 and 5 second bursts. The experimental procedure, discussion and future directions are presented herewith. *Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.*

#### 40 • *Digitaria sanguinalis*: A Hairy Nuisance in Manicured Lawns or the Key to Sustainable Biofuel Production?

DYLAN OFRI

FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

The snowballing demands for cleaner fuel by the transport and industrial sectors has made many believe that biofuel production is the panacea. Is E85 (a laboratory made ethanol based fuel) the cure for the World's dependence on fossil fuels? A keen look exposes a more critical conundrum; the production of E85 destroys human food. With 1 in 8 people suffering from chronic undernourishment in 2010-2012, this is not justifiable. Biofuels are produced through breaking down cellulosic components (lignocellulose LC) of plants into glucose and then into ethanol. However, two main challenges remain; 1) finding a cheap, reliable and non-food source of LC, i.e. having high cellulose content, and 2; developing a cheap, clean and reliable conversion/pre-treatment system. Dissolution of cellulosic material in ionic liquids, ILs (a unique class of solvents) has been reported to make the material susceptible to chemical attack by various reagents/catalysts/acids. *Digitaria sanguinalis* (hairy crabgrass, a weed) is reported to have high cellulose content. In this research crabgrass was pretreated with a series of imidazolium ionic liquids, for 3, 6, and 9 hours followed by acid hydrolysis. The results attained so far, including those of glucose and total reducing sugar quantification work are presented and discussed. *Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.*

#### 41 • From the Thickets with Hope; the Analysis of Douglas Fir as Lignocellulosic Biomass for Biofuel Production

PAUL DONAT

FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

Recent studies indicate that there is at least 50 million dry tons of sustainable woody biomass feedstock available for less than \$40/ton! Break down of such biomass has been shown to lead to glucose yields of between 70-92% that is then readily converted into ethanol for use in biofuel production. This alone is enough to meet 2% of the

US demand for fuel. Moreover, the rise in pollution and fuel costs associated with fossil fuels has increased the demand for cleaner alternative forms of fuel. *Pseudotsuga menziesii* (Douglas fir) is reported to have high hemicellulose content. Hemicelluloses are polysaccharides in plant cell walls that strengthen the cell wall through interaction with cellulose and lignin. The quandary is in conversion of such plant material into cellulose and then glucose; i.e. designing an efficient pretreatment system. Ionic liquids ILs, (a special type of solvents), of varying carbon chain lengths, were used as pretreatment systems to break down the hemicellulose (and also lignin) into cellulose after which, acid hydrolysis was used to convert the cellulose into glucose. The amount of glucose obtained was compared to the carbon chain lengths in the series of ionic liquids. The results are presented and discussed. ***Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.***

#### 42 • From Wastelands to the Gas pPump: Exploring the Promise of Rice Husks as Biofuel Feedstock

KARINA TSAREVA

FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

In 2008, the World produced well over 130 million tons of rice husks; with virtually all of it going to waste. In the USA alone, it is expected that the amount of corn/maize ethanol for fuel production will top 15 billion gallons by the year 2015. Meanwhile, 1.5 million children die from starvation each year and 800 million human beings are considered starving with 11% of the US population at risk of hunger. The continued use of human food for fuel production, while vast amounts of usable non-food plant material that can be used for fuel production instead lays waste, defies common sense. This coupled with the rise in pollution levels from the use of fossil fuels; make it all the more imperative to develop alternative sources of fuel. This research work explores the use of rice husks/hulls as renewable, clean and non food feedstock for biofuel production. Rice hulls were pretreated using three ionic liquids, (a unique class of ionic salts), namely; 1-ethyl-3- methylimidazolium chloride, 1-butyl-3- methylimidazolium chloride, and 1-hexyl-3- methylimidazolium chloride, to make them amenable to acid hydrolysis, after which the amounts of glucose obtained were quantified. A description of the methods, discussion of the results plus future directions follows. ***Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.***

#### 43 • Investigating the Potential of Alfalfa as a Renewable, Low Cost, Non-food Biofuel Feedstock

CHRISTA PAPPALARDO

FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

In recent years scientists have recognized the need to discover and develop alternative source of fuel for our growing population as reliance on fossil fuels is untenable. Biofuels (fuels produced from biomass), are promising and have the potential to

replace fossil fuels. Cellulose, an abundant indigestible plant sugar, is favored for the process of making biofuels because it can be broken down into glucose, which then can undergo fermentation to ethanol. The development of an efficient breakdown/pretreatment pathway, from cellulose to glucose faces many challenges. One method is promising and is the basis of this study. It involves the treatment of the raw biomass, in this case alfalfa hay, (a non-food feedstock) with ionic liquids, ILs (a unique class of non-volatile, recyclable and nonflammable chemicals that have applications as plasticizers and solvents in synthesis) namely; 1-ethyl-3- methylimidazolium chloride, 1-butyl-3- methylimidazolium chloride, and 1-hexyl-3- methylimidazolium chloride prior to acid hydrolysis. This breaks down the rigid biomass networks, enhancing glucose yields upon hydrolysis. Furthermore this method is cleaner and sustainable as the ILs are reusable. The samples were analyzed for glucose content and morphological details, the latter using scanning electron microscopy. The results of this study are presented hereafter.

***Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.***

#### 44 • Synthesis, NMR, and X-ray Characterization of Novel Nitrobenzimidazole-thiophene Derivatives with Possible Antitumor Activity

JOSEPH GERAGHTY, LAURA SZCZESNIAK, SEAN COLLIGAN

FACULTY SPONSORS: CRISTINA GEIGER, CHEMISTRY JANI LEWIS, BIOLOGY

In efforts to construct a library of benzimidazole-based derivatives, several compounds have been synthesized by reacting 1,2-diaminobenzene derivatives and 2- thiophenecarboxaldehyde under various reaction conditions including solvent, temperature, catalyst and reaction time. Substituents at the fourth position of o-1,2- diaminobenzenes have been chosen for their electron- donating or electron-withdrawing effects on the reactivity of the benzene ring. The synthesis and structural characterization of several benzimidazoles is reported. <sup>1</sup>H NMR, <sup>13</sup>C NMR, DEPT, and COSY spectra were obtained to confirm their structures and purity was analyzed by thin layer chromatography. Single crystals obtained from vapor diffusion of hexanes in propanol or chloroform solution were suitable for X-ray crystallography and the structure's parameters are described. Since benzimidazoles possess a wide spectrum of biological activities, we are currently investigating the effect of 6- nitro-2-(thiophen-2-yl)-1-(thiophen-2-ylmethyl)-1H- benzimidazole on various human carcinoma cell lines. Using a colorimetric MTT assay that detects cytoplasmic NADPH-dependent oxidoreductase enzymes characteristic of viable cells, the antitumor activities of these compounds can be quantitatively determined. Following analysis of the preliminary results, it appears that the nitrobenzimidazole derivative demonstrates antitumor activity in an SCV-7 squamous vulvar carcinoma cell line. Further investigations will look at several other human

cancer cell lines. ***Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.***

#### 45 • The Effect of Cholesteryl vs. Methyl Biphenoxy Esters in Gel Formation

PAUL HUTTUNEN

FACULTY SPONSOR: CRISTINA GEIGER, CHEMISTRY  
The synthesis and gelation properties of 4,4'-bis-(7-cholesteroxy carbonylheptyloxy)biphenyl (BBO8-C and 4,4'- bis-(7-methoxy carbonylheptyloxy) biphenyl (BBO8-M) is reported. The structures of both compounds were identified by <sup>1</sup>H and <sup>13</sup>C NMR spectroscopy. Both gelators form stable gels in butanol and octanol, however only BBO8-M forms a stable gel in heptane. Absorption, emission and induced circular dichroism spectroscopic studies, used to characterize the aggregative nature of the gelators in n- octanol gels and in dilute solutions, are reported.

#### 46 • Detecting and Quantifying Radioactive Elements in Soil from a SUNY Geneseo Archaeological Site

JOSH HALPERN

FACULTY SPONSORS: ERIC HELMS, CHEMISTRY DAVID MEISEL, PHYSICS & ASTRONOMY

Neutron activation analysis (NAA) is a sensitive and reliable analytical technique that is used for simultaneous quantitative and qualitative measurement of a wide variety of elements in a sample. NAA operates by irradiating the target nuclei of a sample with a beam of neutrons leading to excited radioactive nuclei that ultimately transmute to gamma ray emitting daughter species. These characteristic gamma rays are then detected and analyzed for the presence and quantity of these daughter elements from which the presence and quantity of the parent nuclei can be inferred. Our group successfully used neutron activation analysis to detect the presence of certain trace elements in soil samples from an archaeological site on the SUNY Geneseo campus. This nearby site is believed to have been previously inhabited and actively used as a hunting camp by early Native Americans. Analysis of samples for several different strata on site will be presented and interpreted. The excellent support of this project by Dr. Charles Freeman and Drew Ellison of the SUNY-Geneseo Nuclear Structure Research Lab is gratefully acknowledged.

#### 47 • Using an Elimination Reaction of Tropic Acid as a Simple Example of an E1cb Reaction

KATHERINE BEST, DIANA LI

FACULTY SPONSOR: ERIC HELMS, CHEMISTRY  
We have developed an economical and simple laboratory exercise that demonstrates an E1cb mechanism using inexpensive tropic acid and potassium hydroxide. The reaction involves a 40 minute reflux followed by neutralization and recrystallization. Student results generally yield 50 - 70% of pure atropic acid (2-phenylpropenoic acid) product. This exercise involves reflux, neutralization, recrystallization, and melting point analysis. If one chooses to run the NMR on the final

product, there is an opportunity to teach about diastereotopic protons on terminal alkenes as well. Both the starting material and final product have no known health hazards and the only solvent used is water. The hazards are confined to the small amount solid potassium hydroxide (0.8 g) and dilute hydrochloric acid that are used. *Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.*

#### 48 • Concentration Dependence of Amyloid Beta Peptide Conformational Change over Gold Colloidal Nanoparticle

QUEENY PAN, DAEUN NOH

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

Concentration Dependence of Amyloid Beta Peptide Conformational Change over Gold Colloidal Nanoparticle Self-assembly of amyloid beta peptide (A $\beta$ ) is known to be a crucial step of fibrillogenesis which is the hallmark mechanism for the onset of Alzheimer's disease. We have discovered that an initial process of fibrillogenesis of A $\beta$  1-40 monomer can be controlled over gold colloid by varying temperature as well as the sizes of gold colloid under an alternation of external pH. Recently, we also found that the indicative condition of conformational change of the A $\beta$  1-40 monomers on the nanoparticle's surface can be drastically altered. This is due to a coverage ratio of nanoparticle and interaction between monomers on the surface and over the surface. This study explores the quantitative investigation of conformational change relying on the concentrations of A $\beta$  1-40 monomers.

#### 49 • The Investigation of the Mechanisms of Alzheimer's Disease

CHRIS HEIMBRGER, KWANGWON KONG, PATRICK MILLER-RHODES

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The amyloid beta (A $\beta$ ) 1-42 sequence is hydrophobic and is known to aggregate easily. This has prevented us from studying the reversible self-assembly process of A $\beta$  1-42 monomers as well as the properties of an intermediate protein structure in this process. We successfully observed the intermediate involved in the reversible self-assembly by placing the A $\beta$  1-42 over the nanoscale gold colloid in dimethyl sulfoxide, in which A $\beta$  1-42 is soluble. The diameter of nanoscale gold colloid used was between 10 nm and 100 nm, and a significant sign of self-assembly was observed only for 20 nm and 30 nm gold colloids. It implies that a stable intermediate has a cage-like structure with a diameter of 20 or 30 nm. Furthermore, temperature dependence of a reversible self-assembly process was investigated and a non-monotonic feature was observed. *Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.*

#### 50 • Solvent Dependent Morphology in Gold Colloid

CHRISTA CATALFAMO, MARY SPENCER

FACULTY SPONSORS: KAZUSHIGE YOKOYAMA, CHEMISTRY

HAROLD HOOPS, BIOLOGY

Nanoparticles have recently accrued increased interest as a sensing material for neurodegenerative diseases including Alzheimer's and Parkinson's diseases. Our group has succeeded in visualizing the initial process of fibrillogenesis, a key onset mechanism for Alzheimer's disease. We investigated a morphology of a gold colloid in water and in DMSO by Transmission Electron Microscopy (TEM). The aggregation process was irreversible when the pH was changed from pH 7 to pH 4 in both water and DMSO. However, in water, a reversible aggregation was observed when albumin was attached to the gold surface. In DMSO, no reversible process was observed even when albumin was attached. It implies that a solvent environment can control the self-aggregation process. Furthermore, for the first time, we investigated the morphology of A $\beta$ 1-42 in a DMSO environment. There were signs of formation of a string shaped aggregate in acidic conditions. *Selected for presentation at American Chemical Society Undergraduate Research Symposium, Rochester, NY.*

#### 51 • Reversible Self-Assembly of Hydrophilic and Hydrophobic Amyloid Beta Peptides Over Functionalized Gold Colloid

CHRISTA CATALFAMO

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

Fiber formation of amyloid beta is a hallmark of Alzheimer's disease. There are roughly two types of amyloid beta which are critically important in the mechanism of Alzheimer's disease. One is a water soluble (hydrophilic) amyloid beta of sequences 1-40 and the other is water insoluble (hydrophobic) amyloid beta sequences 1-42. Both A $\beta$ -40 and A $\beta$ -42 do not exhibit a reversible self-assembly in DMSO when they are directly placed over the gold colloidal surfaces. However, both amyloid beta proteins exhibited a reversible self-assembly when they were attached over disulfide functionalized gold colloids. We investigated with various sizes of gold nano-colloids ranging between 10 nm and 100 nm in diameter. Although there was no strong size dependence, the disulfide stabilized an intermediate of the self-assembly process.

#### 52 • Kinetics and Dynamics of Protein on the Surface of Quantum Dots Encapsulated in Silica Gel

CHRISTA CATALFAMO

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

Modern drug delivery technology uses sophisticated systems that allow drug targeting and a sustained or controlled release of the drug. We have been working on a design for a silica sol-gel based capsule which can control a drug delivery rate by using a nanoparticle as a dopant manipulating solution flow rate. A nanosize semi-conductor (Quantum Dot - QD) was used as a probe material to monitor the dynamics of diffusion taking place in a silica based sol-gel material. Optical information was used to

measure the speed of acid flowing into the gel as the acid (pH 2 buffer) interacted with the QD. We discovered that acidic flow rate greatly depended on the size of the gold dopants.

#### 53 • Controlling a Reversible Self-Assembly Path by a Nanoscale Metal Surface -Study of the Fibrillogenesis of Alzheimer's Disease

CHRISTA CATALFAMO

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

Self-assembly of amyloid beta peptide (A $\beta$ ) is a crucial step of fibrillogenesis, which is considered to be a hallmark mechanism of Alzheimer's disease. We have succeeded to reproduce an oligomer formation of A $\beta$  monomers over a nanogold colloidal surface as an external pH was changed between pH 4 and pH 10. Under pH 4, an unfolded A $\beta$  monomer constructed a dimer or trimer based oligomeric form with the hydrophobic segment opened outward. On the other hand, a conformation of A $\beta$  constructed under pH 10 consists of a folded monomer with the hydrophilic segment folded inward. While amyloid beta was attached to both a silver and gold surface, a more polarizable silver surface was found to restrict the channel of the unfolding process. There was a specific size/temperature dependence in a reversible self-assembly. Based on the temperature and size co-dependence of a reversible self-assembly, the most probable oligomeric forms constructed over 20 nm gold colloidal and that over 30 or 40 nm gold colloidal surfaces were concluded to be a dimer and trimer based unit, respectively. We exhibited that there is a high potential to use a gold size, temperature and solvent to control the initial stage of Alzheimer's disease. *Selected for presentation at SUNY Undergraduate Research Showcase, Albany, NY.*

#### 54 • Dynamic Nature of Amyloid Beta Peptide Self-Assembling over Nanoparticles

CHRISTA CATALFAMO, CHRISTINA BERTI, DAEUN NOH

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

Understanding the properties of amyloid beta fibrils associated with Alzheimer's disease is critical in order to monitor the progression of the disease. Recently, fluorescent markers, derived from thioflavin T (ThT) have been developed as markers of Alzheimer's disease. We examined the intrinsic fluorescence of ThT bound to amyloid beta peptide under various pH conditions ranging between pH 2 and pH 12. We were able to relate the fluorescence properties with the structural and binding properties of these amyloid fibrils as they self-assembled over nanoparticle's surface. Furthermore we investigated the fluorescence lifetime of the ThT conjugated amyloid beta in order to characterize the dynamic nature of amyloid beta monomers, aggregates, as well as oligomers (intermediate of fibrillogenesis).

#### 55 • The Adsorption of Alpha-synuclein Peptide on Gold Colloidal

## Nanoparticles' Surfaces: Relevance to a Mechanism of Parkinson's Disease

**PATRICK MILLER-RHODES, KUNIL CHUNG**

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The insoluble fiber formation in the brain is a major pathological hallmark of both Alzheimer's and Parkinson's disease. We investigated reversible self-assembly of amyloid-beta peptides over nanoparticle and clarified a critical conformation associated with a mechanism for Alzheimer's disease. The alpha-synuclein peptide is classed in a same family as the amyloid beta peptide and is known to be a hallmark peptide causing Parkinson's disease. We applied the same methodology used for amyloid beta to alpha synuclein and investigated whether or not alpha-synuclein can be adsorbed on the colloidal surface. Interestingly, we found that alpha synuclein possessed completely different property than that of amyloid beta. There was a sign of no adsorption with 10 and 20 nm gold nanoparticles but with 30 nm and larger, while amyloid beta adsorbed to all tested sizes of gold colloids.

## 56 • The Reversible Self-assembly of Alpha-synuclein Peptide on Gold Colloidal Nanoparticles' Surfaces

**PATRICK MILLER-RHODES, KUNIL CHUNG**

FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The insoluble fiber formation of the alpha synuclein peptide in the brain is a major pathological hallmark of Parkinson's disease. Since the mechanism of fiber formation involves a very unstable intermediate, no report on this intermediate was made in the past. We discovered that an intermediate can be stabilized by using the surface potential of a nanoparticle. For the first time, we successfully captured this intermediate on the gold nanoparticles' surface. By undergoing a repetitive change of pH between pH4 and pH 10, a surface potential of 60 nm gold colloid enabled an alpha synuclein to form an unfolded conformation at pH 4 and re-assembled to a folded conformation at pH 10, repetitively. Very interestingly, the smaller size than 60 nm did not exhibit any signs of this reversible self-assembly. It implies that there is a threshold surface area at over that value, enough surface potential to conduct a reversible self-assembly.

## 57 • Using Isothermal Titration Calorimetry (ITC) to Investigate the DNA Binding Properties of Abietane Diterpene Natural Products

**GAVIN GULLICKSON**

FACULTY SPONSOR: RUEL MCKNIGHT, CHEMISTRY

It is now well established that several known therapeutic drugs interact with DNA as a means of carrying out their actions. Some of the most notable members of the DNA binding therapeutic drug class are either directly derived or inspired from natural products. Information on the exact DNA binding mode as well as the relative binding affinity can provide insights into understanding why and how

these therapeutic drugs bind to DNA. The abietane diterpenes are a class of natural products isolated from a certain plant (*Hyptis verticillata*) known in Jamaican folklore for its medicinal benefits, including anti-microbial, anti-oxidants, anti-inflammatory as well as anti-cancer activities. The goal of this project is to carry out preliminary studies on selected members in the abietane diterpene class of compounds in order to determine whether these compounds bind to DNA, and if so, to characterize their preferred DNA binding mode and affinity. As a result, isothermal titration calorimetry (ITC) was used to carry out preliminary studies on selected members in the abietane diterpene class of compounds. Initial results indicate strong binding to DNA, even at low concentrations of compound.

## 58 • Development of a Means to Detect Large-Scale Deletions in Human Mitochondrial DNA

**ABIGAIL KLUTTS**

FACULTY SPONSOR: WENDY POGOZELSKI, CHEMISTRY

Human mitochondrial DNA (mtDNA) is subject to large-scale deletions of several thousand base pairs. These deletions increase with age and can be markers of oxidative stress to cells. However, they occur at low levels and are difficult to detect. We show efforts to develop a Polymerase Chain Reaction (PCR)-based assay to detect these deletions. Using DNA extracted from MRC-5 human lung fibroblasts, we show that we are able to amplify large sections of the mitochondrial genome, compare the lengths of the amplicons and thus detect the presence of deletions. We have begun to use this technique to determine effect of insults such as gamma rays on the creation of deletions.

## 59 • Development of a New Quantitative Assay for Measuring Mitochondrial DNA Deletions

**SHIKHA GAUTAM, MICHELLE GULFO**

FACULTY SPONSOR: WENDY POGOZELSKI, CHEMISTRY

Human mitochondrial DNA (mtDNA) is subject to large-scale deletions of several thousand base pairs. A deletion of 4977 bp called the "common deletion" results in cells that are viable but shorter-lived due to being energetically compromised. Dr. Pogozelski's lab has been studying how these deletions arise after treatment with gamma rays. Previously, the lab measured these deletions using a plasmid quantification standard. This method relied on an assumption of how many cells were represented in a sample and this assumption was untested. Our goal is to develop an alternative assay in which we can be more confident. Our approach is to co-quantify a nuclear single-copy gene along with the mitochondrial DNA. Then the data can be normalized to this nuclear DNA to obtain the number of copies of mitochondrial DNA per cell. We have been testing primers for this assay on DNA extracted from human lymphoblast cell lines known as 848, 847 and 849, derived from a family in which the 4977-bp deletion is elevated.

## COMMUNICATION

## 60 • Face Management in Post-Relational Dissolution Communication

**EMILY WAGNER**

FACULTY SPONSOR: MEREDITH HARRIGAN, COMMUNICATION

This study investigates the communication of ex-relational partners, known as post-relational dissolution communication, in college-aged dating experiences. Interviews were conducted with participants who had recently experienced break-ups and post-relational dissolution communication. Employing facework (see Brown & Levinson, 1987; Cupach & Metts, 1994; Goffman, 1959) as a lens, the research reflects the face-threatening situations of ex-relational partners. Facework theory aims to identify and explain the communication techniques used to address perceived face threats to the self and/or others. The care and communicative actions people take to preserve their own image and the images of others is known as face management. Through a qualitative analysis, the facework strategies avoidance, politeness, apologies, negative identity management, de-escalation, and disclosure are identified in the study. Ex-relational partners apply these forms of facework in communication with one another and others following the termination of their romantic relationship. A possible supplement to the existing Knapp and Vangelisti (2000) relational stages model is also introduced, with the goal of outlining post-relational stages of communication. **Selected for presentation at Eastern Communication Association Conference, Providence, RI.**

## 61 • Parent Communication in Donor-Conceived Families

**BRIDGET SOVOCOOL, KRISTIN D'AMICO**

FACULTY SPONSOR: MEREDITH HARRIGAN, COMMUNICATION

This study involves a systematic investigation of communication in families formed with the help of a sperm donor. Of specific interest is how gender in heterosexual couples affects the disclosure process in donor-conceived families. Trends from previous studies have shown that mothers are more likely than fathers to initiate conversation with their donor-conceived child about their origin. Investigation of this topic will be carried out through interviews with heterosexual mothers or fathers of donor-conceived children. The primary goal of the interviews is to obtain information about the disclosure process. The research question asks what, if any, role does parents' gender play in the process of disclosure in donor-conceived families.

## COMMUNICATIVE DISORDERS & SCIENCES

### 62 • The Deaf American Dream

**MARY COBLE, CHRISTINA DORNBUSH, JULIA GANGLOFF, BRIDGET MCGOVERN, MARGARET WAYNE, NICOLE ZINGMAN**

FACULTY SPONSOR: DOUGLAS MACKENZIE, COMMUNICATIVE DISORDERS & SCIENCES

Does deafness limit one's ability to succeed in the workforce? This poster presents current research on the socioeconomic status of the Deaf



Community including statistics and census information. Limitations in career options and workforce/career advancement and salary will be discussed as well as college and other placement options for those finishing high school.

### 63 • An Exploration of Balance Disorders

**SAMANTHA HARTNETT**

FACULTY SPONSOR: DOUGLAS MACKENZIE, COMMUNICATIVE DISORDERS & SCIENCES

For my GREAT day poster project, I intend to compile an overview of balance disorders and the anatomy behind this. I will go into detail about basic anatomy of the vestibular system. I will also introduce several common disorders associated with balance. Finally, I will explain how they are diagnosed, testing that is undergone to diagnose these disorders and treatment and/or therapy options.

## EDUCATION

### 64 • How Civil was the Civil War?

**ALEXANDRA LIONETTI, HANNAH COHEN, SARAH FASHONA, GINNY TATE**

FACULTY SPONSOR: ANN MARIE LAURICELLA, EDUCATION

The Civil War was a brutal affair, but outlining the body counts of the battles is not enough to show how inhumane the war was. Although this war happened about 150 years ago, there are startling similarities to wars we are fighting today, especially in the medical field. As time passes, history tends to be romanticized. Thus, we pose the question: just how civil was the Civil War? The unit plan we have designed facilitates student discovery and delivers historical content regarding the brutality of the Civil War. By examining the bullets, medicine, and the lives of the soldiers of the Civil War, students will discover the brutality of the war that separated the United States.

### 65 • No Piece Wasted: How Did Animals Provide More than Just Food?

**LAUREN MCKNIGHT, HANNAH CUMMINGS, ASHLEY LEE**

FACULTY SPONSOR: ANN MARIE LAURICELLA, EDUCATION

In Livingston County, it is evident that animals were used for more than just their meat. Native people to Livingston County were very resourceful in their ways. As a way to be frugal with what was provided by nature, often they used the parts of animals that were not necessarily a food source in other ways. These other ways consists of the making of tools that were used by the people of Livingston County for hunting. Some of the tools were Powder Horns, Bone Knives, and Antler Chairs. All these tools were made from a part of an animal and were useful in their own ways.

### 66 • Deaf Culture: An Overview for Outsiders

**BRIANNA ROGERS**

FACULTY SPONSOR: DOUGLAS MACKENZIE, EDUCATION

Culture thrives through communication. American Sign Language plays the most important role in American Deaf Culture. Outsiders assume American Sign Language is another form of English. This assumption is inaccurate. ASL is like any other language with grammar and sentence structure. This language makes for a tight-knit and united culture.

### 67 • Autism

**JENNA DISKIN**

FACULTY SPONSOR: ELIZABETH HALL, EDUCATION

In this presentation, Jenna will present: the current definition of the disability, tell how common is that disability, what are the signs of that disability, educational implications of that disability, tips for teachers/professors, and tips for students. The presentation will conclude with the LIVES Program student (Jenna) telling how the disability has/has not impacted her life.

