



**APRIL 13  
2018**



**EASTERN  
CONNECTICUT  
STATE UNIVERSITY**





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**APRIL 13, 2018**

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## **SCHEDULE OF EVENTS- OVERVIEW**

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<b>8:00 am – 9:00 am</b>	<b>Registration, Student Center Vendor Nook</b>
<b>8:30 am – 10:00 am</b>	<b>Oral Presentations, Session 1, Student Center Meeting Rooms</b> <b>New Media Studies Demonstrations, FAIC 243</b> <b>Documentary, Student Center Theater</b>
<b>10:00 am – 10:30 am</b>	<b>Coffee Break, Student Center Café</b>
<b>10:30 am – 11:45 am</b>	<b>Oral Presentations, Session 2, Student Center Meeting Rooms</b> <b>New Media Studies Performances, FAIC 219</b> <b>Dance Performance, Student Center Theater</b>
<b>11:45am – 12:30 pm</b>	<b>Lunch, Student Center Café</b> <b>Photography Exhibit, Student Center Theater</b>
<b>12:30pm – 1:00 pm</b>	<b>Awards and Recognition Ceremony, Betty Tipton Room</b>
<b>1:00 pm – 2:00 pm</b>	<b>Poster Session, Betty Tipton Room</b> <b>Photography Exhibit, Student Center Theater</b>
<b>2:00 pm – 3:00 pm</b>	<b>Panel Discussion, Student Center Meeting Rooms</b> <b>New Media Studies Demonstrations, FAIC 213</b> <b>Dance Performances, Student Center Theater</b>
<b>3:00 pm – 4:00 pm</b>	<b>Art Gallery Reception with Coffee and Dessert,</b> <b>Student Art Gallery, Wood Support Services Room 223</b>



*CREATE stands for Celebrating Research Excellence and Artistic Talent at Eastern, and it is the university's annual conference showcasing student research and creative activity. The one-day conference will include talks, professional posters, live music, dance performances, art and photography exhibits, documentary films, and panel discussions. CREATE displays the vitality of Eastern as Connecticut's premier public liberal arts institution.*

In support of the University's current strategic plan, CREATE serves to:

- Reinforce high-impact practices such as mentored research and creative projects
- Increase the percentage of students presenting their research and creative work
- Raise public awareness of Eastern's uniqueness and the accomplishments of our students
- Contribute to the intellectual richness of our campus community

Thank you for attending CREATE 2018 and congratulations to all of our participating students for their hard work and academic achievements!

## **2018 CONFERENCE ORGANIZATIONAL COMMITTEE**

Pamela Chiang  
 Brendan Cunningham , Co-Chair  
 Anne Dawson  
 Carlos Escoto  
 Jehoon Jeon  
 Chantal LaRose

Bryan Oakley, Co-Chair  
 Fatma Pakdil  
 Anya Sokolovskaya  
 Patricia Szczys, Co-Chair  
 Jeffrey Trawick-Smith

**CREATE PROGRAM 8:00 to 4:00 pm, Friday 13 April 2018**

Location Time	Betty Tipton Room	Student Center Theater	Student Center Meeting Rooms	FAIC 219	FAIC 243
8:00 - 9:00	Registration (outside the student café) and Poster (BTR) set up				
8:30-10:00	Posters	<b>Documentary</b> <u>Making It Better</u> 9:30 - 10:00 <i>Ayla Heald</i>	<b>Oral Presentations</b>  <i>(See Program for Detailed Schedule and Locations)</i>		<b>New Media Studies Demonstration:</b>  <u>Virtual Reality</u> <i>Gregg Rahuba &amp; Dan Chevalier</i>
10:00-10:30	Coffee Break (Student Center Cafe)				
10:30-11:45	Posters	<b>Dance Performance</b> <u>Dance as Culture</u> 10:30-11:30 <i>Ishah Azeez, Charliece Salters, Jackie Verian, Tayla Bogle, &amp; Shatima Cruz</i>	<b>Oral Presentations</b>  <i>(See Program for Detailed Schedule and Locations)</i>	<b>New Media Studies Deomnstration:</b> <u>Works of Performance Sound Art and Interactive Media</u> <i>Eumir Abela, Connor Coffey, Aubrie Curcio, Emma Kellermann, Halie Poirier, Rachel Pryde, &amp; Ryan Strange</i>	
11:45-12:30		<b>Photography Exhibit</b> <i>See Program for Details</i>	Lunch (Student Center Cafe)		
12:30-1:00	Awards and Recognition: Betty Tipton Room				
1:00-2:00	Posters	<b>Photography Exhibit</b> 1:00 - 1:45 <i>See Program for Details</i>	<b>Formal poster session with student presenters attending</b> 1:00 - 2:00pm <b>Betty Tipton Room</b>		
2:00-3:00		<b>Musical Performances</b> <i>Hannah Bythrow, Annie Lion-Lee, Michael Beckstein, Austin Stone, Adella Carlson, Joshua Perry, Hannah Nilsson, Antonia Reynolds, Noah Lerch, David Anecchiarico, Lanitza Padilla, &amp; Skye Serra</i>	<b>Panel Discussion: The Picture Books of Young Authors and Illustrators:</b> <b>MR 107</b> <i>James Rowley, Dalma Lorenzo-Patricio, Molly O'Connor, Erin Collins, Jocelyn Santiago</i> <i>See Program for Details</i>	<b>New Media Studies Demonstration:</b> <u>Motion Capture for Performance Media</u> <i>Zach Parisella</i>	
3:00-4:00	Art Gallery Reception (Dessert and Coffee): Student Art Gallery, Wood Support Services Room 223				

## ORAL PRESENTATIONS: Detailed Schedule

<b>Time</b>	<b><u>MR 107</u></b>	<b><u>MR 113</u></b>	<b><u>MR 115</u></b>	<b><u>MR 217</u></b>	<b><u>MR 219</u></b>	<b><u>MR 221</u></b>	<b><u>MR 223</u></b>
<i>Moderator</i>	<i>Dr. Dickson Cunningham</i>	<i>Dr. Susan DeRosa</i>	<i>Dr. Jehoon Jeon</i>	<i>Dr. Cunningham and Dr. Halladay</i>	<i>Dr. Niki Kunene</i>	<i>Dr. Jeffrey Trawick-Smith</i>	<i>Dr. Thomas Balcerski</i>
<b>8:30-8:45</b>	<p><b>Megan Deacon</b></p> <p><i>Biology</i></p> <p>Population Differentiation of the North American Black Tern, (Childonias Niger Surinamensis): A Regional Population Genetics Study to Enhance Conservation</p>	<p><b>Allison Brown</b></p> <p><i>English</i></p> <p>All the Time' Place and Identity in Creative Nonfiction</p>	X	<p><b>Tess Candler</b></p> <p><i>Economics</i></p> <p>Determining the distributional effects of the regional greenhouse gas initiative</p>	X	X	X
<b>8:45-9:00</b>	<p><b>Roshani Budhathoki</b></p> <p><i>Biology</i></p> <p>Characterization of a novel chicken foot-like nodules (cfn) mutant defective in root architecture and symbiotic nitrogen fixation in the model legume plant Medicago truncatula</p>	<p><b>Amber Albe</b></p> <p><i>English</i></p> <p>'There and Back Again' Constructing an 'I' in Creative Nonfiction</p>	X	<p><b>Catherine Falvey</b></p> <p><i>Economics</i></p> <p>To Greek or not to Greek: An analysis of Greek life participation on graduation rates</p>	<p><b>Michelle D'Agata</b></p> <p><i>Kinesiology &amp; Physical Education</i></p> <p>Does the order of exercise type (strength training versus plyometric training) affect performance-related measures in collegiate women's soccer players?</p>	X	X
<b>9:00-9:15</b>	<p><b>Zachary Adams</b></p> <p><i>Biology</i></p> <p>Ecology of fear: influence of human scent on white-tailed deer (odocoileus virginianus) anti-predator behavior</p>	<p><b>Jessica Miclou</b></p> <p><i>English</i></p> <p>'Equilibrium: A Memoir of Self-Harm and Alcohol Abuse'</p>	<p><b>Kassia Faulise Christine Cheng Borony Touch</b></p> <p><i>Communication</i></p> <p>Allergy Ally Allergy Test Strips</p>	<p><b>Marcus Lim Syed Ramish Ali</b></p> <p><i>Economics</i></p> <p>For the Love of a Liberal Arts Education</p>	<p><b>Brittany Bard</b></p> <p><i>Health Sciences</i></p> <p>Tracking lactose consumption, dairy supplementation among lactose intolerant groups using patient monitoring personal devices</p>	<p><b>Stefanie Dominguez</b></p> <p><i>Education</i></p> <p>A qualitative study of the play of children of low English proficiency in an English-speaking preschool</p>	<p><b>Margaret Appleton</b></p> <p><i>Sociology, Anthropology and Social Work</i></p> <p>From the Burning Times through the Goddess Movement</p>

### Color Coding

<b>Performing Arts and Art History</b>	<b>Social Sciences</b>	<b>Communication and Psychology</b>	<b>Business Administration</b>	<b>Sciences</b>	<b>English and Education</b>	<b>Labor Relations and HR Management</b>
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## ORAL PRESENTATIONS: Detailed Schedule

<u>Time</u>	<u>MR 107</u>	<u>MR 113</u>	<u>MR 115</u>	<u>MR 217</u>	<u>MR 219</u>	<u>MR 221</u>	<u>MR 223</u>
<b>9:15-9:30</b>	<p><b>Lillian Hyde</b></p> <p><i>Biology</i></p> <p>Assessment of Microglial Function in Brain and Blood Microenvironments</p>	<p><b>Ashlee Shefer</b></p> <p><i>English</i></p> <p>"Road Trippin": Establishing Place and Time Through Creative Nonfiction</p>	<p><b>Zach Wilkins Christy Allyn Shevane Pearson</b></p> <p><i>Communication</i></p> <p>Single-serve matcha tea packet</p>	<p><b>Catherine Falvey</b></p> <p><i>Economics</i></p> <p>If you believe it, you can achieve it</p>	<p><b>Ashley Franklin</b></p> <p><i>Sociology, Anthropology and Social Work</i></p> <p>The use of non-drug therapies to treat chronic pain among cancer patients</p>	<p><b>Allison Lundy Dominique McLean Morgan Winship</b></p> <p><i>Education</i></p> <p>The effects of toys on the quality of young children's play in preschool: influence of gender, ethnicity, socioeconomic status...</p>	<p><b>Vanessa Hill</b></p> <p><i>History</i></p> <p>The Black American Experience: Exploring How Religion, Relationships, and Culture Have Shaped the Black American Experience</p>
<b>9:30-9:45</b>	<p><b>Cody Murphy</b></p> <p><i>Environmental Earth Science</i></p> <p>Post-1900 sediment accumulation in the Point Judith Harbor of Refuge, Point Judith, Rhode Island</p>	<p><b>Daniel Urban</b></p> <p><i>English</i></p> <p>The Second Time Around</p>	<p><b>Matthew Stroiney Gabriella Mikaiel Julissa Martinez</b></p> <p><i>Communication</i></p> <p>Marketing biodegradable plastic and making a cleaner world</p>	<p><b>SiYing Foong</b></p> <p><i>Economics</i></p> <p>The effect of national health expenditure on life expectancy and infant mortality</p>	<p><b>Michele D'Agata Daniel Scavone Jason Staub</b></p> <p><i>Kinesiology &amp; Physical Education</i></p> <p>The Effect of External Dissociation of Attention on the Duration of a Plank to Maximum Exhaustion, Performed by Male Collegiate Soccer Players</p>	<p><b>Jamie Piscitello</b></p> <p><i>Art and Art History</i></p> <p>Public Art strives to connect communities with current issues in society</p>	<p><b>Joseph White</b></p> <p><i>History</i></p> <p>Queen of Hartford</p>
<b>9:45-10:00</b>	<p><b>Emma Avery</b></p> <p><i>Environmental Earth Science</i></p> <p>An Analysis of Southern New England Climate: Linking Marine Deposits with Public Records</p>	<p><b>Julia Bonadies</b></p> <p><i>English</i></p> <p>A Conversation in Poetry</p>	<p><b>Anna Dabkowski Meghan Toth Alexis Daley</b></p> <p><i>Communication</i></p> <p>Copaiba all-natural instant self-shaving soap</p>	<p><b>Marcus Lim</b></p> <p><i>Economics</i></p> <p>Does foreign aid help a developing country?</p>	<p><b>Rebecca Witkoski Mackenzie Walker</b></p> <p><i>Kinesiology &amp; Physical Education</i></p> <p>A Historical Overview of the Special Olympics of Connecticut</p>	<p><b>Janet Bannister</b></p> <p><i>World Languages and Cultures</i></p> <p>Climbing Off The Canvas: Siri Hustvedt's The Blazing World and gender-bias in art</p>	<p><b>Christopher Morris</b></p> <p><i>History</i></p> <p>The young child's moral education or subtle indoctrination? A new perspective on religion's place in turn-of-the-twentieth century public education</p>
<b>Coffee Break (Student Center Cafe) 10:00 - 10:30</b>							



## ORAL PRESENTATIONS: Detailed Schedule

<b>Time</b>	<b><u>MR 107</u></b>	<b><u>MR 113</u></b>	<b><u>MR 115</u></b>	<b><u>MR 217</u></b>	<b><u>MR 219</u></b>	<b><u>MR 221</u></b>	<b><u>MR 223</u></b>
<i>Moderator</i>	<i>Dr. Chantal Larose</i>	<i>Dr. Ben Pauley</i>	<i>Dr. Martin Mendoza-Botelho</i>	<i>Dr. Steve Muchiri</i>	<i>Dr. Alex Citurs</i>	<i>Prof. Anya Sokolovskaya</i>	<i>Dr. Thomas Balcerski</i>
<b>10:30-10:45</b>	<p><b>Emily Menendez</b></p> <p><i>Mathematical Sciences</i></p> <p>The firefighter problem: containing fires on graphs</p>	<p><b>Christopher Morris</b></p> <p><i>English</i></p> <p>'Greetings and salutations': An excerpt from the novel the kids who killed on Berkshire Street</p>	<p><b>Kaylee Defelice</b></p> <p><i>Psychology</i></p> <p>Behavioral feminism</p>	<p><b>Jared Kranc</b></p> <p><i>Economics</i></p> <p>Diamonds are a country's best friend...or are they?</p>	<p><b>Karina Santos Kristina Zoghbi Adam Greczkowki</b></p> <p><i>Business Administration</i></p> <p>A menu renewing process in a local restaurant</p>	<p><b>Emily Miclon</b></p> <p><i>Performing Arts - Music</i></p> <p>La Musique en Plein Air: Debussy and Open Air Freedom</p>	<p><b>James Wallace</b></p> <p><i>History</i></p> <p>State representations of the Guatemalan genocide</p>
<b>10:45-11:00</b>	<p><b>Amanda Burkhart</b></p> <p><i>Mathematical Sciences</i></p> <p>Prime-Centered Triples</p>	<p><b>Neil Schneeberg</b></p> <p><i>English</i></p> <p>Restraint and Liberation in William Blake's The Marriage of Heaven and Hell</p>	<p><b>Robert Johnson</b></p> <p><i>Political Sci., Philosophy &amp; Geography</i></p> <p>Partisanship, partisan views, and the environment on college campuses.</p>	<p><b>Torstein Brevik</b></p> <p><i>Economics</i></p> <p>Does taxing tobacco decrease smoking rates?</p>	<p><b>Rebekah Brancato Koren Thomas Michael Baldassarre</b></p> <p><i>Business Administration</i></p> <p>Fixed asset tracking in non-profit health care</p>	<p><b>Jesse Steinmetz</b></p> <p><i>Performing Arts - Music</i></p> <p>Bring The Noise: The Musical Intersection of Malcolm X and Public Enemy</p>	<p><b>Tyler Booth</b></p> <p><i>History</i></p> <p>Ordaining a New Nation</p>
<b>11:00-11:15</b>	<p><b>Haley Knox</b></p> <p><i>Computer Science</i></p> <p>Analysis of how information spreads on Twitter</p>	<p><b>Kristen Urban</b></p> <p><i>English</i></p> <p>Deaf Classrooms</p>	<p><b>Emma Avery</b></p> <p><i>Political Sci., Philosophy &amp; Geography</i></p> <p>Partisan Media Coverage of Climate Change: A Chronological Study</p>	<p><b>Syed Ramish Ali</b></p> <p><i>Economics</i></p> <p>The effect of sanitation access on life expectancy</p>	<p><b>Patrick Cartier Mark Curry Alyssa Reynolds</b></p> <p><i>Business Administration</i></p> <p>Determining root causes of customer returns in a large-scale wire producer</p>	<p><b>Joshua Perry</b></p> <p><i>Performing Arts - Music</i></p> <p>That Sounds Like A Cult</p>	<p><b>Taryn McCabe</b></p> <p><i>History</i></p> <p>Using the Moral Code to Justify Immorality: Andrew Jackson and the Indian Removal Act</p>