### 68 • My Road Map: Where I've Been and Where I'm Going

**MATTHEW KLEIN**

FACULTY SPONSOR: ELIZABETH HALL, EDUCATION

This presentation will focus on an exploration of skills college students need to be successful in college and how these skills generalize to life after school. Living in a rural area and jobs being very competitive, having the right qualifications and experience is no longer enough to ensure the right job. The LIVES Program students have learned that they have to differentiate themselves from the next person, convey a professional working image, and project their best qualities in the way they look, sound, and behave.

### 69 • My Road Map: Where I've Been and Where I'm Going

**ROBERT MAPLESDEN**

FACULTY SPONSOR: ELIZABETH HALL, EDUCATION

This presentation will focus on an exploration of skills college students need to be successful in college and how these skills generalize to life after school. Living in a rural area and jobs being very competitive, having the right qualifications and experience is no longer enough to ensure the right job. The LIVES Program students have learned that they have to differentiate themselves from the next person, convey a professional working image, and project their best qualities in the way they look, sound, and behave.

### 70 • Understanding Me and My Disability

**PATRICK CHMELA**

FACULTY SPONSOR: ELIZABETH HALL, EDUCATION

The students in the LIVES Program researches his/her own disability. In this presentation, Bea will present: the current definition of the disability, tell how common is that disability, what are the signs of that disability, educational implications of that disability, tips for teachers/professors, and tips for students. The presentation will conclude with the LIVES Program student telling how the disability has/has not impacted her life. *Selected for presentation at National Council of Teachers of English: Whole Language Umbrella Literacies for All Summer Institute, Pasadena, CA.*

### 71 • Eye Movement Miscue Analysis Research: Focus on Young Readers

**KELSEY HORAN, CHRISTINA MARCONI**

FACULTY SPONSOR: MARIA LIWANAG, EDUCATION

Our research study focuses on how young students (emergent readers) construct meaning when reading picture books (fiction and nonfiction) using verbal and visual information from the text. We have explored how children make meaning of a text by utilizing illustrations. Does the use of illustrations impact the ability to comprehend a text? Our study focuses on two second grade boys and one first grade girl from Livonia and Geneseo Central Schools. We will use the Eye Movement Miscue Analysis procedure to determine the effectiveness of illustrations on young readers ability to comprehend texts. *Selected for presentation at National Council of Teachers of English: Whole Language Umbrella Literacies for All Summer Institute, Pasadena, CA.*

### 72 • How Well Do Schools Promote Diversity?

**ANDREA BAZIN, JESSICA DOYEN**

FACULTY SPONSOR: MARIA LIWANAG, EDUCATION

Our goal in this research poster is to understand how teacher candidates, teachers, and a popular book resource contribute to our knowledge of how diversity is promoted in schools. We will conduct surveys and examine the January through March 2014 Scholastic catalog to identify how diversity is supported. We will survey reached candidates' views and experiences on: 1) how often they plan to utilize multicultural literature in their classes, 2) how often they think they will actually be able to incorporate it into their lessons, and 3) how easily they think they'll be able to find multicultural literature that aligns to their curricular goals. We will also interview selected teachers in both urban and rural settings to identify: 1) how often they incorporate multicultural literature in their curriculum, 2) how much access they have to multicultural literature, and 3) how much the utilization of multicultural literature in classrooms is encouraged by the administration. Although this is an ongoing project, we still anticipate that teachers, teacher candidates, and teaching resources like Scholastic will demonstrate various means of advancing diversity in schools.

## ENGLISH

### 73 • Haiti: The Real Story

**PAIGE O'CONNOR**

FACULTY SPONSOR: WESTON KENNISON, ENGLISH

We plan on going to Haiti over spring break for a service learning trip and we hope to share our life-changing experience with others at Geneseo's GREAT Day.

## GEOGRAPHY

### 74 • Mapping Residential

**Architecture in a National Historic**

**Landmark District, Geneseo, NY**

**WILLIAM TAMURA**

FACULTY SPONSOR: DAVID ROBERTSON, GEOGRAPHY

Geneseo is one of the best preserved villages in western New York. As a National Historic Landmark District, the town is recognized to contain a diversity of nineteenth and early-twentieth century architecture that is unique in American history. Adams, Classical Revival, Italianate, Second Empire, Queen Anne, Colonial Revival, as well as eclectic and vernacular styles are represented in Geneseo neighborhoods. The Association for the Preservation of Geneseo (APOG) has compiled significant research on village architecture, but no attempt has yet been made at spatial analysis. This research fills that void. Building upon partial inventories of architectural styles, and utilizing Geographic Information Systems (GIS), this project comprehensively inventories, maps, and spatially interprets Geneseo residential architecture, revealing previously unknown patterns and processes in building styles and construction trends. *Selected for presentation at Annual Meeting for the Association of American Geographers, Tampa, FL.*

### 75 • Growing Urban Agriculture in Rochester

**MICHELLE GRAHAM**

FACULTY SPONSOR: JAMES KERNAN, GEOGRAPHY  
This study uses ArcGIS, a Geographic Information System to put into view Rochester's current economic condition, by analyzing the special distribution of poverty, unemployment, and vacant land. This data is then used to determine where agriculture could be most plausible as well as beneficial within Rochester. Urban agriculture can help provide local jobs, increase property value, decrease crime, increase access to healthy food, and improve environmental conditions. By calculating the mean center and directional distribution of the three fields, it reveals that there is a spatial clustering of poverty, unemployment, and vacant land in the downtown area. Rochester's decline in industry most affected the neighborhoods immediately surrounding the downtown, known as the Crescent of Poverty. However despite their struggles there are community development programs located within this area, as well as the Rochester Public Market, which shows the desire for the community to thrive and the further potential for agriculture.

### 76 • The Silent Epidemic: A Spatial Study of Obstetric Fistula in Ethiopia

**CHLOE FERNANDEZ**

FACULTY SPONSOR: JAMES KERNAN, GEOGRAPHY  
Objectives: To show how Geographic Information Systems (GIS) can be used to promote awareness and motivate international action to make informed global health decisions. Specifically, the purpose of this study is to describe the prevalence and factors associated with Obstetric Fistula (OF) in Ethiopia and to define areas in need of aid. Methods: Choropleth maps were generated to geographically analyze both contributing factors and prevalence of obstetric fistula. Select by location functions were implemented to define measureable distances of accessibility to health facilities. Results: Distribution of accessible health facilities and primary roads are concentrated around Addis Ababa. The Tigray Region is in a transitional phase with both a high

prevalence of aid and cases of obstetric fistula. Both the SNNP region and the Somali region experience high rates of OF with limited access to health care facilities and infrastructure. Conclusions: GIS can be used to spatially analyze and represent contributing factors and occurrences of obstetric fistula. Obstetric fistula in Ethiopia is directly influenced by contributing causes that when targeted, decrease the prevalence of this epidemic. Furthermore, the distribution of infrastructure in Ethiopia is both irrational and inequitable to service the country's far reaching health service needs.

### 77 • The Geography of HIV/AIDS and Public Health Services in Botswana

**TUSHARA SURAPANENI**

FACULTY SPONSORS: JAMES KERNAN, GEOGRAPHY  
JENNIFER ROGALSKY, GEOGRAPHY

Very little research has been done regarding the medical geography of developing countries within the framework of a geographic information system, particularly in Africa. Components of Botswana's public health intervention of HIV/AIDS merit accurate spatial representation. With the third highest HIV prevalence rate in the world, the country has witnessed dramatic progress in the curbing the pandemic and providing accessible health services for its citizens. A wealth of public health information has been published regarding HIV/AIDS, but the government has produced very poorly made maps. This warrants the creation of accurate maps of HIV prevalence in Botswana's second-level administrative districts. The purpose of this study was to examine the HIV/AIDS epidemic in Botswana using a geographic information system to better reflect the scope of the pandemic. Across the country, the national average HIV prevalence rate is approximately 17.2%. The densest clustering of hospitals services approximately 40% of the population. Finally, the ratio of marginal odds of infection placed women up to 2.4 times more vulnerable of acquiring the virus than men. Positive correlations were found between population density and distribution of hospitals as well as the distribution of treatment sites and absolute numbers of HIV-positive individuals. *Selected for presentation at Association of American Geographers, Tampa, FL.*

### 78 • Food Security in Nepal

**LUCAS JOHNSON**

FACULTY SPONSOR: JENNIFER ROGALSKY, GEOGRAPHY

This semester I have been studying the state of food security in Nepal utilizing Geographic Information Systems. This project analyzes data on agriculture, environmental factors, and factors of poverty in Nepal. In addition to GIS analysis, an extensive literature review of Nepal's environment, culture, economy, and agricultural practices has allowed me to spatially access food security, the factors that lead to it, and its effects. Once this is done I plan to offer insight into methods of improving food security in the future, so that my research may directly benefit those living in the country. The poster will include an extensive set of maps that highlight environmental features, agricultural suitability for certain crops, and human factors that tell the story of food security in Nepal. My goals are

to provide an understanding of the many uses of mapping technologies, a better understanding of a developing country, and a global perspective of the issues of food security.

### 79 • Commercial Aesthetics and Sustainable Tourism

**TYLER WIDA, AIS N KLEIN**

FACULTY SPONSOR: JENNIFER ROGALSKY, GEOGRAPHY

Studies of locations with successes and failures in planning that illustrate the complexities of aesthetics on tourism and what makes a town attractive to visitors. By understanding the relationship between responsible planning and the affects on a community gives better insight on how communities can develop sustainably.

### 80 • Mapping Rural Electrification Potential in Kenya

**IAN MACPHERSON**

FACULTY SPONSOR: JENNIFER ROGALSKY, GEOGRAPHY

Rural electrification is the process of bringing electricity to remote regions of the world. Denser population areas close to major electrical grids are best served by connecting to those national grids. In contrast, extreme rural areas rely on non-grid or local grid options for their electrical needs. These include solar panels or small-scale wind turbines. Kenya, a developing country in East Africa, is a prime example of a country that is undergoing rural electrification. The Kenyan government plans to have universal electrical access by 2030 while the 2010 rate was less than 25% and the rural population was only 5%. This project used ArcMap, a computer mapping software, to plot existing power grids, population centers and other variables in Kenya to determine which areas were best suited for each method of electrification. The areas where non-grid solutions were favored underwent further analysis to determine which renewable resources best suited the region's conditions. Results were then compared to current levels of renewable usage in those regions to determine if Kenya is pursuing the most efficient plan for electrification. *Selected for presentation at Association of American Geographers, Tampa, FL.*

### GEOLOGICAL SCIENCES

#### 81 • CFC Desorption in Aquifers and Their Implications as Tracers of VOC Transport in Groundwater

**ROBERT SEMMLER**

FACULTY SPONSOR: AMY SHELDON, GEOLOGICAL SCIENCES

Chlorofluorocarbons (CFCs) may be useful as reactive tracers that show where and how volatile organic compounds (VOCs) are retarded in groundwater. Recent work by our group has demonstrated CFCs adsorption -at very high concentrations- to black carbon (BC). In the present study, groundwater CFC sorption at ambient and lower concentrations is evaluated. The initial sample selected for study is the Marcellus shale, which is representative of kerogen-containing rocks and sediments typical in the Northeastern and Central US. Experiments were performed using 40

and 160 mg sample sizes. Additional experiments using 10, 20, and 40 mg sample sizes are ongoing. The contact time to achieve equilibrium for CFC-11, CFC-12 and CFC-113 at less than atmospheric concentrations was two weeks, similar to the patterns observed in sorption experiments at high concentrations for the same material. Desorption of CFCs exhibited a non ear behavior. The calculated  $K_{oc}$  for CFC-12 ( $2.9E+05$  L/Kg) is four orders of magnitude higher than the one estimated from ear Energy Relationship. Ongoing experiments are documenting CFC desorption isotherms for CFC-11 and CFC-113. These results will help us to elucidate the potential for CFCs to serve as retarded tracers of VOCs transport in kerogen-containing aquifers. *Selected for presentation at North-Central Geological Society of America, Lincoln, NE.*

## 82 • Analyzing Historical Snow-water Equivalent Data for Mountain Glacial Valleys in Northeastern Utah

DANIELLE WARD

FACULTY SPONSOR: BENJAMIN LAABS, GEOLOGICAL SCIENCES

Snowpack Telemetry (SNOTEL) stations provide high resolution measurements of snow water equivalent in mountain glacial valleys, which can be useful for understanding changes in the modern climate. Such records can also provide a useful framework for understanding past climate changes, such as the last Pleistocene glaciation. The focus of this study was mountain glacial valleys in the Uinta and Wasatch Mountains of Northeastern Utah. Snow water equivalent data, or the amount of water present if all snow was in a liquid state, for both locations was graphically compared to both longitude and elevation to see if snowpack was affected by either variable. The data was then mapped using GIS in order to discover trends in precipitation. The results will be discussed in my poster, as well as if these results can give insight into the temperature patterns present in previous glaciations.

## 83 • Cosmogenic Isotopes for Geochronology: Evaluating Laboratory Methods for Chemical Purification of Quartz

KYLE MORGAN

FACULTY SPONSOR: BENJAMIN LAABS, GEOLOGICAL SCIENCES

Secondary cosmic radiation produces beryllium-10 in rocks and sediments exposed at the Earth surface. The abundance of cosmogenic beryllium-10 in quartz-bearing rocks can be used to determine the duration of exposure of deposits and landforms. To measure beryllium-10 concentrations in rock or sediment, samples must be purified to quartz. Purification techniques include acid etching, rinsing, magnetic separation, and froth floatation. This study focuses on the systematics of etching quartz grains with dilute hydrofluoric acid (HF). This procedure removes non-quartz phases and grain coatings from the quartz sample. This study examines the number of HF etchings required to purify quartz for a variety of rock types. The results of this study will be discussed at the presentation.

## 84 • Glacial Chronology During the Last Glacial Maximum in the Bighorn Mountains, Montana, USA, Inferred by $^{10}\text{Be}$ Cosmogenic Dating

CHRIS CIERVO, KYLIE CAESAR

FACULTY SPONSOR: BENJAMIN LAABS, GEOLOGICAL SCIENCES

The Bighorn Mountains of Wyoming and Montana were subject to extensive alpine glaciation during the Last Glacial Maximum based on the widespread physical evidence of glacial features found in this region. However, the numerical ages of the glacier maxima and retreat are limited. This research presents  $^{10}\text{Be}$  cosmogenic surface-exposure dating ages from two sectors of a terminal moraine in North Fork Clear Creek canyon in order to constrain the timing of moraine deposition in the Bighorn Mountains. Cosmogenic  $^{10}\text{Be}$  exposure ages from a moraine in a nearby valley suggest that moraine deposition ceased at  $17.3 \pm 0.8$  kyr. The understanding of the glacial history in the northern Great Basin region is an important area of study in that it serves as a useful framework to contribute and resolve the pattern of climate change within the Rocky Mountain Region relative to the Last Glacial Maximum.

## 85 • Reconstructing Paleoclimate by Numerical Modeling of Glacier Mass Balance and Ice Flow in the Western Ruby Mountains, Nevada, U.S.A.

KATHERINE TRUONG

FACULTY SPONSOR: BENJAMIN LAABS, GEOLOGICAL SCIENCES

Lamoille Canyon is the largest glacial valley in the western Ruby Mountains and features terminal moraines deposited during the last Pleistocene glaciation. The changes in climate that accompanied glaciation and deglaciation - here and elsewhere in the Great Basin - are not well defined. The climate changes during this period are inferred from maximum ice extent simulated by numerical modeling of steady-state glaciers developed by Plummer and Phillips (2003). The goal of these model experiments is limit the range of temperature and precipitation combinations during glaciation. The model results indicate that if precipitation was near modern to 40% greater than modern, the temperature depression was  $\sim 9\text{-}10^\circ\text{C}$ . Modeling of Pleistocene glaciers in other nearby valleys reveals similar temperature and precipitation combinations for the last glaciation, all indicating that magnitude of climate change during the last glaciation was greater in the Great Basin than in other surrounding regions. I discuss the implications of these model results in the context of other paleoclimate data for the Great Basin.

## 86 • Using the Timing of the Last Lamoille Canyon Deglaciation to Interpret Pleistocene Climate Changes within the Ruby Mountains of the Great Basin

OLIVIA KAPLAN

FACULTY SPONSOR: BENJAMIN LAABS, GEOLOGICAL SCIENCES

During the last Pleistocene glaciation, numerous mountain ranges of the western United States were occupied by glaciers. Before glaciers recede, they deposit moraines composed of the sediment once trapped within the ice, called till. Cosmogenic radionuclide surface-exposure dating, when applied to moraines, can be used to closely estimate the time when ice retreat began. A precise chronology of moraines can provide the framework for understanding Pleistocene climate change of the Great Basin, Nevada. Cosmogenic  $^{10}\text{Be}$  surface exposure dating was applied to moraines in Lamoille Canyon, the largest glacial valley of the Ruby Mountains. The ages of these samples place a limit on the timing of glacier maxima and subsequent retreat of the last Pleistocene glaciation. The results gathered from  $^{10}\text{Be}$  surface exposure dating, showed that the terminal moraine was deposited around 22 kyr ago. Cosmogenic  $^{10}\text{Be}$  exposure ages of other moraines indicate that the glacier retreated up-valley until around 14.5 kyr ago. The ages gathered are consistent with other reported cosmogenic  $^{10}\text{Be}$  exposure ages from elsewhere in the Ruby Mountains.

## 87 • Water Budget Modeling: Evaporation and Soil Moisture Storage for Pleistocene Lake Clover, Northeastern Nevada

DOUGLAS STEEN

FACULTY SPONSOR: BENJAMIN LAABS, GEOLOGICAL SCIENCES

The Great Basin was home to pluvial lakes of varying size during glacial periods in the Pleistocene, including Lake Clover, which reached its highstand during the Late Pleistocene. Previous attempts to model the climatic conditions of Lake Clover have encountered obstacles, especially in estimating potential evaporation of the lake and watershed. This study estimates evaporation parameters in northeastern Nevada in terms of air temperature and total solar radiation - defined as a function of extraterrestrial solar radiation, astronomical mid-month daylight hours, and actual mid month daylight hours. The evaporation expression I developed is based on empirical data, including temperature and evaporation data from Ruby Lake, NV and monthly solar radiation measurements at nearby Elko, NV. Potential evaporation has been reproduced by the expression within 4% error of Ruby Lake pan evaporation data for each month with available measurements (April through October). Climate inputs will be combined in a water balance model to determine possible temperature and precipitation conditions during the Lake Clover highstand. These results will be compared to glacier mass balance experiments from the Ruby Mountains to fine tune interpretations of regional climate conditions during the Last Glacial Maximum.

## 88 • Biostratigraphic and Geochemical Analysis of Upper Devonian Strata from the Southeastern Iowa Basin

ALYSSA HYNES

FACULTY SPONSOR: D. JEFFERY OVER, GEOLOGICAL SCIENCES

Upper Devonian conodonts, the microscopic phosphatic teeth of an extinct marine organism, were collected for biostratigraphic analysis from core samples of the Lime Creek, Sweetland Creek, and Grassy Creek formations from the southeastern Iowa Basin. This offers a framework for geochemical analysis across the Frasnian-Famennian boundary, which was determined to be within the Grassy Creek Formation.

### 89 • Conodonts and Magnetic Susceptibility of the Angola Shale, West Falls Group, Upper Devonian, Erie County, Western New York

JENNA LESKOVEC

FACULTY SPONSOR: D. JEFFERY OVER, GEOLOGICAL SCIENCES

The Angola Formation is a shale, mudrock, and siltstone stratum, within the West Falls Group, with exposures in southwestern Erie County. The Angola contains numerous zones of calcareous concretions, in between layers of black and gray shales, mudrock and siltstone. Precise measurement, and identification of fauna including the conodont *Ancyrognathus iowaensis* and the goniatite genera *Playfordites*, *Sphaeromanticoceras*, *Carinoceras*, *Manticoceras*, *guatnoceras*, and *Tornoceras*, within these layers aids in determination of cyclical sea level changes. Magnetic susceptibility data for a section of the Angola at Point Breeze exhibits microcycles and a possible major cycle. Interpretation of these cycles as climatic changes or sea level changes will enable a greater understanding of the sedimentary environment, as well as allow refined correlation with biostratigraphic intervals.

### 90 • No Significant Changes in Microbivalve and Ostracode Diversity or On Predation by Gastropods Across Pliocene-Pleistocene Boundary in Southeastern North Carolina

GRANT HORNER, MICHAEL REED, WILLIAM YEUNG, KATHRYN CHRISTOFF, ABBY DENNETT, CATHERINE HOBART, MARISSA BELLUSCI, ALLAN ENGELBERT, JENELLE WALLACE, BOWEN WU, BRIAN AUSTIN, NATALIA DEMPSEY, TIMOTHY KROL, SEAN WRAITH  
FACULTY SPONSOR: D. JEFFERY OVER, GEOLOGICAL SCIENCES

The Pliocene-Pleistocene boundary in the Atlantic Coastal Plain of North America is characterized by a significant extinction of mollusks, including a decrease in predatory gastropods that feed on bivalves by boring through the shell. Microbivalves and ostracodes were collected from five localities that span the Pliocene-Pleistocene boundary in southeastern North Carolina: Natural Well and Tar Heel from the late Pliocene (3.0 Ma) Duplin Formation, Acme and Register Quarry from the early Pleistocene (2.5 Ma) Waccamaw Formation, and Walker's Bluff from the mid Pleistocene (1.9 Ma). Species of microbivalves and ostracodes were identified, diversity of microbivalves and ostracodes were calculated, and the number of bored valves determined. Ostracode diversity (Simpson Diversity Coefficient) ranged from 3.4 to 6.8, with perhaps an

increase in the Pleistocene; microbivalve diversity ranged from 4.0 to 12.1, with the significant increase in the mid Pleistocene at Walker's Bluff. There was no consistent change in diversity from the Pliocene to Pleistocene samples. Borings by predatory gastropods was higher in microbivalves, up to 24% of valves bored at Register Quarry, but varied between localities independent of the Pliocene-Pleistocene boundary. *Selected for presentation at Geological Society of America, Vancouver, BC Canada.*

### 91 • Paleoenvironmental Facies Change Indicated by Benthic Foraminifera in the Lower Pleistocene, Waccamaw Formation, North Carolina

BRENNAN PATRICK

FACULTY SPONSOR: D. JEFFERY OVER, GEOLOGICAL SCIENCES

Foraminifera are used to interpret paleoenvironments based on species diversity and shell-type ratios. Benthic foraminifera from two localities within the early Pleistocene Waccamaw Formation (2.5 to 1.9 Ma) were collected in North Carolina at Register Quarry and Acme in order to determine changes in depositional environment. Register Quarry near Old Dock, NC yielded 80 specimens, 5 miliolids and 66 rotalids, with a Simpson diversity coefficient (D) of 0.41, the most abundant genera was *Amphistegina gibbosa*. Acme's fertilizer pits in Columbus county yielded 93 rotalid specimen, smaller at D= 0.62, dominated by 73 *Amphistegina gibbosa*. Shell type ratios suggest shallow marine environments at both locations; but the one with the higher diversity, Acme Quarry, suggests a deeper depositional environment.

### 92 • Preliminary Tentaculitid Biostratigraphy within the Conodont Biostratigraphic Framework of the Maligne, Perdrix, and Mount Hawk Formations, Upper Devonian, Canadian Rocky Mountains, Alberta

JENNIFER KOHN

FACULTY SPONSOR: D. JEFFERY OVER, GEOLOGICAL SCIENCES

Frasnian tentaculitids from the Flume, Perdrix, and Mount Hawk formations were found at Marmot Crack, Klapper Creek 1, and Klapper Creek 2 north of Pyramid Mountain in the Canadian Rocky Mountains, Alberta. Ten species of tentaculitids including eight species of *Homotenus*, one species of *Costulatostylio a*, and one species of *Variatella* were found as recrystallized fragmented conchs. The Perdrix between Marmot Crack and Klapper Creek 1, as well as the Mount Hawk between Marmot Crack and Klapper Creek 2 were correlated based on first occurrence of tentaculitid species and conodonts. The correlation of the Perdrix lies within MN zones 5 and 6 while the correlation of the Mount Hawk lies within MN zone 12. Analysis of species data indicates that species diversity may be facies dependent.

### 93 • Shale Fabric

RICHARD FRIEMAN

FACULTY SPONSOR: D. JEFFERY OVER, GEOLOGICAL SCIENCES

The fabrics of thin laminations that make up Devonian black shales contain evidence of depositional cycles that serve as a proxy to determine paleo-climatic data. Changes in grain size deposition and organic content can be observed through a petrographic microscope and under the scanning electron microscope. Deductions of climate changes and cycles will be determined by observing fluctuations in sediment deposition and the composition of grains.

### 94 • *Tentaculites minutus* in the Williamson Shale

ERIC KOLAKOWSKI

FACULTY SPONSORS: D. JEFFERY OVER, GEOLOGICAL SCIENCES  
AMY SHELDON, GEOLOGICAL SCIENCES

*Tentaculites* were collected from the lower Williamson Formation, a lower Silurian rock unit near Sodus NY. The Silurian encompasses strata from the end of the Ordovician, 443 million years ago, to the Devonian, 419 million years ago. *Tentaculites* are small annulated conical fossils composed of calcite that first appeared in the Ordovician and diversify in the Silurian and Devonian. The Williamson Formation in the Clinton Group is characterized by a basal phosphate pebble conglomerate overlain by sandy gray-green shale. *Tentaculites minutus*, originally described by James Hall, were identified in the Williamson Shale for the first time.

### 95 • Sedimentology and Stratigraphy of the Rimrock Draw Rockshelter in Riley, Oregon

ELIZABETH HAUSSNER

FACULTY SPONSOR: D. JEFFERY OVER, GEOLOGICAL SCIENCES

Rimrock Draw Rockshelter is an early paleoindian archaeological site located in Harney County, Oregon near Riley. In the 2013 field season, 10 cm samples were taken from columns of sediment at 10 locations within the site. These samples have been analyzed and compared using color, grain size distribution, organic and carbonate contents, and magnetic susceptibility to identify distinct sedimentary packages within the sediment columns. These sedimentary packages were then correlated with one another to determine basic stratigraphy throughout the site. Preliminary results show an uppermost homogenous layer of silty sand, believed to be windblown alluvium, overlaying sandy silt and clayey sandy silt layers which appear to gradually decrease in organic content and have an overall lower content of magnetic minerals.

### 96 • Petrography of Mayan Pottery Sherds from Ambergris Caye, Belize

ELIZABETH HAUSSNER

FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

Petrography is a valuable tool in which ceramics are studied at a microscopic level, revealing structures, features, and compositional information indiscernible at the macroscopic level. This study

uses petrography to investigate Coconut Walk Unslipped (CWU), a pottery type prominent at Late Terminal Classic Mayan archaeological sites on Ambergris Caye, Belize. All CWU sherds in this study are tempered primarily with quartz sand grains although the grains vary in roundness. They also contain small amounts of microcrystalline sparry calcite features. These findings are similar to those of the 1999 study by Iceland and Goldberg on ceramic sherds of a similar age at two nearby archaeological sites. Their samples were also quartz tempered contrary to the previously assumed regional trend of carbonate tempered ceramics. The study of CWU type ceramics might lend support to Iceland and Goldberg's theory of a regional shift from the use of carbonate temper to a quartz temper, near the end of the Late Classic period.

### 97 • A Case for Caddisflies: Examining Caddisfly Cases for Slag Content

ALEXANDRA ZOBEL

FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

October caddisfly cases ranging in size from 2 mm-10 mm were collected and studied from creek sediment obtained in Ironville, NY. The creek bisects a pile of industrial debris associated with a historical iron smelter. October caddisflies, members of the order Trichoptera and suborder Integripalpia, live on rocks in unpolluted running water and along lakeshores. During the larval stage caddisflies use the nearest materials they can find in their habitat and build a protective tubular case to pupate. These materials vary depending on what the habitat has to offer. The October caddisfly cases from Ironville do not appear to be composed of slag material despite the abundance of it in the area. This study was done to investigate the makeup of the cases to identify whether or not the impact of iron smelting and the presence of slag in the immediate area had an effect on the ecosystem of the October caddisflies.

### 98 • Analysis of Crystalline Phases and Zircon Crystals in the Tin Slag of Eggworthy Farm, Devon, UK

ANTHONY PIVARUNAS

FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

Tin slag samples from Eggworthy Farm, Devon in the UK are almost entirely composed of glass. This slag was formed during the smelting of tin into currency in pre-industrial age Great Britain. Crystals do not tend to form in the slag samples because of rapid cooling of the slag. However, on thin-section examination, 100 micron relict zircon crystals and some black, dendritic crystalline phases were observed in the glass matrix. The zircons and crystalline phases were separated from the glass matrix by crushing and hand-picking. Scanning electron microscopy and cathodoluminescence were used to determine information about the elemental makeup of the zircons, crystalline phases, and the glass itself. Zircon crystals commonly exhibit elemental zonation. These zircon crystals exhibited blurred zoning, as expected under the high temperatures to which they were subjected to during the smelting process. The observed

crystalline phases are rare in slag, which makes understanding conditions of its formation important.

### 99 • Elemental Analysis of Cosmic Material

RICHARD FRIEMAN

FACULTY SPONSORS: DORI FARTHING, GEOLOGICAL SCIENCES

DAVID MEISEL, PHYSICS & ASTRONOMY

Samples of suspected extraterrestrial rocks brought from Morocco and elsewhere were analyzed using the "non-destructive" technique using PIXE. PIXE is useful in distinguishing terrestrial material from meteoritic material because meteorites are elementally distinct from terrestrial rocks. Data from PIXE was processed using the program, GUPIXWIN, developed by the Guelph PIXE Group, in order to determine whether or not the samples are truly meteorites. Once samples were determined to be extraterrestrial, they were organized into different groups depending on their chemical composition and internal features. Extraordinary support for this project by the SUNY Geneseo Nuclear Structure Research Lab (NSRL), from both students and staff.

### 100 • Knob Brook, Adirondack State Park, NY: A Study in the Interaction of a Slag Pile and its Environment

KELLY O'SHAUGHNESSY

FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

Knob Brook is an approximately 2.3 mile-long stream that flows north through Ironville, a hamlet in the eastern region of the Adirondack State Park, NY. The brook runs through a slag pile resulting from iron smelting. Stream sediments, water chemistry, and soil pH samples were collected at discrete intervals along the brook. Sediment analyses along the brook indicate that the slag pile has impacted the sediment load of Knob Brook. Angular to subangular slag pieces are only found in the sediment downstream and adjacent to the pile. The natural sediments range from subangular to well rounded, indicating that they have undergone more weathering than the slag. Stream water has a hardness of 100 ppm upstream and 0 ppm at the slag pile. Alkalinity is 40 ppm upstream and decreases to 20 ppm at the slag pile. TDS values are consistently 20 ppm until the stream reaches the slag pile. Along the stream, pH ranges from 6.4 to 7.8, which is not a function of proximity to the slag. However, soil pH values are tied to proximity to the pile. Upstream of the pile, the average soil pH is 6, while around the pile and downstream the pH trends consistently towards 8.

### 101 • Melting of Ironville Slag From the Adirondacks, NY

BENJAMIN WOLF

FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

Slag is the byproduct from the refinement of metallic ores. This research entailed melting experiments involving slag from Ironville, NY. The experiments used a DT-28 Deltech furnace which could achieve temperatures as high as 1550°C. The

chemical composition was analyzed using the scanning electron microscope (SEM) to compare it with the original sample. Before melting, the slag samples were highly pigmented and often color banded. Vesicles were also common. The slags ranged from blue and purple to green. Melting did not drastically change the overall color of the samples though all banding was homogenized. Small black dots were observed on the top and bottom surfaces of the melt bead. These spots are most likely carbon residue created as the surrounding crucible walls degraded in the high furnace temperatures. **Selected for presentation at Geological Society of America, Vancouver, BC Canada.**

### 102 • Peat Record From a Hypersaline Coastal Pond on Southern Eleuthera Island, Bahamas: Implications for Sea-Level Change and Lucayan Occupation

DANIEL MISERENDINO

FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

Peat accumulation in coastal lagoon settings have been linked on regional to global scales with climatic events and sea-level history. We recovered sediment cores from Eleuthera Island with layers of basal peat that have potential implications for climate and sea-level conditions that existed in the Bahamas approximately 5000 yBP. Two basal peat layers were collected from site 1, the first occurring between 181-240 cm and the second from 253-254 cm with a layer of gray, authigenic, carbonate clay in between the two horizons. These horizons yielded radiocarbon dates from ~5000 cal yBP to ~3700 cal yBP. Peat was not present in any of the cores collected from two sites proximal to the welded barrier. The presence of peat indicates that sea-level rise may have affected the sedimentation in the pond. It is probable that at ~5000 yBP, Shad Pond was initiated as a mangrove swamp that was smaller and connected to the ocean before being separated by the emplacement of the barrier complex. Subsequently (~3700 yBP), a flux of sand from the seaward source buried the basal peat. As sea-level rose, the pond broadened and expanded seaward. The peat may therefore provide a chronological constraint on mid-Holocene sea-level position on Eleuthera. **Selected for presentation at Geological Society of America Meeting, Denver, CO.**

### 103 • Neo-Tectonic Uplift in the Adirondack Mountains

CHRISTOPHER TURNER

FACULTY SPONSOR: MARGARET REITZ, GEOLOGICAL SCIENCES

The Adirondack Mountain massif is an anomalous feature of northern New York State that formed during the Grenville orogeny (1.3Ga). The region is unconformably overlain by Paleozoic strata, and contains extensive outcrops of Proterozoic basement rocks. Erosion rates in catchments associated with the exposed strata substantiate the hypothesis for localized uplift relative to the drainage. Determining contemporary neo-tectonic uplift is a relatively new application for cosmogenic

nuclide <sup>10</sup>Be surface exposure dating. Nine approximately sand-sized samples of sediment weighing 1000 grams each were collected from six rivers where they exit the massif, one river in the NW lowlands, and one in the central highlands, so as to indicate region wide fluctuations in uplift. Samples underwent quartz isolation, with an estimated average quartz retainment of 7%-12% per sample, and will be analyzed for a ratio of <sup>9</sup>Be/<sup>10</sup>Be by mass-spectroscopy. This will allow the determination of specific erosion rates per sampled catchment. A low ratio is expected, inferring regional uplift. Continued work on this study will examine the mechanism driving the uplift.

#### **104 • Geologic Issues Related to Radioactive Waste at the Western New York Nuclear Service Center, West Valley NY**

**ALEXANDER DASILVA, MATTHEW BRIARS**

FACULTY SPONSORS: RICHARD YOUNG, GEOLOGICAL SCIENCES

AMY SHELTON, GEOLOGICAL SCIENCES

The Western New York Nuclear Service Center, located in West Valley, NY, served as a private processing site for nuclear waste beginning in 1962, taking in over 600,000 gallons of high-level radioactive waste. Poor containment strategies and accidents at the site led to its shutdown in 1975 and transfer to the U.S. Department of Energy and the New York State Energy Research and Development Authority in 1980. Since then, cleanup efforts on the site have progressed, but active geologic processes on the site are a concern of both the organizations managing the cleanup and the surrounding communities. Three stream channels are actively eroding glacial tills in which the waste is stored, presenting a hazard to groundwater and stream contamination. In 1993, a plume of strontium-90 was discovered in the groundwater of the upper plateau. Groundwater pumping and the installation of a permeable treatment wall has reduced and contained the plume. Local communities are concerned about the eroding stream channels and the plume, which feed into a larger watershed that flows into Lake Erie. Our project is part of a larger ongoing study to clarify geologic issues affecting cleanup at the West Valley site.

#### **105 • Applications of ArcGIS in Tectonic Geomorphology, Central Range Mountains, Trinidad**

**ROBERT WOJCIKIEWICZ**

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

Trinidad is a seismically active island nation, located on the Caribbean-South American plate boundary, just off the coast of South America. GPS data tells us that a fault moving through the middle of the island is active, but we do not know for how long the fault has been active. However, the fault has also produced a range of low relief, called the Central Range Mountains. An understanding of the age of uplift could provide information about the history of the fault's motion, which in turn may shed light on the threat of earthquakes in the region. In this study ArcGIS (geographic information system) is used to find the relics of uplift by examining stream profiles

and basin hypsometry in the Central Range. These data reveal a history of recent uplift and differing basin maturity based on stream size. Due to the relatively low quality of our data our conclusions are conservative. A future study with higher quality data may be able to provide more precise results.

#### **106 • Paleomagnetic Constraints on The Relative Timing of Emplacement of Igneous Intrusions from the South Side of Mt. Hillers, Henry Mountains, Utah**

**JENNIFER CRAMER**

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

Large igneous rock bodies called plutons are important to the geologic community due to their mineral resources and geothermal capabilities and thus understanding their formation helps geologists locate these resources. Recent research suggests that plutons are assembled from a series of magma pulses. Paleomagnetic data, the record of the Earth's magnetic field preserved in rocks, was used to determine the timing of emplacement of igneous intrusions. The pluton analyzed for this study was the mid-Tertiary age Mt. Hillers complex in the Henry Mountains of Utah. The orientation of the magnetic field of approximately 30 cores was measured. The deviation from the expected, mid-Tertiary orientation of the Earth's magnetic field, provided constraints on the number of tilting events each intrusion experienced. A greater number of tilting events suggests an older intrusion. The igneous intrusions analyzed are presently in the same orientation as during emplacement. This implies that these were late stage intrusions that intruded towards the end of the main pluton's formation. The data also suggest the magnetic signature of the surrounding sedimentary rocks was reset by thermal alteration from the magmatic intrusions. *Selected for presentation at Geological Society of America Meeting, Denver, CO.*

#### **107 • Paleomagnetic Constraints on the Timing of intrusions in Gold Creek Canyon, Mt. Hillers, Henry Mountains, Colorado Plateau, Utah**

**PETER THOMPSON**

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

Paleomagnetic data from tilted rocks in the Henry Mountains provide constraints on the chronology of emplacement of the igneous bodies. Sites with a paleomagnetic orientation consistent with either depositional age or mid-Tertiary emplacement were likely emplaced in situ; those that demonstrate deviation from the expected direction experienced post-emplacement deformation. In Gold Creek, located east of Mount Hillers, we collected paleomagnetic data at 13 stations. Four of the igneous sites yield paleomagnetic signatures. Sites HL13-2 and HL13-7 are sills whose paleomagnetic signatures match the expected direction in the mid-Tertiary, suggesting they were emplaced into tilted strata. Sites HL13-5 and HL13-8 record post-emplacement rotation and suggest 90° and 30° of vertical-axis, counter- clockwise rotation. These

preliminary data suggest a three-phase history for this flank of the laccolith. During the first phase of activity, the strata were already tilted, due to intrusion of the main body of Mt. Hillers. HL13-5 and -8 were emplaced, followed by more main-body emplacement that resulted in vertical axis rotation of these sills. HL13-2 and -7 were emplaced after tilting ceased. Additional paleomagnetic data from Gold Creek should allow for further testing of this hypothesis. *Selected for presentation at Geological Society of America Meeting, Denver, CO.*

#### **108 • Paleomagnetic Insight into Pluton Growth, Mt Hillers, Henry Mountains, Utah**

**SIMON NASH, MATTHEW THIES, PHILLIP LONGO, JENNA CHERVIN, ANTHONY PIVARUNAS**

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

Plutons are large bodies of magma that cool underground and are often associated with economic mineral deposits. Pluton growth occurs in pulses, with each influx of magma adding layers to the structure. However, the sequence of these pulses is poorly understood. To better understand pluton growth, we measured the magnetic orientation of individual pulses from a shallow crustal pluton. When an intrusion cools, its magnetic domains tend to align with Earth's magnetic field. Knowing the overall structure of the pluton, and the average remnant magnetization of the various pulses, we can construct (or constrain) a chronological history of pulses, and better understand the mechanism that leads to pluton growth. In this contribution we present paleomagnetic data collected with a spinner magnetometer and a demagnetizer from diorite plutons in the Henry Mountains of Utah. Results suggest the outermost portions of these plutons were emplaced during the last stages of pluton growth.

#### **109 • Quantitative Analysis of Channel Morphology in Relation to Active Tectonics in Northern Range, Trinidad**

**KYLIE CAESAR**

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

A large amount of research in the past decade demonstrates that incising stream channel systems play a central role in setting relationships between topographic relief and differential rock uplift rate. It has been established that quantitative analysis of the channel morphology of a region can provide insight to its tectonic geomorphology and deformation history. Stream profile analysis can help to determine rates and patterns of uplift in active mountain belts such as the one in Northern Trinidad. The Northern Range of Trinidad is an uplifted mountain block in the Caribbean-South American plate boundary zone with a complex tectonic history. Current studies suggest rapid uplift occurring from the Late Miocene to Recent. This study is focused on using ArcMap, a Geographic Information System, to analyze and interpret hypsometric curves and stream profiles derived from drainage basins in the Northern Range to get a

better understanding of the past and present tectonic uplift patterns. It is important for geoscientists, engineers and public policy makers to understand Trinidad's complex geology in order to effectively mitigate the seismic risk associated with the present active tectonic structures.

## HISTORY

### 110 • Beyond Main Street: Interning at the Livingston County Historical Society and Museum

GABRIELLE KINNEY, ALLYSON PEREYRA

FACULTY SPONSOR: CATHERINE ADAMS, HISTORY  
Our unique experience at LCHS has provided us with new knowledge, local connections, and foundation for our future endeavors. Participating at this local organization gave us the opportunity to tailor this internship to our interests, skills, and personalities. Because of this, we were the leaders of our internship.

## LANGUAGE AND LITERATURES

### 111 • College Students' Motives For Studying a Second Language

MARIA-GRATIAS SINON

FACULTY SPONSOR: BEVERLY EVANS, LANGUAGE AND LITERATURES

The objective of my study is to find out the motives behind learning a second language at the college level. To that end, I conducted a survey at SUNY Geneseo Department of Languages and Literature. I took the great opportunity of being named the 2013 Dr. Gerard Gouvernet Student Ambassador at SUNY Geneseo Department of Languages and Literature to extend the population, [that is, the entire group of people of interest (Arnett, 2013, p.16)] in this survey to the international students at the FIAP Jean Monnet residence in Paris, France, in the summer 2013. All the students of that population study a foreign language. The survey was under the mentorship of my French professor and major advisor Dr. Beverly Evans. The sample was a mosaic of Caucasians, Hispanics, Africans, African-Americans, Asians, and Brazilians, intended to be as large as 200, the sample, [or set of people who represent the target population (Arnett, 2013, p.16)], shrank to only 78 because of the participants' feedback. There are many reasons why college students learn a second language. About 78% of the respondents study a second language because they aspire to be better global citizens, if not for fulfilling their curriculum requirement; about 22% of them study a foreign language for career opportunities. The analysis of those results through statistical hypothesis testing fails to confirm the tendency because of lack of enough evidence. Also, from the results, we cannot tell whether fewer female college students than males study a second language for reasons other than standout in the job market.

### 112 • Educational Comparative of China and America

JARED JONES, HYUKJAE LEE, ANDREW CHAU, MICHAEL MARANO

FACULTY SPONSOR: JASMINE TANG, LANGUAGE AND LITERATURES

Alongside the rise of China's economy has been an increase in the quality of their education system. Their system produces some of the most educated students in the modern world. In order to better understand this system it can be compared to the education system here in the United States. Through several angles of analysis, including: how much money and resources are put into the education system, the availability of access to the education, and the different educational standards required by students. These comparisons will be made mainly through a statistical breakdown of the two systems.

### 113 • Development of Catholicism and its Effects on Peoples of the Americas from 1500 to the Present Day

PAUL PEDZIWIATR

FACULTY SPONSOR: ROCÍO VALLEJO ALEGRE, LANGUAGE AND LITERATURES

After a comparative analysis, similarities of the religions of the Mayan, Aztec, and Incan Civilizations compared to many aspects of Catholicism have been shown to have aided in the downfall of these great empires. Meanwhile, stark differences between the Mapuche people and Catholics prevented indigenous conversion in the southern Viceroyalty of Perú and have allowed this people to retain autonomy. The development of Catholicism in Central and South America in postcolonial times has also been analyzed, and set up for the present day decline in Catholic religiosity reflected across most Spanish-speaking countries today.

## MATHEMATICS

### 114 • Moving Pictures: Animating Still Images

MICHAEL PILOSOV

FACULTY SPONSOR: DOUGLAS BALDWIN, MATHEMATICS

We present a means of developing digital image transformations that allow a still image to be turned into a short and visually pleasing animation. Rather than manually altering successive frames to create the illusion of motion, the method presented here requires only the input of a few parameters for each transformation. To implement this work, we have built a library of composable functions that streamline the process of turning still images into novel animations. Examples include manipulation of contrast, intensity, and colors of pixels, as well as warps of contours, positions, and size of select regions. The transformations allow for easy animation of regions of interest, giving some semblance of life to still images by turning them into animated GIFs, and allowing for the creation of artwork in a popular online medium. We will also discuss a possible application of the program to the amelioration of color perception deficiencies.

### 115 • BackTesting Big Data with the Black-Scholes Model

JAMES HILTUNEN, NICHOLAS SORTISIO, MARINA MASSARO

FACULTY SPONSOR: YUSUF BILGIC, MATHEMATICS

The purpose of our research is primarily based on option's pricing and the Black-Scholes Model. Using historical stock data we intend to price options through the Black-Scholes Model. Using the theoretical options prices, we will attempt to create a trading model that we can back-test through approximately fifteen years of data. The data that we collect will consist of thousands of intraday stock prices of a stock in the Dow Jones Industrial Average. We will use Monte Carlo simulation which will consist of randomly generating a sample of possible values for the terminal share price  $ST$ . We will use a formula from the random normal samples (epsilon values) to generate share prices at a call maturity  $ST = S \exp$

$[(r-q-0.5\sigma^2)T + \epsilon\sigma\sqrt{T}]$

*Selected for presentation at Upstate Chapters of the American Statistical Association, Geneseo, NY.*

## PHYSICS & ASTRONOMY

### 116 • A New Age Determination of Star Cluster NGC 581

MICHAEL RAMSEY, THOMAS FATICONE, KURT BRECHT, ALYSSA WERYNSKI, KRISTEN DOHERTY  
FACULTY SPONSOR: AARON STEINHAEUER, PHYSICS & ASTRONOMY

The age of a star cluster can be determined by examining its main-sequence turnoff point - the point on a cluster's magnitude vs. color plot where the most massive stars begin to evolve beyond the main sequence. During a previous study of NGC 581, the most massive stars of the cluster were too luminous to be processed by the utilized image sensor, resulting in over-saturated images that could not be analyzed. The goal of our recent study was to revisit NGC 581 and collect useable data of its most massive stars by utilizing the ISC rooftop 20-inch. This data, combined with the previously-gathered data, provides a more complete and accurate magnitude vs. color plot for the cluster, allowing its turnoff point and age to be calculated.

### 117 • Deeper Simulations of the Orion Trapezium Cluster

MATTHEW COON

FACULTY SPONSORS: AARON STEINHAEUER, PHYSICS & ASTRONOMY

DAVID MEISEL, PHYSICS & ASTRONOMY

Using N-Body simulations, we studied the lifetime of the Orion Trapezium Cluster. Simulations have been run on this cluster in the past by Geneseo students. The same Mathematica program was used for this project, and repeated 25 of the same runs, using the same initial conditions, but with the addition of the previously ignored effects, such as the gravitational potential of the cluster and of the galactic disk, and dynamical friction. We calculated the cluster's lifetime and energy to see if they deviated from the original results. The significant deviations that were found point to the importance of this added physics in simulations of the lifetimes of clusters.

### 118 • WIYN Open Cluster Survey: Lithium Abundances of Giant Stars in the Open Star Cluster NGC 2158

DANIEL KROLIKOWSKI, LUKE TAVERNE



FACULTY SPONSOR: AARON STEINHAEUER, PHYSICS & ASTRONOMY

We present high resolution spectra of candidate member stars of the open cluster NGC 2158. The abundance of lithium was determined for these stars and analyzed. Interesting to note is the life stage of the stars we present, as they are giant branch stars, and therefore more evolved than previously studied populations. Theories predict that at a certain time in a giant star's life, lithium may actually be produced, not depleted. Several of our stars provide evidence for this previously unobserved effect.

### 119 • Measurements of the Sensitivity of Radiochromic Film Using Ion Beams

JUSTIN SHORTINO, JEFFREY STEIDLE, DREW ELLISON, TIMOTHY FILKINS

FACULTY SPONSOR: CHARLIE FREEMAN, PHYSICS & ASTRONOMY

Radiochromic film (RCF) is used in several diagnostics as a dosimeter that chromatically responds to incident particles. This response depends on the fluence, energy, and species of the incident particles. A 1.7 MV tandem Pelletron accelerator is used to create a monoenergetic ion beam which is scattered off a thin gold target onto a strip of RCF. A surface barrier detector is positioned behind a small hole in the film to measure the ion fluence on the nearby film. Once the film develops, it is scanned to examine its optical density. A response curve is acquired by fitting a three parameter formula to optical density and dose. These calibration curves can be used to help determine incident doses in a variety of situations

### 120 • Precession of Foucault Pendulum Oscillatory Plane Captured with Headless Raspberry Pi

TIMOTHY FILKINS

FACULTY SPONSOR: CHARLIE FREEMAN, PHYSICS & ASTRONOMY

Though it was long understood that the Earth spins on its axis, it wasn't until 1851 that Leon Foucault devised the first simple terrestrial experiment to demonstrate the rotation of the Earth. He showed that a pendulum's oscillatory plane will precess clockwise if it's in the Northern hemisphere and counterclockwise in the Southern hemisphere. To observe the precession of the Foucault Pendulum in the atrium of the Integrated Science Center (ISC) at SUNY Geneseo, an inexpensive Raspberry Pi model B was used to control a camera module mounted above the pendulum in the ISC catwalk. A short video was taken of the pendulum every fifteen minutes for a period of 10 days. The plane of oscillation was measured using the Tracker software package. The precession rate of the plane was calculated and plotted as a function of time and compared to the Foucault Sine Law.

### 121 • The Decay Time of Light in an Optical Cavity

JACOB WIRTH

FACULTY SPONSOR: GEORGE MARCUS, PHYSICS & ASTRONOMY

An experimental procedure was developed to measure the decay time of light in an optical cavity for the purpose of determining the extinction of light by aerosols. A tunable diode laser was created and directed into an optic cavity filled with filtered dehumidified air. As light intensity hit a maximum in the cavity, the incoming laser was blocked allowing the light in the cavity to decay and this decay time was measured. This process is repeated for several wavelengths to find the spectral relationship of the decay time in the optical cavity.

### 122 • Using LS-DYNA to model Ballistic Impact on Granular Ceramic Armor

BRIAN MARTIN

FACULTY SPONSOR: JAMES MCLEAN, PHYSICS & ASTRONOMY

This semester I have been working on developing a model to demonstrate the effectiveness of granular ceramic armor. Using the LS-DYNA simulation software package and the cluster computer on campus, ballistic impact of armor-piercing rounds striking said ceramic armor can be modeled and simulated. I have been revisiting simulations that have been run in the past, but with more refined material models, and on a finer grid for the impact points. The bullet is modeled using different materials, and different material models are appropriate for these various materials. Before the main simulations will be run, some final steps are being taken to finalize the models used. Potentially more accurate material parameters for steel are being tested, by running some test simulations with the new numbers. Next, a potentially more useful model for lead, developed by Steinberg, is being tested to see if it more accurately describes the situation we are simulating. When these last models are finalized, the full amount of testing can begin. For this poster, I expect to have results of the first of these fully-improved simulations for presentation.