## ORAL PRESENTATIONS: Detailed Schedule

Time	MR 107	MR 113	MR 115	MR 217	MR 219	MR 221	MR 223
11:15-11:30	<p><b>Dylan Sylvester</b></p> <p><i>Computer Science</i></p> <p>A Google Chrome web browser extension for course scheduling at Eastern</p>	<p><b>Keara Berisso</b></p> <p><i>English</i></p> <p>Identity through Vignettes: A Latina's journey of self-discovery</p>	<p><b>Bijan Rezai</b></p> <p><i>Political Science, Philosophy &amp; Geography</i></p> <p>A turn to the left: is a political revolution brewing among American students?</p>	X	<p><b>Amanda Stango</b></p> <p><i>Business Administration</i></p> <p>Measurement system analysis (gage R &amp; R) at a large-size manufacturing firm</p>	<p><b>Kaileen Langlois</b></p> <p><i>Performing Arts - Theatre</i></p> <p>The Laramie Project and the distinctions between socially-purposive theatre and theatre as entertainment</p>	<p><b>Sarah Brihan</b></p> <p><i>History</i></p> <p>Thou Shalt Not Read this Book</p>
11:30-11:45	<p><b>Chad-Michael Muirhead</b></p> <p><i>Computer Science</i></p> <p>A DNA translation tool and open reading frame finder in Python</p>	<p><b>Lindsey Hopkins</b></p> <p><i>World Languages and Cultures</i></p> <p>Sexual and self-inflicted violence in Han Kang's The Vegetarian</p>	<p><b>Kamran Chaudhry</b></p> <p><i>Political Sci., Philosophy &amp; Geography</i></p> <p>Analyzing the close philosophical relationships between the Taoist Philosopher Chaung Tzu and Henry David Thoreau</p>	X	X	X	<p><b>Julia Underhill</b></p> <p><i>Labor Rel. and Human Resource Management</i></p> <p>Profiles in anarchy: the women of the early American labor movement</p>
11:45-12:30	<b>Lunch (Student Center Cafe)</b>						
12:30-1:00	<b>Awards and Recongition: Betty Tipton Room</b>						
1:00-2:00	<b>Formal poster session with student presenters attending and photography exhibit: Betty Tipton Room</b>						
2:00-3:00	<b>Music Performances: Student Center Theater</b> <i>See Program for Details</i>			<b>Panel Discussion: See Program for Details</b>		<b>New Media Studies Demonstration:</b> <i>See Program for Details</i>	
3:00-4:00	<b>Art Gallery Session - Wood Support Center (Coffee and Dessert)</b>						

*All meeting rooms (MR) are located in the student center*

*All oral presentations, poster session, photography exhibit, and music and dance performances will be held in the Student Center*

*New Media Studies Demonstrations will be in the Fine Arts Instructional Center (FAIC)*

*The art gallery reception will be held in the Student Art Gallery, Wood Support Services Center, Room 223.*

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## ARTWORK-ABSTRACTS

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### *Eleven*

#### **Sabrina Aragon**

*Faculty Mentor:* Boya Li (Lora Lee)

Digital framed print: 14x20 inches

My work attempts to capture and exaggerate the emotions of the character in my digital portrait. I experimented with digital brushes, effects and tools to explore methods of creating details in Adobe Illustrator. Realism, textures and colors were the focus of my rendering.

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### *Dancer 1 and Dancer 2*

#### **Scott Campbell**

*Faculty Mentor:* Afarin Rahmanifar

Mixed Media

16 x 20 - 16 x 20 Diptych

This project is an exploration of the same subject through different approaches as well as exploring non-traditional methods. The actual figure is paired with presence of two ways of perceiving and conceiving the subject. The goal of my project is to disrupt the single meaning assigned to an image by strategies involving different mediums.

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### *Tarot Reading*

#### **Andrea Costa**

*Faculty Mentor:* Boya Li (Lora Lee)

Digital and 3D Printing

Framed artwork: W36 x H24 , Printed Model: W20 x H10

My work was created to demonstrate my interest in character design and the method of creating a variety of digitally sculpted and printed 3D models based on 2D designs. I used both digital and physical tools to create this piece, including Adobe Photoshop, Autodesk Maya, and Makerbot 3D printers I used digital illustration, 3D modeling, lighting, texturing, rendering and exporting to create integrated workflow in the computer. The original characters I designed had exaggerated, distinctive features which were difficult to be translated into a three-dimensional form. In order to preserve the unity and consistency of my designs, I created technical drawings of different angles and perspective before I started experimenting with different approaches in digital sculpting in Maya.

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***KES*****Olivia Deforge***Faculty Mentor: Afarin Rahmanifar*

Ink on Yupo Paper

Installation

I've had the recent experience of dealing with the emotional byproducts of falling out with one of closest friends. Emotions that are hard to put into words, and so instead I tried to take a cross sections from the experience. How quickly one will change to another. Samples of what felt like a liquid experience, as everything slipped between my fingers and pooled at my feet.

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***PSYCHE*****Sarah Dugay***Faculty Mentor: Tao Chen*

Digital

Video games have become the most prominent form of storytelling in the past several years, surpassing the movie industry. This form of interactive media allows the audience to immerse themselves within the storyline and be involved with the art piece itself instead of just being a passive viewer. Psyche studies the relationship between audience and work utilizing interdisciplinary approaches in computer science, visual arts, and even psychology to produce an engaging experience. This game is developed through Unity utilizing programming, visual and sound elements to represent the interactive opportunities of New Media Studies. Creating an effective game is understanding the player's enjoyment and translating that knowledge through technical means. Therefore, Psyche was developed with mechanics that represented narrative elements but would also consider the audience physical experience in playing the game. The player must use their insight about story elements to make successful choices and be able to advance in the game. Unlike other mediums, each player's involvement in a game is formed through their own decisions even if the story is linear, thus all mindsets must be considered. Art is an incredibly important asset of games as it communicates the atmosphere of a game. Thus, Psyche displays its tone through its lighthearted stylistic choices along with applying color and sound to create a connection with the protagonist as well as the time period. The interaction between technical and visual elements is a unique relationship as it explores the world more thoroughly and enhances understanding of the work with the audience.

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***Honey, I'm Not Afraid*****Sylvia Goodwin***Faculty Mentor: Terry Lennox*

Adobe Illustrator, Digital Print

30 by 20 inches

My editorial illustration project is a caricature of Chris Stapleton, a well-known country music singer-songwriter. I focused on the deeper meaning and message of one of Chris Stapleton's songs, Fire Away. The song is connected to ChangeDirection.org., an organization that raises

awareness for mental health and well-being. I chose to highlight my favorite part of the song, the lyrics. I digitally painted this work because I desired to give it a natural quality and capture a harmony of movement and light. I titled my work, "Honey, I'm Not Afraid," after one line within the song. To me, the song is a poetic and beautiful way to show loving support to an individual struggling with mental health and or illness. Chris Stapleton's choice to address this topic poetically inspired me to depict Chris Stapleton steadily gazing toward the mountains with a lyric-filled beard and his guitar at hand.

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***Gypsy Girl***

**Amy Javaraukas**

*Faculty Mentor:* Afarin Rahmanifar

Acrylic paint

24x36

This was a project I did in an Independent Study with Professor Rahmanifar. I completed a charcoal image of the gypsy in an Advanced Drawing with Professor Jones. I wanted to do a color study of the same image.

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***Gypsy Girl***

**Amy Javaraukas**

*Faculty Mentor:* William (Andy) Jones

Charcoal on Paper

24 x36

A color study of a charcoal drawing I did in Advanced Drawing. Exact same image but featured in acrylic paint.

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***Let's Unpack That***

**Ian Joerres**

*Faculty Mentor:* Terry Lennox, Professor

Adobe Illustrator, Digital Print

30 x 20 inches

For this editorial illustration project I was tasked with creating a caricature of a celebrity. The celebrity I chose for my caricature is John Oliver, the host of the television show 'Last Week Tonight ' on HBO. I decided I wanted my piece to be based more in a two-dimensional graphic design style as opposed to a more painterly style. I did this because I believed it would be more challenging and interesting to capture his character in this way. With this caricature I was specifically trying to capture the more flamboyant and sarcastic nature of his personality. I did this by emulating the general gestures and exaggerating the expressions he often makes when surprised and provoked by a topic he covers on his show.

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***Fame & Fatality*****Stefani Olbrias**

*Faculty Mentor:* Terry Lennox, Professor

Adobe Photoshop, Digital Print

20 x 30 inches

In order to capture the essence of Marilyn Monroe for this illustration, I knew I wanted to incorporate more than just her attractiveness. Living as a sex symbol seems like it is glamorous and fun, but in the end Monroe was a truly tragic and unhappy woman. One of her popular photoshoots included a polka dot umbrella which inspired me to compose the piece the way I did. I completed this piece in Photoshop with a Wacom tablet and was aiming for it to look similar to vintage pin-up posters with the posing. I wanted to take a stylized approach with her features to emphasize a story without making it too offensive.

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***End Commercial Whaling*****Jaime Piscitello**

*Faculty Mentor:* Tao Chen

Digital Print

24 x 36

It is one of the designer's roles to use creative design to convey their feelings and concerns about ecological issues, communicate them with public and influence the world. The international ban on commercial whaling came into effect in 1986. Even with the law in place countries like Japan continue to kill whales in the name of research. Although clamming to kill for research the whale meat is sold in markets. Whale populations are depleting. Through creative design I can speak for those who cannot speak for themselves.

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***Blender Fantasy*****Gregg Rahuba**

*Faculty Mentor:* Boya Li (Lora Lee)

Digital and 3D Printing

Framed artwork: W36 x H24 , Printed Model: W20 x H10

My project focused on creating highly detailed 3D models and realistic renderings using Blender, an open source 3D creation suite. I explored and experimented with various modules of the 3D pipeline, including modeling, lighting, texturing, rigging, simulation, rendering and composing. In order to simulate the realism of real-life materials, I did research on procedural textures, clothing and fabric, hair and dynamics, and other advanced features in Blender. I aimed to create anatomically accurate and aesthetically pleasing models which demonstrate my application of art, design and crafts. The models are a set of originally designed fantasy characters with costumes, armors, and props.

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***Forthcoming*****Aziel Rivera**

*Faculty Mentor:* Rob Greene

wood and rope

4' H

Forthcoming is my first mixed media sculpture, made of wood and rope. The sculpture is approximately 4 feet tall, and portrays the human form from torso to arms. The figure reaches out from its wall mount, with rope that connects it to the mount. I had little experience working with wood and rope to create a sculpture. Despite the lack of experience, I was able to utilize and re-purpose found objects to construct a strong work of art that incorporates many wood working techniques.

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***Treasure*****Alex Sarmiento**

*Faculty Mentor:* Boya Li (Lora Lee)

Digital and 3D Printing

Framed artwork: W36 x H24 , Printed Model: W20 x H10

My project was to create a fantasy environment containing a set of detailed models in Autodesk Maya and print intact models using Makerbot 3D printers. I focused on the anatomy of creatures, textures of materials, and realistic renderings using a workflow that includes modeling, lighting, texturing, rigging, rendering, composing and exporting files for the 3D printing process. In order to achieve the best possible results using the 3D printers, I did research on techniques of configuring the digital files and experimented on different approaches in manipulating the digital models in the Makerbot printing software. The environment is a room representative of a catacomb or tomb. In it will be several different structures specifically including a treasure chest. There will be two humanoid figures in the scene that interact with the environment and each other. Work was put into the finer details on the armor, scene, and props.

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***Lizard*****Dominique Schultz**

*Faculty Mentor:* William (Andy) Jones

Color Pencil

16 x20

Animal/Creature Textural Assignment- rendered in color pencil on paper created from original photo imagery and life studies of the student artist's lizard.

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***Self Portrait*****Dominique Schultz***Faculty Mentor:* Afarin Rahmanifar

Acrylic

18'x24'

SELF PORTRAIT PAINTING Dominique Schultz (Art and Art History) Faculty Mentor: Afarin Rahmanifar In this project, I produced a painting using a self-portrait collage of torn paper mosaic as a guide to produce my painting. I intend to reproduce the color and the strokes in my torn paper mosaic collage project. This method is not only creating an effective illusion of shape and forms also challenges to maintain the color identity that once was introduced in torn paper mosaic. This Painting relies on the creative process as well as paint application.

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***Copper*****Sothea Semmerlock***Faculty Mentor:* Afarin Rahmanifar

Mixed Media

12 x36 - 24 x30 Diptych

The project covered the wide range of subject matter. We had to find a theme that had a strong personal link to us as an artist. The initial theme of my idea was water and earth that I felt connected to. I knew I wanted to include found objects to these two paintings. Copper was a familiar material to me and I ended up producing flower out of copper and placed them on the surface. This project was a great experience, it really made me to test my limits and to try new things and to learn how to use new mediums.

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***Flack and Discourse*****Meaghan Strange***Faculty Mentor:* Terry Lennox, Professor

Adobe Photoshop, Digital Print

30 x 20 inches

The project was to create an editorial illustration of a public figure that could accompany an article, and who better to illustrate than someone who creates such strong feelings of foreboding and admiration in viewers than Vladimir Putin. I used the illustration to create a commentary on Putin's political career, which has been wrought with discourse and controversy. The use of a halo, with inspiration taken from religious art, paints Putin in an image of utmost importance and righteousness. However, to combat his dictator-like image, the illustration is created to be slightly asymmetrical and imitate a sense of uneasiness by having ambiguous liquid spew from his mouth. Thus, my goal was to emulate a sense of admiration and discomfort in the viewer.

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***Molten Yolk*****Ben Sullivan***Faculty Mentor:* Rob Greene

stone and aluminium

12 W

The idea behind 'Molten Yolk' was to create something totally representational and completely unexpected. The egg is made up of a sandstone rock that was cut and chiseled to appear cracked open. The egg white is made from aluminum that was repeatedly melted and poured over the stone. The egg yolk is a half sphere of hammered copper.

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***Portraits*****Rachel Vallerie**

Digital

Two framed artwork: W18 x H24

The goal of my project was to create stylish renderings of portraits using digital medium. I developed a unique artistic style and process by experimenting with digital techniques using a Wacom digital art tablet, together with software including Adobe Photoshop and Illustrator. Rather than realism, I focused on the style of brushstrokes which were abstract by themselves but form a recognizable portrait when put together. The portraits are my rendition of actors Zendaya and Robert Downey Jr.

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***A Witches Room*****Nina Yilmaz***Faculty Mentor:* Professor Quamina

Relief Printmaking

11 x 11.5 inches

A Witches Room is an edition relief linoleum print utilizing traditional techniques. The image depicts a portrait of a witch through the use of inanimate objects within a composed pictorial space. Initially I considered the inclusion of a figure within the space, however I chose not to because I was able to communicate the notion of a figure through the use of possessions.

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**DANCE PERFORMANCES-ABSTRACT****DANCE AS CULTURE****Ishah Azeez, Charliece Salters, Jackie Verian, Tayla Bogle, & Shatima Cruz**

(Performing Arts - Theater)

*Faculty Mentor:* Alycia Bright Holland

Members of WUMALA, West African Dance Ensemble, will share their ethnographic dance projects spanning the African countries of Nigeria, Cote D'Ivoire and South Africa, as well as the Caribbean nation of Haiti. While much of the information presented was uncovered through research, these lecture/demonstrations will also provide an opportunity for a number of the presenters to make socio-cognitive linkages between their present life situation and the countries of their heritage.

## DEMONSTRATIONS, NEW MEDIA STUDIES-ABSTRACTS

### *IMPROVISATION 04132018*

**Eumir Abela, Connor Coffey, Aubrie Curcio, Emma Kellermann, Halie Poirier, Rachel Pryde, & Ryan Strange**

(New Media Studies)

*Faculty Mentor:* Travis Houldcroft

*Improvisation 04132018* is a group improvisation for eight digital media performers using custom software developed in the media programming environment Max. Each performer is interactively manipulating sound or video through custom software and custom configurations of media processing modules. Video artists are actively playing back recorded or live video that may be a single feed/video or a collage of multiple videos or sources. These videos are then processed through video processing algorithms manipulating color, brightness, contrast, and positioning through processes such as timing delays and video feed back. The parameters of these effects are actively manipulated by the performers or are being controlled by algorithmic processes such as strange attractors, random walks, or audio control values. Sound artists are improvising with modular synthesis, connecting sound generating modules (emulating voltage-controlled modules) to signal processors that modify a signal's spectral/frequency content, amplitude value, or the timing of signal components. Like their video counterparts, these sounds are manipulated in real time by the performers, or the performers are causing automatic manipulation to occur through algorithmic processes and chance operations. All performers are actively listening and watching the sounds and videos developed by their peers and are reacting to the other performers through their own sound or video in real time with no predetermined form or score.

### *GENERATIVE STUDY NO. 1*

**Eumir Abela**

(New Media Studies)

*Faculty Mentor:* Travis Houldcroft

*Generative Study No. 1* is an electronic music composition exploring the field of algorithmic composition, and generative music algorithms. Algorithmic composition is the use of algorithms, like those found in computer science applications, to develop musical data, while generative music is an approach to composition where new and varied sounds are automatically generated through a variety of algorithmic processes. This piece implements these algorithms along with sound generating code using the data-flow media programming language Pure Data. In Pure Data, data is passed through the code over interconnected boxes, providing the composer with an intuitive interface for creative coding. Composing this work involved the use of modular synthesis, code to generate rhythms, and creativity. In modular synthesis, sounds are generated from individual and specialized modules. Pure Data functions, known as objects in Pure Data, such as `osc~`, a sine-wave oscillator, and `vline~`, a linear ramp generator used to shape each note's dynamics, were used to develop sound generating modules, producing sounds of ambiance and drone. The code consists of several synthesis algorithms that all play simultaneously. Algorithmic processes were developed to produce different rhythms and pitches using personal calculations as a starting point. Two objects used extensively in this work that drive the algorithmic portions of the piece are `metro` and `random`. Many `metro` objects generate regular pulses at different rates among the instruments throughout the code, developing new rhythms. These regular pulses simultaneously cause the `random` objects to choose new frequencies for the sine-wave oscillators creating new melodic material. The goal of this piece was to not generate random computer noises, I wanted to create a sense of rhythm and melody, without being blatantly musical, not unlike the approach used by noise, musique concrete, experimental music and sound artists in the mid to late 20th century.

## **SET DESIGN IN A VIRTUAL REALITY**

**Dan Chevalier**

(New Media Studies)

*Faculty Mentor:* Kristin Morgan

Creating set designs for theater performances can be a daunting task that is either limited to pen and paper or using 3D modeling programs such as SketchUp or Vectorworks. With virtual reality (VR) becoming a more common technology it is important to find out how we can use VR to enhance the communication of design ideas. Using VR headsets, such as the HTC Vive or the Oculus Rift, combined with current 3D modeling programs, designers can create 3D environments that participants can enter and interact with before physically creating it on stage. By doing so they can get a better feel for how much space the actors will have on stage as well as any potential issues that need to be fixed before construction begins. This will also allow for the other members of the production team, such as lighting designers, to plan out their designs. Using VR headsets when creating set designs will alleviate a lot of issues during productions and lead to smoother live theater performances.

## **MOTION CAPTURE FOR PERFORMANCE MEDIA**

**Zach Parisella**

(New Media Studies)

*Faculty Mentor:* Kristin Morgan

Motion capture, or mo-cap, is a method of digitally recording the movement of the human body. The digital information may then be manipulated for animations, video games, or live performance. This presentation will demonstrate how modern technology has changed today's live performance, and how it may aid in reaching new artistic heights. More specifically, we will be looking at how performance media is changed by motion capture technology. What are the advantages that mo-cap technology provides, and how does it change the way we approach performance?

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**A SPARK AND A FLAME****Halie Poirier**

(New Media Studies)

*Faculty Mentor:* Travis Houldcroft

*A Spark and A Flame* is a piece for 4-channel fixed media sound, video, voice, and the amplified sound of lighters. It features a multi-layered ambient drone surrounding the auditorium, a diverse score for each performer, assorted poetry to be spoken live, and a simple visual to tie the aesthetic together. The piece obeys the following map: the drone (developed in the digital audio workstation Reaper) is started and an audio-less fire visual is projected onto the screen. The poem reader speaks the first of twelve poems related to fire over the two front loudspeakers. Shortly following, the performers begin their first action-which is just one player clicking his/her lighter into the microphone. After he/she is indicated to stop, the reader starts the second poem. These actions are repeated, with each performer progressing sequentially thorough each cued action, until the last poem is read. At this point a signal is sent to the lighter performers to do a slow roll. The fixed media volume is pulled down to silence, and the performers may conclude when they choose. The performers perform four different actions with the lighters: hard flick, slow roll, tap, and trigger. The entire piece takes approximately ten minutes to perform, though this is dependent on performer choice. The development of this piece has allowed me to explore elements of chance and aleatoric choice in music, because the score for each performer only has the specific sound I want the performer to make with the lighters-but no indication of tempo, volume, or duration. This is coupled with my investigation into developing a piece that encompasses the audience in a total audio-visual experience on the theme of fire. This is accomplished using the percussive sound from the lighters and spoken poetry layered on top of the ambient fixed media delivered in 4-channel surround sound, accompanied with the visual projection of fire.

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**AN EXPLORATION OF VIRTUAL REALITY****Gregg Rahuba**

(New Media Studies)

*Faculty Mentor:* Kristin Morgan

Developments in technology over the last few years have led to an increased access to a new medium of digital content: virtual reality. Abbreviated 'VR', these experiences allow participants to enter a new world that is crafted by the same digital artists and programmers who create popular video games. By wearing a special headset, and holding motion controllers in both hands, players are able to navigate, interact with, and control almost everything they can see in the virtual environment. My research is an exploration of the design, development, and benefits of using virtual reality for computer programs, vs using more traditional digital tools. Utilizing the Unreal Engine (created specifically by Epic Games for VR development), my objective is to create an environment that is interesting and engaging to participants, while learning how these programs are designed and developed in contrast to average video games.

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## DOCUMENTARY-ABSTRACT

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### **MAKING IT BETTER**

**Ayla Heald**

(Communication)

*Faculty Mentor:* Denise Matthews

In the Fall of 2017, students enrolled in COM 435 (Documentary Production) spent the semester interviewing and recording Angie and Doug Forrest, the husband and wife co-owners of a local estate sale business, We Make It Better CT . Under the supervision of Dr. Denise Matthews, I have spent this spring semester editing this work into a documentary as an independent study student. The complex technical process of editing involves weaving together a story of the intense and compassionate work of two people who work together and live together 24/7. Angie and Doug are in the delicate business of helping people undergoing stressful circumstances. Whether due to downsizing or the death of a loved one, the process is upending and the ability to get the job done with tact and care is what Angie and Doug do so well. They also exemplify what it takes to be a loving couple and business partners who can negotiate their differences with humor and mutual respect. This documentary work demonstrates the skills involved in creating a close up, authentic portrait of local people and their work in the nonfiction format.

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## MUSICAL PERFORMANCES-ABSTRACTS

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Selections from *Dichterliebe*Robert Schumann (1810-1856)

- I Im wunderschönen Monat Mai
- II Aus meinen Tränen spriessen
- III Die Rose, die Lilie, die Taube, die Sonne

“Lonely House” from *Street Scene*Kurt Weill (1900-1950)

Austin Stone, tenor

Faculty Mentor: Emily Riggs (Music)

*Dichterliebe Op. 48* (Robert Schumann)

Robert Schumann was a prominent German song composer of the Romantic Period. While equally successful in other mediums (including large symphonic works, chamber music, and solo piano literature), Schumann composed over 200 songs for voice and piano. As a gifted pianist, his songs often include virtuosic and expressive piano writing. His style of composition further elevated the role of the piano in the development of the German *Lied*. *Dichterliebe* (*A Poet's Love*) is one of Schumann's most influential and exceptional works. The song cycle consists of 16 songs set to the texts of German poet and philosopher, Heinrich Heine. The songs consist of exquisite piano writing that mirrors the images and emotions of Heine's texts. Poetic themes include hope, transcendence, love, and spring.

“Lonely House” from *Street Scene* (Kurt Weill)

Kurt Weill is a German composer known primarily for his opera and stage works. His musical language combines elements of the classical style with more contemporary idioms like musical theater and jazz. After fleeing Germany at the start of WWII, Weill settled in the US where he excelled as a Broadway composer. Successful works from this period include, *One Touch Venus*, *Knickerbocker Holiday*, and *Street Scene*. Weill considered his opera, *Street Scene*, a perfect hybrid of the European operatic tradition and the new American Music Theater style. The opera, set in the East Side of Manhattan, tells two unique stories of life and deception. “Lonely House” is sung by a shy teenage boy name Sam Kaplan. The piece appears in Act I after Sam discovers his love for Rose Murrant, a young teenage girl from a wild family. The aria portrays Sam's longing for Rose and his feelings of isolation, even amid the bustling world around him.

Time Pieces, Op. 43 (1983)Robert Muczynski (1929-2010)

- I Allegro risoluto
- II Andante espressivo
- III Allegro moderato

Adella Carlson, clarinet

Faculty Mentor: Chris Howard (Music)

Robert Muczynski was an American composer, pianist, and teacher. He earned degrees in piano performance from DePaul University, where he studied piano with Walter Knupfer and composition with Alexander Tcherepnin. His music typically exhibits repeated thematic ideas, irregular meters, and dark lyricism, all of which are present throughout *Time Pieces*.

*Time Pieces* for clarinet and piano was composed for and premiered by clarinetist Mitchell Lurie, who had previously been the principal clarinetist for the Chicago and Pittsburgh symphonies. The piece was premiered in London at the Clarinet Congress of the International Clarinet Society in 1984. A true piece of chamber music, both instruments play an equal part in this piece. In his album notes for the album *Lurie and Baker Play Muczynski*, Muczynski wrote of the piece, “This composition is a suite of four contrasting pieces, each highlighting some specific characteristic of the clarinet in terms of range, technical prowess, color, and expressiveness.... The title of the work, *Time Pieces*, has nothing to do with mechanical clocks or watches. It is not a play on words but rather an awareness that everything exists in time: history, our lives and...in a special way...music.”

“Recitative and Trio: Cosa sento” from Act 1 of *The Marriage of Figaro*

W.A. Mozart  
(1756-1791)

Countess: Hannah Bythrow, soprano  
Cherubino: Annie Lion-Lee, soprano  
Basilio: Austin Stone, tenor  
Count: Michael Beckstein, baritone

Faculty Mentor: Emily Riggs (Music)

*The Marriage of Figaro*, written by W.A. Mozart with a libretto by Lorenzo Da Ponte, takes place in Seville, Spain in the 1730s. The main characters in the opera include Figaro and Susanna (servants to the Count and Countess who are soon to be married), Cherubino (an adolescent, love-struck pageboy), and Basilio (Susanna's gossipy music teacher).

When our scene opens, Cherubino has just finished telling Susanna how much he loves women—all women—regardless of age, station, beauty, or character. As the Count approaches Susanna's room, Cherubino quickly hides behind the armchair out of fear of being caught alone with Susanna. The Count enters and attempts to seduce Susanna by convincing her to meet him in the garden later that evening. The virtuous Susanna rejects his advances. As the Count persists in his flirtations, Basilio is heard approaching. When the Count hears him, he quickly hides behind the armchair as Cherubino barely avoids being discovered. During a conversation with Susanna, Basilio accidentally reveals to the Count that Cherubino is attracted to his wife, the Countess. The three sing a trio (“Cosa sento”) in which Susanna tries to convince both Basilio and the Count that this attraction is merely a rumor, the Count fumes in anger over young pageboy's treachery, and Basilio relishes the fresh intrigue he can spread about the castle. *This scene will be performed in English.*

## **SAMULNORI**

**Joshua Perry, Hannah Nilsson, Antonia Reynolds, Noah Lerch, David Anecchiarico, Lanitza Padilla, & Skye Serra**  
(Performing Arts - Music)  
Faculty Mentor: Okon Hwang

*Samulnori* refers to a genre of traditional Korean music, tracing its inception back to the late 1970's when professional performers of contemporary Korean folk music decided to standardize colloquial performance styles into a single form that could then be presented to the world as a representative art form. *Samulnori* primarily utilizes the traditional performance techniques and instrumentation of the *p'ungmul* tradition; *p'ungmul* ("Farmers music") refers to a broad spectrum of instruments and performance techniques that were primarily utilized in traditional rural Korean society as a functional form of music for entertainment, rituals, religious practices, and celebration across many instances of social activity. While *p'ungmul* was traditionally played in a variety of instrumental settings by both professional and amateur performers in a variety of contexts that often superseded the musical performance itself, *samulnori* limits the instrumentation to only four distinct percussion instruments. Interestingly enough, and by no accident on the part of those that helped formulate the genre, the name "*samulnori*" itself translates to English as "playing four objects." *Samulnori*, in contrast of *p'ungmul*, places emphasis on virtuosic playing in a concert hall or similar form of performance venues. Today the style of *samulnori* continues to evolve as a genre of international music exported from Korea. While the style still greatly emphasizes traditional techniques of *p'ungmul*, performers are constantly pushing the limits of what is possible. One such group of performers is Eastern's very own Samul Jeonsa, a student populated performance group. The group, formed in conjunction Dr. Hwang's weekly *samulnori* class (open to all students), focuses on actively composing a new *Samulnori* piece each semester by drawing upon both traditional *p'ungmul* techniques and even western pop influences.

## ORAL PRESENTATIONS-ABSTRACTS

### **ECOLOGY OF FEAR: INFLUENCE OF HUMAN SCENT ON WHITE-TAILED DEER (ODOCOILEUS VIRGINIANUS) ANTI-PREDATOR BEHAVIOR**

**Zachary Adams**

(Biology)

*Faculty Mentor:* Joshua Idjadi

Hunting in the U.S. is a 33 Billion dollar industry. For state management agencies such as the DEEP in Connecticut, hunters serve as a management tool to regulate deer populations to manage disease, starvation, and automobile accidents among other things. In CT, adult white-tailed deer have no significant predators apart from humans. As deer are known to have a well-developed olfactory sense, the white-tailed deer hunting industry markets de-scenting detergents, sprays, dryer sheets, clothes, and electronic devices to remove human scent from clothes. There is evidence that hunting pressure in other ecosystems has driven changes in the appearance and behavior of prey animals. For example, the average tusk size of African elephants has gotten smaller in response to hunting pressure. In this study, we tested the hypothesis that deer are adapted to avoid their main predator (humans). Using baited trail cameras placed throughout the Church Farm and adjacent Joshua's Trust properties, we test the hypothesis that deer are less likely to visit sites when human scent cues are present and will exhibit more cautious behavior in



the presence of human scents. 10 trail cameras were assigned to either control (unscented shirt) or treatment (shirt with human scent cue) and left for 1 month. Visits and behaviors during this period were compared to month-long observations where treatments were not applied. This study will provide insight into whether deer have developed adaptations to human predators in their relatively short evolutionary history of human predator pressure and whether de-scenting products are effective.

## **'THERE AND BACK AGAIN;' CONSTRUCTING AN 'I' IN CREATIVE NONFICTION**

**Amber Albe**

(ENGLISH)

*Faculty Mentor:* Susan DeRosa

Making a memory tangible through writing Creative Nonfiction calls for the redefinition of 'truth.' CNF communicates true experiences of the writer through strategic literary style and technique, such as metaphor, point-of-view, and imagery. The results are hybridized forms—biography, memoir, travel writing, literary journalism—that all balance 'facts,' memories, and subjective truths. CNF relies on the subjective, emotional, and aesthetic truths that are rooted in real, personal experiences. My travel memoir 'There and Back Again,' recalls my experiences during my cross-country road-trip in the summer of 2017, during which time I lived in my minivan for six weeks while traveling through the western part of the United States. In my memoir, I hoped to make my memories of adventure and unadulterated happiness tangible, and to relay the human experience of self-discovery to readers. Using a segmented form, my travel memoir moves in and out destinations on my journey chronologically, and I attempt to find my authentic voice and a personal presence. Through these fragmented memories, I use literary devices, specifically imagery, humor, and metaphor, while also experimenting with blending excerpts of Tolkien's *Lord of the Rings* throughout the memoir, a book I read during my journey. Along with a panel of other CNF writers who face similar challenges, I will read excerpts from my memoir and discuss how I grapple with the construction of my narrative 'I' and interact with the boundaries of truth established, and tested, within CNF.

## **THE EFFECT OF SANITATION ACCESS ON LIFE EXPECTANCY**

**Syed Ramish Ali**

(Economics)

*Faculty Mentor:* Jennifer Brown

The shortage of proper sanitation facilities has been an increasing concern among developing countries. The paper uses panel data from the world bank and WHO about the percentage of population with access to proper sanitation facilities and the average life expectancy. The paper uses a regression model, first with the main variable, and then together with other variables to control for errors. The paper expects to find a positive relationship between the percentage of the population with access to proper sanitation and the average life expectancy.

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## **FROM THE BURNING TIMES THROUGH THE GODDESS MOVEMENT: HOW MYTH, MAGIC, MAYHEM AND MISOGYNY INFORMED FEMINISM WITHIN MODERN PAGAN CULTURE**

**Margaret Appleton**

(Sociology, Anthropology and Social Work)

*Faculty Mentor:* Dr. Mary Lorena Kenny

This presentation will discuss contemporary Pagan views regarding their knowledge and understanding of the Goddess Movement. The Goddess movement emerged from theories on the 'Burning Times,' a period of history during the 'early modern period' in European history (1450-1750). Based on in-depth interviews, I explore Neo-Pagan culture, the association between Craft membership and feminism, and notions about the future of Paganism. Interviews were conducted at a pagan gathering, and in pagan talk sessions (e-mail and social media). I provide a brief history of the movement, based on Murray's theory that Witches hold an unbroken legacy of transmitting specialized knowledge intergenerationally since antiquity. Pagans seized this theory as 'truth,' and within the pagan community this theory has been taught, discussed and argued over. Results show that most pagans identified first as feminists even though myths have been instrumental in shaping modern pagan culture.