### 123 • UV and Heating Effects on CR-39 Etch Parameters with Spectral Analysis of CR-39 in the UV-Vis-NIR.

CHRISTOPHER MCCLAUCH, NATHAN TRAYNOR, KENNETH DODGE

FACULTY SPONSOR: JAMES MCLEAN, PHYSICS & ASTRONOMY

CR-39 plastic is a common ion detector used in nuclear experiments. High-energy charged particles leave tracks of chemical damage along their path, which form pits when etch with NaOH. It has been found that exposure to UV light after ion exposure enhances the etch rate in both the bulk material as well as along the latent track while maintaining a constant track-to-bulk etch rate ratio. The addition of heat was found to dramatically increase the etch rates by a factor of five, although at higher temperatures pits became irregular in shape. knowledge of CR-39's interactions with this light would improve understanding of this enhancement and pave way to greater enhancement. The spectral reflection and transmission of CR-39 for wavelengths between 200nm and 2500nm for various thicknesses of plastic were measured. Using an exponential decay model for absorption the

decay depth was calculated from the gathered data. CR-39 was found to be nearly transparent for light between 400nm to 1100nm while strong absorption was present for UV light shorter than 400nm. The reflection of CR-39 was found to be relatively constant averaging at 7%. An anomalous dispersion feature appeared centered at 290nm. **Selected for presentation at American Physical Society's National Meetings, Savannah, GA.**

### 124 • A Time-of-Flight System for Low Energy Charged Particles

MICHAEL GIORDANO, KRISTALYN SADWICK

FACULTY SPONSOR: KURT FLETCHER, PHYSICS & ASTRONOMY

A time-of-flight system has been developed to measure the energy of charged particles in the keV range. Positively charged ions passing through very thin carbon films mounted on grids generate secondary electrons. These electrons are accelerated by a -2000 V grid bias towards a grounded channeltron electron multiplier (CEM) which amplifies the signal. Two CEM detector assemblies are mounted 23.1 cm apart along the path of the ions. An ion generates a start signal by passing through the first CEM and a stop signal by passing through the second. The start and stop signals generate a time-of-flight spectrum via conventional electronics. Higher energy alpha particles from radioactive sources have been used to test the system. This time-of-flight system will be deployed to measure the energies of 15 to 30 keV ions produced by a duoplasmatron ion source that is used to characterize ICF detectors.

### 125 • Physics Demonstrations and Student Learning

MICHAEL EISINGER, OLIVIA KAPLAN, CHRISTOPHER WEILBACHER

FACULTY SPONSOR: KURT FLETCHER, PHYSICS & ASTRONOMY

Are in-class physics demonstrations more effective when students are asked to write down predictions prior to observing a demonstration? To investigate this question, a demonstration was created and performed in front of 81 students in six local physics classrooms. After hearing the basic premise of the demonstration, the 50 students constituting the experimental group were asked to write down a prediction about the outcome of the demonstration. The 31 students in the other three classes, constituting the comparison group, were told the basic premise of the demonstration and observed it without making a written prediction. After observing the demonstration and learning the explanation given by pre-service physics teachers, all classes completed a worksheet with follow-up questions regarding the physics involved. These worksheets were evaluated using a rubric designed for this study. The students in the experimental group averaged a score of  $10.0 \pm 2.0$  on a 14-point scale, while the comparison group averaged a score of  $9.5 \pm 3.3$ . While the experimental group scored higher than the comparison group, analysis indicates that these results are not statistically significant. This result may be due to variations in both prior knowledge of the students and instructional methods of the pre-service teachers.

## 126 • Effects of Light Color on Solar Panel Performance

**WILLIAM RYAN**

FACULTY SPONSOR: STEPHEN PADALINO, PHYSICS & ASTRONOMY

Photovoltaic solar cells are currently used throughout the world to generate sustainable electricity in both remote and grid-tied applications. As their price and efficiency continues to improve they promise to be one of the primary energy sources of the future. In order to gain a better understanding of this emerging technology, an experiment was performed to analyze the performance of silicon solar cells under different lighting conditions. The maximum power output, minimum light intensity for power generation, and efficiency were measured for several light frequencies.

## 127 • $^{12}\text{C}(n, ^{2n})^{11}\text{C}$ Reaction Cross Section Measurements for Bombarding Energies 20-26.4 MeV

**MOLLIE BIENSTOCK**

FACULTY SPONSOR: STEPHEN PADALINO, PHYSICS & ASTRONOMY

The  $(n, ^{2n})$  threshold for  $^{12}\text{C}$  is nearly 6MeV above the primary neutron energy in DT ICF implosions. This makes it a good candidate for measuring the tertiary neutron yield above 20MeV using neutron activation of graphite. In order to use this method the  $^{12}\text{C}(n, ^{2n})^{11}\text{C}$  reaction cross section must be known accurately. However, the published data for this reaction is bifurcated in the energy range of 20-30MeV. An experiment to measure the cross section for these neutron energies has been performed at the Ohio University Accelerator. Deuterons from the accelerator struck a titanium tritide foil releasing neutrons via the  $T(d, n)^4\text{He}$  reaction producing neutrons with energies between 20.0-26.4MeV. The geometry of the experiment was chosen so that the incident neutron energy would not vary by more than 0.5MeV across the graphite target. After neutron exposure, the decay of the  $^{11}\text{C}$  nuclei by positron emission was measured with an array of NaI detectors to determine the activity of the graphite. The neutron fluence through the carbon was measured using a particle telescope to detect recoil protons from  $\text{CH}_2$  target, allowing the absolute cross section for the  $^{12}\text{C}(n, ^{2n})^{11}\text{C}$  reaction to be determined. Funded in part by a LLE contract from the DOE. *Selected for presentation at American Physical Society's National Meetings, Savannah, GA.*

## 128 • 3 by 3 Sodium Iodide Absolute Efficiency Determination

**DREW ELLISON**

FACULTY SPONSOR: STEPHEN PADALINO, PHYSICS & ASTRONOMY

Thallium doped sodium iodide (NaI-Tl) detectors are frequently used to measure the activity of samples exposed to ICF neutrons. The absolute detection efficiency for NaI-Tl detectors cannot be represented by a single quoted value. Detection efficiency is largely dependent on gamma ray energy, source location, activity, source and detector geometry and composition, all of which are quantities that are situational. A series of

experiments were performed at the State University of New York at Geneseo to determine the absolute detection efficiency for both a single detector and two in-line coincidence detectors using 511 keV gamma rays. A low activity Na-22 gamma ray point source was placed flush against the detector faces of a pair of matched 3"x3" cylindrical NaI-Tl detectors. The source was then moved relative to the detector face to determine geometric and off-axis effects on the detector's absolute efficiency. The manufacturers of the NaI-Tl detectors quote the absolute photo peak efficiency, at a distance of 10 cm from the detector face, to be 1.2% for a low activity 511keV point source. Using this information the efficiency as a function of position was determined and compared to calculated values. Funded in part by a LLE contract from the DOE. *Selected for presentation at American Physical Society's National Meetings, Savannah, GA.*

## 129 • Gamma-Gamma Counting Station Dead Time Corrections

**ANGELA SIMONE**

FACULTY SPONSOR: STEPHEN PADALINO, PHYSICS & ASTRONOMY

It has been proposed that neutron activation of graphite could be used to measure tertiary neutron production in ICF experiments. Graphite samples were activated by 20- 26.4 MeV neutrons at the Edwards Accelerator Facility at Ohio University to simulate an ICF activation. Once activated by the  $^{12}\text{C}(n, ^{2n})^{11}\text{C}$  reaction the  $^{11}\text{C}$  decays via positron emission. The positron promptly annihilates with an electron producing two back-to back gamma rays. A counting station consisting of a pair of on-axis NaI(Tl) detectors was constructed to measure the 511 keV gammas in coincidence. Due to the high initial specific activity of the graphite samples following intense neutron bombardment the dead time in the NaI-Tl detectors was high but tapered off over the duration of measurement. In order to correct for lost counts in the decay curve the dead-time as a function of dwell time must be known. A script was written to sort dead-time from the acquired data as a function of dwell time interval. These values were then used to correct the measured decay curve which produced an exceptionally good fit to the theoretical decay curve. Ultimately this information was used to determine the total number of activations in the graphite samples. *Selected for presentation at American Physical Society's National Meetings, Savannah, GA.*

## POLITICAL SCIENCE & INTERNATIONAL RELATIONS

### 130 • The Rise and Fall of the American Dream: An In-Depth Look at the Changing Rates of Upward Mobility in the United States in Relation to Increasing Economic Inequality

**SARAH LENHARD**

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Is the American Dream still alive in the United States today? As economic inequality has increased

over the years many people look towards the equality of opportunity that is present in the United States. If everyone has the same opportunities to advance in society, why are there so many that struggle to make ends meet while at the same time the top 1% hold more wealth in America than the bottom half combined. Upward mobility in the United States is at a lower rate than many other industrialized nations, so the idea of the "American Dream" can be better described as a myth in modern society. Our individualistic culture could be one of the major factors contributing to the rise in inequality in America, so it is necessary to take a deeper look at just how prevalent upward mobility actually has been over recent decades. It could be the case that the American Dream is used by the super-rich as a way to place the blame of poverty on those who can be considered to be not taking advantage of the opportunities available to them.

### 131 • Are Charter Schools the Solution?: Politics and Public Opinion on the Inequality of Charter Schools

**MARTY ROGACHEFSKY**

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The poster will cover the history of politics surrounding charter schools from the think tank's of the 1990's to DeBlasio's anti-charter school crusade of today. It also looks at the debate surrounding charter schools and as a source and potential cure to economic inequality. Lastly, it shows the changes in public opinion regarding charter schools over the past decade.

### 132 • Constrained Democracy and the Fragmented Working Class

**PAMELA ZAITER**

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

An analysis of the American working class demonstrates a strong fragmentation. A continuous problem for our working class has been a strong division along party lines and voting behavior. This division can be attributed to geography, religiosity, and race, among other imposing factors. It seems that a portion of the American working class votes on issues which do not effect their economic prosperity. A close analysis will also illustrate that a portion of the American higher classes vote in favor of policies that will aid the working class, this division among the middle and upper class can also be attributed to the factors mentioned above. This research aims to analyze the variables which affect this division and possible solutions to unify our working and lower classes.

### 133 • Higher Education Preserving Class Division

**ANTHONY HERNANDEZ**

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Insight into the study of educational inequality in Higher Education in America and how it affects economic inequality. Study will look into factors presents in our state of higher education and whether class division is expanding.

### 134 • Losing Political Voice to Interest Groups

JACOB SIKORA

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Interest groups have long been controversial in American politics. Critics argue that interest groups corrupt the political process by giving those with wealth excessive political power. While the advent of interest groups is largely responsible for the involvement of money in politics, proponents argue that interest groups do not only represent the wealthy. Rather, they also serve as a means to help individuals of a lower socioeconomic status, providing them an organized and effective political voice that they otherwise would not be able to attain. My research inquires as to whether the economically disadvantaged are equally represented, as proponents of interest groups suggest. My analysis proves that the economically disadvantaged are relatively underrepresented by interest groups, severely undermining the democratic principles embedded in the United States political system. Secondly, I present various potential solutions that might help to restore the political voice of the economically disadvantaged, which has been impeded upon by moneyed interests.

### 135 • Marriage and Economic inequality; Does marriage work as a barrier of class mobility?

JIWON KIM

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

I am working on a research question of 'Does marriage reinforce the economic inequality and serve as a barrier to class mobility?' There is a big correlation between economic inequality and class mobility. Additionally, economic inequality is getting worse under the current economic recessions and consequently class mobility is a fixed concept these days. I concluded that marriage is also contributing economic inequality and harder to escalate in upper class percentiles. By the comparative perspective, I compared and contrasted the United States and other developed countries or still developing countries in terms of marriage affecting inequality.

### 136 • Money and Rhetoric: The Think Tanks of America, Who Funds Them and the Strings Attached

NEAL HUNTER

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Focus on the major American think tanks that shape political conversation today. There is a significant link between the money that flows into these large organizations and what they focus on and advocate. Wealthy donors don't necessarily contribute to such groups without attaching their own criteria towards what is researched and addressed. These donations are often political maneuvers to shape the conversation about certain policy issues in the public sphere.

### 137 • Money, Politics, and Economic Inequality

JULIA STRY

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This poster will present a literature review that explores political campaign contributions and Political Action Committees. Research will be provided to show the process through which policy is shaped to influence economic inequality in the United States.

### 138 • Exploring the American Dream during the Great Depression and WWII (1929- 1949) and the Post War Era (1949-Present),

KERAN MATTU

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The foundation of the American Dream lies in The Declaration of Independence, where it states that "all men are created equal, that are endowed by their creator with certain unalienable rights, that among these are life, liberty and the pursuit of happiness." One hundred and fifty years later, in the book "The Epic of America", James Truslow Adams defines the American Dream as "that dream of a land in which life should be better and richer and fuller for everyone, with opportunity for each according to ability or achievement." Both these interpretations contain the essence of the American Dream but how have times altered it? Is the American Dream now a pursuit of materialistic items? Do we no longer care about our "unalienable rights" as long as we have the capacity to buy a new car or bigger house? How have the differing economic and political atmospheres between the Great Depression and WWII (1929-1949) and the Post-War era (1949-present) changed public views of the American Dream?

### 139 • Policy for Increasing Economic Equality Through Redistribution Using a Progressive Tax Structure

EVAN ANDERSON

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

A policy designed around Keynesian economics to promote demand for work. Progressive tax structures can be used to redistribute wealth from the top of the income bracket to the bottom, which should increase consumer demand as a greater number of individuals have an increased income to spend. The increase in consumer demand should increase the demand for labor, lowering unemployment. This also promotes economic equality and equality of opportunity by increasing the economic status and ability of the lower income quintiles.

### 140 • Proposals for Tax Reform to Ameliorate Income Inequality in the United States

WILLIAM MELVIN

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The last few years have seen a marked rise in income inequality in the United States. This is occurring at a time when the effective federal income tax is at its least progressive since its introduction. Reform to the US tax code offers the possibility of slowing the consolidation of wealth by the nation's richest and promoting the long-term success of American democracy. Such policies have the difficult task of balancing the democratic ideals of freedom and equality, which, especially in the realm of taxation, are not easily reconciled.

### 141 • The Effect of Economic Inequality on Higher Education in America

NATHAN JAKWAY

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Over the course of the past few decades, economic inequality has increased significantly in the United States, expanding the gap between the wealthiest Americans and the rest of society. Educational attainment has long been viewed as an important means of decreasing inequality and improving social mobility. College attendance has soared in recent years, with levels currently at an all time high. How have these changing trends affected American public opinion in regards to educational attainment and economic inequality? By conducting research on public opinion polls, academic sources, the census and economic data, we are able to investigate the relationship between economic inequality and educational attainment, and determine how Americans perception of the two affects public opinion on the matter.

### 142 • Religion and Economic Inequality in America: Exacerbating or Ameliorating the Growing Gap Between the Haves and the Have Nots?

ALEXANDRA FASULO

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Since the 1960s, the amount of Unaffiliated and Observant Evangelical Protestants in the United States has simultaneously increased. The pressure these two groups have place on political parties has greatly contributed to the increasing party polarization, and therefore extremely opposite policy preferences. At the same time, the financially secure American citizens have championed cultural rights, while the poor citizens have often put economic conditions before religious worries. This presentation will look at one of the biggest questions facing politicians today: why isn't politics what you think it would be about? The rich can afford to focus their time and resources on cultural concerns, whereas the poor often put economic concerns as their number one priority. The rich, additionally, can afford to have a louder voice in politics due to their access to political networks and campaign contributions. Cultural disagreements are not leaving politics anytime soon, and will continue to polarize the country, by region and income bracket. Religion is in fact exacerbating the growing income gap, as well as leaving moderately religious

people feeling alienated from the organized church grasp on the Republican Party.

### 143 • Spatial Analysis of Income Inequality in the United States

STEVEN LUBRANO

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This poster will examine the spatial distribution of income inequality across the United States. Using Geographic Information System technology, economic, demographic, social and political data will be plotted and studied at a geographic perspective. Prior research from the Equality of Opportunity Project will serve as a foundation for this research.

### 144 • The Earned Income Tax Credit: Does it Help Ameliorate Economic Inequality in America?

ELIZABETH HAYES

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This paper will discuss the earned income tax credit (EITC) and its impact on reducing the increasing level of economic inequality that exists in the United States today. It will discuss the law's history, as well as its evolution over the years during different presidential administrations. It will discuss the EITC as it relates to the politics of welfare policy; should the tax system be involved in "welfare reform"? What effect has the EITC had on working poor, middle class and upper income Americans? Has the policy actually reduced poverty in the US? This paper will discuss the challenges of implementing the EITC correctly so the right people are benefiting from it. Is economic inequality reduced more effectively by the EITC rather than other social programs? Do the people who would benefit most from the EITC understand it and take advantage of it? If they receive the benefit, how has it helped them reduce the stress of being toward the bottom of the economic ladder? What is the level of abuse and cheating? The debate over raising the minimum wage will also be discussed. Does raising the minimum wage reduce employment opportunities for lower income Americans thereby keeping them down?

### 145 • The Elusive American Dream: Inequality and its Effects on Representation and Class Mobility

RYAN DEVITO

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

As economic inequality in the United States has increased over the past four decades, the quintessential "American dream" has become seemingly unattainable for many. Contemporary Americans have moved away from "old line" association groups with broad platforms and large membership towards a sociopolitical atmosphere dominated by advocacy organizations, causing a marked decline in social capital as group association becomes more exclusive and focused. The lower socioeconomic classes have suffered most from this transition as economic inequality exacerbates opportunity inequality. This paper discusses how

economic inequality has stunted socioeconomic mobility; the under-representation of the lower classes; and the problems of a top-down civic structure. Additionally, public opinion data and quantitative analysis are used to determine the salience of socioeconomic and opportunity inequality, and whether high inequality has any correlation with the perceived attainability of the American dream.

### 146 • The Impact of The Occupy Movement on American Politics

DEVIN MCCONNELL

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

An examination of the impact the Occupy Wall St. movement has had on the trajectory of American politics including the 2012 election, the Obama presidency and the leftward movement of the Democratic party. As well as the lasting efforts of the movement to affect change in nontraditional ways such as the Rolling Jubilee, Occupy The SEC, Occupy Our Homes and other groups that are an outgrowth of the original movement.

### 147 • The Minimum Wage's Affect on Income Inequality

ISAAC BASKIN

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Over the years the minimum wage has steadily risen while the income gap between the richest and poorest Americans has grown as well. As Congress debates whether or not to raise the minimum wage, to what extent are these increases related? Does a higher minimum wage mean a larger or smaller income gap? Based on its affect on income inequality should Congress raise the minimum wage?

### 148 • What happened to the American Dream?

KATHRYN CARDINAL

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

With economic inequality at an all time high in America, is there still an ideology that hard work is enough to make dreams come true? This poster will look at the "American Dream" as an aspect of our collective American identity. Using recent social mobility data I will demonstrate that the empirical evidence of the American dream is that it is no longer a strong reality in the United States. So why then do we still hold on to the capitalistic principles and values that go along with the American dream? I use the data from several political scientists to show that Americans are simultaneously against redistributive policies yet craving equality of opportunity. Perhaps on the subject of inequality our American values are too strong for our own good.

### 149 • Why Is It That Your School Is Better Than Mine? The Inequality of Education and Why Some Schools Educate Better Than Others

MARIA VOLPE-MCDERMOTT

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The United States of America has always been viewed as a land of opportunity. People from all nations have flocked to America with the desire to obtain the proverbial American Dream. Lately, however, this Dream has become more of a myth and less of a reality. Since the 1970s, there has been a steady rise in economic inequality between the poor and the wealthiest. To close this income disparity, many Americans have supported greater government spending on education. It has been proven that when citizens attain a higher educational level, society benefits politically, socially, and economically. Unfortunately, however, not every educational system is equal. Using the New York State educational system as a case study, my work examines the impact of socioeconomic status in various regions of the state on individual school achievement. By looking at State assessment results, my work concludes that school districts with families of higher socioeconomic backgrounds perform better on assessments than school districts with high levels of poverty.

## PSYCHOLOGY

### 150 • Maternal and Child Perceptions of Latino Children's Sibling Relationships

CECIBELL MONTALBAN, SANNY PERALTA, SCARLET NUNEZ, NATALIA FIGUEROA

FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY  
Research conducted on Latino children's family relationships is extremely limited, despite the fact that the Latino population is the fastest growing minority group in the United States. In previous research, Latino parents were found to encourage their children to identify with the prescribed roles in the family and community, while repressing goals for individual gain, needs, and self-determination (Coll & Garcia, 1995). Surprisingly, there is very little research on Latino children's sibling relationships and no research at all on how mothers and children perceive those relationships. The present study examined mothers' and children's perceptions of the children's sibling relationships. Because of the importance place on family obligations in Latino culture, we expected that sibling relationships might be perceived somewhat differently and perhaps more positively, than in Anglo families. We also expected that Latina mothers might have more intimate knowledge of their children's sibling relationships than Anglo mothers typically do. Researchers hypothesized mothers and children questionnaire scores to be more correlated with each other. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### 151 • Relational, Verbal, and Physical Aggression in 7- Year Olds' Sibling and Friend Interactions Across Tasks

DARIA SEIFERT, KATHRYN LEINUNG, CARMELA TAYLOR, TORIA HERD, ANNA KATOMSKI, BRIAN PENLY

FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY

Children's physically, verbally, and relationally aggressive behavior with siblings and friends was examined during a construction task and a free-play session. The results suggest that, although task influences levels of children's aggression and how it is displayed, other aspects of the interaction context--specifically, gender and partner--matter as well.

### 152 • Social Engagement and Relationship Quality in Preschoolers' Sibling and Friend Interactions

JOANNA SANTOS, KALYNN SMITH, AVERY REISIG, EUGENIA CONAWAY, CHRISTOPHER RAMSAY  
FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY  
Sibling and friend relationships provide different contexts for interaction and development, in part because of differences in social engagement. As part of a longitudinal study of sibling and friend relationships, we examined sibling and friend social engagement in terms of relationship qualities based on questionnaire data. Thirty white, middle class children were video taped at home in separate sessions with siblings and friends. The results suggest that social engagement behavior can be indicative of qualitative aspects of relationships.

### 153 • The Relationship Between Prosocial Behavior and Aggression in 4-year-old Sibling and Peer Interactions

DANIELA TROCCHIA, BRITTANY LOVE, LENA FREED, CAROLINE GOLDSCHNID, ALI ARNOLD, LESLEY DALTON, ZOE MARSHALL  
FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY  
Prosocial behavior and aggression are frequently exhibited in 4-year-old sibling and peer interactions. Our results suggest that siblings partake in a greater amount of prosocial behaviors and aggression than peers. Additionally, prosocial behavior was positively correlated with relational aggression in sibling interactions. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### 154 • Arousal Affects Attentional Guidance based on Selection History

HANNAH WYLAND  
FACULTY SPONSOR: JEFFREY MOUNTS, PSYCHOLOGY  
Research has begun to examine whether emotional stimuli might influence visual attention. Here, we examine whether selection history biases, in the form of Priming-of-Popout (PoP), are influenced by emotional stimuli. In the PoP paradigm, homogenous distractors are displayed along with a target defined by a unique feature (e.g., color). The features of the target and distractors vary across trials, with PoP defined as faster target identification when the defining feature repeats across trials rather than changing. In the first experiment, we induced a fearful or neutral context by briefly presenting a picture before the search display. The pictures were of interpersonal violence or household objects. The results indicated that PoP significantly decreased in the fear context compared to the neutral context. A second

experiment ruled out alternative explanations based on the nature of the neutral pictures, by using neutral people rather than objects. The fear context pictures remained the same, while a third context depicted people in thrilling scenarios (e.g., skydiving). Compared to the neutral context, PoP was significantly reduced following the fear and thrill contexts. These results suggest that selection history biases may be temporarily reset by emotional stimuli, allowing more efficient selection of new information in these circumstances. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### 155 • That's What Friends are For: Bystander Responses to Friends and Strangers at Risk for Party Rape

RENA PAZIENZA, RACHEL OLIN  
FACULTY SPONSOR: JENNIFER KATZ, PSYCHOLOGY  
Party rape is a common type of sexual assault in college. Increasingly, colleges offer bystander education with the goal of preventing party rape and other types of sexual assault. The present research investigated how a bystander's relationship to a potential victim affects intent to help. Based on social identity theory, bystanders were expected to report greater intent to help a friend than a stranger at risk as well as fewer barriers (lack of personal responsibility, audience inhibition, empathic concern, victim blame) to helping. Undergraduates (N = 151) were randomly assigned to one of two party vignettes in which they see a sober man lead an intoxicated woman (friend or stranger) into a bedroom. The primary dependent variable was intent to help. As expected, bystanders intended to offer more help to friends than strangers. Compared to strangers at risk, friends at risk elicited more empathic concern and personal responsibility but did not affect audience inhibition or victim blame. Effective bystander education programs may promote personal responsibility and empathic concern for others generally to prevent party rape. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### 156 • Sexy Environmentalist: Do Erotized Environmental Messages Work?

MATTHEW COUCH, SAMUEL SCHWARTZ, MINGSHAN ZHU, AIDEN CROUSEY, MELISSA VETRANO, SHANNON SWIAK, BEATRIZ SILVA, JOANNA OSTROOT, JOANNA CASTROGIVANNI  
FACULTY SPONSOR: JIM ALLEN, PSYCHOLOGY  
Environmentalists are increasingly using eroticized messages to promote their cause. This research investigated the effectiveness of this tactic. Participants viewed simulations of an eroticized video currently used by environmentalists, or a control video. Results indicated that the eroticized video was not effective in promoting environmental attitudes and behavioral intentions

### 157 • Energy Efficiency Does Not Necessarily Reduce Energy Use: A Test of Jevons Paradox

MATTHEW COUCH, MINGSHAN ZHU, SAM SCHWARTZ, AIDEN CROUSEY, MELISSA VETRANO, BEATRIZ SILVA, SHANNON SWIAK, JOANNA OSTROOT, JOANNA CASTROGIVANNI  
FACULTY SPONSOR: JIM ALLEN, PSYCHOLOGY  
Current efforts to encourage energy conservation largely emphasize using energy more efficiently (e.g., more fuel efficient automobiles). However, The Jevons hypothesis predicts that energy efficiencies will not always reduce energy consumption. The present study tested this hypothesis. Results indicated support for the Jevons hypothesis, particularly among individuals with strong environmental values.