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## **AN ANALYSIS OF SOUTHERN NEW ENGLAND CLIMATE: LINKING MARINE DEPOSITS WITH PUBLIC RECORDS**

**Emma Avery**

(Environmental Earth Science)

*Faculty Mentor:* Stephen A. Nathan

Strong storms ravage the Caribbean islands and the southern and eastern coasts of the United States every year, now to a greater degree than ever. In their wake, they leave massive amounts of destruction, and they cause entire societies and cultures to re-build their infrastructures and ways of life. While striking coastlines, hurricanes tend to raise sea level, erode sand beaches, and cause marine sediments to overwash onto land and into back-barrier marshes and ponds. Block Island, in the town of New Shoreham, Rhode Island, is a prime location for studying these overwash storm deposits. The research question that will be addressed in this project is: What is the history of hurricane and northeaster strikes on the northern end of Block Island? The following hypothesis will be tested: If sedimentary records of storm landings are obtained through a variety of proxy data (e.g., Munsell colors of visual core layers, grain size, radiocarbon dating, and foraminiferal data), then this record of storms can be correlated to public records to ascertain the societal repercussions of these storms. Thus, the sedimentary record will give greater clarity to the historic changes in the intensity and frequency of storms. In order to identify hurricane washover intervals, it is necessary to find foraminifera that commonly reside in salt-water, as they are offshore-indicative taxa. Foraminifera are sand grain-sized, unicellular, marine microorganisms, that normally occupy the ocean's upper water column and the sea floor.

Other proxies that are being used in this study to identify hurricane overwash intervals include radiocarbon dating, x-ray fluorescence technology, magnetic susceptibility, and grain size data. Preliminary data shows that collected cores date back to 500 years before present, and possibly capture the hurricanes of 1635, 1815, 1938, and more modern storms.

## **PARTISAN MEDIA COVERAGE OF CLIMATE CHANGE: A CHRONOLOGICAL STUDY**

**Emma Avery**

(Political Science, Philosophy & Geography)

*Faculty Mentor:* Courtney Broschious

Climate change has become a politically divisive issue in the United States over the last 20 years. This study seeks to answer the question: How does media coverage reflect and potentially promote political division on climate change in the United States? Climate change is an important issue as it poses a significant security risk to the American public. In recent years, climate change has been politicized, further dividing the American public and making it difficult for politicians to pass effective environmental policy. Public attitudes on policy issues such as environmentalism are of tantamount importance to policy-makers, who rely on public opinion and interest group money to succeed. In order to overcome this division, it is essential to understand the causes of the political divisions. The media is a possible reinforcement mechanism for political attitudes. This study examines whether the media is presenting climate change in a partisan manner, to understand how it might serve as a support of the political polarization along party lines. In this study, I examine news coverage on climate change in 2000 and 2008 from three popular newspapers with different ideological orientations: The New York Times (NYT), USA Today, and the Wall Street Journal (WSJ). In this study, I find substantial variation in the themes of coverage by source. The NYT focused primarily on the causes and science-specific findings of this phenomenon, USA Today neglected to cover the topic to the same level of detail as the other sources, and the WSJ focused on the economic and policy implications of climate change. Differences in coverage reinforce ideological positions of audience members as news media consumers tend to consume the news source that is closest to their position on the political spectrum. This study also finds that media coverage of climate change and its associated topics increase dramatically from 2000 to 2008.

## **CLIMBING OFF THE CANVAS: SIRI HUSTVEDT'S *THE BLAZING WORLD* AND GENDER-BIAS IN ART**

**Janet Bannister**

(World Languages and Cultures)

*Faculty Mentor:* Michele Boskovic

Siri Hustvedt's novel, *The Blazing World*, explores gender bias in the art world. The main character, Harriet 'Harry' Burden, is an artist who is dismissed by the art world after her famous art dealer husband dies. To prove her point that her lack of success has less to do with the quality

of her art than with her gender, Harry comes up with a grand scheme in which she will showcase her work in three exhibits while hiding behind the male masks of three men who will pose as the artists. She believes that erasing her identity from the equation will give her art a chance to be fairly evaluated and appreciated, and that when she finally emerges as the artist, all will see the error of their biased ways. Harry's fictional experiences and struggles echo the real-world phenomenon of inequality between male and female artists—"an injustice spanning place and times"—and refers to the many women artists and activists participating in the slow crawl toward parity. With her title, Hustvedt gives a nod to Duchess Margaret Cavendish's 1666 science fiction volume. One of many historical examples of pioneering, creative women, Cavendish caused great upset with her novel-writing, then considered a male arena. Harry relates to the female artists left as historical afterthoughts in a male-dominated art world—"artists like Camille Claudel and Lee Krasner. Historically, man is the artist and woman the object, and a huge gap exists between them. This presentation will use Hustvedt's novel as a starting point. It will demonstrate the accuracy of its premise, i.e. that male art gets greater exposure, more favorable reviews, and is considered more valuable than women's art, facts decried by activists like the Guerilla Girls, anonymous female artists campaigning against misogyny since the 80's.

### **TRACKING LACTOSE CONSUMPTION, DAIRY SUPPLEMENTATION AMONG LACTOSE INTOLERANT GROUPS USING PATIENT MONITORING PERSONAL DEVICES**

**Brittany Bard**

(Health Sciences)

*Faculty Mentor:* K. Niki Kunene

Dairy consumption is associated with bone growth. Dairy provides nine essential nutrients which are: calcium, potassium, phosphorus, protein, vitamin A, vitamin D, vitamin B12, riboflavin, and niacin. For consumer and public health, there is concern that lactose intolerant people who avoid dairy and consume inadequate amounts of some essential nutrients are predisposed to adverse health conditions. For example, people who are lactose intolerant do not get enough calcium and vitamin D, which may predispose them to bone accrual and osteoporosis. At the same time, the NIH Consensus Development Conference on Lactose Intolerance and Health, concluded that: 'lactose intolerance is a real and important clinical syndrome'. The NIH consensus statement also calls for behavioral approaches to 'improve the nutrition and symptoms of individuals with lactose intolerance and dairy avoidance.' In this experiment, we investigate the use of health monitoring apps to effectively track the recommended daily consumption of the 9 essential nutrients found in dairy among lactose intolerant people. We first evaluate the usability of a set of health monitoring apps to determine which one(s) would be better suited for tracking the ingestion of essential nutrient recommended daily values (RDVs). In an experiment, lactose intolerant participants are recruited, given a list of potential foods for dairy supplementation, selected by a nutritionist, and asked to track their daily consumption using health monitoring apps. Our results give some insight on selected health monitoring apps for lactose intolerant individuals and how individuals use the apps and/or don't use or abandon the use of the apps. Although the number of participants is small in this experiment, the results give some initial

insight on how difficult dairy supplementation is and whether it makes any difference (perceived or real) to the participants' health.

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### **A LATINA'S JOURNEY OF SELF-DISCOVERY**

**Keara Berisso**

(English)

*Faculty Mentor:* Christine Garcia

Latina identity is a complicated topic, and depends on factors such as country of origin, generational differences, and cultural aspects such as food, fashion, and language. As a mixed Latina living in New England, I am witness to how my own Latina culture works both with and against others. This multimodal presentation explores the connections and deviances of being Latina in New England from my perspective. I will present researched, crafted vignettes set against a moving slideshare of gathered primary material that, working together, construct a personal account of the nuances of identity. This project not only contains within it the content of identity construction, but builds on the Chicana feminist concept of autoethnobiography as theory; or, the idea that the construction and telling of one's one story counters the silencing of Latina people and creates a revised, and real history of Latina people. This presentation will function as both a presentation of primary research on Latina identity construction, but also as an act of history building through story telling.

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### **A CONVERSATION IN POETRY**

**Julia Bonadies**

(English)

*Faculty Mentor:* Dr. Daniel Donaghy

The main topics I explored in the creation, and compilation of my poetry manuscript currently entitled 'Proclamations of Praise' are faith and family. By reading the works of Ralph Waldo Emerson, Walt Whitman, Li-Young Lee, Wendell Berry, Mark Jarman, Brad Davis, and Maria Mazziotti Gillian, who have tackled these topics from a series of angles, I have learned how to articulate my own pursuit of existential questions in more depth. Having been brought up in a home that was centered on Christian principles, the significance of the Bible, church attendance, and ministry involvement my entire life, I view faith as deeply relational. I have established positive connections to the non-denominational sect of religion that I have not previously seen or experienced with many other poets. While many published writers wrote in fixed forms, particularly sonnets, most of my pieces are open-form narrative or narrative-lyric poems. By engaging in conversation with many spiritually-aware poets, my poems interact with and extend forward the conversation those previous poets have started. By presenting these pieces and speaking about their origins, I hope to add not only a perspective that acts as a response to existing texts, but also as a singular, unique, and new voice reflecting all that I've studied, observed, and learned about poetry, faith, family, and nature.

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## **I'M DIFFERENT, YES, I'M DIFFERENT & RICK RHINOCEROS CHOOSES HIS FRIENDS**

**Tyler Booth, Sarah Brihan, & Taryn McCabe**

(History)

*Faculty Mentor:* Dr. Caitlin Carenen

This group of three papers centers on a common theme of religion in American History. First, Tyler Booth's paper, *Ordaining a New Nation* examines the writings of Benjamin Trumbull, a colonial/early Revolutionary Connecticut minister. Booth, using archival material from ECSU, argues that Trumbull used his position as a minister before, during and after the Revolution to affect political change. Specifically, he combined Great Awakening ideas and Revolutionary ideals to create a pulpit theology that embraced independence and served as a tool to create a new moral nation. Taryn McCabe's paper, *Using the Moral Code to Justify Immorality: Andrew Jackson and the Indian Removal Act*, moves chronologically from the Revolutionary period (Tyler Booth's focus) to Jacksonian America, and argues that Andrew Jackson manipulated American religiosity in justifying the removal of Native Americans. He did so through a variety of tactics that convinced the public and members of Congress that Native removal was necessary and beneficial for the Christian nation. Despite some opposition, Jackson was successful in using religion to convince Congress to support the Indian Removal Act. Finally, we move to the twentieth century with Sarah Brihan's paper, *Thou Shalt Not Read this Book*. Ms. Brihan argues that an increase in book censorship in the 1980s can be traced to a variety of factors including a fear by religious groups that they had lost political control during the 1960s and 1970s, presidential rhetoric by Ronald Reagan that supported activism in the public schools by parents, and by the secularization of education in the United States--a move forcefully opposed by conservative religious groups. Ms. Brihan delves deeply into book banning statistics in the 1980s to reveal interesting geographic and year-specific patterns that challenge the notion that only the Religious Right actively worked to ban books.

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## **FIXED ASSET TRACKING IN NON-PROFIT HEALTH CARE**

**Rebekah Broncoto, Koren Thomas, & Michael Baldassarre**

(English)

*Faculty Mentor:* Fatma Pakdil

The project was collaboratively done by three students in BUS 260 Operations Management in Spring 2017 semester. For this project we implemented an asset tracking software for Generations Family Health Center. Most of the equipment that Generations uses has been purchased with grants. In order to continue receiving grants to purchase new equipment the staff at Generations must keep track of what items were purchased with what grants and they need to know that all items are in the correct branches and departments. To keep track of equipment the Generations staff took yearly inventories but the system was outdated and inefficient which led to many errors and misplacing of equipment and assets. The use of Sage Fixed Asset Tracking

software fixed this problem. After completing an outline and timeline for this project we sorted the assets by asset type, by site and by which grant the assets were purchased with. We set up and updated hand scanners that were then used to scan assets into the program instead of having to manually input them. We also did input some assets by hand to get an understanding for how the software works. After all assets were successfully scanned into the asset tracking software we worked with the Generations team to update their Property and Equipment Management policies to ensure that their new method of asset tracking would continue to be properly used in the future.

## **DOES TAXING TOBACCO DECREASE SMOKING RATES?**

**Torstein Brevik**

(Economics)

*Faculty Mentor:* Jennifer Brown

This paper analyzes the tax implemented on tobacco throughout the United States. It uses cross sectional data to determine the impact of the tax rates in different states and its effect on the smoking rates in those respective states. The main question for this research is: 'Do taxes have a direct influence on smoking rates in the United States.' The expected findings in this research suggest that high tax rates decrease the rate of cigarette smoking by an unknown amount as the demand for cigarettes is highly inelastic.

## **'ALL THE TIME' PLACE AND IDENTITY IN CREATIVE NONFICTION**

**Allison Brown**

(English)

*Faculty Mentor:* Susan DeRosa

Creative nonfiction deals with the battle between the objective and subjective truth of memories that the author holds to be the truth in their life. Through reflective writing, the author becomes a separate self by creating a narrator to portray an honest version of those memories by knowing that memory is slippery and the emotional truth is a challenge to realize in memoir. The author will be discussing how her identity has evolved through the stages of involvement with her church in a memoir entitled 'All the Time.' Looking back at this chunk of time which not only defined the author's childhood but also her adolescence and early adulthood, the author will be focusing on stages that compelled the narrator to grow; Sunday school, mentorship, and teaching as a leader in the church. Through the use of self-reflection, sensory imagery, and multiple voices, the author will be examining how to portray relationships among her characters that honors their humanity, flaws, and the emotional truths of the memories. Since the self is construction on the page in memoir, the narrative explores her evolving of identity in an environment that produces meaningful mentorship. The memoir is a series of fragments of in non-chronological order, which illustrates the complex manner in which the narrator continues to change throughout her experience at her church. This presentation is part of a three-person panel

which will be discussing how memoir blends interwoven fragments of particular moments in the writer's life getting as close to 'the truth' as possible.

**CHARACTERIZATION OF A NOVEL CHICKEN FOOT-LIKE NODULES (CFN) MUTANT DEFECTIVE IN ROOT ARCHITECTURE AND SYMBIOTIC NITROGEN FIXATION IN THE MODEL LEGUME PLANT MEDICAGO TRUNCATULA**

**Roshani Budhathoki**

(Biology)

*Faculty Mentor:* Vijaykumar Veerappan

Legume plants such as soybeans and common beans interact with the soil bacteria rhizobia and form unique organs called nodules to capture and convert inert atmospheric nitrogen (N<sub>2</sub>) into usable form by symbiotic nitrogen fixation (SNF). To identify novel genes in SNF, chicken foot-like nodules (cfn) mutant was isolated in a forward genetic screen by Dr. Veerappan from a Tnt1 mutant population in the model legume plant *Medicago truncatula* (barrel medic). cfn mutant was named after its characteristics clustered nodule-like structures on roots similar to a chicken foot. cfn mutant plants show defective root architecture, decreased nodule numbers, reddish-purple shoot (N<sub>2</sub> deficiency symptom) and white nodules indicating deficiency in SNF. In cfn mutant, nodule-like structures acquire root-like identity and occasionally root transforms into nodule-like organs. Comparison of cfn mutant phenotype with previously characterized *M. truncatula* root architecture and nodule organ identity defect mutants *nodule root<sup>1/4</sup>(noot)*, *compact root architecture 1 (cra1)* and *cra2* indicates that cfn is a novel mutant. Segregation analysis of cfn mutant phenotype using R2 (Regeneration 2) population shows that cfn phenotype is controlled by a single, recessive mutation. cfn mutant plants are lethal, failed to reproduce and needs to be maintained in heterozygotes. Towards finding the causative mutation underlying cfn mutant phenotype, I will mine the *Medicago Tnt1* mutants database and perform whole genome sequencing. Identification of the causative mutation in cfn mutant will provide novel mechanisms that control root architecture, nodule organ identity and SNF.

**PRIME-CENTERED TRIPLES**

**Amanda Burkhart**

(Mathematical Sciences)

*Faculty Mentor:* Mizan Khan

In the mid 1600s, a French mathematician named Pierre de Fermat began studying prime numbers that could be written as a sum of two squares. He eventually discovered that a prime number could be written as a sum of two squares if and only if  $p$  was congruent to 1 (mod 4); this was later named Fermat's Two Square's Theorem. This research builds upon this finding by analyzing prime-centered triples (PCT). A prime-centered triple is where  $p \equiv 1 \pmod{4}$  and  $(p-1, p, p+1)$  can all be written as a sum of two squares. Currently, there are no known patterns to predict larger and larger prime-centered triples. However, in our research we were able to prove that PCTs of the form  $(8n^2, 8n^2+1, 8n^2+2)$  are infinite.



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## **DETERMINING THE DISTRIBUTIONAL EFFECTS OF THE REGIONAL GREENHOUSE GAS INITIATIVE**

**Tess Candler**

(Economics)

*Faculty Mentor:* Jennifer Brown

Emissions trading schemes create a market of pollution allowances that grant the holder the right to release a certain quantity of emissions; these permits can be traded among participants, with the quantities decreasing over time to reduce the overall emissions level. Emissions trading schemes (ETS) can be used to: reduce pollution, lower abatement costs, encourage creative solutions to pollution abatement, and encourage investment in clean technologies. There has been substantial research conducted on the distributional effects of market-based environmental regulations, such as emissions trading schemes. Depending on their designs, these types of policies can have regressive or progressive outcomes. The focus of this study is the distributional effects of the Regional Greenhouse Gas Initiative (RGGI), an ETS established in 2005 that includes 7 New England and Mid-Atlantic states. This study considered if the effects of the RGGI are unequal in their distribution among socioeconomic groups. First, a model was developed that depicts the effect of participation in RGGI on local pollutant levels and if local socioeconomic characteristics influence the level of pollutant reductions. Second, the effect of RGGI on residential electricity prices was modeled; consumer expenditure data was used to determine if electricity price changes adversely impact one income group more than other income groups. The expected results are that the RGGI will be related to an increase in electricity prices and have a regressive impact; it is also expected that larger emissions reductions will be found in areas with higher socioeconomic status. This study contributes to the literature by conducting a case study of the distributional effects of the RGGI and focusing on two, rather than one, distributional effects.

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## **DETERMINING ROOT CAUSES OF CUSTOMER RETURNS IN A LARGE-SCALE WIRE PRODUCER**

**Patrick Cartier, Mark Curry, & Alyssa Reynolds**

(Business Administration)

*Faculty Mentor:* Fatma Pakdil

This team-based project was done as a part of BUS 260 Operations Management in Spring 2018. The project analyzed the root causes of the customer returns in an industrial market place where the final product is the variety of the wires. Using a data set including various variables that detail the customer returns, the team identified main root causes of the returns and searched the relationships between the variables. Several statistical data analysis tools were implemented in the data analysis of the project.

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## **ANALYZING THE CLOSE PHILOSOPHICAL RELATIONSHIPS BETWEEN THE TAOIST PHILOSOPHER CHAUNG TZU AND HENRY DAVID THOREAU**

**Kamran M. Chaudhry**

(Political Science, Philosophy & Geography)

*Faculty Mentor:* Hope Fitz

This essay, written by Kamran M. Chaudhry, is a comparative piece analyzing the close philosophical relationships between the Taoist Philosopher Chaung Tzu of the 4th century B.C., and the American Transcendentalist and Philosopher Henry David Thoreau of the 19th century A.D., and it demonstrates the correlation between Taoism, and the 19th century Transcendentalist movement. An overarching theme of nature and the natural world is brought to light by the author through the works of the two philosophers. This essay is not solely an academic subject to be analyzed, but a source of inspiration and guidance into the earthly world. In this essay, we will be encountering the ideals of two great wilderness philosophers, Chuang Tzu of the Far East, and Henry David Thoreau of the West, both of whom share the common respect for Mother Nature. It is this respect that we aim to harness. If you have not encountered the writing of Chuang Tzu or Henry David Thoreau, prepare yourself to be captivated. If you have, however, encountered either of these scholars' works, sit back and enjoy the perspectives that we bring to the piece. Thank you. Kamran M. Chaudhry.

## **THE EFFECT OF EXTERNAL DISSOCIATION OF ATTENTION ON THE DURATION OF A PLANK TO MAXIMUM EXHAUSTION, PERFORMED BY MALE COLLEGIATE SOCCER PLAYERS**

**Michele D'Agata, Daniel Scavone, & Jason Staub**

(Kinesiology & Physical Education)

*Faculty Mentor:* Greg Kane

During exercise it is common for individuals to use music as an external dissociative strategy to divert their attention away from the exercise task and result in a lower rating of perceived exertion and ultimately, increased task duration. The ability to dissociate attention away from an exercise task is somewhat dependent on exercise intensity; as exercise intensity increases, attentional focus tends to shift to an internal associative strategy. Using music during exercise has been found to increase the intensity threshold that marks this shift. Seventeen division III male varsity soccer players were recruited to participate in this study to determine if external distractors (self-selected music and virtual reality simulation) increase the duration of an isometric task. The isometric task that was performed was the forearm plank. The results of a paired-sample t-test indicate that there is a significant difference in the duration of a forearm plank when self-selected music was used in comparison to no music and virtual reality in comparison to no music. There was not a significant difference in task duration for self-selected music compared to virtual reality. This study concludes that the use of music and virtual reality simulation are significantly more effective at increasing plank duration than performing the

isometric task in silence. Keywords: Attention, external dissociation, internal association, isometric exercise, virtual reality, attention threshold, maximum exhaustion.

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### **DOES THE ORDER OF EXERCISE TYPE (STRENGTH TRAINING VERSUS PLYOMETRIC TRAINING) AFFECT PERFORMANCE-RELATED MEASURES IN COLLEGEIATE WOMEN'S SOCCER PLAYERS?**

**Michele D'Agata**

(Kinesiology & Physical Education)

*Faculty Mentor:* Darren Dale

Both plyometric training and strength training show favorable benefits to sports performance. The purpose of this research was to determine whether the order in which exercises are performed during a single session (completing all strength exercises, then all plyometric exercises versus performing all plyometric exercises followed by all strength exercises) differentially affected outcomes of sports performance. Female soccer players ( $n = 16$ ) at a Division III University were randomized into two groups, a Strength-First group or a Plyometrics-First group. All participants completed a twice-weekly training program over a 6-week period. The sport performance measures tested were vertical jump, lower body strength, and an agility T-Test. Performance measures were recorded one week prior to, and one week following, the six-week training program. It was predicted that greater benefits to strength (specifically a 1RM squat and 1RM deadlift) would be observed in the SF group. It was predicted that greater improvements in vertical jump and the agility T-Test would be observed in the PF group. Results of independent group T-tests showed non-significant mean differences on all outcome measures. Performance differences in collegiate women soccer players were not affected by the decision to place plyometric training ahead of strength training, or vice-versa. This finding allows coaches to provide variation with respect to the order in which exercise types (strength exercises, plyometric exercises) are prescribed within individual training sessions.

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### **POPULATION DIFFERENTIATION OF THE NORTH AMERICAN BLACK TERN, *CHILDONIAS NIGER SURINAMENSIS*: A REGIONAL POPULATION GENETICS STUDY TO ENHANCE CONSERVATION**

**Megan Deacon**

(Biology)

*Faculty Mentor:* Patricia Szczys

Since the 1960s, the North American Black Tern, *Chidonias niger*, has experienced significant population declines generating concern from the public and conservationists alike. This study explores the population genetics of three Black Tern populations in the northeastern and Great Lakes region to identify genetically distinct or related populations. Ultimately, this will help to better understand the potential causes and consequences of the decline to make appropriate conservation management decisions. A total of 32 individuals from three locations, Maine,

Ontario, and Michigan, were genotyped at 8 microsatellite loci. The mean number of alleles per locus for each population ranged from 5.83 to 6.33 with an average heterozygosity value of 0.73, both of which values indicate moderate to high levels of diversity. Pairwise population  $F_{ST}$  values ranged from 0 to 0.03 revealing overall panmixis, with particularly high gene flow between Michigan and Ontario. This study reports that the sampled Black Tern populations have maintained genetic variation, as measured by allelic richness and heterozygosity, despite observed and reported population declines. The apparent population connectivity calls for regional and international conservation management collaboration.

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## **BEHAVIORAL FEMINISM**

**Kaylee Defelice**

(Psychological Science)

*Faculty Mentor:* James Diller

This paper compares facets of applied behavior analysis and feminist theory. Going off the work of Dr. Maria Ruiz, I explain how the goals of feminism and applied behavior analysis are aligned, and how each field would benefit by embracing some of the other's thought. Intersectionality feminism examines the intersecting variables, like race, gender, and sexuality, that affect one's experiences, rather than just simply one factor, like gender. Pragmatic behaviorism and intersectionality have many parallels, and by recognizing these similarities and applying them to the study of behavior analysis, researchers can more readily identify the variables affecting behavior. Both fields had questionable beginnings, as behavior analysis performed unethical treatments on those oppressed, and feminism mainly focused on only white heterosexual women. However, progress has been made in both fields. With the still widely prevalent gender, race, and sexual orientation biases held today, it is important for behavior analysts to be able to recognize these contingencies that have been so overlooked in the past. By looking at articles published by both behavior analysts and intersectional scholars, advantages of integrating these fields can be found.

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## **A QUALITATIVE STUDY OF THE PLAY OF CHILDREN OF LOW ENGLISH PROFICIENCY IN AN ENGLISH-SPEAKING PRESCHOOL**

**Stefanie Dominguez**

(Early Childhood Education)

*Faculty Mentor:* Jeffrey Trawick-Smith

Little research has been conducted on the play of children of very low English proficiency within English-speaking preschool classrooms. In the present investigation, we recorded and described the naturalistic free play of four dual language learners (DLLs) and compared their interactions to those of four English-speaking children. Units of interaction were identified, transcribed, named, and categorized. Illustrative transcriptions of individual interactions were selected and probed more deeply. The trustworthiness of the investigation was established by triangulating these qualitative findings with a quantitative measure of children's social participation in play.

Findings indicate that DLLs play and talk with peers less frequently and in less sustained and positive ways, and are more reliant on teachers in their play than their English-speaking peers. Implications for scaffolding DLLs' play in classrooms and for future research are presented.

### **TO GREEK OR NOT TO GREEK: AN ANALYSIS OF GREEK LIFE PARTICIPATION ON GRADUATION RATES**

**Catherine Falvey**

(Economics)

*Faculty Mentor:* Jennifer Brown

This paper will analyze how the participation rate in Greek Life at a college or university impacts that school's graduation rate. An analysis of cross-sectional data will guide the understanding of the role that membership could have on a student's probability of completing their degree. It is expected that this analysis will show the existence of a positive relationship. It is hypothesized that participation in Greek Life could indicate a greater commitment to the school and its community, leading to a higher probability of graduating. This paper aims to understand if there is a positive return to students for choosing to 'Go Greek' or if it is a hindering their chances of completing their degree.

### **'IF YOU BELIEVE IT, YOU CAN ACHIEVE IT': AN ANALYSIS OF THE EFFECT OF EXPECTATIONS ON EDUCATIONAL ATTAINMENT OF AMERICAN YOUTH**

**Catherine Falvey**

(Economics)

*Faculty Mentor:* Steve Muchiri

Education is significantly linked to future earnings so it is important to understand what drives a young adult's educational attainment. This paper analyzes the impacts of educational expectations of youths on the attainment of those expectations. Using an extensive panel data from the National Longitudinal Survey of Youth of 1979, we investigate if American youths are following through with their expectations for education. We model their educational attainment from a young age by controlling for variables such as, parent's education level, family income, and cognitive ability. Preliminary results reveal positive relationships between these variables and educational attainment. From a policy stand point, these results suggest that students should be encouraged to form aspirations for their education at a younger age.

### **THE RELATIONSHIP OF SOCIAL PHYSIQUE ANXIETY, EXERCISE DEPENDENCE, AND GENDER**

**Kassia Faulise, Christine Cheng, & Boronny Touch**

(Communication)

*Faculty Mentor:* Chris Ayeni

We are designing a new product that will sell internationally. We will show the steps to developing it, and building an advertising campaign in order to make it successful. Product: Allergy Test Strips, Product Name: Allergy Ally, Description: This product will come in a small cardboard box, easy to transport and eco-friendly. They will be thin paper, with a chemical on them that can test for certain allergens. There are different kinds that work with different common things people are allergic to. You place them in your food, wait 30 seconds, and they will tell you to what level the food contains your allergen. This would be great for people that are allergic to different kinds of food, or sensitive to them. Then they can make an educated decision on if they want to eat the food or not. Target Market: America, Canada, Europe, Australia (more developed countries). Meant to sell to anyone with a food allergy. Convenient for people who travel often to different countries and help with language barrier.

### **THE EFFECT OF NATIONAL HEALTH EXPENDITURE ON LIFE EXPECTANCY AND INFANT MORTALITY**

**SiYing Foong**

(Economics)

*Faculty Mentor:* Jennifer Brown

Life expectancy among the population in developed countries has been improving for many decades. It is unclear why this trend is observed; this paper aims to analyze the relationship between healthcare expenditure and national health outcomes among 20 OECD countries to assess where an increase in expenditure is correlated with this trend. Data from OECD health statistics and the World Health Organization (WHO) database will be used in this research. This paper will use panel data to determine the association between government health expenditure and other measures of how developed a country is, health outcomes such as life expectancy at birth, and the infant mortality rate. The findings are expected to show a positive relationship between government health expenditure and life expectancy at birth, and a negative relationship between government health expenditure and the infant mortality rate.

### **THE USE OF NON-DRUG THERAPIES TO TREAT CHRONIC PAIN AMONG CANCER PATIENTS.**

**Ashley Franklin**

(Sociology, Anthropology and Social Work)

*Faculty Mentor:* Dr. Mary Lorena Kenny

An estimated 15 million people in the U.S. are living with some type of cancer. Many are unaware of integrative, non-drug interventions to treat both physical and psychological cancer-related symptoms. Opioids are the most commonly used treatment for cancer pain, but these powerful drugs carry ancillary, sometimes debilitating, side effects, including addiction. In general, more research funding is available for drug therapies than non-drug therapies, and significantly more profit is garnered from selling prescription drugs than in alternative

treatments. Non-drug therapies such as yoga, reiki, acupuncture, and massage have been found to help alleviate pain and other side effects, such as anxiety and depression in individuals who use these treatments. This presentation will focus on preliminary results from semi structured interviews with patients and practitioners that use non-drug therapies as treatment options. There appears to be significant patient satisfaction with these interventions, and narratives points to the effectiveness of non-drug therapies at improving quality of life by minimizing physical pain and psychological stress. This presentation also touches upon the limitations non-drug therapy providers face. Overall, integrative treatments may not be a cure, but can provide a better quality of life for cancer patients experiencing emotional and physical pain.

### **THE BLACK AMERICAN EXPERIENCE: EXPLORING HOW RELIGION, RELATIONSHIPS, AND CULTURE HAVE SHAPED THE BLACK AMERICAN EXPERIENCE**

**Vanessa Hill**

(History)

*Faculty Mentor:* Thomas Balcerski

This research dives into the black American experience in America. Looking through a lens of both religion and cultural experiences, this project attempts to not only lay out a clear understanding of how religion came to be an important feature in the black American experience, but understanding and connecting religion, culture, relationships, and race to how race relations have developed and shaped the black American experience in America. Looking at the experiences of influential black Americans, such as Constance Baker Motley and Martin Luther King Jr., as well as concentrated areas of cultural prominence, such as Washington D.C.; I hope to further explore how black Americans have shaped American culture.

### **SEXUAL AND SELF-INFLICTED VIOLENCE IN HAN KANG'S THE VEGETARIAN**

**Lindsey Hopkins**

(World Languages and Cultures)

*Faculty Mentor:* Michele Boskovic

South Korean author Han Kang's novel, *The Vegetarian*, offers an unprecedented view on patriarchy, and the sexualization and objectification of women, as it also weaves in the issue of mental illness, more specifically the main character's eating disorder. Using a feminist framework, this presentation will show how Han Kang articulates these topics in a three-part novel, of which the Vegetarian is never in control of her narration -- the only control she can exercise is over her body. The presentation will delve into both sexual assault and eating disorders, shedding a new light on these two topics in a South East Asian context.

### **ASSESSMENT OF MICROGLIAL FUNCTION IN BRAIN AND BLOOD MICROENVIRONMENTS**

**Lillian Hyde**

(Biology)

*Faculty Mentor:* Kurt Lucin

Microglia are vital support cells in the central nervous system, triggering defense mechanisms in response to foreign particles. Microglia, although naturally found in interstitial fluid, an environment similar to cerebrospinal fluid (CSF), are routinely studied in vitro (in a dish) by culturing these cells with fetal bovine serum (FBS) as a supplement to support growth. Whether microglia cultured with FBS are functionally similar to those in their native environment is unclear. This question is particularly interesting given that microglia can be activated into a pro-inflammatory (M1) or anti-inflammatory (M2) phenotype based on signaling molecules in their environment. These phenotypes can have profoundly different influences on brain health by damaging neurons (M1 activation) or promoting neuron and support cell growth (M2 activation). This study assesses if microglial activation differs in FBS compared to their more natural environment of CSF. By establishing a baseline of microglial function in their native environment, the role of microglia in disease can be more closely modeled in vitro. Preliminary results suggest that CSF might promote microglial morphology reminiscent of M2 activation while FBS may promote M1 activation. Further testing is being done to more definitely characterize these cells based on cellular markers and function. If true, these findings would suggest that culturing microglia in FBS might drive these cells towards an activation state that does not mimic their natural state in the central nervous system.

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**PARTISANSHIP, PARTISAN VIEWS, AND THE ENVIRONMENT ON COLLEGE CAMPUSES****Robert Johnson**

(Political Science)

*Faculty Mentor:* Martin Mendoza-Botelho

My paper studies partisan views of college students in regards to the environment. I conducted this research in conjunction with my PSC 202 (Quantitative Research Methods) class, where we, collectively, wrote a survey relevant to several lines of research. I designed my questions to classify my respondents politically and to be able to make comparisons on partisanship. We gathered data from 153 students at Eastern. My major findings were that, as one might expect, there are deep seeded partisan divisions among college students on controversial non-environmental issues like funding for Planned Parenthood, money for border security, and so on. On environmental issues, while divisions still exist, they are not as strong or as consistent. Respondents overwhelmingly believe in climate change, but are not as unified as to the proper approach to combatting it. Students do agree that we should do more to incentivize alternative energy. This approach creates jobs and puts Americans back to work in industries that are more stable and sustainable. Respondents who either lean conservatively, or are strong conservatives, seem to be more open to arguments about incentivizing alternative energy than they are on other environmental issues. This finding in particular is very important to the future of climate policy



on a national level. Environmental job creation is the bi-partisan compromise that is needed now more than ever. I cannot agree more with these findings.