### 158 • Striving to be Perceived as an "Effortless Achiever" in High School

STACI WEISS  
FACULTY SPONSOR: JOAN ZOOK, PSYCHOLOGY  
This study investigated the influence of popularity and social anxiety on how adolescents want their grades and effort (academic public selves) to be perceived by classmates. In addition, we examined students' use of self-presentation strategies to modify the impressions they make on popular peers. Participants (N = 179) from a diverse, urban high school rated how much they wanted peers to view them as similar to hypothetical students varying in effort and grades (e.g., "Kevin gets As and Bs in all his classes without needing to work hard or study") and self-reports of self-presentation strategy use (e.g., "When around popular peers, how often do you hide high test scores?"). Popularity was assessed with peer nominations. Results indicated that high social anxiety was positively correlated with self-presentation strategy use. Socially anxious, hard-working, high-GPA students were most likely to use the "claim to study less" strategy. These academically successful yet socially anxious students, as well as popular students with lower grades, were most likely to have ideal selves with good grades and low effort. Together, these findings suggest that social norms in high school dictate that students should project an image of "effortless achievement" if they want to be popular. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### 159 • Predicting Individual Differences in Response to Daily Challenge

JENNIFER PARR, ALEXIS BRIANT, MARY PANDOLFINO, EVAN ROONEY, JULE DEREN  
FACULTY SPONSOR: MICHAEL LYNCH, PSYCHOLOGY  
Profiles of response to daily challenges were examined in a sample of 171 undergraduates. Participants completed a questionnaire containing measures assessing personality, life experiences, mental health, and coping strategies. For the next five days participants identified challenges, and their effectiveness in dealing with those challenges was assessed. Results indicated significant associations between baseline variables and subsequent response to daily challenges. Problem-focused coping and depression significantly predicted effectiveness in dealing with new challenges. In addition, problem-focused coping, depression, and anxiety each uniquely predicted

subsequent goals in dealing with daily challenges. Problem-focused coping and anxiety were inversely associated - and depression was positively associated - with emotion focused goals. Finally, detached and problem-focused coping significantly predicted variability in coping goals. Cluster analysis identified two groups who demonstrated distinct coping profiles. The first group was more likely to choose problem-solving goals and was more effective in meeting those goals, whereas second group was more likely to choose emotion-focused goals and was less effective in meeting their goals. MANOVA indicated that the first group had significantly lower levels of baseline depression, anxiety, and neuroticism than the second group. These results highlight that pre-existing individual differences may contribute to different approaches to meeting daily challenges. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### 160 • Temperament Plasticity: The Effect of Family Discord on Child Temperament Development

MING ZHU, ALLISON WILCK, DANIEL HU

FACULTY SPONSOR: MICHAEL LYNCH, PSYCHOLOGY  
This research is based on data from Project STEP. Following the emotional security theory, we are looking at the effects interpersonal relationships have on young children's temperament development. SPSS analysis of cognitive behavioral questionnaires (CBQ) indicates a negative correlation between family discord and inhibitory control, frustration, and anger displays of the child.

### 161 • The Unique Contributions of Daily Coping to Subsequent Mental Health

MARY PANDOLFINO, EVAN ROONEY, JENNIFER PARR, ALEXIS BRIEANT, JULE DEREN

FACULTY SPONSOR: MICHAEL LYNCH, PSYCHOLOGY  
This study examined patterns of coping over a five-day period in a sample of undergraduates. Participants' goals in meeting daily challenges, effectiveness in achieving those goals, and baseline and subsequent mental health were assessed. In a sample of 83 undergraduates, participants completed an initial assessment of baseline characteristics including current symptoms of depression and anxiety. For the next five days participants identified challenges and their effectiveness in dealing with them. On Day 5, mental health was re-assessed. Results from the study revealed significant bivariate associations among baseline symptoms, daily goals and effectiveness ratings, and Day 5 mental health. Baseline mental health was associated with subsequent response to daily challenges, and it was strongly correlated with Day 5 mental health. Daily effectiveness and variability in effectiveness predicted Day 5 depression over and above baseline depression. In addition variability accounted for Day 5 anxiety. Results indicate the impact of daily challenges on mental health. Over and above baseline symptomatology, one's response to subsequent challenges can impact current mental health: less effective and more variable responses to challenge can negatively affect well-being. These

responses may be affected by individual mental health status, creating a dynamic and reciprocal relationship between mental health and coping. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### 162 • Effects of Developmental Exposure to the Brominated Flame Retardant, DecaBDE, on the Hippocampus of the C57BL6/J Mouse

ISAAC TEBOUL, ZACHARY OLSON, JOHN NG,

SUDHAT ASHOK, BRIANA PANGRAZIO

FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

Polybrominated diphenyl ethers (PBDEs) have been used as flame retardants in many commercial products including plastics, building materials, and textiles. PBDEs are also environmental toxicants that bioaccumulate in adipose tissue and disrupt the functioning of thyroid hormone, an essential regulatory hormone in the neurodevelopmental process of myelination. Previous research in our lab has shown that mice exposed to the fully-brominated PBDE (decaBDE) performed poorly in operant behavior tasks. Impaired performance in learning tasks implicates the hippocampus, a brain structure with an intricate network of cell body fields connected by myelinated axonal pathways. The objective of this work-in-progress is to determine the effects of perinatal exposure to 0, 6, or 20 mg/kg/day decaBDE on myelin concentrations in the hippocampi of male and female mouse brains. Brain sections were collected and stained with Luxol Fast Blue, which selectively stains lipoproteins in the myelin sheath. Sections were imaged and staining intensity was quantified with ImageJ software. We hypothesize that myelin concentration will be negatively associated with increasing levels of exposure, especially in the CA3 region of the hippocampus. This study aims to elucidate a potential mechanism by which exposure to the ubiquitous environmental toxicant decaBDE impacts neurodevelopment and subsequent cognitive functioning.

### 163 • Effects of Developmental Exposure to the Brominated Flame Retardant, DecaBDE, on the Paraventricular Nucleus of the C57BL6/J Mouse

KEITH MORRIS-SCHAFFER, CAITLYN EDWARDS,

JONATHAN LAU, RANDY CHEUNG

FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

Decabromodiphenyl ether (decaBDE) is a widely-used brominated flame retardant and environmental contaminant that has been shown to reduce thyroid hormone levels during critical periods of development. Adequate circulating levels of thyroid hormone are essential for healthy brain, bone and muscle development. Our lab has previously shown that decaBDE altered the differentiation of osteoblasts and reduced forelimb grip strength indicating impaired neuromuscular or bone development in a mouse model. The current study is examining the effects of decaBDE on the development of the paraventricular nucleus (PVN),

a structure in the hypothalamus that plays an important role in the thyroid hormone cycle. To investigate, immature mice were exposed to 20 mg/kg/day decaBDE from postnatal day 1-21. Brain samples were removed on day 22, sectioned, stained, and imaged at 20x magnification. ImageJ software was used to estimate the PVN area and obtain an overall cell count. The anticipated result for this work-in-progress is that decaBDE exposure will produce a volumetric reduction of the PVN and/or a reduction of cellular density. Such findings could suggest that decaBDE disrupts the thyroid hormone cycle via decreased cell growth and differentiation within the PVN.

### 164 • Effects of Prenatal Exposure to Arsenic-Contaminated Drinking Water on the Hippocampus of the C57BL6/J Mouse

MORGAN DAVIES, ANATOLE MALUKOFF, KARL

WISSEMAN, VINCENT VAN VLIET

FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

Arsenic is a potent nervous system toxicant that has been shown to impair intellectual functioning in children following early developmental exposure. The hippocampus is an area of the brain associated with memory consolidation in humans and animal studies have shown that arsenic reduces hippocampal glucocorticoid receptors and increases neuronal apoptosis. Earlier findings in our lab have shown that prenatal arsenic exposure produced a life-long pattern of motor and attention impairments in the C57BL6/J mouse. To examine the relationship between these behavioral effects and cellular changes in the hippocampus, pregnant C57BL6/J mice were exposed to varying levels (0, 8, 25 or 80 ppm) of sodium arsenite in their drinking water. The brains from their offspring were collected on postnatal day 21, sectioned, stained with cresyl violet, and imaged at 20x magnification. ImageJ software was used to estimate the areas of the hippocampal fields and to obtain cell counts. The anticipated result for this work-in-progress is that arsenic exposure will produce volumetric reduction of the hippocampal fields and/or a reduction of cellular densities. Unfortunately, arsenic exposure in children is common and the entire scope of behavioral and cellular consequences must be documented in order to develop effective remediation.

### 165 • Positive Allosteric Modulation of mGluR5 Rescues Diminished Sucrose Preference in a Neonatal

MK-801 Model of Schizophrenia

PATRICK MILLER-RHODES, ANNA ESCHLER, KEITH MORRIS-SCHAFFER, JON LAU

FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

Allosteric modulation of metabotropic glutamate receptors (mGluRs) represents a novel therapeutic strategy in antipsychotic drug development. The present experiment used a neonatal N-methyl-D-aspartate (NMDA) antagonist mouse model of schizophrenia to investigate motivational behaviors that might be relevant to the negative symptoms (e.g. reductions in motivation, diminished response

to rewards, etc) observed in schizophrenia. To determine whether neonatal NMDA antagonism (on postnatal days 7-10) results in a diminished response to rewards, we used a widely used preclinical measure of anhedonia: the two-bottle sucrose preference test. We found a reduction in sucrose preference in male mice neonatally exposed to the NMDA antagonist MK-801. This deficit was rescued by treatment with CDPPB, a novel mGluR5 positive allosteric modulator, during adolescence (postnatal days 35-44). Our results demonstrate that positive allosteric modulation of mGluR5 during adolescence reverses the diminished sucrose consumption induced by the NMDAR hypofunction mouse model.

### **166 • Assertive and Affiliative Language use in 17-Year-Old Sibling and Peer pairs during Conflicts**

**DANIEL VOLK, LAUREN AULET, MEGAN MCCLAFFERTY, BRIDGET SOVOCOOL, LAUREN LALO, MARIBETH EBBERS**

FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY  
Research on gender differences in children's and adolescents' use of assertive and affiliative language has focused primarily on interactions with same-sex peers in a general setting. Relatively little is known about how adolescent boys' and girls' use of language may change with different partners and within specific contexts. As part of a longitudinal study, we examined 17-year olds' use of assertive and affiliative language during conflict interactions with siblings and peers. Forty white, middle- class

17-year-olds were videotaped completing separate baking or cooking tasks with both a sibling and same-sex friend. Pre-established conflict interactions within these tape sessions were then analyzed and coded. Our results suggest that differences exist in the use of assertive and affiliative language across 17 year old same-sex and mixed-sex sibling pairs, particularly when context, gender, and partner relationship are taken into consideration. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### **167 • Conflict, Averted Conflict, and Verbal Irony in 17-year-olds' Sibling and Friend Interactions**

**BRIANNA HEUSER, NICHOLAS PALUMBO, MOLLY VIERHILE, MADELEINE REISGERZOG, COURTNEY WOOLEVER, AUSTIN SIMON, ROSE ZINKOWSKI**

FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY  
Adolescents make frequent use of verbal irony, but there has been little research on exactly how they use various forms of irony in specific social contexts. One setting in which adolescents seem likely to use verbal irony is conflict with siblings and friends. Previous research in our lab has found differences in adolescents' use of sarcasm and jocularity with siblings and friends, as well as in their sibling and friend conflicts. We examined connections between conflict, averted conflict, and various forms of verbal irony in adolescents' interactions. Our results suggest that the connections between verbal irony and conflict are more complex than we suspected.

Sarcasm appears to be associated with both conflicts and averted conflicts, but the role of jocularity in conflict and averted conflict seems to be relationship-specific. Sarcasm may serve an oppositional function in averted conflicts with both siblings and friends, even though the opposition is not reciprocated. On the other hand, adolescents may use jocularity as a way of averting conflicts with siblings, but as a way of softening conflicts with friends. Additional examination of exactly how sarcasm and jocularity are used in conflict and averted conflict will be needed to explain this pattern of associations. *Selected for presentation at Association for Psychological Science, San Francisco, CA.*

### **INTERNATIONAL PROGRAMS**

#### **168 • My Homeland: Korea: Come Visit, Work and Study**

**YEON BRIANA CHOI, CHAE YOUNG OH, DOHYUN KIM, SOOHYUN YOO, JISOO YOO**

FACULTY SPONSOR: IRENE BELYAKOV,  
INTERNATIONAL PROGRAMS

International students from South Korea will introduce their country: interesting facts about its geography, culture, language, Do's and Don'ts for international visitors. This poster presentation is especially interesting for those Geneseo students who are planning to teach English in Korea.



## CONCURRENT PRESENTATIONS AFTERNOON QUICK VIEW GUIDE

### SESSION 3 CONCURRENT PRESENTATIONS

2:25 – 3:40 PM

<b>3A • ANTHROPOLOGY</b>	SOUTH 338
<i>Global Health II: Global Reproductive Health</i>	
<b>3B • BIOLOGY &amp; MATHEMATICS II</b>	NEWTON 201
<b>3C • BUSINESS</b>	SOUTH 340
<i>Fed Challenge: The Current State of the Economy</i>	
<b>3D • CHEMISTRY</b>	NEWTON 203
<i>Chemistry Honors Research Presentations 2</i>	
<b>3E • EDGAR FELLOWS MISCELLANY 8</b>	WELLES 123
<i>English, Languages and Literatures, Philosophy</i>	
<b>3F • EDGAR FELLOWS MISCELLANY 7</b>	WELLES 121
<i>Art, English</i>	
<b>3G • EDUCATION</b>	SOUTH 328
<i>Keeping Kids in School: Year Eight</i>	
<b>3H • ENGLISH</b>	DOTY TOWER ROOM
<i>Love &amp; Line Breaks</i>	
<b>3I • ENGLISH</b>	WELLES 131
<i>The Individual Quest for Justice and Truth</i>	
<b>3J • GEOGRAPHY II</b>	WELLES 216
<b>3K • GOLD I</b>	CU 319
<b>3L • HISTORY</b>	WELLES 140
<i>History Honors Theses: Reform Movements, Historical Memory, and Immigration Litigation</i>	
<b>3M • MILNE LIBRARY</b>	MILNE 213
<i>Interdisciplinary: Give Kids the World and Insomnia Film Festival</i>	
<b>3N • INTERNATIONAL PROGRAM</b>	MILNE 109
<b>3O • MATHEMATICS</b>	SOUTH 336
<i>History of Mathematics III</i>	
<b>3P • MATHEMATICS II</b>	ISC 131
<b>3Q • MUSIC</b>	WELLES 138
<i>Beethoven Everywhere</i>	
<b>3R • POLITICAL SCIENCE &amp; INTERNATIONAL RELATIONS</b>	MILNE 105
<i>Enjoy Courtroom Drama at the Mock Trial of the Year</i>	
<b>3S • SOCIOLOGY</b>	WELLES 115
<i>Making a Difference Internationally</i>	
<b>3T • PSYCHOLOGY</b>	WELLES 119
<i>Factors Predicting Unwanted, Yet Compliant, Sexual Behavior During Hook-Ups</i>	

### SESSION 4 CONCURRENT PRESENTATIONS

3:50 – 5:05 PM

<b>4A • ANTHROPOLOGY I</b>	WELLES 133
<b>4B • HISTORY</b>	WELLES 131
<i>New Perspectives on New York History</i>	
<b>4C • BIOLOGY &amp; MATHEMATICS III</b>	NEWTON 201
<b>4D • BUSINESS II</b>	SOUTH 328
<b>4E • CHEMISTRY</b>	NEWTON 203
<i>Chemistry Honors Research Presentations III</i>	
<b>4F • EDUCATION</b>	MILNE 208
<i>Geneseo Storytelling Institute</i>	
<b>4G • EDUCATION</b>	WELLES 123
<i>This is Ghana-be Fun: Reflections on the Ghana Student Teaching Experience</i>	
<b>4H • ENGLISH</b>	WELLES 111
<i>What we've been up to: The Thoreau-Harding Project</i>	
<b>4I • ENGLISH</b>	WELLES 121
<i>Three Perspectives in Anglo-Irish Drama</i>	
<b>4J • GOLD II</b>	CU 319
<b>4K • HISTORY</b>	WELLES 140
<i>Encountering the Nazis</i>	
<b>4L • ENGLISH</b>	WELLES 119
<i>Interdisciplinary: English &amp; Language and Literatures</i>	
<b>4M • MATHEMATICS III</b>	ISC 131
<b>4N • MATHEMATICS</b>	SOUTH 336
<i>Logic, philosophy, and aesthetics in an artificial language</i>	
<b>4O • MUSIC</b>	WELLES 26
<i>Writing About Music</i>	
<b>4P • PHILOSOPHY</b>	WELLES 138
<b>4Q • POLITICAL SCIENCE &amp; INTERNATIONAL RELATIONS</b>	WELLES 24
<i>International Relations Honors Theses</i>	
<b>4R • ENGLISH</b>	MILNE 105
<i>Stories from Service Abroad</i>	
<b>4S • THEATRE/DANCE</b>	BRODIE DANCE STUDIO
<i>Exploring the Choreographic Process Through Dance Composition and Performance</i>	
<b>4T • WOMEN'S STUDIES</b>	SOUTH 340
<i>Senior Capstones in Women's Studies: Activist Projects</i>	

**CONCURRENT PRESENTATIONS 3 • 2:25 - 3:40 PM****3A • ANTHROPOLOGY SOUTH 338**  
**Global Health II: Global Reproductive Health**FACULTY SPONSOR: ROSE-MARIE CHIERICI,  
ANTHROPOLOGYSESSION CHAIR: **MADELYN SAYED****Barriers to Contraceptive Use and Access in the U.S. and Sweden****HEATHER CALNAN, EVE SUTHERIN, MEAGAN MULCAHY, TSUKINO ISAKA, ELIZABETH PIPER**

Our project examines the religious, economic, cultural and social barriers that prevent access and use of contraceptives. We will compare two developed countries with different perspectives and approaches to contraceptive use. The United States has had a historically conservative approach to contraceptive use while Sweden has been more liberal. Data for this project will come from a review of scholarly and popular sources. Additional data will come from interviews with health care workers at Planned Parenthood centers in the United States. We will identify the barriers that prevent access to and/or use of various contraceptive methods.

**Human Papillomavirus****ELIZABETH LIPUMA, PAIGE WESOLOWSKI, MARIA BLATNER, EMILY FALSTEWART, ESTEFANIA TRUJILLO**

Research shows that sexually active men and women will get at least onetype of Human Papillomavirus (HPV) in their lifetime (<http://www.cdc.gov/STD/HPV/STDFact-HPV.htm>). The Center for Disease Control suggests that the HPV vaccine can prevent nearly 20,000 cases of cervical cancer each year in the U.S. alone. Around the world 466,000 women develop cervical cancer a year and half of them perish from the disease(<http://www.guttmacher.org/pubs/tgr/06/3/gr060304.htm> I). Most of these deaths occur in Africa, South Asia and Latin America. Why has no progress been made to prevent this virus when treatment is available? This project will explore the education programs, preventative care policies, and available treatment options to address papillomavirus infections and how the disease affects people specifically in the U.S., South Africa, Argentina and India.

**Fertility in Egypt and Lebanon****CARLY BIONDI, JENNIFER LEVY, CAMERON RINALDI, LINDSAY RYTEL**

Our research will examine issues related to fertility in Egypt and Lebanon. We will focus on the beliefs and practices that surround fertility in Egypt and Lebanon by evaluating key factors including: fertility trends, birth practices and reproductive technology. Although these countries share common cultural elements, it is important to evaluate the societal norms, socio-economic factors and governmental structures that affect the way each country views fertility. This project will evaluate f barriers to maternal health, contraceptives and sexual

education as well as the role of gender bias and stigmas.

**3B • BIOLOGY & MATHEMATICS II**

NEWTON 201

FACULTY SPONSOR AND SESSION CHAIR: GREGG

HARTVIGSEN, BIOLOGY

FACULTY SPONSOR: CHRISTOPHER LEARY,  
MATHEMATICS**A Temperature and Precipitation Dependent Model of Dengue Fever with Control Factors in Florida****JACLYN HELLREICH, KIMBERLY MOVSESIAN, ANDREW PENSONEAULT**

Dengue fever is a vector-borne viral infection which is transmitted to humans by the *Aedes aegypti* and *Aedes albopictus* mosquitoes. These species thrive in warm, wet environments, like those found in South and Central America, Southern Africa, and Southern Asia. Although *A. aegypti* and *A. albopictus* species are both found in the Southern United States, dengue fever has not been found in this area. However, dengue fever could emerge due to the climate of southern United States. A differential equations model was developed to predict the spread of dengue fever, if introduced to the southern US state of Florida. Stochastic elements for temperature and precipitation were added to the model to predict fluctuations in the populations of the *Aedes* species in the state of Florida. If implementation of control strategies, such as larvicide, were increased over the *Aedes* population before an introduction of dengue fever, there would be a decrease of cases in the initial epidemic and the disease would not become endemic. This model could predict a successful control strategy for a dengue fever outbreak in Florida.

**Modelling Prion Replication and the Effects of an Anti-Prion Drug****THOMAS HARTVIGSEN, BRANDON BERRY, JACOB GOLDBERG, ZACH STREEM**

Prions are misfolded proteins that attach to other proteins and cause them to misfold. One relatively common prion disease, called Creutzfeldt-Jakob disease, is diagnosed in about one in every one million people in the United States each year. Two models were developed to predict replication of prion molecules using experimentally determined parameters of propagation. A differential equation model and a lattice model were constructed to compare the am of prions compared to the number of correctly folded proteins over time. The models displayed successful continuous growth of prion forms while the number of correctly folded proteins decreased. To alter these models, a hypothetical anti-prion drug was introduced to the system at different concentrations to see its effect on prion replication. The model drug was based on Quinacrine, which is currently being studied for its potential treatment of prion diseases. The models

showed that the drug significantly reduced the amount of prions in the system. The potential predictive power of our models is demonstrated mathematically and supported by recent literature. Further research into the mechanism of Quinacrine can lead to more realistic models in the future.

**Modeling the Evolution of Predator-Prey Dynamics****MARY BAILEY, NATHAN CHAU, BRIANNA TYLEC**

Predator-prey dynamics are complex systems with numerous variables that affect the result of the interactions between predators and their prey. We created our own theoretical predator-prey system, employing an agent-based model with variables such as speed, predation and evasion. We simulated the evolutionary change of these variables over multiple generations to determine the impact they have on predator-prey relations. We found that over successive generations, the average speed of both the predator and prey populations increased. Modeling predator-prey systems would allow us to make predictions for the interactions of real populations and how they change over time.

**Modeling the Effects of Temperature on the Spread of Yellow Band disease in Coral and Subsequent Bleaching****KELSEY WATKINS, GORDON WONG, CHRISTOPHER SUMMERVILLE**

Bleaching is a phenomenon in which corals expel their pigmented symbiotic zooxanthellae in response to stressors such as infection. Over a particular temperature threshold, susceptibility of corals to infection by the bacterium *Vibrio* increases, causing the disease known as yellow band disease. When the surrounding ocean reaches the threshold temperature, particularly in the Caribbean, the rate of growth of *Vibrio* increases enough to outcompete the beneficial microbes living on the mucus substrate of the coral. A system of differential equations was created to model the infection. Temperature variability was incorporated to test the sensitivity of the corals to infection by *Vibrio* and subsequent bleaching. Our model suggests that temperature spikes over the threshold value will initially cause coral to become more susceptible to infection, but extended periods over the threshold will cause corals to become infected and bleached. The temperature range and interval necessary for either survival or bleaching of the coral were investigated in this model. This interval is vital to understanding and predicting how global climate change may reduce the abundance of coral, and how this may impact the coral reef ecosystem.

**3C • BUSINESS**

SOUTH 340

**Fed Challenge: The Current State of the Economy**FACULTY SPONSOR: LEONIE STONE, BUSINESS  
SESSION CHAIR: **SEAN ETTER**

SEAN ETTER, STEPHANIE ALLEN, JIMMY HATEM, JUAN LOPEZ, LUCAS LEHMKUHL, MIKE HURSON, MATT BROOKS

A thorough discussion of the factors influencing the direction of the economy with a specific look at monetary policy.

### 3D • CHEMISTRY NEWTON 203

#### Chemistry Honors Research Presentations 2

FACULTY SPONSOR AND SESSION CHAIR: JAMES MCGARRAH, CHEMISTRY

#### Photophysical Characterization of Luminescent Square Planar Pt(C<sup>AN</sup>)Cl(PPh<sub>3</sub>) Complexes

BENJAMIN NAGASING

Luminescent platinum complexes are of great interest for their potential applications in organic light-emitting diodes (OLEDs). The emission energy of these organometallic complexes can be tuned at the molecular level by changing the ligands of the complex, which alters the electronic structure. A series of Pt(C<sup>AN</sup>)Cl(PPh<sub>3</sub>) complexes, where (C<sup>AN</sup>) = 2-phenylpyridine, 2-(2,4-difluoro)-phenylpyridine, or 2-thienylpyridine, and PPh<sub>3</sub> = triphenylphosphine, have been prepared from the reaction of PPh<sub>3</sub> with the corresponding  $\mu$ -chloro bridged dimers. These complexes are highly luminescent in the solid state but exhibit little to no luminescence in solution. They have been characterized by NMR and IR spectroscopy and X-ray crystallography. Absorption and solid-state emission spectroscopies have been performed on these complexes in order to understand the differences between isolated solution and the solid state, and how these different environments influence the electronic states. Additionally, preparation of the 2-(2,4-difluoro)-phenylpyridine dimer resulted in the formation of an additional product, Pt(C<sup>AN</sup>)<sub>2</sub>Cl<sub>2</sub>. This compound is particularly interesting because it crystallizes in a P212121 space group and is chiral. The characterization data of these compounds lends significant insight into the fundamental photophysical processes occurring within and between these complexes.

#### Synthesis and Characterization of Novel Substituted Benzimidazole Derivatives

MICHAEL NELLIST

Benzimidazoles derivatives are an important class of organic compounds that exhibit anticancer, antiviral, and antifungal properties, among many others. Our research efforts focus on the synthesis and structural characterization of novel mono- and di-substituted derivatives that possess the potential to interact with transition metal ions. Thus far, two structural isomers have been isolated of a chloro-substituted benzimidazole by reaction of 4-chloro-o-phenylenediamine with thiophene-2-carboxaldehyde. We attempted chromatographic separation of the two isomers. Contrary to expectations, the two isomers co-crystallize and single crystal X-ray diffraction studies reveal a small amount of minor isomer present in each sample. We have also synthesized 2-(2-

pyridyl)benzimidazole and 2-(2-thiophene)benzimidazole. These compounds were later used as starting materials for the construction of unsymmetrical disubstituted benzimidazoles. By building benzimidazole with two unique substituents, we hope to maximize functionality of these molecules. This project is ongoing. Spectroscopic and X-ray structural results of the mentioned compounds will be presented.

#### Isolation and Investigation of Natural Products from *Anaphalis margaritacea*

CAROLYN LEVINN

Secondary metabolites (Natural Products, NPs) are non-ubiquitous biological compounds synthesized mostly by plants, but also by some other organisms, such as fungi and bacteria. These products frequently serve as a defensive barrier for their host, and often translate in some form to humans as pharmacologically active compounds. The Helms group has worked to characterize the physiologically active NPs present in *Anaphalis margaritacea*, a perennial dicot that has been used for centuries for its medicinal properties. The compounds present in the roots and tops of *A. margaritacea* were extracted and then isolated through column chromatography. Fractions collected were characterized via NMR and GCMS analyses, and prominent compounds were identified. The Helms group has also extracted and analyzed the essential oils of *A. margaritacea*, and their relationship with *Vanessa virginensis*, the American Painted Lady butterfly. In vivo tests were performed with *V. virginensis*. Additionally, NMR studies of friedelin, a NP from cork, were conducted as a model for investigating triterpenes isolated from *A. margaritacea*. Results will be presented.

### 3E • EDGAR FELLOWS MISCELLANY 7

WELLES 121

SESSION CHAIR: DAVID LEVY, EDGAR FELLOWS AND PHILOSOPHY

#### English and Physics are Totally Different, Right?

GREGORY PALERMO

FACULTY SPONSOR: ROB DOGGETT, ENGLISH  
Those who talk of a current "crisis" in the humanities are usually referring to the flight of students to majors in the supposedly more lucrative fields within science, technology, engineering, and mathematics. Enrollment statistics, however, do not support this narrative; the real "crisis" is what Penn State Professor of English and higher education writer Michael Bérubé calls one of "legitimation." The STEM fields are represented--in popular discourse, in academe, and here at Geneseo--as more valuable, objective, and rigorous than are the humanities. As a result, students and faculty in the humanities, unlike their colleagues in the sciences, are under constant pressure to justify the value, rigor, and relevance of their work. In spite of the traditional separation between the humanities and sciences, however, the methodologies employed by English and Physics, my two major fields of study, are not all that different. Synthesizing some literary theory with concepts from physics, this

presentation will provide counter-evidence to the false conceptions about both fields that have provoked and perpetuated this crisis.

#### The Conscious Mind and Quantum Measurement: A Philosophical Analysis of Entanglement and Other Phenomena in Quantum Mechanics

NEAL PLOFKER

FACULTY SPONSORS: THEODORE EVERETT, PHILOSOPHY AND

KURT FLETCHER PHYSICS & ASTRONOMY

The Cartesian doctrine of mind-body interactionism has long been ridiculed for being philosophically 'spooky' and therefore subject to skepticism. Many modern philosophers have adopted physicalism in order to avoid the problems associated with interactionism, and more importantly to remain consistent with recent developments in neuroscience and psychology. Scientific developments are essential in driving research in philosophy of mind. One experiment in quantum mechanics, originally conducted by John Bell in 1964 and inspired by the thought-experiments of Einstein, Podolsky, and Rosen in the 1930s, gave rise to the theorem that a purely physicalist theory of science cannot adequately account for the predictions made through quantum mechanics. This work, known as Bell's theorem, produced controversy in the scientific community at the time of its publication, for it experimentally confirmed the Copenhagen Interpretation of quantum mechanics and therefore rejected local realism through the phenomenon of entanglement. Bell's work suggests that physicalism does not provide a complete picture of reality and some non-physical component of the universe may be necessary to explain quantum phenomena. This analysis of Bell's theorem provides a scientific basis for the existence of a kind of non-physical entity which yields an 'intelligent observer', and therefore ontological grounds for interactionism.

#### Sustainability in Geneseo's Humanities Program

CHRISTINE O'NEILL

FACULTY SPONSOR: WES KENNISON, LANGUAGE AND LITERATURES

SUNY Geneseo's singular Humanities program challenges students "to think critically about moral, social, and political arguments in the Western intellectual tradition." One such argument that continues to grow in importance is sustainability and its environmental, economic, and social implications. Offering a sustainability-themed section of Humanities, in which students are exposed to the curriculum through the lens of this issue, would invite them to consider how "intellectual traditions" can become solutions to today's problems. Research conducted on campus supports the idea that a sustainability-themed section of Humanities could not only situate these courses in a more applicable and relevant context, but could also address a handful of students' suggestions for improvement regarding the current program. A careful examination of several required Humanities readings demonstrates the potential for sustainability-related discussion and teaching

opportunities without changing the reading list or the core content of the program. A sustainability-themed section of Humanities is forward-thinking, sure to be well-received, and in fact quite plausible.

### 3F • EDGAR FELLOWS MISCELLANY 8

WELLES 123

SESSION CHAIR: RON HERZMAN, ENGLISH

#### Building Reclaimed Materials

ELIZABETH FAULISI

FACULTY SPONSOR: EUGENE DEZARN, ART

For my project I looked into sustainable furniture construction techniques and implemented some of these in building a 3x7 dining room table from reclaimed lath boards. I will be discussing the benefits of sustainable construction. I will detail the process of acquiring materials, and the limitations that come with working with reclaimed materials. I will explain the construction process for my piece and the setbacks I faced throughout the process.

#### Rodin in Plato's Republic: An Artist's Experience with the Intangible

LAUREN SLEZAK

FACULTY SPONSOR: RON HERZMAN, ENGLISH

This project involves determining whether or not nineteenth century French sculptor Auguste Rodin is a platonic artist and whether or not he, and/or his body of work, might be theoretically admitted into Plato's Republic. This has been done by considering both Plato's artistic theories and the classical art and artists that he deemed unacceptable; by analyzing Rodin's artistic, literary, and philosophical influences; by investigating his memoirs; and by examining his collection of sculptures and artistic movements. Through the consideration of these elements, along with the factors that might impede Rodin's admission into the Republic, we discover the artist's experience with the intangible world.

#### še'i napšāti: A Series of Paintings

OLIVIA ASCIONE D'ELIA

FACULTY SPONSOR: RYOTA TAKEMURA, ART

Flood mythology appears almost universally. This series of large scale oil paintings and the accompanying presentation explore the recurring symbols and themes of deluge stories, the representation of contemporary flood narratives, and the nature of oral tradition.

### 3G • EDUCATION SOUTH 328

#### Keeping Kids in School: Year Eight

FACULTY SPONSORS: JANE MORSE, EDUCATION AND

BRIAN MORGAN, SCHOOL OF EDUCATION

SESSION CHAIR: ALEXANDRA LIONETTI

CAMILLE ARTER, KATIE BAUM, CHRISTINA HEIM, ALEXANDRA LIONETTI, KATE LOMAZZO, GRIFFIN MERVINE, APRIL MEYER

Keeping Kids in School is an eight year longitudinal study of a cohort of Rochester City School students who were enrolled in the Rochester Young Scholars Academy at Geneseo. The cohort started in the study after their first summer camp experience. The participants were in seventh or eighth grade at the time of recruitment. We have interviewed members

twice a year, although attrition has been high in this highly mobile cohort. One theme that has emerged is the sense of agency students feel. Our definition of agency is the capacity of individuals to act independently and to make their own free choices. We have found that outside sources affect agency, and although individuals know that they cannot implement their own choices, they feel agency over their lives sometimes. A related theme is locus of control-- the structure of institutions that participants recognize as impacting their action. We will present other threads related to the narratives of success described by our participants. The aim of the research is to investigate what keep kids in school in order to recommend policies that will reduce the unconscionably high dropout rates among urban youth.

### 3H • ENGLISH DOTY TOWER ROOM

#### Love & Line Breaks

FACULTY SPONSOR AND SESSION CHAIR: CORI WINROCK, ENGLISH

#### GREAT Day Poetry Reading

AMY BISHOP, LUCIA LOTEMPIO, ERIN KOEHLER, DEVIN STABLEY-CONDE, JOSEPH O'CONNOR, ANNA KUSHNIR, CHRISTINA MORTELLARO, CHRISSE MONTELLI, ASHLEY OLIN

Eight students from Poetry I & II will read 2-3 poems produced in class over the course of the Fall 2013 semester.

### 3I • ENGLISH WELLES 131

#### The Individual Quest for Justice and Truth

FACULTY SPONSOR: GRAHAM DRAKE, ENGLISH  
SESSION CHAIR: ANDRE DOEMAN

#### On Security and Justice

NOAH SIDER

In The Republic, Plato set out to define justice. He touches on the concept that justice could be the advantage of the stronger, creates a tripart soul that holds a love of truth and wisdom keeping our base desires in check, and believes that the pleasure of knowing the truths of the world is greater than any other. Parallels to these concepts can be drawn to the situation of Edward Snowden, who revealed the truths of the NSA's spying to the American people. He, like Plato, felt that the truth is not only desirable but necessary for a just existence and took it upon himself to tell the world what was happening, at the cost of his personal livelihood. It is also not unreasonable to draw connections between Plato's escaped prisoner in the Allegory of the Cave and Snowden, who struggles as the prisoner does in his attempts to bring the light (or truth) back to the other chained prisoners. In total, Snowden's story serves to remind us that the lessons taught even in the past can still be relevant today.

#### Grief and the Struggle for Faith in

#### Henry Vaughan's Poetry

JULIANNE DE

My paper discusses two poems by seventeenth-century poet Henry Vaughan, and their connection

to his struggles with his faith in the Church of England after the loss of both his wife and younger brother. The two poems, "They Are All Gone into the World of Light!" and "Cock-Crowing," feature very different structures, but both contain images of birds and symbols of light to highlight the importance of belief in the face of grief. In both poems, the speaker appeals to God in an attempt to better understand His ways, as his experiences with loss and the Puritan victory in England cause him to question his relationship with God and reveals his frustrations.

### 3J • GEOGRAPHY II WELLES 216

FACULTY SPONSOR AND SESSION CHAIR: DARRELL NORRIS, GEOGRAPHY

#### Perceptions of Pyongyang

AIDAN COFFEY

For Great Day I will present a PowerPoint entitled "Perceptions of Pyongyang." The PowerPoint is based off of a paper I wrote for Professor Darrell Norris' "Developing World" class. Perceptions of Pyongyang will focus on both the domestic and foreign perceptions of the North Korean regime. Specifically, I look at how North Korea is viewed on the internet through social media sites such as Google +, YouTube, Facebook and Twitter. Many view the North Korean regime as a bizarre place, and assume everyone feels the same. Before detailing my research, I will go over the standard Western perception of Pyongyang. My research shows a significant level of sympathy, even within the industrialized world, towards the North Korean regime. Additionally, my reconnaissance of North Korea through Google Maps revealed several suspicious profiles and activities which cannot be explained conventionally. The suspicious profiles will be the focus of my presentation.

#### Human Rural Micro-Geography in a Haitian Roadside Setting

MATTHEW MCCLURE

Western perspectives on the Developing World often overlook the details of human activity space at a micro level. In Developing World settings, including rural Haiti, the road is primarily a pedestrian space and is apt to supplement the traditional role of the city center. My study focused on the activity on along a 4km portion of a pedestrian road in Northern Haiti, a transect from a coastal setting to a zone of hill farming. The transect exhibits two obvious segments, a coastal stretch and its interior counterpart. Two volunteers and I walked this 4 km portion twice in one day. We recorded several characteristics of all people on the road including group size, gender make-up, age, and activity, including photographic documentation. The results show significant differences between the human activity in the coastal region and the mountain region. On our second walk of the road later that day, the amount of people, activity, and make-up of groups were noticeably different. It is striking that these socio-demographic and other differences are manifest over a distance of no more than 4 km. The human geography of the Developing World often can only be understood through its micro-geography.

## Main Street Canandaigua Adapts to the Automobile: 1900-1930

**NATHAN TROMBLEY**

All American main streets faced the prospect of accommodating the needs of the motor vehicle as the twentieth century unfolded. Canandaigua, NY, a city and county seat numbering roughly 8,200 residents in 1900, was no exception. The passing of the horse-and-buggy era and growing evidence of 'auto-adaptation' are apparent from a series of five City Directories and three Sanborn Fire Insurance Maps between 1904 and 1930. A common assumption that the operators of horse-dependent enterprises were apt to pioneer automotive lines of business is largely not borne out by Canandaigua's experience. Some premises, however, did cross both eras, and logical conversions occurred too, such as blacksmiths' shops that switched to automotive repair. The transition was surprisingly late. The first vehicle-related businesses had appeared by 1914, a delay attributable perhaps to Canandaigua's easy electric inter-urban link to Rochester. The last horse-related businesses had disappeared by 1924. By then, Main Street's dozen auto-enterprises were relatively clustered along a two-block segment on the West side of the road. Later decades of the twentieth century would see a diaspora from Canandaigua's Main Street core to its margins, and to US Highway 20 and NY Highway 332 strip development. *Selected for presentation at Pioneer America Society Annual Meeting, Utica, NY.*

**3K • GOLD I**

**CU 319**

FACULTY SPONSOR AND SESSION CHAIR: THOMAS MATTHEWS, GOLD

## Livingston County CARES: Planning & Participating Disaster Relief Work

**ALYSSA STEFANESE**

This presentation is part of the GOLD Diamond Certificate requirement. This presentation will walk through my own personal experience helping to plan and successfully execute the first Hurricane Sandy Relief trip. It will also mention the social issues and challenges that this volunteer effort faced in Staten Island, NY communities. It will also detail a step-by-step process or procedure on how to plan a disaster relief trip. It will utilize civic engagement and leadership practices, which I have learned as a Livingston CARES Board member, a two time trip leader, three time work trip volunteer, GOLD, and as a presenter at the Western NY Leadership Conference.

## Saving Death-Row Dogs

**BRANDON GAYLORD**

Volunteered with Ginger's Pet Rescue in Seattle when I lived there. We worked to adopt dogs out of shelters with high-kill rates and placed them in foster homes in our network of volunteers. We set up adoption events at Petsmart and Petco locations along with local businesses. We adopted out anywhere from 10-40 dogs/week over the course of two years when I volunteered with them. I was responsible for every aspect of the rescue. This included: finding new volunteers, coordinating fosters, scouting new locations for events, running

adoption events, picking up dogs from the airport when we moved to getting dogs out of California shelters, email communications. During my time with the pet rescue, I was considered one of the "core" people, volunteering roughly 25 hours/week for just over two years. We held events with adopters and fosters in parking lots, stores, outside restaurants, airports, wherever we could. GPR has now saved over 6,000 dogs. My dedication and strength led me to being somewhat of an authoritative figure in that when we needed a strong, resolute, voice, mine was it. This was all done when I was 22-24 years old.

## Volunteer Experience at Livingston Youth Center and Plan Proposal

**JEFFREY BOECK**

This paper presentation, which is for the Great Day Presentation required for the Diamond Certificate of the GOLD program, is a reflection of my volunteering at the Goodwill Livingston Youth Center, as well as an analysis of why the program was re-designed, as well as a proposal for things to consider with future attempts. The beginning of the paper presentation will go into the history of the Youth Center, which will be followed by my experience there. Then the analysis will look into the factors that resulted in a 'redesign' of the program. The proposal will be a plan that will take into account connections with other organizations, day of operation, attitudes toward the program and those it is for, just to name a few factors I hope to discuss. I wish to create a plan that hopefully helps to keep future organizations like this running and continue to be an asset to those that the program is targeted toward.

**3L • HISTORY**

**WELLES 140**

## History Honors Theses: Reform Movements, Historical Memory, and Immigration Litigation

FACULTY SPONSOR: CATHY ADAMS, HISTORY

SESSION CHAIR: KATHY MAPES, HISTORY

## Women and the Dress Reform Movement

**CASEY BERG**

I am researching the dress reform movement in the second half of the 19th century. I am looking at how women's dress has evolved, how society responded to these changes, and the greater implications dress reform had on society. As health reformers and women's rights activists became more involved in dress reform, health risks associated with corsets began to surface. The Bloomer Costume, made popular by Amelia Bloomer, became a symbol of the dress reform movement and the struggle for women's rights. This study will look at these changes in women's dress and the ways in which the dress reform movement is connected to the women's rights movement.

## Kaiju, The Apocalypse and the Invasion of the 'Other': A Study of Japanese Media and Popular Culture as an Expression of Disaster Identity

**BRITTANY LAUDA**

This is a senior thesis research project that is an analysis of a selection of Japanese media such as films and animation. While film's role in creating and maintaining the relationship between history and memory has been analyzed in other contexts and themes, the study specifically focuses on historical narratives of disaster and victimhood in a Japanese context. The post-WWII Japanese society had to internalize and rationalize the nation's unique history in the early twentieth century, where the nation experienced its unique imperialistic nationalism, WWII, and numerous natural and manmade disasters. This paper analyzes common themes as well as the literary devices such as the plot, conflict, and setting of various films and animation. By doing this, this study aims to prove the correlation between nationalism and concepts depicted in films and animation and how this relates to a larger historical narrative. The Japanese society has used films as a medium that uniquely serves this role of internalization and rationalization of its historical memory.

## Litigation and Language: Operation Babylift Reinterpreted Through the Courts

**CINDY TRIEU**

During the fall of Saigon in April 1975, approximately 2700 orphans were airlifted out of Vietnam to the United States in what would become known as "Operation Babylift." Many saw the operation as an example of American altruism, while others viewed it as another form of western imperialism or even kidnapping. My paper will argue that Operation Babylift shows that one of the main challenges Vietnamese refugees faced was accessing the U.S. legal system. Unlike other types of refugee adaptation, there were neither alternatives to the U.S. legal system nor any way to contest the way it operated. The important role that documents, language, and translation played in meting out justice was often misunderstood or inaccessible to these refugees. By examining several court cases in which the natural mother or relative seeks custody of their child from the child's new adoptive parents, I will show how Operation Babylift not only highlights the difficulties in the refugee experience but was also a watershed in United States adoption history for it compelled U.S. lawmakers and statesmen to address and resolve the issue of international adoption both in international and domestic law.

## 3M • INTERDISCIPLINARY: GIVE KIDS THE WORLD AND INSOMNIA FILM FESTIVAL

**MILNE 213**

SESSION CHAIR: DAVID PARFITT, MILNE LIBRARY

## Livingston Cares trip to Give Kids the World

**CASSIDY LESTER, DAVID BAKER, HAYLEE ADLEMAN, ERIN FROELICH, ALEXANDRA MORELL, MARY SHATZEL, VICTORIA STARR, JESSICA STEENBERGEN, JOSHUA STONE, OLIVIA WOLFRAM, MARISSA ZINONE, EMILY ZSCHOCHE**

FACULTY SPONSOR: DAVID PARFITT, MILNE LIBRARY

Give Kids the World is a nonprofit village located in Kissimmee, Florida where children with life-threatening illnesses and their families can stay for a weeklong, cost-free vacation. For the past 5 years Dr. David Parfitt has taken a group of 12-13 Geneseo students down to the village to volunteer for a week. Students work two shifts/day and help with various activities including serving meals, entertainment, participating in the evening activities, and doing service projects around the village. They help with weekly Village events such as the Winter Wonderland and Halloween party, scoop ice cream, serve breakfast at the Gingerbread house, and run the carousel. In this presentation, students will discuss the history of the Village, what it means to volunteer there, and their personal experiences. An emphasis will be placed on how the Village has affected each student and what they have gained from the trip, as well as on how others can be involved and help the cause.

### Insomnia Film Festival Showcase

**AARON TOMASSINI, BELLA RABINOVICH**

FACULTY SPONSOR: JOE DOLCE, CIT

The Geneseo Insomnia Film Festival is in its 3rd year at Geneseo. This 24 hour, non-stop competition provides students with the unique opportunity to flex their creative muscles and create video shorts under a set of rigid guidelines. Competitors have to manage their time, utilize both creative and technical skill sets and consume large amount of caffeine, in a race against the clock and other teams. This presentation will highlight the challenges, successes and anecdotes of several of its competitors. While also showcasing the works from this year's festival, and year's past.

### 3N • INTERNATIONAL PROGRAM

MILNE 109

FACULTY SPONSOR AND SESSION CHAIR: IRENE BELYAKOV, INTERNATIONAL PROGRAM

### Building a Global Community - One Speech Buddy at a Time: Lessons Learned from Teaching English and American Culture to International Students.

**MOLLY BLANDA, SEUNG KIM, MADELINE ZEBERTAVAGE, MARK ROMIG**

Students from INTD 377, "Methods of Teaching English to Speakers of Other Languages," will present results of their service learning: being Speech Buddies for their international counterparts who speak Korean, Dutch, Portuguese, Chinese and other languages). The presenters will analyze their methods of teaching English and share their cultural and linguistic experiences. One presenter will discuss his own experiences learning English as a second language and now applying them to teaching his international speech buddy.

### 3O • MATHEMATICS

SOUTH 336

### History of Mathematics III

FACULTY SPONSOR AND SESSION CHAIR: JEFF JOHANNES, MATHEMATICS

### Misfortunes and Normalcy: A Discussion of Évariste Galois and his Intuition of Groups and Normal Subgroups

**JORDAN NGUYEN**

The presentation will discuss the history of Évariste Galois- his upbringing, and genius as well as his intellectual and political endeavors as this young mind attempted to compete with the well-known names of Cauchy, Fourier, and Poisson. Further insight on his contribution to Group Theory and his "leg up" on other mathematicians given his development of the Normal Subgroup will be provided as well.

### How Russell's Paradox Shook up Cantor's Set Theory

**LUCAS MARTIN**

At the very start of the 20th century Georg Cantor's Set Theory stood on shaky grounds. With Bertrand Russell challenging the very foundations of Logic at this time, the study of the collection of object united by a common property was broken by one single question: Does the set of all sets that don't contain themselves contain itself? This mind bending look at the problem with self-inclusiveness in the theory halted mathematics at the time and demanded what Russell wanted from everyone, to stop further building of a science on the weak foundations at the time. The importance of this discovery cannot be overstated. I will be looking at Cantor's Set Theory as it stood before Russell's Paradox, then breaking down the paradox in order to show how it started a widespread "clean up" of mathematics.

### Lagrange's Four-Square Theorem

**KRYSTINA STECK**

This research looks at the history behind the formation of Lagrange's Four-Square Theorem, which states that any positive integer can be written as the sum of at most four squares. The research draws upon sources including journal articles and Mathematics textbooks. The goal is to show how the theorem came to be by examining the conjectures that lead to its formation. Upon exploration of these conjectures, it becomes clear that Lagrange formed his theorem with the help of the work of early Mathematicians such as: Diophantus, Fermat, Bachet, and Euler. Through examination of the different people associated with the formation of this theorem, and the conjectures they produced, this research hopes to highlight the importance of the theorem and conclude with various applications of the theorem in the world of Mathematics today.

### 3P • MATHEMATICS II

ISC 131

SESSION CHAIR: OLYMPIA NICODEMI, MATHEMATICS

### The Patterns and Symmetries of Friezes

**BIANCA BETTS, CHARLENE FRITZ**

FACULTY SPONSOR: OLYMPIA NICODEMI, MATHEMATICS

A frieze is an infinite strip that contains a repeating pattern. Friezes are most commonly found as wallpaper borders, but can also be seen in architecture, pottery, needlework, and in numerous other places. Despite the astounding variations, we will see that, mathematically, there are really only seven types of friezes and we will discuss their symmetry groups. We will conclude by diving into number frieze patterns, explaining how to construct them, their relation to the triangulation of polygons, and we will see what symmetries they have.

### Shining Light on the "Lights Out Game"

**GREGORY HARRIS, RYAN ZAREMBA**

FACULTY SPONSOR: OLYMPIA NICODEMI, MATHEMATICS

Lights Out, an electronic game, released by Tiger Toys in 1995, consists of a 5 by 5 grid of lights that can be either on or off. Pushing any light changes its state and the states of its vertical and horizontal neighbors. Starting with any initial array of lights, the goal is to get all the "lights out." We will look at how linear algebra helps us to analyze the game, and in particular, find "easy games."

### Genus of the k-Ellipse

**JAKE PASANEN, GREG SPITZ**

FACULTY SPONSOR: GARY TOWSLEY, MATHEMATICS

The standard ellipse is described as the locus of two points, called foci. This concept can be generalized into  $k$  foci, which yields a family of convex shapes in the plane. The equations that generate these  $k$ -ellipses can describe compact Riemann surfaces, which live in a four-dimensional space. By adding an additional point to this space, the resulting surfaces have a property called the genus. The genus represents the number of "holes" in the compact Riemann surface associated with the  $k$ -ellipse. An open ended problem in algebraic geometry is to find a formula to compute the genus of a  $k$ -ellipse. This talk will discuss progress made towards determining the genus of the  $k$ -ellipse for  $k$  higher than 5, as well as the computations and algorithms utilized in the calculation of the genus.

### 3Q • MUSIC

WELLES 138

### Beethoven Everywhere

FACULTY SPONSOR AND SESSION CHAIR: ANNE-MARIE REYNOLDS, MUSIC

### Beethoven in Popular Advertising

**ALLISON ABBOTT**

Advertising and music share an inherent bond that may be traced back to the beginning of radio and television. A commercial typically utilizes a memorable jingle, aligning the repetition of musical gestures with catchphrases and/or visual images to hook the consumer. Beethoven's music in particular serves as a useful tool in many advertising campaigns; both its distinctive qualities and his dramatic persona are malleable, allowing companies to exploit them to the end of selling their product. Advertisers insert music into commercials to fulfill specific functions; this paper

will consider how and why Beethoven and his music so effectively meet these requirements.

## Beethoven in Performance

ROBERT GAGLIONE

Modern musicians and musicologists have debated the topic of musical authenticity for most of the twentieth century. Beethoven's music is especially open to interpretation; it is a turning point in the history of western music and his legacy endures to this day. Some musicians and historians wish to strictly regulate performance practice, limiting Beethoven's music to historically authentic instruments and a limited artistic license that reflects the age in which it was written. Others are willing to expand the boundaries of his music, altering and manipulating it to create fresh and provocative interpretations that sometimes even move Beethoven into the genres of disco or rock. This presentation will consider the culture and ideals of a historically-informed interpretation of Beethoven's music as well as the figures and groups that have reinvented the composer.

## The Awakening of Cheerful Feelings on Playing the Cello

KELSEY WOOD

This tribute to Beethoven includes motives and gestures from his first and sixth symphonies, and his 'Waldstein' Piano Sonata. The title is a play on words from the first movement of his sixth symphony, the Pastoral, which is titled "The awakening of cheerful feelings on arriving in the country". I wrote the trio out of a desire to remember Beethoven in modern music today.

## Bonn to Brooklyn: Beethoven the Revolutionary and Black Power

ERIC MALDONADO

Beethoven is nearly as relevant in modern popular culture as he was to the history of Western music. Certain patterns emerge in images and notions of Beethoven, such as his messy, disheveled hair, or the fact that he composed while going deaf, and thus led an extremely troubled life. Beethoven is even credited with spearheading the Romantic period, but does he really deserve the moniker "revolutionary"? Throughout history he has been represented as such, not least in the Black Power movement. As a symbol of revolution, or at the very least non-conformity, Beethoven has proven effective. What is it about Beethoven and his music that sets it apart? In my presentation I will discuss the revolutionary connotations of the man and the music, as well as the role both played in the Black Power movement.