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## **ANALYSIS OF HOW INFORMATION SPREADS ON TWITTER**

**Haley Knox**

(Computer Science)

*Faculty Mentor:* Garrett Dancik & Megan Heenehan

The spread of information on Twitter can be visualized as a network and analyzed using graph theoretic methods. Such an approach can be used to better understand how misinformation ('fake news') spreads. The spread of false information has been a growing concern, and is a recognized aspect of the 2016 presidential election. In order to limit the spread of misinformation, it is important to understand how it spreads. We begin our analysis with Hoaxy (<http://hoaxy.iuni.iu.edu/>), a tool for visualizing and fact-checking claims. Once a popular tweet is selected, we use the programming language R and the rtweet package to determine which users retweeted it. We create a 'retweet' network, where the vertices represent Twitter users, and edges between two users indicates that one user has retweeted the other. However, because of how Twitter defines 'retweets', all retweets are with respect to the original author, even for users not following him/her. This results in a disconnect in how information actually flows, and is a limitation of other Twitter networks. Therefore, in order to better understand how information spreads, we add a 'followers' network, and add edges between users if one user follows another. Finally, we analyze our revised network by applying graph theoretic measures, such as degree, closeness, eigenvector and betweenness centrality, to identify influential Twitter users. We also identify clusters of Twitter users, or communities, and calculate the density of these groups by applying the global clustering coefficient measure. Networks are visualized using the program Gephi, which allows us to color-code vertices, edges, or communities based on different properties. This project is a first step in the analysis of how fake news spreads on Twitter, and will be the basis for future work that will involve comparing several 'fact-checked' and 'fake news' networks to understand important differences between them.

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## **DIAMONDS ARE A COUNTRY'S BEST FRIEND...OR ARE THEY?**

**Jared Kranc** (Economics)

*Faculty Mentor:* Jennifer Brown

This research will examine the impact of diamond exports on GDP per capita among countries with 1% or greater market share per continent of the diamond exports market. Diamonds are some of the most expensive, sought after gems in the world. They are also the toughest substance in nature because of their complex molecular structure. Unfortunately, many countries that are famous for exporting diamonds have suffered from conflict, corruption, and poverty. Controlling for poverty rates, the Gini Coefficient, corruption indices, and system of government, this project will be investigate how the volume of diamond exports among a set of countries affects GDP per

capita. The anticipated results should show a weak, most likely negative, correlation between the exported volume of diamonds and GDP per capita of a nation.

### **THE LARAMIE PROJECT AND THE DISTINCTIONS BETWEEN SOCIALLY-PURPOSIVE THEATRE AND THEATRE AS ENTERTAINMENT**

**Kaileen Langlois**

(Performing Arts-Theater)

*Faculty Mentor:* David Pellegrini & Bob McGrath

Throughout the cold month of November 1998, Moises Kaufman and a select group of members from the Tectonic Theater embarked on a trip to Laramie, Wyoming. Once there, they began the interview process of Laramie citizens about the October 1998 kidnapping and horrific, devastating murder of Matthew Shepard. Matthew Shepard, who was a student studying at the University of Wyoming and whom happened to be gay was stripped from the world too soon due to some imprudent socially constructed prejudice and homophobia. The interviews were later constructed into what is known as The Laramie Project. This is an exceptional display of documentary theatre- a form of performance that either in its whole or its parts entirety or in some reframes evidence and the 'public record' (e.g. newspaper reports and oral testimonies) into a dramatic structure. Most often it incorporates much material verbatim, which gives the appearance of objective reportage; still the manner in which it is organized reveals a point of view of the scriptwriter(s). In its modern day form, documentary theatre was contrived in the 1920s by Bertolt Brecht and Erwin Piscator, two intellectual German directors, who focused on specific issues revolving around social controversy. Documentary theatre, in theory, attempts to bring light upon social issues by privileging 'facts' over aesthetic considerations. Still, audiences expect theatrical performances to be aesthetically pleasing. By furthering research about the company and their rare documentary approach, I hope to unravel the distinctions between socially-purposive theatre and theatre as 'entertainment'.

### **DOES FOREIGN AID HELP A DEVELOPING COUNTRY?**

**Marcus Lim**

(Economics)

*Faculty Mentor:* Jennifer Brown

In many developing countries, increasing economic growth has been a priority on the government's agenda. Foreign assistance is a critical source of development finance and one of the main hopes for accelerating growth in the future. As aid is given, there is typically a certain purpose that the country must use it for. This paper investigates foreign aid to determine if it may help or hinder the progress of a developing nation. This paper uses cross sectional data and panel data obtained from The World Bank and US AID. Do developing countries benefit from this kind of aid that was given to them for their economic growth? The expected finding of this paper suggest that foreign aid does help nations with their economic growth.

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## **FOR THE LOVE OF A LIBERAL ARTS EDUCATION**

**Marcus Lim**

(Economics)

*Faculty Mentor:* Steve Muchiri

This project seeks to understand why students choose to attend specific colleges, specifically Eastern Connecticut State University. We use primary data through a random survey on the campus of ECSU. Specific questions analyzed include: (1) Why did you choose ECSU? This question is meant to understand whether the brand 'Liberal Arts Education' has any significance influence on their choices. (2) Why did you choose your major? This is meant to understand how a department's reputation or employability influences students' major choices. Our findings, so far, suggest that the brand 'Liberal Arts Education' has no significant influences on school choice.

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## **THE EFFECTS OF TOYS ON THE QUALITY OF YOUNG CHILDREN'S PLAY IN PRESCHOOL: INFLUENCE OF GENDER, ETHNICITY, SOCIOECONOMIC STATUS, AND THE MANNER IN WHICH THEY ARE INTRODUCED BY TEACHERS**

**Allison Lundy, Dominique McLean, & Morgan Winship**

(Education)

*Faculty Mentor:* Jeffrey Trawick-Smith & Julia DeLapp

This study examined the effects of eight toys on the play of 43 three- and four-year-old children in culturally diverse preschool classrooms. The toys, which varied in their features and intended uses, were each video recorded for four hours during free play time in four different classrooms. Researchers coded over 4,000 five-minute segments of children's play with these toys using a Play Quality with Toys (PQT) rating instrument developed in a previous investigation. Toys were found to vary significantly in their impact on play quality. PQT scores were also found to vary for each toy depending on the gender, socioeconomic status, and ethnicity of the child playing with it, and the manner in which it was introduced by the classroom teacher prior to play. Implications for selecting toys for classrooms and observing children's play with them are presented.

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## **THE FIREFIGHTER PROBLEM: CONTAINING FIRES ON GRAPHS**

**Emily Menendez**

(Mathematical Sciences)

*Faculty Mentor:* Megan Heenehan

The Firefighter Problem was introduced by Hartnell in 1995, and can be used to model the spread of fires or diseases throughout a population. This situation is modeled using graphs,

which consist of a set of vertices and a set of edges, which are unordered pairs of vertices. We represent graphs by drawing points for the vertices and lines connecting points for the edges. Imagine that a fire breaks out at one or more vertices in a graph. In each round, we place  $f$  firefighters on vertices of the graph, and the fire then spreads to all adjacent vertices. Vertices are considered to be adjacent when connected by an edge. In this talk we present the maximum number of vertices that can be saved in cycles, hypercubes, and specific types of trees, when a single fire breaks out at a vertex and one firefighter is placed per round. We also consider containing fires on an infinite hexagonal grid, which is a tiling of the Euclidean plane using regular hexagons. In our graph interpretation of this grid, vertices are the corners of the hexagons and edges are the sides of the hexagons. Expanding upon the work of Fogarty and Biebighauser et. al. for infinite square grids, we present results towards the minimum number of firefighters needed at each time step in order to contain the fire in hexagonal grids. In addition, we consider the case when firefighters do not respond immediately.

### **'EQUILIBRIUM: A MEMOIR OF SELF-HARM AND ALCOHOL ABUSE**

**Jessica Miclon**

(English)

*Faculty Mentor:* Susan DeRosa

On a panel with two other memoirists, the author will be reading an excerpt from her memoir 'Equilibrium,' and discussing the unique challenges of writing creative nonfiction. 'Equilibrium' addresses that narrator's abusive relationship with alcohol and self-harm. After the abuse and family disorder of her adolescence, the author details her journey of learning to cope with the fragmented memory and loss of identity caused by those traumas. Years after first healing from the various forms of self-injury that she engaged in as a child and teen, the narrator explains why her trauma drove her back to a cyclical pattern of self-harm and binge drinking. Along with her excerpt, the author will be discussing how she deals with challenges like writing the family, evaluating the truth in her memories, and creating a compelling voice. The author will explain her methods for writing about the unreal, or completely forgotten, periods of her life. Discussing literary tools like point of view shifts and metaphor are central to accurately representing those parts of her writing. Due to the nature of the pieces, writing about the family is a challenge that is central to the author's writing. She addresses questions she had faced in her process, such as 'how do I write about the negative aspects of family life without attacking their characters?' and 'is this my story to tell, or would they like it to be kept private?' Overall, 'Equilibrium' aims to wrestle with ideas about how memoirists might be honest and compelling, no matter the subject at hand.

### **LA MUSIQUE EN PLEIN AIR: DEBUSSY AND OPEN AIR FREEDOM**

**Emily Miclon**

(Performing Arts - Music)

*Faculty Mentor:* Timothy Cochran

French composer Claude Debussy's connections with nature are widely apparent in both his musical compositions and his critical writings and letters. While Debussy idealizes the relationship between music and nature generally, he advocated within his critical writings for the unique concept of 'Open Air Music.' Debussy quite literally imagines a large orchestra and accompanied voice situated in an outdoor setting so that the sound can blend with the natural environment and thus be experienced in new and beautiful ways. This project examines Debussy's primary source critical writings to explore Debussy's concept of Open Air music, which I view as both a literal goal and a powerful metaphor for achieving Debussy's goal of freeing music from the restrictions of concert hall tradition. Utilizing outside theoretical frameworks such as Murray Shafer's 'The Soundscape' and the sublime, I explore what Debussy means by Open Air Music, and what he sees as its usefulness. This will include understanding how Debussy views the space in Open Air as favorable to freeing the performance of music, and what technical elements of music Debussy believes best reflect the freedom of nature. While Debussy is often seen as a composer who breaks from tradition, unpacking the way that Debussy uses Open Air Music as a literal and metaphorical way of achieving freedom will add layers of understanding to Debussy's broader philosophy and compositional goals.

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**'GREETINGS AND SALUTATIONS': AN EXCERPT FROM THE NOVEL *THE KIDS WHO KILLED ON BERKSHIRE STREET***

**Christopher Morris**

(English)

*Faculty Mentor:* Christopher Torockio

When she was just twelve years old, Kali Simmons witnessed her twin sister's brutal murder. The killers, two outcasted girls from Kali's middle school, were never caught, and neither was the man who, that same night, dragged Kali's unconscious body into the woods behind her house and left her by the roadside early the following morning. Fast forward four years. Kali is living on the streets of Providence, Rhode Island, sleeping at the restaurant where she works and wondering when — if ever — her father will let her come home again. The only lights at the end of the tunnel seem to be Sydney and Penny, two homeless sisters who quickly become Kali's best friends. Fast forward another year. Stan McGee, one of the wealthiest men in America, has been shot dead in his home. Jenna Watson, his neighbor and the daughter of two of America's most prominent entertainment moguls, is missing, and things don't look good. The Providence PD has what seems to be conclusive evidence that the killers were Mia Winters and Kali Simmons. Fast forward two more years. Kali Simmons breaks her silence with a memoir entitled *The Kids Who Killed on Berkshire Street*. In it, she promises to reveal the truth behind Stan and Jenna's deaths — and how it all relates back to her sister's long-ago murder. Beneath the twisting narrative of murder and conspiracy, however, *The Kids Who Killed on Berkshire Street* is both a championing of childhood bravery and resilience and also a love story, a powerful reminder of how family makes even the most horrific of circumstances survivable — until the moment those circumstances overwhelm you completely. This excerpt, titled 'Greetings and Salutations,' chronicles the first time that Kali and Penny meet, powering up a powerful friendship which will, a year later, inadvertently lead to a violent and horrible crime.

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## **THE YOUNG CHILD'S MORAL EDUCATIONS—OR SUBTLE INDOCTRINATION? A NEW PERSPECTIVE ON RELIGION'S PLACE IN TURN-OF-THE-TWENTIETH CENTURY PUBLIC EDUCATION**

**Christopher Morris**

(History)

*Faculty Mentor:* Caitlin Carenen

In New England, religion is something of a taboo; public school teachers steer clear of it, and history — even American history — is taught as though religion and politics were formally, officially, and forever divorced with the ratification of the Constitution. This is surprising, given America's profoundly religious heritage and its ever-rising rates of religious adherence, but the debate surrounding religion's place in public education is hardly a new one. And while the Scopes Trial of 1925, which brought the issue before the Supreme Court, is oftentimes seen as the beginning of educational secularization, the secularization debate had already been ongoing, even then, for decades. This project, then, aims to further illuminate the reality of religion's place in public education at the turn of the twentieth century while also revealing the extent to which the secularization debate was already underway. Indeed, the debate's legacy expands beyond the Scopes Trial and might be newly examined through the use of turn-of-the-twentieth-century guides to school discipline and classroom management. Written for educators and parents on how to manage and to discipline children, these rare historical documents presented the notion that children's moral education depended upon both a religious public education—and also upon children's total intellectual obedience to their educators. However, secularists challenged this notion along 'progressivist' lines, lamenting that religious educators were indoctrinating their students. They thus reframed the very idea of religious education as being 'repressive,' as being an agent of intellectual subjugation and as actually being anti-intellectual.

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## **A DNA TRANSLATION TOOL AND OPEN READING FRAME FINDER IN PYTHON**

**Chad-Michael Muirhead**

(Computer Science)

*Faculty Mentor:* Garrett Dancik

A DNA translation tool and open reading frame finder in PythonAn organism's genetic information is stored in its deoxyribonucleic acid, or DNA. The sequence of an organism's DNA can determine, in part, traits such as eye color and risk of developing breast cancer and other diseases. Inside a cell, DNA is converted to RNA (ribonucleic acid) through the process of transcription. The RNA is then read to generate proteins through a process known as translation. The entire process of producing a protein from DNA is known as gene expression. The objective for this work was to develop a tool for determining the protein sequence that would be produced from a given DNA sequence. Similar to tools such as the Expasy Translate tool (<https://web.expasy.org/translate/>), this tool identifies open reading frames (where translation

begins with a start codon and ends with a stop codon), and is a first step in identifying genes from genomic sequence data. More generally, this tool can be used to study how mutations or changes in DNA effect the corresponding protein.

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### **POST-1900 SEDIMENT ACCUMULATION IN THE POINT JUDITH HARBOR OF REFUGE, POINT JUDITH, RHODE ISLAND**

**Cody Murphy**

(Environmental Earth Science)

*Faculty Mentor:* Bryan Oakley

The Point Judith Harbor of Refuge (HOR), a breakwater harbor constructed between 1900 and 1914, located at the eastern end of the Rhode Island south shore (RISS) was surveyed in 2016 using an EdgeTech 216S Sub-bottom Profiler and in 2017 using a Benthos surveyor (operated at 2-7kHz). A distinct, acoustically transparent facies, overlying a prominent seismic reflector was mapped under much of the HOR. The current interpretation is that this reflector represents the shoreface (transgressive/ravinement) surface prior to construction of the jetties. The sediment above this reflector is interpreted to be sediment deposited following construction. The current estimate is that this represents 3,100,000 m<sup>3</sup>. A semi-quantitative estimate based on changes between a 1913 lead line survey and a 2009 hydrographic survey reports a slightly lower volume of 2,200,000 m<sup>3</sup> (depth was adjusted for sea level rise) (22,000 m<sup>3</sup> yr<sup>-1</sup>). The hydrographic data also suggests the upper shoreface of the HOR lost sediment over that time (340,000 m<sup>3</sup>). This volume is significantly less than the total depositional volume, indicating much of the deposited sediment delivered by longshore sediment transport into the HOR. Our current interpretation is that this sediment is largely sand, however there are anomalous reflectors within this unit (gas). Verification ultimately requires sediment coring. Previous work indicates sedimentation rate of ~10,000 m<sup>3</sup> yr<sup>-1</sup> (~ 1,000,000 m<sup>3</sup> in 100 years) on the flood tidal delta within Point Judith Pond. This study determined sedimentation in the HOR is at least double that estimate (22,000 - 26,000 m<sup>3</sup> yr<sup>-1</sup>). Taken together this shows that the HOR is an important sink within the overall RISS sediment budget.

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### **THAT SOUNDS LIKE A CULT**

**Joshua Perry**

(Performing Arts - Music)

*Faculty Mentor:* Timothy Cochran

The term 'Kunstreligion' refers to the philosophical interpretation of art criticism and literary interpretation that emphasizes specific works of artistry as equivalent to the divine, even going as far as sacralizing specific art and specific artists into an appreciative canon (Didier, 2006). Examples of this German-born, art-fanaticism can be found in descriptions of romantic composers such as Wagner, Beethoven, Liszt or Chopin (to name only a few). In each of these instances, outside observers find themselves consumed by the phenomenology of a particular moment or act in which virtuosity and passion take precedence over the mundane and earthly

(Wagner, 1870). One should find no surprise that Kunstreligion continues to exist today, despite the eventual shift away from romanticism in the 20th century; in fact, one could argue that the repetitive nature of artistic trends guaranteed the revival of Kunstreligion tropes. Although separated from the European romantic era by nearly a century, one of the best examples of revived Kunstreligion thinking occurred within the continental United States during the 1960's, in particular the die-hard cult following of American folk/rock/funk/blues band, The Grateful Dead (Lesh, 2006). This study aims to examine and compare parallels between romantic composer-worship (e.g., the discourse surrounding Beethoven), and the fanatical cult-following garnered by The Grateful Dead. By utilizing and comparing literary sources and fan commentary from both time periods, I will demonstrate the many parallels between the sacralized romantic period and the psychedelic worship of The Grateful Dead, demonstrating the continuation and transformation of Kunstreligion in the 20th/21st centuries.