## 3R • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

MILNE 105

### Enjoy Courtroom Drama at the Mock Trial of the Year

FACULTY SPONSOR AND SESSION CHAIR: JOANNA KIRK, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

ERIN ROZEWICZ, HARRISON HARTSOUGH, KATHERINE SILVESTRI, ELIAS VENTURA, SARAH ESPOSITO, RACHEL WILCOVE, DARRELL GETMAN, COURTNEY CAVALLLO, MICHAEL O'BRIEN, MAX GARNAAT

A crowded amusement park, an innocent woman robbed at knife point, and an officer struck by a park ride sustaining injuries that leave him in a coma: Defendant Whit Bowman has been charged with 3 counts of robbery in the first degree and theft by deception, is he the criminal mastermind behind this scheme or the puppet of a much greater conspiracy? Hear the testimony of three lively witnesses that were present at the amusement park where the incident occurred, enjoy the argument of the contending counsel, and stand in as a jury member while Geneseo's Mock Trial team presents the State of Midlands vs. Whit Bowman. Geneseo Mock Trial was created in 2008 by a handful of students interested in gaining a hands-on experience in law. Since then the team has grown into a competitive force on the regional level, fielding two teams and facing competitors such as the University of Rochester, Syracuse, Michigan University, and Cornell. This year the team performed very well, including a 6-2 record at a University of Buffalo invitational, and 5 individual awards across 3 tournaments. For information, visit <https://knightlink.geneseo.edu/organization/geneseomocktrial>

## 3S • SOCIOLOGY

WELLES 115

### Making a Difference Internationally

FACULTY SPONSOR AND SESSION CHAIR: ANNE EISENBERG, SOCIOLOGY

### Helping Children Helps Everyone

KLARISSA GARCIA

My American identity and overall worldview has been impacted by my interactions in Poland. The collectivist and inclusive approach to society and politics is evident within the first interaction with its people. My four weeks volunteering at TPD provided me with a clearer understanding of how powerful and influential a society is to an individual. The time spent with the children and the staff not only benefited them but also greatly impacted me personally.

### How Children Changed Me

CARLY SOMERS

I volunteered at TPD in Krakow, Poland. TPD is an NGO that provides a day center for at-risk children. While I thought I knew a lot about at-risk children, having worked with them here in the states, it was seeing how children are treated in Poland that made me rethink everything I know. Because of the children, I came to know Poland outside of the stuff tourists see.

### Hamlet Foundation: Setting the Example to Overcome Stigmatization of Mental Illness

KATHRYN CARDINAL

This paper is a cross-cultural examination of the way the two countries - the US and Poland - approach mental health issues. I analyze the role of one organization called the Hamlet Foundation in

addressing mental health on a local and individual level. I break down three key components of the way the organization approaches mental illness with its service users and compare the Foundation's unique approach to modern research on stigmatization of mental illness in the United States. I suggest that perhaps the medicalization of mental illness in American society could be reversed if more active, local, self-help programs existed in the United States.

## What NGOs in Poland Left Me Wondering

SHEILA RAMIREZ

On July 2013, for four weeks I was placed in an NGO in Krakow, Poland. At MOPS Social Welfare Center I worked to socially integrate into the center and to be a role model for at-risk/impooverished youth. It was an enriching experience personally but left me wondering about social problems visible to me during my service. In my analysis, I explore the social issues MOPS addresses and I focused on the impact of unemployment on homelessness, and educational inequality.

## 3T • PSYCHOLOGY

WELLES 119

### Factors Predicting Unwanted, Yet Compliant, Sexual Behavior During Hook-Ups

FACULTY SPONSOR AND SESSION CHAIR: MONICA SCHNEIDER, PSYCHOLOGY  
FACULTY SPONSOR: JENNIFER KATZ, PSYCHOLOGY

### Gender Differences in Attachment, Self-Efficacy, Motives and Attitudes as Predictors of Sexual Compliance During Hook-Ups

LAURA O'BRIEN, NICOLE JELONEK, RACHEL BOWEN, GRACE RIVERA

Our study examined attachment, self-efficacy, sexual motives, and attitudes as predictors of sexual compliance (consenting to sexual activity or intercourse without desire) during hook-ups (a sexual encounter usually lasting only one night, between people who are strangers or brief acquaintances, that may or may not involve sexual intercourse). Although attachment has been linked to various sexual behaviors and attitudes, researchers have not examined internal working models as linked to sexual compliance. Past research has linked sexual self-efficacy to risky sexual behavior and reduced risk of sexual assault for women, but has not examined sexual self-efficacy in relation to sexual compliance. Participants were male and female students, who were not in a committed relationship. Participants completed questionnaires assessing their demographic information, attachment issues, attitudes about sex, types of sexual self-efficacy, sexual motives, and the frequency of various compliant sexual behaviors, ranging from kissing/sexual touching to penetration (vaginal, anal). Results indicated that different factors predicted compliant sexual behavior during hook-ups, depending on gender, sexual orientation, and the type of sexual behavior. We will discuss findings and implications, focusing on how results may be



used to develop programs designed to educate and reduce risk for students regarding unwanted, yet compliant, sexual behavior.

*Selected for presentation at 26th Annual American Psychological Science Convention, San Francisco, CA.*

## **CONCURRENT PRESENTATIONS 4 • 3:50 - 5:05PM**

### **4A • ANTHROPOLOGY I WELLES 133**

SESSION CHAIR: JAMES AIMERS, ANTHROPOLOGY

#### **A Growing Population: Issues Surrounding LGBTQ Senior Citizens**

ALYSSA PENN

FACULTY SPONSOR: JAMES AIMERS, ANTHROPOLOGY

The elderly population is growing exponentially. With the aging of the baby boomer generation, more senior citizens will need care than ever before. Unfortunately many facilities, primarily Senior Citizen Assisted Living Centers and Medical Care Practitioners will be unprepared to care for a growing sector of this population: Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) senior citizens. After taking part in a program presented by the Gay Alliance of Rochester on establishing Safe Zones for the LGBTQ population, I integrated past knowledge, current research and work done with a Geriatrician and an anthropologist to modify the program to specifically address issues surrounding the aging sector of the LGBTQ population. These include medical needs specific to these various populations, practitioner education, and institutional support. The adapted program works to address these issues, particularly on educating practitioners and workers in ways of increasing LGBTQ senior citizen comfort. This is done in hopes that when professionals explicitly work to increase their comfort, senior citizens will feel more comfortable sharing their sexuality; allowing professionals to address any issues related to this population in a safe and comfortable way for everyone. *Selected for presentation at Northeastern Anthropological Association, SUNY Potsdam, NY.*

#### **University Rites of Passage in Japan and the United States**

MASANARI YOSHIDA

FACULTY SPONSOR: JAMES AIMERS, ANTHROPOLOGY

This paper will examine two major practices in universities: hazing in the US and the senpai-kohai system in Japan. The senpai-kohai is an unofficial system in Japan between one that is designated the "kohai" and one that is the "senpai". The kohai is inferior to the "senpai", and in most cases is younger. The relationship usually involves tasks being performed by the kohai for the senpai, but the relationship is actually mutually beneficial. The senpai will often be expected to provide advice, protection, and other mentor-like services for the kohai. So what do hazing and senpai-kohai have in common, and how are they different? What are their functions in the two societies? How are these practices perceived in Japan and the US? Do these practices have any redeeming qualities? And as a conclusion, how might a comparison of these

practices inform our management of hazing in the US?

#### **Cross-Cultural Examination of the Menstruation Experience**

LAURA VICTOR

FACULTY SPONSOR: KRISTI KRUMRINE, ANTHROPOLOGY

Biology dictates that menstruation is a natural process experienced by women. Due to cultural influences, women across the globe have varying reactions and practices regarding their menstrual cycle experience. These cultural influences include associated taboos, social restrictions, religious beliefs and societal notions of menstruation as a sickness experience. In this presentation I will report on my findings regarding the menstruation experience of American undergraduate students which will serve as a case study for American culture. This will be compared with existing literature on the menstrual practices of women from other cultures. Ultimately, this study will expose the inner-workings of the privatized impressions of menstruation experienced by postmenarchal women on a global scale.

### **4B • HISTORY WELLES 131**

#### **New Perspectives on New York History**

FACULTY SPONSOR AND SESSION CHAIR: MICHAEL OBERG, HISTORY

#### **A Civilized Education: Revisiting the Thomas Indian School**

ROBERT RUBSAM

Opening in 1855, the Thomas Indian School provided education, housing, and a program of assimilation for members of the Six Iroquois Nations in New York for just over a hundred years, leaving a mixed and poorly-understood reputation. This paper, the first academic look at the school in over fifty years, looks at a mixture of government documents, rosters, letters and other sources to determine the school's purpose and legacy, and places it within the context of larger struggles over sovereignty in the state and the nation in regard to Indians, their rights, and their education.

#### **The Butcher, The Baker, The Lawmaker: Authority in Revolutionary New York**

PATRICK STEGEMOELLER

Following the Intolerable Acts of 1774, British authority in the North American colonies began to crumble. In the colony of New York, local committees and councils sprang into existence as colonists sought to create their own systems of governance from the vacuum created by the collapsing British authority on the continent. Initially

formed to facilitate the boycotts and orders of the Continental Congress, local councils throughout the colony soon began to take on larger roles in their own governance. As war broke out across North America, these committees became the centers of authority for the rebelling colonies, and eventually the governing bodies that regulated day to day life in the colonies during the war. Those who made up the committees were a new breed of politicians and leaders, distinct from both the former British government and the aristocratic land owners that controlled New York before the war. They encompassed a varied socio-economic background that represented a new source of authority and political power in America. Focusing especially on the governance of Albany County and New York City, this paper assesses how de-facto authority changed hands in the years before and during the American Revolution.

#### **Usurpers of the Eastern Door: War Chiefs in the Mohawk Valley, 1701-1776**

PETER OLSEN-HARBICH

The eighteenth century was a time of immense conflict and transition for the Mohawk Nation of the Iroquois Confederacy. Regular contact with Europeans, be it the French to the north, the English to the east, or the Germans living among them as neighbors, introduced new challenges that threatened to overturn the traditional political and economic structures of Mohawk society. The principal of these challenges was a dramatic opening of the Mohawk political system, as newly ascendant war chiefs began to encroach on the authority of traditional leaders in Iroquois communities. Mohawk warriors, with their highly valuable martial skills and knowledge of New York's complex geopolitics, were able to construct reciprocal, and essentially economical, relationships with colonial elites. Through the distribution of material goods acquired from these European contacts, warriors contested not only the authority of hereditary "Peace Chiefs" in Mohawk villages, but also that of the female clan matrons who appointed them. This research attempts to enter the narrative space of eighteenth century Mohawk factionalism by placing a new emphasis on the economic importance of information, which is understood here as the most valuable resource available to Mohawk warriors in their efforts to acquire power using trade with Europeans.

### **4C • BIOLOGY & MATHEMATICS III**

NEWTON 201

FACULTY SPONSOR AND SESSION CHAIR:

CHRISTOPHER LEARY, MATHEMATICS

FACULTY SPONSOR: GREGG HARTVIGSEN, BIOLOGY

## Modeling Pneumonia: Implementation of Preventative Vaccination

CARSEN SULZER

I developed a network model to test the spread of bacterial pneumonia, which is the leading cause of death in children worldwide (WHO) as well as one of the five most frequent causes of death for young adults (Jacobsen, 110). I created a small-world network that models the actual contact between neighbors by which the pneumonia bacterium can be transmitted directly. This model takes into account individual characteristics (e.g., whether they are susceptible, exposed, temporarily immune, vaccinated or infectious with pneumonia versus walking pneumonia). The network model was analyzed to suggest ways to specifically target individuals in order to minimize the number of people infected. I implemented vaccination strategies, based on degree, betweenness, and closeness centrality with random vaccination as a control over varying levels of vaccination effort. Effectiveness of vaccination strategies varied as a function of network and network structure.

## Epidemiology of the Airways: Using World Airplane Flight Paths to Simulate the Spread of Disease

NICHOLAS YAGER, MATTHEW TAYLOR

Airplanes serve as vital transportation in a highly globalized and interconnected economy. Unfortunately, airplanes make it extremely easy for specific pathogens to propagate quickly and effectively to distant parts of the world. To model the spread of a pathogen through air routes, a directed network was generated using existing airports as vertices and their associated routes as edges. Airports were infected for a certain amount of time before they recover. Multiple strategies to decrease the number of infected airports were studied at a variety of efforts, or the percentage of total flights to be canceled, to determine the most appropriate flights to cancel. We found that by canceling routes based on "edge betweenness" there was a significant reduction in the number of airports, that were affected. Based on these results we would suggest that the FAA develop an adequate response plan to close flights based on "edge betweenness" in the event of a serious epidemic.

## Factors Influencing the Spread of Beech Bark Disease

JANELLE GOEKE, SIOBHAN PFAFF

Beech bark disease is a devastating affliction that affects many different North American forests. The disease spreads in two waves, first insects come and destroy the bark of the beech allowing it to be infected by the fungus that comes through in the second wave. Currently, one of the main strategies used to combat this disease is decreasing the density of beech trees with a forest, in order to prevent the disease from permeating the entire forest if the forest does become infected. The spread of the disease was simulated with a lattice model. The model shows how the disease would spread in waves and the effect the density of beech

trees has on the rate of spread. This has allowed us to find both the density of trees required for the disease to spread throughout the entire forest, and the critical point at which the density of beech trees prevents the disease from lingering in the forest for a long period of time. This data allows us to predict the density of beech trees that would be most efficient in minimizing the spread of the disease through a forest and from one forest to another.

## 4D • BUSINESS II

SOUTH 328

FACULTY SPONSOR AND SESSION CHAIR:

AVAN JASSAWALLA, BUSINESS

## The Positive and Negative Effects of Office Politics on Job Satisfaction

RAWEL BAUTISTA, AKSHARA NARSIPUR

**Executive Summary** Introduction The recent increase in job competition, high unemployment rates and a weak economy has resulted in employee efforts to increase their perceived value to an organization. As a result, many employees participate in political behaviors with hopes to advance their reputation and worth. Studies suggested that the existence of office politics have a significant impact on employee job satisfaction. Organizations where office politics are negatively perceived are more likely to have lower rates of job satisfaction. On the other hand, organizations where office politics are positively perceived are more likely to have higher rates of job satisfaction. We were able to collect information identifying several different factors influencing the perception of office politics as either positive or negative. We were able to classify these factors as either external and internal factors. **Key Findings** We developed three key findings influencing this relationship between office politics and job satisfaction. These key findings consist of execution of power, organization structure and personality. The style of power that is executed within an organization and the structure of an organization serve as two external factors to perceived office politics. Our third finding reveals how personality, an internal factor, impacts the perception of office politics. Whether or

## The Impact of Telecommuting on Employee Job Satisfaction

RAWEL BAUTISTA, EDWARD ZEBROWSKI

During this presentation we will be discussing the impact of telecommuting on employee job satisfaction. We believe that this topic is important in today's ever-changing world, with more and more employees seeking flexible work arrangements. Therefore, HR (Human resources) managers would benefit from understanding the outcomes of telework. Four of the most valuable key findings will be discussed in details. In addition, recommendations flowing from these findings will be provided. **Summary of Key Findings Based on Our Research** 1. Telecommuting leads to higher levels of productivity and job satisfaction. 2. Employees have more control over their work-life balance, leading to increased job satisfaction. **Summary of Recommendations Based on Our Research** 1. In order to achieve increased productivity and employee job satisfaction, jobs must be analyzed to

determine technology, IT support & training needed. There must also be clear guidelines in place, regular assessments and accurate performance appraisals, and appropriate incentive plans to motivate employees. 2. In order to improve work-life balance and job satisfaction, a needs assessment should be done to determine if there is a need for telecommuting and the type of program that would be most valued. Also, employees should take a test to see if they would be compatible with teleworking.

## Managing Conflict in Virtual Teams

JEFFREY KAY, SONIA TAL, BRYAN FISHMAN

The influence of globalization on modern business cannot be overstated. Increased access to distant, more cost effective labor, and a more diverse workforce has provided many companies with the competitive advantage needed to succeed in the 21st century. One way in which businesses have tried to capitalize on this is through the use of virtual teams. While virtual team use has the potential to propel a business above the competition, it also unsurprisingly presents a new set of challenges-- especially as they relate to conflict among virtual team members. We explored scholarly opinions of these challenges and will present what we view as effective methods of managing conflict within virtual teams. Our research showed three main issues that managers of virtual teams will face: communication effectiveness, negativity resulting from cultural diversity, and difficulty with trust building among team members that lack face to face interaction. Our research thoroughly addresses each of these issues and presents a series of solutions that have been tested. We examine the methodologies of each of these tests as well, and go on to elaborate on the successes of the tested teams that used each of the recommended managerial techniques.

## 4E • CHEMISTRY

NEWTON 203

## Chemistry Honors Research Presentations III

FACULTY SPONSOR: DAVID GEIGER, CHEMISTRY

SESSION CHAIR: JAMES MCGARRAH, CHEMISTRY

## Using Computational Methods to Explore the Electronic Spectra and Geometry of Transition Metal Complexes

JUSTIN JOYCE

At the undergraduate level, the physical properties and bonding characteristics of transition metal complexes are usually rationalized in terms of an electrostatic model (crystal field theory), which is often modified to take into account covalent interactions between the metal and its ligands (ligand field theory). The later method relies on a "simple" fragment molecular orbital analysis involving ligand group orbitals and (primarily) metal orbitals. We have initiated an exploration of the electronic structures of a series of organometallic complexes using density function theory (DFT) calculations. The research was designed with an undergraduate course in mind with the intent of both reinforcing the inorganic

chemistry's core curriculum and fostering familiarity with computational techniques. The models focused on the electronic and geometric properties that result from the loss of d-electron degeneracy as ligands are coordinated to metal ions. The identity of the ligand and symmetry of the complex was varied throughout, calculating the change in the splitting parameter that results. The computations provide information concerning the complexes energy, bond length, and vibrational frequency. The results display characteristics of the spectro chemical series and spin transition complexes, which are compared and contrasted with results, obtained using crystal field theory and ligand field theory.

### Synthesis of 9-Hydroxyphenalenone and Luminescent Platinum (II) Derivative

RITA WHEELER

We are investigating the synthesis of new luminescent square planar platinum(II) compounds. 9-hydroxyphenalenone(Hpal) was synthesized from 2-methoxynaphthalene and cinnamoyl chloride with a 43% percent yield. Hpal was reacted with a cyclometalated platinum(II)chloro-bridged dimer, [Pt(thpy)Cl]<sub>2</sub> (where thpy = 2-thienylpyridine), to yield Pt(thpy)(pal). Pt(thpy)(pal) was crystallized to form dark red crystals. The characterization of these compounds by 1D and 2D-nuclear magnetic resonance spectroscopy, matrix-assisted laser desorption/ionization and mass spectroscopy is reported. X-ray crystallography was performed on the Pt(thpy)(pal) crystals and a crystal structure was obtained. Preliminary investigations of their luminescent properties will also be reported.

### 4F • EDUCATION MILNE 208

#### Geneseo Storytelling Institute

FACULTY SPONSORS: SHARON PECK, EDUCATION, AND MARK SULLIVAN, MILNE LIBRARY  
SESSION CHAIR: MICHELLE COSTELLO, MILNE LIBRARY

### Have to put a hand on it

AMY CHAN

Amy will share an original story based on a small favor that her mother asked her do.

### A Fisherman's Tale

JUSTIN IAQUINTA

Justin will share an original tale based on his uncle who may or may not be a fisherman.

### How Raven Stole Back the Sun

MICHELLE MOSHON

Michelle will share a porquoi tale which explains why we have light in the sky today.

### Twisted Fairy Tales

HANNAH TIETJE, HILLARY BIALECKI

Hillary and Hannah will ~~create~~ <sup>WITHDRAWN</sup> a storybook of fairytales that can be enjoyed by all ages.

### 4G • EDUCATION WELLES 123

### This is Ghana-be Fun: Reflections on the Ghana Student Teaching Experience

FACULTY SPONSOR: CHERYL KREUTTER, EDUCATION  
SESSION CHAIR: CHRISTIE FREYER

CHRISTIE FREYER, SHERRY LEUNG, MICHAEL AUGELLO, ERICA GEORGE, EMILY JACKOWICZ

This presentation will offer an analysis of the Fall 2013 Geneseo student teaching program in Ghana, West Africa and the effects that the experience had on our view of the world, our view of ourselves, and our view of education. Traveling to a developing country took much pre-trip preparation, constant collaboration and open-mindedness during our stay and post trip reflections. Through several perspectives and stories from various student teaching candidates, the presentation will offer the framework for an evaluation of the current state of education in America and abroad as a means of drawing the audience into a collaborative discussion on teaching practices and the way that they both influence and are influenced by culture.

### 4H • ENGLISH WELLES 111

#### What We've Been Up To: The Thoreau-Harding Project

FACULTY SPONSOR AND SESSION CHAIR: EDWARD GILLIN, ENGLISH

STEPHANIE DAVIS, THOMAS MCCARTHY, ERIC WEGMAN, KIRSTEN FREIMAN, KYLE MINERLEY

The students on this panel will discuss their work on a project to build a replica of Henry David Thoreau's Walden Pond cabin on the Geneseo campus. *Selected for presentation at Thoreau Society Annual Gathering, Concord, MA.*

### 4I • ENGLISH WELLES 121

#### Three Perspectives in Anglo-Irish

##### Drama

FACULTY SPONSOR AND SESSION CHAIR: THOMAS GREENFIELD, ENGLISH

### What Defines Gender?: Examining Masculinity versus Femininity in Oscar Wilde's Plays

KATIE BAUM

Through the analysis of Oscar Wilde's plays *The Importance of Being Earnest* (1895), *A Woman of No Importance* (1893), and *An Ideal Husband* (1895), I aim to examine notions of gender in England during the late 1800's and the societal norms that were often difficult to penetrate. Oscar Wilde's subversive sexual identity has been said to have led to his radical plays and their bold claims about gender relations and the manipulation of gendered relationships. While the Victorian era upheld seemingly unbreakable standards of domineering masculinity and submissive femininity, Wilde dared to challenge these stereotypes and create characters and relationships in his plays that did not match the societally-accepted norm.

### Societal Revolution: Female Supremacy in the Dramatic Works of George Bernard Shaw

SARAH RUSNAK

Three of George Bernard Shaw's best known plays- *Arms and the Man* (1894), *Major Barbara* (1905), and *Pygmalion* (1912) -illuminate the author's radical vision for gender equality in England during the late 19th and early 20<sup>th</sup> century. Shaw's strong female characters tend to rise above older powerful men to achieve their own goals, often through stunningly direct confrontations. To abet these confrontations, Shaw depicts women ascending to power through verbal and intellectual assertiveness that his London society audience would have associated with masculine behavior and character. Instrumental in the founding England's Fabian Society, the unapologetically didactic Shaw utilized his plays as public platforms to advocate socialist positions, the social and political emancipation of women being prominent among them. In *Arms and the Man*, both the aristocratic Raina and her servant Louka transcend social roles for women. The matriarchies created by the mother and daughter pair in *Major Barbara* similarly result in the inversion of the traditional hierarchy between men and women. The sub textual colonial narrative of *Pygmalion* allows Eliza to revolt against and ultimately dominate Higgins, her superior with respect to class, gender, education, and worldliness. Shaw's dominating women thus reveal his revolutionary goal of restructuring society.

### FECK: The Evocation of a False Ireland in the Works of McDonagh

MEAGHAN STEIGER

The classification of Martin McDonagh's works as absurdist has been somewhat controversial. Despite their cartoonish portrayal of violence and their often over-the-top characters, McDonagh's works are uncharacteristic of the genre when compared to the works of absurdist giants Beckett or Pinter. When McDonagh's works take on characteristics of absurd theater, they generally do so in service of the playwright's deconstruction of the myth of traditional Ireland and the concept of national identity as a whole. Here his use of violence becomes violence centered on the destruction of false notions of what it means to be "Irish," while his more extreme characters serve as caricatures of Irish tropes. McDonagh destroys and satirizes these images of traditional Ireland, but also makes it a point to express the inability to establish any sort of national identity. By suggesting the impossibility of national identity and the fault in attempting to construct meaning where there is none, McDonagh, like Beckett or Pinter, can be "outed" as an absurdist.

### 4J • GOLD II CU 319

FACULTY SPONSOR AND SESSION CHAIR: THOMAS MATTHEWS, GOLD

### Environmental Degradation As a Cause and Effect of Social Injustice:

## The Global Student Embassy's Unforeseen Impact in Ecuador

ABIGAIL KLUTTS

Social justice is the goal that all members of a community, whatever that community may be, have equal access to the same advantages and burdens. This is a very simplistic definition of what often becomes a tangled, interconnected web of cause and effect. Some obvious social justice issues, such as equal human rights and access to healthcare and education, are addressed head on and one piece at a time. Sometimes equally problematic issues such as environmental degradation become addressed and minimized through work initially intended for different purposes. This shows that it is not always direct action that is required to achieve social justice. Global Student Embassy's reforestation efforts in Ecuador have become a cause for social change for an ever growing community. Through proper planning and the right amount of direction, a person and/or organization can help lay the groundwork for solving problems that they may not have been aware of initially.

## A Rochester Weekend of Service

LYNN HOROWITZ, CAITLYN EDWARDS

The GOLD Diamond Certificate emphasizes engagement and involvement in the community and students wishing to earn this certificate must organize a project promoting community engagement and addressing an issue of public concern. The Rochester Weekend of Service project, sponsored by Livingston CARES, is a service trip designed to become a recurring trip for Livingston CARES in addition to their Biloxi, Mississippi and Long Island trips. Unlike the other Livingston CARES trips, the Rochester trip focused on participating in community service in the city in our own backyard. On this trip, students also participated in teambuilding and leadership activities to develop leadership and unite students interested in community service. In addition, the intention of this trip was to encourage students to become more involved in the community and ease students into being involved in the larger scale Livingston CARES trips. This presentation will discuss the joys as well as the difficulties of the many months of planning involved in creating this service trip. It will also discuss the activities and service events that were done on the trip.

## Leadership Lessons from the Gay, Lesbian Straight Education Network

SAMANTHA CRAMER

"The Gay, Lesbian & Straight Education Network (GLSEN) strives to assure that each member of every school community is valued and respected regardless of sexual orientation or gender identity/expression. We believe that such an atmosphere engenders a positive sense of self, which is the basis of educational achievement and personal growth. Since homophobia and heterosexism undermine a healthy school climate, we work to educate teachers, students and the public at large about the damaging effects these forces have on youth and adults alike." This presentation will examine how working towards GLSEN's mission has affected my growth as a leader.