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## **COMMUNITY ENGAGEMENT THROUGH ART AND RENEWABLE ENERGY**

**Jamie Piscitello**

(Art and Art History)

*Faculty Mentor:* Dr. Gail Gelburd

Public Art strives to connect communities with current issues in society. The environment is a common subject in today's Public Art. Artists that have expressed their thoughts on environmental issues include Patricia Johanson, Mel Chin, and Deedee Morrison. These artists have created a space for viewers to contemplate their own environmental impact. Land Art Generator Initiative (LAGI) is a non-profit dedicated to bringing artists, engineers and architects together to make art that can create clean energy through public environmental art. LAGI is currently hosting a project in Willimantic, Connecticut. The community of Willimantic is actively involved in economic development through the arts and has done projects such as The Windham Project and created numerous mural and graffiti art works. Many of them have related to the town and the river. The Willimantic River, which straddles the town, has historically has been used for creating hydroelectricity for the now defunct mills. Whitewater Park now sits where once there was a mill. Whitewater Park Partnership connected with LAGI, Connecticut state Office of the Arts and Eastern Connecticut State University to instigate a sustainable energy public art project. Three finalist teams were selected and each created a concept design. Each team's work will be featured in an exhibition and a final team will be chosen to bring their plan to life. Through a review and evaluation of the proposals we can better understand their role as public art, community development, sustainability and economic development. The LAGI Willimantic Project offers a unique way to create an art and educational ecological power source of which the whole community can be involved.

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## **A TURN TO THE LEFT: IS A POLITICAL REVOLUTION BREWING AMONG AMERICAN STUDENTS?**



**Bijan Rezai**

(Political Science)

*Faculty Mentor:* Martin Mendoza-Botelho

Nearly thirty years since the dissolving of the Soviet Union, class politics and 'casual' socialism have made a quiet resurgence among the American constituency. This trend is best illustrated by the 2016 campaign of Senator Bernie Sanders, the self-described democratic socialist, whose appeal reached Democrats and Republicans alike. Even in defeat, the candidacy of Senator Sanders is embraced by young voters around the country, introducing an entire generation to the umbrella of socialist politics influenced. The rising popularity of American socialism appears also notably in the 2011 'Occupy' movements and the registration of 28,000 new members to the Democratic Socialists of America in 2017. Yet, the effects of half a century of McCarthyism and 'red scare' tactics expose ideological inconsistencies in young voters who are attracted to far-left policies but continue to look to traditional party structures to represent their demands. This research relates to New England university students, thereby analyzing the extent to which this demographic adopts and relates to socialism and socialist principals. Using a sample of 152 students, this research measures participants' sympathy towards various ideologies based on agreement with selected statements related to ideologically influenced policies. When presented with socialist principals, participants showed a clear trend of agreement. The data also presents instances of inconsistency between the self-identification of participants and interpreted identification based on their responses to statements. The results of this research offer implications of young voters' changing expectations of government, the principals they hold, and the ideology they operate under.

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**A MENU RENEWING PROCESS IN A LOCAL RESTAURANT****Karina Santos, Adam Greczkowski, & Kristina Zoghbi**

(Business Administration)

*Faculty Mentor:* Fatma Pakdil

The purpose of this project was to analyze and assess the effectiveness of a local restaurant's menu selection and pricing in order to streamline their menu to include their most profitable and popular items. By researching different methods of menu planning and pricing, our team was able to forecast restaurant's menu items and determine suggested sale prices. In doing so, our team has hoped to make educated recommendations to the restaurant for potential menu revisions. In analyzing price versus costs of goods sold and the total contribution margin of each menu item, the team has attempted to determine whether or not each product is truly profitable for the company. In regards to menu items that were determined not profitable or were deemed to not be meeting their maximum profit potential, our team planned to suggest revisions. We were able to obtain information about non-food costs, total sales, and total revenues of the restaurant for the year 2016. We were also able to utilize this information in several models found from literature on menu analysis to determine the profitability and popularity of the menu items.

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## **RESTRAINT AND LIBERATION IN WILLIAM BLAKE'S THE MARRIAGE OF HEAVEN AND HELL**

**Neil Schneeberg**

(English)

*Faculty Mentor:* Benjamin Pauley

William Blake's 1790 illuminated work *The Marriage of Heaven and Hell* seeks to liberate its readers from the errors of perception that Blake believes prevent them from recognizing the infinite joy that underlies reality. Blake attributes what he sees as the errors of orthodox religion and morality to the mistaken notion that the body and soul are fundamentally opposing principles. It is this mistaken notion that results in the philosophy that desire should be restrained because it comes from the body rather than the soul. When desire is restrained, however, Blake insists, it grows into unhealthy forms. Blake thus calls not for the restraint of desire, but for its liberation. Liberated desire, rather than the rules and restraint of orthodox religion, are the cornerstone of moral virtue in Blake's philosophy. Blake celebrates excess for its liberating power; by letting the natural inclinations take their course we become whole through the release of the restraint which has fractured us. Blake insists we must cleanse the doors of perception in order to correct the mistake of the perception of body and soul as separate. This cleansing will lead to the liberation of desire and the restoration of our full imaginative vision. We should come to the right understanding that body is but a portion of soul. Blake seeks to cleanse our intuitive vision and raise the level of our perceptions through his writings which seek to dissolve traditional conceptions and elicit in the reader what critic Northrop Frye termed a mental apocalypse, which makes possible the realization of our full potential.

## **'ROAD TRIPPING' ESTABLISHING PLACE IN CREATIVE NONFICTION**

**Ashlee Shefer**

(ENGLISH)

*Faculty Mentor:* Susan DeRosa

Creative nonfiction poses a unique challenge that involves delving into the writer's experiences to discover the truth about her memories. Memory is not fact, but an interpretation of an event that the individual lived through. Multiple people who have shared the same experience may remember certain details differently, which does not imply that the memoirist is remembering incorrectly or 'lying.' Memory is a subjective truth. The author will explore her memories through her travel memoir that recalls a trip to Niagara Falls, Canada during a family vacation. Riding in a car for seven hours with one's family, and the anticipation of crossing over into another country for the first time, is both terrifying and exhilarating. Family dynamics between her parents and younger siblings, who could find any reason to fight while confined together long enough, are significant to her memoir. The memoir explores the relationships among family members when they initially decided to leave America behind for a few days using scenes, dialogue, and multiple voices as it weaves in and out of different narrative points of view. The memoirist will thread metaphor and sensory details throughout the narrative to create a sense of place for readers as she immerses them in her memories of the journey. She aims to construct a

distinctive narrative voice, one that offers insights about how the place, and the roadtrip to get to it, shaped her identity at that time. Along with a panel of other creative nonfiction writers, the author will discuss how she approached the challenge of writing from memory and what methods she used to be as honest as possible in conveying those memories to readers.

### **MEASUREMENT SYSTEM ANALYSIS (Gage R & R) AT A LARGE-SIZE MANUFACTURING FIRM**

**Amanda Stango**

(Business Administration)

*Faculty Mentor:* Dr. Fatma Pakdil

In the light of Six Sigma methodology, this project aims to analyze and improve a Measurement System Analysis employed in a large-size manufacturer's quality engineering department established in the State of Connecticut. Measurement systems in industrial settings comprise of operations, procedures, measurement instruments, fixtures and other equipment, software, personnel, environmental conditions, and assumptions. In order to make sure that the data collected through a measurement system is valid, reliable, and usable, the decision makers need to perform an analysis called "Measurement System Analysis (Gage R & R Analysis)." In this project, six different final products were measured three times by three different inspectors. Two critical-to-quality characteristics were measured and the data collected were analyzed in Minitab.

### **"BRING THE NOISE:" THE MUSICAL INTERSECTION OF MALCOLM X AND PUBLIC ENEMY**

**Jesse Steinmetz**

(Performing Arts - Music)

*Faculty Mentor:* Timothy Cochran

Politically-conscious hip hop often makes direct connections with the texts, culture, and music of the Civil Rights Movement. A microcosm of this phenomenon is Public Enemy's "Bring The Noise," which samples and edits the line 'too black, too strong' from a Malcolm X speech. First, this paper will use a comparative analysis to explore the rhythm and message of Malcolm X's speech excerpt and how Chuck D and Flavor Flav follow the edited sample with their own rhythmic techniques and message of African-American strength as a way of working toward a louder, freer society. Next, the paper will emphasize how the music is rooted in a compilation of samples that demonstrate awareness and vitality of African-American history as a way of intentionally replaying, editing, and 'mixing' Public Enemy's own heritage and traditions. The result is audacious, joyful, and liberating — culmination, arguably, of the goals of both the Civil Rights Movement and Public Enemy.

## **MARKETING BIODEGRADABLE PLASTIC AND MAKING A CLEANER WORLD**

**Matt Stroiney, Gaby Mikaiel, & Julie Martinez**

(Communication)

*Faculty Mentor:* Olugbenga Ayeni

Our idea was to develop a new and advanced environmentally friendly plastic brand to eventually be the leading seller of plastic to companies like Coca Cola, Dasani, Anheuser-Busch, etc. We plan to replace the current plastics they are using with these plant-based plastics that are biodegradable and disintegrate into water, creating less build up in oceans and trash compacts throughout the world. With this seed-based plastic that we are creating, companies will buy this and not feel guilty about the massive buildup that occurs in our oceans and trash waste. We want to create a seed-based plastic that can also be planted. For example, the share a coke campaign can be showcased as 'plant a coke'. Much like finding their names on a coke bottle and having them as a keepsake, consumers will find their favorite plant or flower and when they finish their beverages in these 'plastic' bottles, they can plant them and soon grow their own plant in the comfort of their own home, turning the harmful plastic into something beautiful. This plastic we are creating, much like the planting coke idea, is plant-able itself, and can either be recycled or planted because it has its own seeds that we are using instead of harmful chemicals that are usually what contributes to the plastic they are selling.

## **A GOOGLE CHROME WEB BROWSER EXTENSION FOR COURSE SCHEDULING AT EASTERN**

**Dylan Sylvester**

(Computer Science)

*Faculty Mentor:* Garrett Dancik

We developed a web browser extension for course scheduling at Eastern. The web extension runs from the Google Chrome web browser and is active when a student visits the Class Schedule available on eWeb. The extension prompts the user to enter all their desired courses for the current semester. Once this is completed, the extension will analyze all possible schedules, identify schedules with course conflicts, and will then display all valid schedules. The extension was developed using a combination of HTML, CSS, and JavaScript. We will demonstrate how the extension can be used, as well as explain some technical aspects, such as using Javascript to create a new window and running Javascript on it. We hope that this tool can make the process for selecting courses at Eastern less stressful and more efficient. The extension and its source code is available from the following site: <https://gdancik.github.io/EasternScheduler/>

## **PROFILES IN ANARCHY: THE WOMEN OF THE EARLY AMERICAN LABOR MOVEMENT**

**Julia Underhill**

(Labor Relations and Human Resource Management)

*Faculty Mentor:* Niti Pandey

This research examines the American labor movement from the perspective of the participation and treatment of women labor leaders in the early 1900s, their marginalization within the movement, and the subsequent emergence of trade unionism. Specifically, the research examines profiles of women leaders of the International Ladies Garment Workers Union (ILGWU), one of the largest and most influential coalition of female workers during the early labor movement. Led by three Jewish immigrant textile workers, Fannia Cohn, Pauline Newman, and Rose Pesotta, the ILGWU organized and supported multiple labor mobilization efforts and emphasized social unionism in the early 1900s. Women active in the early labor movement faced backlash for advocating socialist policies and their union activities were characterized as law-breaking anarchy. This research profiles the three women leaders, highlights their strategies for the labor movement, and critiques their marginalization and the emergence of trade unionism.

## **DEAF CLASSROOMS**

**Kristen Urban**

(English)

*Faculty Mentor:* Maureen McDonnell

Although overlooked by many, Deaf people have created their own means of living separate from the hearing world. Deaf culture has its own history, traditions, and morals. The history of this culture is ethnocentric, built on complex sign language and relationships among Deaf people. Just like any culture, Deaf culture's downfalls and triumphs that have led to a stronger, more visible, and proud community consisting of a wide variety of Deaf people. Without this rich history, people in Deaf culture would not have the strong sense of pride and identity they have now. Developments in education, such as the understanding of a Deaf students needs beyond academics (not limited to social needs and role models) has resulted in residential schools and better programs in mainstream education to better suit its deaf students. Additionally, advancements in technology, such as cochlear implants has provided a different meaning and drastic changes to Deaf culture. Historically, hearing people have seen deafness as a disability in need of fixing while Deaf people would disagree and see it as being part of their identity. Though these two topics may cause controversy, it is agreed among Deaf people and their allies that Deaf people have truly created a whole new world among themselves. My presentation draws on my extensive research of texts, interviews, and experience working in a Deaf environment- American School for the Deaf- the past couple of semesters. These experiences have offered me, as a researcher, a fuller understanding of what it is to be Deaf and live in Deaf culture. Deaf culture is a constantly evolving culture, just like the ones known. The goal of this presentation is to open your eyes to the silent culture that lives and thrives around us all.

## **'THE SECOND TIME AROUND'**

**Dan Urban**

(ENGLISH)

*Faculty Mentor:* Susan DeRosa

Creative nonfiction is referred to as the fourth genre of writing. It gives voice and perspective to a version of truth. Essay, travel writing, and memoir fall within the scope of Creative Nonfiction. Memoir allows authors to be both narrator and character in reflections and retrospectives of their own life experiences. As in fiction, a narrator has to be a trusted guide and characters have to be relatable. The trick for the memoirist is being both story teller and subject while remaining credible. Memoir isn't bound to form and it's not a chronological list of events on a time-line. Memoir gives voice and perspective in the telling of life experiences. Memoirists use dialogue, poetry, journalistic reporting, and other elements of fiction, but they relay a true story. I have accepted the challenge of memoir. My piece, 'The Second Time Around,' will examine my experience of returning to college life in my mid-forties. I will use humor to convey my experience and contrast my expectations against the actualization of my return to academia. How will I fit in socially? Will I be able to adapt to new technology? What is different this time around? How will this experience changed my outlook? What did I do wrong the first time? What was I doing for the last two decades? I reflect on these questions using my truths and perspectives within the guidelines of creative non-fiction prose. For the presentation I will read excerpts from the memoir to lend my voice to the voice presented in my writing and with the goal of bringing them to parity.

## **STATE REPRESENTATIONS OF THE GUATEMALAN GENOCIDE**

**James Wallace**

(History)

*Faculty Mentor:* Joan Meznar

In the early 1980s, the Guatemalan government perpetrated a genocide against its Mayan population that resulted in an estimated 200,000 deaths and disappearances, and the destruction of over 600 individual villages. Although the genocide took place from 1981 to 1983, data on death tolls was only brought to light a decade later in 1999, thanks to the work of the Historical Clarification Commission. Prior to their report, the Guatemalan state disputed allegations of genocide, and portrayed the violence as a result of civil conflict. This paper explores the gap between the time the genocide was committed and the eventual revelations surrounding it, focusing primarily on the ways the Guatemalan state portrayed the genocide. Using evidence from Guatemalan and U.S. government documents, as well as Guatemalan state media, I show that the government intentionally misrepresented and covered up the genocide in order to prevent backlash against the state. Furthermore, I demonstrate that by using tactics of misinformation, and direct violence against Mayans involved with native radio and publication outlets, the Guatemalan state silenced and discredited groups attempting to publicize and stop the genocide. Without access to the same media tools as the state, the indigenous people of Guatemala remained unheard within their country and abroad. This study concludes that the government of Guatemala's abuse of media through misinformation created the opportunity for mass violence, leading to the obliteration of already marginalized groups.

## **QUEEN OF HARTFORD**

**Joseph White**

(History)

*Faculty Mentor:* Tom Balcerski

The life of Elizabeth Jarvis Colt is extraordinary. Born the daughter of a minister in 1826, she became a multi-millionaire in the arms trade by the time she was thirty-six. In the year before that, though, Elizabeth lost two of her three living children. She was doomed also to lose her husband to gout in 1862 and her last surviving child to drowning in 1894. Elizabeth's life was shadowed both by tragedy and by her husband's legacy. Samuel Colt was the founder of Colt Manufacturing, a weapons company that provided innovative firearms for the U.S. military and his fame had a great impact on Elizabeth's life-not always for the good. Elizabeth was crushed by neither of these shadows, though. She inherited a majority stake in Colt Manufacturing and worked with her brother Richard (who took over as president) to keep the company thriving. She did not quiver in the shadow of her husband's legacy but worked hard to preserve it. She was not driven into seclusion and turmoil by the tragic loss of her family. Instead, she stepped into public life, becoming part of numerous local committees and working for the betterment of the Hartford area in focuses ranging from art to religion to charity to women's suffrage. In this talk, I will be explaining how this great American woman overcame tragedy and adversity, worked side-by-side with her family, and constantly gave back to her community. I will be telling the story of a minister's daughter turned millionaire philanthropist who through her struggles truly earned the title: Queen of Hartford.