## 4K • HISTORY

WELLES 140

### Encountering the Nazis

FACULTY SPONSOR AND SESSION CHAIR: HELENA WADDY, HISTORY

### A Plot of Desperation: Assassinating the "Butcher of Prague"

REBECCA KOHLMAN

Reinhard Heydrich began his Nazi career in the Schutzstaffel, or SS, under the guidance of Heinrich Himmler. As Himmler and the SS grew to prominence, Heydrich rose with it. After the outbreak of World War II, he saw a chance to break free from his long-term mentor's authority. He went to Prague with the hopes of gaining more prestige within the Nazi party. Leading Nazis, such as Josef Goebbels, recognized Heydrich's success in the Protectorate. As he was about to be promoted to a position in France, his ambitions were cut short. Heydrich was assassinated on the very day when he was meant to depart for France. Although the assassins were Czech in origin, early Nazi investigations hinted at British involvement. What motivated this great power to participate in an assassination? Given that the planning of the assassination was conducted in secrecy, this presents a number of difficulties in finding an answer to this historical question. Through a thorough examination of numerous sources, I concluded that the desperation of both the Czech government-in-exile stationed in Britain and the British Special Operations Executive united these two unlikely parties into planning the assassination of a leading Nazi.

### Survivorship in Auschwitz: Work Details and the Process of "Organizing"

KYLE HOYNG

Between the years of 1940 and 1945, the Auschwitz extermination camp, manifesting itself as the centerpiece of Hitler's Final Solution, took the lives of nearly 200,000 registered prisoners and over one million unregistered Jews. However, in this world of heinous crimes and constant death, voices endured and remained. A major component that aided survival in Auschwitz was the work detail you were enlisted into. Although Auschwitz was originally constructed as a detention camp, with later additions serving to increase the camp's role as an extermination facility, the manpower provided by the prisoners proved to be a valuable resource to the German Reich as a source of labor. As a result, work details, or Kommandos, developed, and placement often resulted from an accumulation of a variety of factors, namely luck of timing, connections within the camp, and prominent skills. While numerous work details increased the likelihood of survival through the advantages they provided, others, such as the infamous Sonderkommando, a detail of prisoners charged with work in the gas chambers, proved to be less opportune.

### Generations in Conflict: World War I, World War II, and the German Youth

SARAH AHEARN

Few Nazi programs are more telling of Hitler's long-term objectives than that of the Hitler Jugend—the Hitler Youth, which aimed to co-opt the entire population of school-aged Germans, raise them within the intellectual, social, and physical principles of National Socialism, and create a generation of fascists who were trained to defend the *tausendjähriges Reich*. The children of the Third Reich were taught at schools, in the Hitler Youth, and at war that they were a part of a large, united movement with its roots in an era that came before them, joined in a struggle for a nation they had been taught to love above all else. This philosophy that guided the Hitler Youth originated in the experiences and emotions of the generation that was socialized in the late Imperial era, and most significantly, during the First World War. The Hitler Youth generation, at the hands of their elders, learned how to hate and how to destroy in defense of one of history's most devastating regimes—they studied eugenics, marched information, and battled against soldiers many times their own age, and "learned how to die before they had learned how to live."

## 4L • INTERDISCIPLINARY: ENGLISH & LANGUAGE AND LITERATURES

WELLES 119

SESSION CHAIR: BETSY COLON, GRANTS MANAGEMENT

### Reenactment, Resurrection, and the Politics of Temporality in Edwidge Danticat's *The Farming of Bones*

SEAN NEILL

FACULTY SPONSOR: MARIA LIMA, ENGLISH

Memory and trauma are well-rehearsed topics in the literature (both scholarly and non-scholarly) on Edwidge Danticat. It is almost impossible to enter into critical discourse on the Haitian-American author without in some way engaging with these themes. My goal in this essay, then, is, with the help of recent postcolonial theories of temporality, both to contribute to and complicate these discussions of memory, to show the ways in which Danticat's meditations on public and private memories are in many ways engagements with the politics and poetics of time, or, perhaps more accurately, times, the ways, moreover, in which much of Danticat's work is characterized by a lateness, a belatedness with respect to an always already absent trauma. Reading *The Farming of Bones* as a sort of reenactment of the 1937 Parsley Massacre, a dramatization of historical trauma, a resurrection of the dead by and for the living, of the past by and for the present, I aim to show the ways in which Danticat resists the linear, catastrophic time of modernity.

### "A Pen and a Stethoscope": The Healthcare Situation in Senegal as Seen Through Firsthand Experience

MARIANNE MACALUSO

FACULTY SPONSOR: KODJO ADABRA, LANGUAGE AND LITERATURES

Several organizations have investigated the healthcare situation in Senegal and ways to improve such problems as lack of transportation to healthcare facilities, malnutrition, and death by preventable diseases. However, this country on the Western coast of Africa is still underrepresented in the world of healthcare and deserves more attention. My study attempts not only to summarize the shortcomings of Senegalese healthcare, but to examine their underlying causes and potential solutions. I have gathered information both from previous studies and from my own interviews and observations conducted while in the country during the summer of 2013. This study examines the country as a population of individuals with a specific and significant culture and history which affect healthcare in positive and negative ways. While the facts and statistics concerning life span, causes of death, and common illnesses are important to discuss, it is also vital that we address the underlying issues of trust for medical personnel, means of care, and health education of the general population. My hope is that my presentation will encourage organizations and individuals to embrace the cultures of the regions they hope to serve, in order to provide the best and most culturally responsive aid possible. *Selected for presentation at National Conference on Undergraduate Research, Lexington, KY.*

**4M • MATHEMATICS III** ISC 131  
SESSION CHAIR: LISA SMITH, MATHEMATICS

### Converging Chaos: The Collatz Conjecture

MARCUS ELIA

FACULTY SPONSOR: AMANDA BEESON, MATHEMATICS

ose any positive integer. If it is even, divide by two. If it is odd, multiply by three and add one. Repeat this with the new number, and so on. Most numbers eventually reach one. Can you find a number that does not? This tantalizing question, although simple to state, has stumped thousands of mathematicians over the years. We will talk about patterns we have found in how long it takes numbers to reach one. This talk will be accessible to anyone who has taken high school mathematics. *Selected for presentation at Mathematical Association of America Seaway Section Conference 2014, Buffalo, NY.*

### Data Mining Test Scores and Psychometric Analysis

JEFFREY BIRD, ANDREW HESSLER, JAMES HILTUNEN, MARINA MASSARO

FACULTY SPONSOR: CHI-MING TANG, MATHEMATICS

Standardized testing has become increasingly important in the assessment of students' and teachers' progress. However, the accuracy with which these exams evaluate students is heavily debated; psychometric analysis maintains an especially fundamental role in the structure and design of these tests. We study a data set comprised of results from an assessment of 10th grade students in Massachusetts. The data are retrospective, observational, and collected without

a statistical hypotheses in mind. We examine significant structures in student test scores and use qualitative responses from a questionnaire to seek relationships between students' self-reported activities and test scores.

### Measuring Influence Over Social Media and Reverse Engineering Klout Score

SEAN COOKE

FACULTY SPONSOR: LISA SMITH, MATHEMATICS

How do we measure influence? This talk attempts to answer the question "How can we estimate an individual's influence over social media?" through a study of the Klout Score. Klout is a website and mobile app where users link their social media accounts which generates a "Klout Score" from 1-100 representing how influential that user is across all of social media. Klout reportedly uses over 400 variables to generate its numeric score, but can we get a good estimate using far fewer variables? We will explore this question using research results, data collection, statistical analysis and multiple regression models and discuss the characteristics of social media users with high Klout Scores.

### 4N • LOGIC, PHILOSOPHY, AND AESTHETICS IN AN ARTIFICIAL

LANGUAGE SOUTH 336  
SESSION CHAIR: PAUL PEDZIWIATR

PAUL PEDZIWIATR

FACULTY SPONSOR: JEFF JOHANNES, MATHEMATICS

Artificial language creation has many uses, ranging from computer science to fictional books and television. The processes through which these languages are formed vary according to the medium for which they are created. Some are "engineered languages," (engilangs) created to serve a function or investigate some theoretic linguistic trait, and others are "artistic languages," (artlangs) designed simply to be aesthetic in some way. The new language and grammar being presented here combines aspects of both, as well as generative grammar, propositional and modal logic, and philosophy to create a speakable language that can also be used to formulate logical sentences. This language incorporates a minimalist design philosophy in orthography, phonology, and lexical class to make it aesthetically pleasing to hear and view. While the reason behind the creation of such a language was largely just personal interest, it may have more practical implications in testing the Sapir-Whorf hypothesis in regard to a logical language, or it may simply find its home in fiction.

**4O • MUSIC** WELLES 26

### Writing About Music

FACULTY SPONSOR AND SESSION CHAIR: ANNE-MARIE REYNOLDS, MUSIC

### Putting the Math in Music

JANE COONS

Abstract algebra is concerned with the mathematical construct called a group, which is a set in combination with a binary operation that has

certain special properties that dictate the group's structure. The theory of groups can explain certain musical concepts, such as the circle of fifths. Along with these more basic applications, composers and theorists have utilized abstract algebra in their work. For instance, Greek composer Iannis Xenakis wrote his piece, *Nomos Alpha*, in twenty-four sections, each section based on one of the elements of the octahedral group. The renowned American music theorist David Lewin has written extensively on the applications of abstract algebra to music, both tonal and atonal. Though the mathematical concepts may seem extremely complex to musicians, they can be explained simply and should be comprehensible even to those with no background in abstract algebra.

### Beyond Lyricism: A Study of Form in Samuel Barber's Early Compositions

MICHAEL O'BOYLE

The orchestral works of the composer Samuel Barber have attained something of an iconic status in the American concert hall. His early works, especially, have earned admiration for their lyrical, haunting melodic qualities. Less obvious is his experimentation with form in these works, which has largely been overlooked in criticism and scholarship, and yet it's entirely likely that his lyricism is influenced and underscored by his novel formal structures. Indeed, in this paper I will show that the unusual forms of *Adagio for Strings* (1938) and the *Concerto for Violin and Orchestra* (1939) support the familiar melodic material. *The Essay for Orchestra* (1938), in particular, represents one of Barber's most novel formal structures, and my analysis will demonstrate that it served as a model for subsequent compositions.

### The 'Feminine' in Francis Poulenc's Fiançailles pour rire

ALLISON ABBOTT

Much of Francis Poulenc's oeuvre has received surprisingly little scholarly attention to date. This is especially true of the songs that feature the writing of Louise de Vilmorin, and yet the composer made this intriguing statement about them: "The poems of Louise de Vilmorin provide material for truly feminine songs. That is what delights me." While several scholars have recently discovered linkages between Poulenc's ballets and his closeted homosexuality, no one has determined precisely what Poulenc meant by the "feminine" in this context. Through research and musico-poetic analysis of the song cycle *Fiançailles pour rire*, I will consider why Poulenc hailed Louise de Vilmorin's prose as the embodiment of the feminine, and how this characteristic is embodied musically.

### Time, Rhythm and Process: Techniques for Analyzing and Writing Dynamic Music

RUSSEL ANTHONY

Video games have created a new genre of music. This genre, called dynamic music, is characterized by its ability to interact as a direct response to player actions and adapt to the game environment. As music theorists and composers, we need a new model to analyze these pieces of music and

abstractions from those theories for new compositional techniques. I will review theories of time and process described by Jonathan Kramer, Christopher Hasty and Gretchen Horlacher to discern new theories on dynamic music. By focusing on how a listener perceives music (especially how the listener's expectations are thwarted), we can gain insight into how a composer might write music without necessarily knowing the order or time at which musical events will occur. For the composer, I will make recommendations on techniques for creating dynamic music that can quickly adapt and interact, while retaining the aesthetics characteristic of Western music.

**4P • PHILOSOPHY** WELLES 138  
SESSION CHAIR: HEIDI SAVAGE, PHILOSOPHY

### The Realities and Unrealities of Borderline Personality Disorder

JESSICA HEPPLER

FACULTY SPONSOR: HEIDI SAVAGE, PHILOSOPHY

It is my contention that Borderline Personality Disorder is defined largely in terms of feminine stereotypes, as if there is something deviant about being feminine. First, a diagnosis of BPD does not allow women to understand the socialized nature of these traits, thereby silencing political action. Second, women are disproportionately diagnosed with BPD and a majority of them have experienced sexual abuse. Illness implies that something is wrong with the victim; however, when abuse results in BPD, something is wrong with the perpetrator, or the culture that permits this. BPD pathologizes the response to an issue that is social and political, making it the victim's problem to deal with in the private sphere of psychiatry rather than through political action. In sum, there are two distinct ways in which psychiatry silences women, both of which need to be addressed before women can be completely empowered to deal with mental illness. *Selected for presentation at Exploring Gender, Mental Health, and Wellness, San Marcos, TX.*

### Physician Assisted Suicide and Depression: Rethinking Our Standards

BEN LIEBERMAN

FACULTY SPONSOR: THEODORE EVERETT, PHILOSOPHY

In this presentation I wish to make a case for certain patients who have severe clinical depression, whose illnesses are long lasting and cannot be remedied by current therapies and medications, to have access to physician assisted suicide. I aim to do this by reevaluating the ethical standards we hold for patients who currently have access to procedures that hasten death. Then I will show how certain severe cases of depression satisfy those new ethical standards.

### 4Q • POLITICAL SCIENCE & INTERNATIONAL RELATIONS WELLES 24

#### International Relations Honors Theses

FACULTY SPONSOR: ROBERT GOECKEL, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

SESSION CHAIR: JEREMY GRACE, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

### Analyzing Eight Western European Cabinets and Parliaments: A Comparative Case Study of Female Representation from 1999 to the Present

ALEXANDRA FASULO

This thesis will look at the percentage of female executive and legislative positions held in the United Kingdom, the Netherlands, Sweden, Ireland, Norway, Spain, France and Germany since 1999 up until the most recent elections in each of the respective countries. My hypotheses are that nations with strong ties to Catholicism, overwhelming patriarchal society, and a late establishment of universal suffrage will witness slower gender equality in politics than the secular nations. Additionally, the use of gender quotas is looked at, and contradictory to what I predicted, quotas do not always yield greater equality. Ultimately, the nations with the fastest inclusion of women in politics were not what one would expect. Factors such as electoral mechanisms, customs, and political parties play a much larger role in the process. For the purposes of this study, only the popularly elected house of each nation's parliament will be looked at, as well as the Cabinet selected by the executive.

### Global Energy Security and European Dependency on Russian Energy Sources

DAN MATTHEWS

This paper examines how the Russian Federation has used its vast energy sources to influence the domestic and foreign policy of neighboring states. As the world's leading producer of oil and natural gas, Russia has accumulated hundreds of billions of dollars in wealth through the sale of these energy sources to countries in Eastern Europe. Many countries throughout Eastern Europe have become increasingly dependent on Russia for their very survival, and Russia has taken advantage of this dependency in order to promote its own interests within the region. Countries are examined on an individual basis in order to determine what influence Russia may have over the policy making process within each state. Comparisons are drawn to OPEC and its ability to use cutoff and price as a weapon against consumer states. The Russian government is able to project its interests beyond Russian borders through partial state ownership of Russian energy giants Gazprom and Rosneft, so the role these two companies play in Russian foreign policy will also be addressed. Lastly, the paper will address Russia's status as the world's leading energy producer in the context of global energy security, particularly energy security for the European continent as a whole.

### United State's Drone Strike Policy: Analyzing the Role of Congress and Their Ability to Exercise Effective Oversight

SEAN HANSEN

The US policy of targeted killing by means of drones has engendered a contentious debate in the past decade. While this discourse is broad and calls into question the constitutionality, effectiveness, foreign policy implications, precision, and legality in international law of the drone program, the focus of this paper will be on the role of Congress. With the constitutionally enshrined power to declare war, what is the function of the Congressional branch of government in the U.S. policy of drone strikes? Has Congress effectively exerted oversight over this covert military program? These concerns, and many others, have produced a lively debate both nationally and internationally, and will be addressed. The opaque, clandestine character of the drone program underlies many of the concerns surrounding it. What type of framework is in place for ordering and reviewing American-launched drone strikes? If America seeks to continue its policy of drone strikes while simultaneously preserve its international hegemonic legitimacy, this framework must be made more transparent and credible.

### Constructivism and the Arab Spring: A Theoretical Approach to Understanding Revolution

JOE GALLO

The recent revolutionary movements in the Middle East and North Africa, often referred to as the "Arab Spring," seem to suggest a dramatic change in ideas at an international level. Meanwhile, the theory of Constructivism asserts that such changes can have a significant impact on the behaviors of societies and actors in the international system. It therefore appears likely that Constructivism may be able to provide some insight regarding the occurrence of this movement. The following questions will be discussed: To what extent is Constructivism useful for explaining the Arab revolutions, and is it able to explain why some revolutions have been more successful than others? A constructivist explanation would involve the spread of changing norms regarding democratization, political participation, and state sovereignty. The strengths and limitations of the theory will be examined, as will the relative usefulness of rationalist theories for explaining the revolutions.

### 4R • STORIES FROM SERVICE

ABROAD

MILNE 105

SESSION CHAIR: BETSY COLON, GRANTS MANAGEMENT

### Medical Service Learning in El Sauce, Nicaragua

NICOLETET KANE, MARGARET ARLINGTON, SARAH VANEANAM, JAMIE FLOSS, RYAN MOYNIHAN

FACULTY SPONSOR: GLENN MCCLURE, ENGLISH

We are all students who participated in a service learning trip over winter intersession in El Sauce, Nicaragua. On this trip, we shadowed nurses and doctors at various rural health posts around El Sauce, and learned about how medicine was practiced in Nicaragua. We worked alongside a family health doctor and learned how to give pap smears, and sat in on client consultations. We are going to discuss the various medical situations that

we observed while working in El Sauce and how these experiences will benefit us as we look towards our future career choices. Furthermore, we are going to discuss the cultural impact that we experienced from living with host families in El Sauce, and the impact that we experienced living fully immersed in a different culture. It is a wonderful opportunity that many people do not know exist and we would love to be able to share our experiences with people who are interested in signing up for the service learning trip in the future.

### **Haiti: The Real Story**

**PAIGE O'CONNOR, RACHEL BERRYMAN, RACHEL FISHBERG, CARA HALLAHAN, TAMARA KUREK, TUSHARA SURAPANENI, STEPHANIE WILCOXEN, AMY LIANG, ERIN O'BRIEN**

FACULTY SPONSOR: WES KENNISON, ENGLISH

This year, over the week of spring break, a group of us will be going to Haiti for a service learning trip. While on the trip, we plan on keeping journals and taking pictures, and, once we get back, we would like to share our journey with others at Geneseo's GREAT Day.

### **Enlace Project: Non-Profits in the Developing World**

**PATRICK MCCORMICK, CHRISTOPHER PIKE**  
FACULTY SPONSOR: WES KENNISON, STUDY ABROAD

An informative presentation aimed at highlighting the work, challenges, and opportunities done by Enlace Project in Geneseo and how they might be applied in other developing countries. First hand accounts by on the ground staff as well as community members in El Sauce will compromise much of the source of information.

### **4S • THEATRE/DANCE**

BRODIE DANCE STUDIO

### **Exploring the Choreographic Process Through Dance Composition and Performance**

FACULTY SPONSOR AND SESSION CHAIR: JONETTE LANCOS, THEATRE/DANCE

### **Exploring the Choreographic Process Through Dance Composition and Performance**

**JENNIFER LEVY, EMILY WAGNER, MICHELLE GRAHAM**

Students who successfully completed DANC 331 (Dance Composition 1) and subsequently chose to choreograph dance pieces for the Geneseo Dance Ensemble Fall 2013 concert will showcase their works. The all-student casts of the original dances will perform live with music. Choreographers will discuss the choreographic process, including rehearsals, creation of choreography, importance of intent, emotional investment, and performance quality. The session will be open for a question/answer period where choreographers and dancers will respond to questions generated by the audience.

### **4T • WOMEN'S STUDIES SOUTH 340 Senior Capstones in Women's Studies: Activist Projects**

FACULTY SPONSOR AND SESSION CHAIR: ALICE RUTKOWSKI, WOMEN'S STUDIES

### **An Intersectional Analysis of Disability Experience in Thailand**

**HANNAH HUNTER**

This project will explore what it means to experience a disability in Thailand where factors that include race, class, gender, religion and culture are considered. The significance of these influences on shifting beliefs about the rights of people with disabilities is at the heart of my research. This

presentation will outline 1) the importance of challenging status quo understandings of disability and 2) the ways that disability can challenge what we understand about human rights.

### **Leveraging the Power of College Activism: Creating a Campaign for Women's Equality**

**KAYLAN PORTER**

Spending her semester interning at the NYCLU, law school hopeful Kaylan Porter will speak on the internship itself, what she's gained in her experience, as well as detailing her work heading the organization of a college campaign to pass the Women's Equality Act.

### **Queer in the Classroom**

**GENTARO RAMADHAN**

This project explores feminist pedagogical theories and practices with the intention of articulating what may constitute a queer pedagogy that is effectively critical, useful, and relevant to students and educators today.

### **Internet Pornography: Appearance of Reality, Illusion of Consent, and Feminism**

**EMILY VANOCKER**

The topic of the presentation is the ways in which Internet pornography has changed the narrative for the way we view sex on camera. There has been a shift from desire for the "professional porn star" to the "amateur girl-next-door" as a result of the greater accessibility of low-budget porn. The [heterosexual male] interprets a woman's loss of control, as well as the appearance of revealing something forbidden, as true reality, rather than the porn star with complete control over her sexuality.



## **SPECIAL PRESENTATIONS**

### **Sláinte Irish Dance**

**12:40 PM College Union Ballroom Stage**

BETHANY MARTONE, SARA SHAW, MARIA BLATNER, KRISTIN REDMOND, KRISTI MELFI, MADI CARTER, BAILEY SAWYER, BROOKE JORDAN, CAITLIN ROCHEZ, EILEEN HAYES, JENNY BOODY, ERIN ROZEWICS, JOCELYN HYLAND, MEGHAN KANE

Founded in 2011, Sláinte (slahn-chə) Irish Dance has already grown tremendously on the SUNY Geneseo campus, as well as in the Geneseo Community. The dancers are varied in level, including several regional, national, and World Champion dancers. Unique choreography and dedication to dance enable us to provide entertainment for any event throughout the year.

### **Geneseo Winter Guard Presents: Hometown Glory**

**5:10 PM College Union Lobby**

ERICA SCHLOTT, MADISON WAYLAND, HEATHER BARCOMB, GRACE KENLEY, JASMINE BELOY

FACULTY SPONSOR: LISA SMITH, MATHEMATICS

Please join Geneseo Winter Guard as they perform their 2014 routine to Adele's Hometown Glory. GWG is a small guard team that tells an engaging story through the use of dance, six foot flags, and rifles. This performance is inspired by the feeling of going home after being away for a while. You suddenly notice the cracks in the sidewalk and the freshness of the air, when nostalgia sets in, and you can't help but want to be near the people you seemed to have lost contact with. Come watch as GWG takes you back to the place you call home.

### **Geneseo Bhangra**

**5:15 PM College Union Lobby**

ELIZABETH OHMAN, KAITLYN DIRESTA, SHELBY SCIBETTA AND SWETHA SATHASIVAM

Geneseo Bhangra is a competitive Indian dance team on campus. This genre of dance comes from the Punjabi culture from Pakistan and India. It is a high-energy dance that was originally a celebration of harvest and is now commonly performed at weddings and competitions.

### **Geneseo Insomnia Film Festival**

**6:30 PM Wadsworth Auditorium**



The third annual Geneseo Insomnia Film Festival took place on March 28th-29th. Participants had 24 hours to write, shoot, edit, and post a video no longer than 3-minutes in duration using a set of elements provided. Teams competed for prizes against other SUNY Geneseo students in an attempt to create the most witty, interesting, and creative video. This was a chance for students of all talents to flex their creative muscles and demonstrate their skills, whether they be writers, actors, videographers, or editors. Submissions were judged blindly by a panel of Geneseo faculty and staff. Now we're inviting you to come see the videos during this special GREAT Day screening in Wadsworth Auditorium at 6:30PM! The event is open to all Geneseo community members and we encourage you to bring family, colleagues, and friends as we recognize the excellence, achievements and talent of our 2014 Insomniacs."

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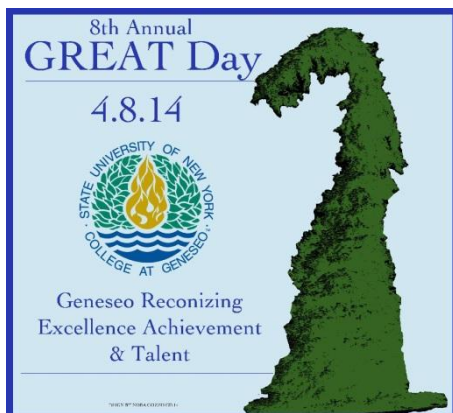
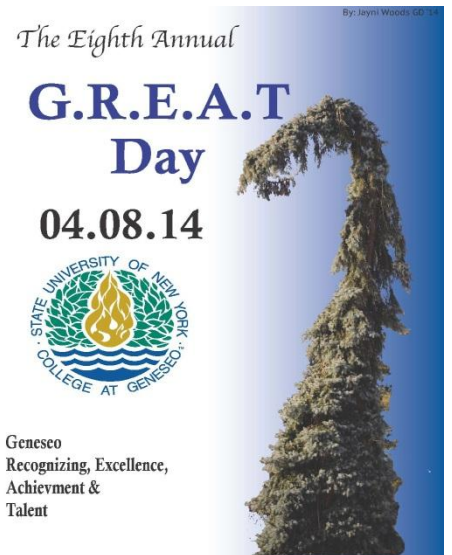
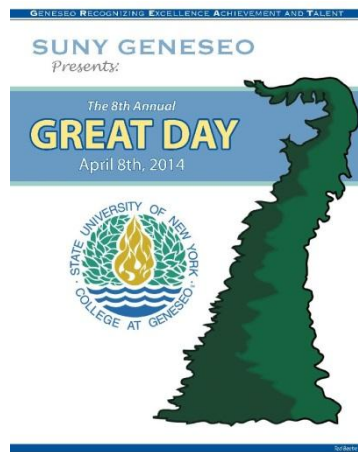
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## GREAT Day 2014

### Cover Design Project

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The ARTS 204 Graphic Design Class developed cover designs for the GREAT Day Program. The colver selected was created by Hannah Peterson. A selection of the work submitted by the remainder of the class is featured here.