## **SINGLE-SERVE MATCHA TEA PACKET**

**Zach Wilkins, Christy Allyn, & Shevane Pearson**

(Communication)

*Faculty Mentor:* Christopher Ayeni

Product: Single-serve matcha tea packet Description: Matcha, a finely ground green tea powder, is a healthy alternative to coffee that originated in Japan. Each packet of matcha tea is pre-portioned into single serve packets for easy brewing. Matcha can be served hot or iced, and offers 70mg of caffeine per serving. Unlike coffee, however, matcha contains L-Theanine which releases caffeine into the body gradually over 4 hours, giving you sustained energy throughout the day without spikes or jitters - just calm alertness. In addition, matcha also Has higher levels of antioxidants Boosts metabolismHas vitamins and minerals - including vitamin A and vitamin CMarket: Europe Europeans are big coffee and tea drinkers (30% of global coffee consumption), so it is ideal to market this healthy coffee alternative. Goal: to create an international advertising and PR campaign

## **A HISTORICAL OVERVIEW OF THE SPECIAL OLYMPICS OF CONNECTICUT**

## **Rebecca Witkoski & Mackenzie Walker**

(KPE)

*Faculty Mentor:* Ari de Wilde

In this project, the researchers studied the evolution of the Special Olympics in Connecticut. The Special Olympics are ubiquitous today in the United States. People have credited the events for bringing awareness to intellectual disabilities. Yet, sport historians have paid little attention to the historical evolution and influential impact that Special Olympics has modeled (Leonard 1998; Guttman, 2004). Thus, the researchers wanted to discover more about the positive effects and community involvement amongst athletes and leaders. The main focus of the research is to highlight the culture of Special Olympics through games and sports. The Special Olympics have been played in Connecticut since the July 1968 International Special Olympics ( EuniceKennedy Shriver , 2017). Inclusivity and opportunity are two key factors in contributing valuable programs to individuals with an intellectual disability and in order to grow it is important to learn from history. The researchers used questions to investigate and analyze how inclusion and equal opportunity for athletes has affected the growth of the organization. They also interviewed program facilitators and staff pertaining to the progress interviewees have viewed in their professional involvement as well as their professional opinions in the possible means of growth for the organization and its affiliates. As well as collected historical research on the Special Olympics and other Connecticut organizations. Interview topics discussed include the strengths of the numerous programs, University involvement, and informational facts regarding athlete qualifications and program descriptions. Finally, the researchers also examined recommendations for program enhancement and community as well as University engagement.

## **PANEL DISCUSSION-ABSTRACT**

### **PANEL: I'M DIFFERENT, YES, I'M DIFFERENT & RICK RHINOCEROS CHOOSES HIS FRIENDS**

**James Rowley, Dalma Lorenzo-Patricio, Molly O'Connor, Erin Collins, Jocelyn Santiago**  
(World Languages and Cultures)

*Faculty Mentor:* Luna Najera & Lora Lee

In this panel, a team of young authors will first read from books that they wrote for children in the Willimantic community for the Young Authors and Illustrators Book Project. In *I'm Different, Yes I'm Different*, the authors approach the topic of disability through the story of a three-legged goat. In *Ricky Rhinoceros Chooses His Friends*, the authors model strategies for dealing with bullying through the story of a rhinoceros who learns how to resolve his problems through the wise counsel of a turtle. The authors will speak about their choice of subject and what they envision may be the impact of their books on children. The book illustrators, graphic designers, and project managers will speak about the book production process.



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## PHOTOGRAPHY EXHIBITORS

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### COM 210 Fall 2017

Alex Boyer  
 Anthony Castagnaro  
 Andrew Civitarese  
 Chelsea Dahmer  
 April Doolanc  
 Stefani Olbrias  
 Ashley Palmerino  
 Nathan Sajkowicz  
 Nicolette Scarpa  
 Ryan Tyler

### COM 210 Spr 2018

Nikki Adamski  
 Sean P. O'Rourke  
 Kayla M. Rook  
 Sienna Roper  
 Nicolette Scarpa  
 Tony Serra  
 Lindsey Talbot

### Com 310 Spr2018

Monique Allen  
 Bridgett N. Furlong  
 Adrian Hannibal  
 Katiana N. Mendez  
 Samantha A. Price  
 Carissa D. Robinson

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## POSTER PRESENTATIONS-ABSTRACTS

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### <sup>22</sup> HOW DOES CONFLICT LEAD TO PRODUCTIVE CHANGE?

**Omar Abdelsame, Nick Houle, & Zack Hebert**

(Education)

*Faculty Mentor:* Mark Fabrizi

Conflict is an inevitable part of life, but how do we manage conflict and grow from those experiences? What is conflict on a deeper level, and why does it come about? Using an inquiry-based interdisciplinary approach, the presenters in this poster session will illustrate how teachers can address the concept of conflict as a multifaceted phenomenon, helping students become aware of the interconnectedness of various conflicts across disciplines and outside the classroom. By viewing conflict as an expression of multiple perspectives, students can begin to view conflict as an important aspect of a social dialogue and learn to debate opposing viewpoints in a respectful, productive, and healthy way. Thus, students will learn that conflict that leads to productive debate can help foster more effective conflict resolution and enhance cooperation in class and in society. This poster presentation will illustrate how conflict may be explored in a variety of integrated academic content areas. In English, students will look at fictional representations of conflicts and some of the implications of both poor and effective resolutions. History teachers will address conflict in real-world settings, helping students to understand the origins of conflicts and how unproductively addressing such conflicts can quickly escalate a

relatively minor problem into a world-wide struggle. In a science class, students can read about and analyze conflicts among scientists and how they develop and are ultimately resolved—or not.

### **<sup>1</sup> THE EFFECT OF MICROGRAVITY ON NEURONAL CELLS**

**Carly Balskus**

(Biology)

*Faculty Mentor:* Kurt Lucin

Astronauts are known to experience cognitive decline when in space. The cause of these impairments is unclear. To determine whether microgravity impairs neuronal function, differentiated mouse neuroblastoma cells were grown on microcarrier beads. Cells were then subjected to normal gravity or simulated microgravity for 48 hours using a Rotary Cell Culture System. Microgravity reduced neuronal process length and expression of the synaptic marker, synaptophysin, as measured by western blot. Importantly, cell viability was not altered by microgravity, indicating our effects are not a consequence of enhanced cell death. These data suggest that exposure to microgravity may disrupt neuronal communication and possibly underlie the cognitive impairments seen in astronauts.

### **<sup>54</sup> LITTLE WOMEN**

**Robyn Barnes**

(Performing Arts - Theater)

*Faculty Mentor:* Anya Sokolovskaya

Little Women, performed in November, 2017, by ESCU theatre students under the direction of J.J. Cobb, is a play based on the novel by Louisa May Alcott of the same name. It has incredible historical significance not only for the fact that it takes place during the American Civil War, but that it also serves on commentary on the role of the woman during this time. This play is the first one for which I've assumed the role of a costume designer for, a title that comes with many responsibilities, such as extensive research. The female costumes of the Civil War Era are well known for their 'bell' silhouette that emphasizes a small waist and features gowns with full skirts that have many gathers and folds. This silhouette is not fully to the credit of the many yards of fabric, but to the popular under structures of the time. Under the guidance of my mentor, I've recreated the many important undergarments and under structures used to create the shapes we see during this important era: The corset, bloomers, chemise, and the crinoline.

### **<sup>23</sup> IS AMERICA'S DEPENDENCE ON OIL THROUGH TRADITIONAL MANUFACTURING TECHNIQUES A SUSTAINABLE AND ETHICAL ENERGY PRACTICE?**

**Ryan Barton, Stephanie Hogan, Michael Byrne, & Sarah Andrews**

(Education)

*Faculty Mentor:* Mark Fabrizi

This conceptual teaching unit will help students explore the practice and the ethics of traditional oil manufacturing techniques through an inquiry-based research unit. The poster presentation outlines a teaching unit intended for eighth grade students that incorporates the academic disciplines of biology, history, English, and mathematics to provide students with a multifaceted way of viewing a controversial contemporary topic. Through this interdisciplinary approach, students will examine the Dakota Access Pipeline, a 1,722 mile long oil pipeline that runs from the Bakken shale oil fields in North Dakota to an oil tank farm in Illinois, which will serve as a real-world template to help students address issues associated with oil manufacturing, such as the human impact on the environment, dwindling natural resources, sustainable practices, global warming, and the water/carbon cycle. Students will also explore the implications of ethical energy development with respect to human culture, biodiversity, and scientific exploration. The presentation will illustrate how teachers in a public middle school can address relevant, real-world, controversial issues in class using an inquiry-based approach that integrates multiple academic disciplines.

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#### **46 PRECISION PAIN SELF-MANAGEMENT IN YOUNG ADULTS WITH IRRITABLE BOWEL SYNDROME**

**Lindsey Berube & Rachel DiNatalie**

(Health Sciences)

*Faculty Mentor:* Amy Bataille

Irritable Bowel Syndrome (IBS) is a functional gut disorder that is accompanied by the symptoms of intense, recurrent abdominal pain, however, the exact cause of this disease is largely unknown. This extensive study aims at identifying connections between IBS and foods consumed, pain perception, and blood, saliva and stool components by examining patient diets, pain sensitivity, biomarkers, and genetic variations. The goal of this specific project is to understand how self-management techniques such as, diet and lifestyle behaviors, can help manage IBS symptoms. Specifically, as research assistants, our objective is to develop a method for analyzing the National Health and Nutrition Examination Survey (NHANES) Food Frequency Questionnaire (FFQ) distributed to participants in this complex IBS study. This specific questionnaire examines the frequency of consumption of over 130 different types of food. Based on our findings in the literature we identified relevant food groups that that could be used to categorize the information obtained in the NHANES FFQ. The objective is to translate the information in the questions to a score that allows for easy interpretation of the data. To accomplish this, we created a scale to score the frequency of consumption of each of these food groups in order to formulate an overall composite score. This composite score will be obtained by running statistical analysis using the SPSS software. Results will be examined alongside many other parameters of this study to gain a more comprehensive picture of how food contributes to pain management of IBS. The development of this method is a contribution that will benefit this study and potentially be used to analyze FFQ's in future studies.

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### **33 PROGRESS TOWARDS MEETING A 20% REDUCTION ENERGY GOAL FOR EASTFORD ELEMENTARY SCHOOL**

**Alexia Bohnenkamper**

(Environmental Earth Science)

*Faculty Mentor:* Paul Torcellini

The elementary school in the town of Eastford, Connecticut consumes approximately 80% of the energy used in all the municipal buildings in town. Built in 1949, with additions added in 1963 and 1991, the elementary school has a goal of reducing energy consumption by 20%. This study is a continuation of a project that was started in 2016 by two students at ECSU who made a list of recommended changes and collected baseline data. Adjustments were made to the controls as well as installing new light fixtures this past summer (2017) based on those recommendations. This research effort evaluates those changes by using data loggers to collect temperature data of each classroom, boiler run times of the steam and hot water boiler, and using a photometer to measure the illuminance of the newly installed lights in the hallways and the classrooms to determine if areas were over-lit. While rooms that were previously identified as 'uncomfortable' are now 'comfortable', some rooms continued to have thermostats that were set too high or were set to run during times the building was not occupied. Also, while the new lights use less energy, majority of the rooms are still over-lit with the new bulbs indicating there is opportunity for more energy savings. Comparing the boiler runtimes from last winter to this winter, the boilers appear to be setting back properly. Suggestions were given regarding how to further reduce energy consumption.

### **24 HOW DO WE EACH CONTRIBUTE TO GLOBAL WARMING?**

**Julia Bonadies, Katie Case, James Malizia, & Christopher Ladd**

(Education)

*Faculty Mentor:* Mark Fabrizi

Global warming, a critical, relevant topic of today, is already well-established in the scientific community, though not without its detractors. But how do individuals contribute to the phenomenon? What behaviors do we exhibit that may inadvertently accelerate global warming? By focusing on an individual's actions, teachers can create immediate relevance to the lives of middle school students and simultaneously empower them to change their behavior in order to mitigate unintended negative consequences on the environment of the Earth. Through an inquiry-based, interdisciplinary unit of instruction, teachers can employ a powerful tool to focus students on the issue of global warming: social media. Social media is a dominating platform for young people to express their opinions and to consume information. As they sift through an often-overwhelming amount of information, they formulate their opinions and develop a worldview. Teachers who can harness the attraction students exhibit toward social media can teach them how to employ it responsibly to research contemporary issues, such as global warming. This creative project will illustrate an interdisciplinary unit of instruction designed to help biology,

history, mathematics, and English teachers co-opt social media platforms for their classrooms to teach students about the impact of their individual actions on global warming.

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### **16 MILKING FOR PROFIT**

**Rebekah Brancato, Koren Thomas, & Michael Baldassarre**

(Business Administration)

*Faculty Mentor:* Fatma Pakdil

The project was collaboratively done by three students in BUS 260 Operations Management in Spring 2017 semester. For this project we implemented an asset tracking software for Generations Family Health Center. Most of the equipment that Generations uses has been purchased with grants. In order to continue receiving grants to purchase new equipment the staff at Generations must keep track of what items were purchased with what grants and they need to know that all items are in the correct branches and departments. To keep track of equipment the Generations staff took yearly inventories but the system was outdated and inefficient which led to many errors and misplacing of equipment and assets. The use Sage Fixed Asset Tracking software fixed this problem. After completing an outline and timeline for this project we sorted the assets by asset type, by site and by which grant the assets were purchased with. We set up and updated hand scanners that were then used to scan assets into the program instead of having to manually input them. We also did input some assets by hand to get an understanding for how the software works. After all assets were successfully scanned into the asset tracking software we worked with the Generations team to update their Property and Equipment Management policies to ensure that their new method of asset tracking would continue to be properly used in the future.

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### **17 THE PREVALENCE OF DIFFERENT HEALTH PROCEDURES AMONG DEMOGRAPHIC GROUPS IN CONNECTICUT**

**Rebekah Brancato**

(Business Information Systems)

*Faculty Mentor:* Alex Citurs

Hospitals offer various procedures to patients, such as emergency or specialized care and operations, to help treat a variety of injuries and diseases. However, health disparities continue to be a problem for socially disadvantaged populations to access health care. Health disparities are differences in access to or availability of health services and utilization. This can include preventable differences in injury and disease among various population groups. This study aims to investigate how the prevalence of certain health procedures may vary among demographic groups, such as race, age, and level of education, in different towns in the state of Connecticut.

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### **34 KEEP CALM, WE CAN CONTINUE TO DRINK ON!**

**Tara Brooks**

(Environmental Earth Science)

*Faculty Mentor:* Meredith Metcalf

As population continues to increase, sustaining the quantity of groundwater in fractured bedrock aquifers of New England will become critical. However, quantifying groundwater in bedrock is difficult due to the complex processes involved. This lack of knowledge on the amount of water available results in homeowners using water at rates that may lead to depletion. This study evaluated the sustainability of the fractured rock aquifer for Lebanon, Connecticut which is typical within New England. Recharge and discharge rates were calculated using groundwater drainage basins delineated from a digital elevation model and associated well characteristics from well completion reports given the lack of measurements typically monitored. Results indicated that only one groundwater drainage basin was unsustainable and located in northeastern Lebanon. Although fifty-six basins were considered sustainable, thirty-two basins were identified as at risk given rates of recharge were relatively close to rates of discharge. For the town of Lebanon, the average rate of recharge for the groundwater basins delineated exceeded the average rate of groundwater use which implies that majority of residents would be less likely to deplete sources of groundwater. In conclusion, results of this study demonstrated the effectiveness of well data in estimating groundwater sustainability. Additionally, results indicate that groundwater in fractured rock was sustainable in Lebanon yet the random distribution of drainage basins at risk for becoming unsustainable suggests that homeowners should be educated in water use and a system to monitor basins at risk for depletion should be established.

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**<sup>2</sup> SECONDARY SCREENING AND CHARACTERIZATION OF MUTANTS DEFECTIVE IN SYMBIOTIC NITROGEN FIXATION IN THE MODEL LEGUME PLANT MEDICAGO TRUNCATULA****Vincent Brown**

(Biology)

*Faculty Mentor:* Vijaykumar Veerappan

Nitrogen (N<sub>2</sub>) is an essential nutrient for the survival of all the organisms on the planet because it is required for the synthesis of important biomolecules such as nucleic acids and proteins. Atmospheric air contains 78% nitrogen (N<sub>2</sub>) but it is not bioavailable. Legume plants such as soybeans and peanut interact with the soil bacteria rhizobia and form novel structures called nodules to convert inactive atmospheric nitrogen (N<sub>2</sub>) into a bioavailable form by symbiotic nitrogen fixation (SNF). To identify novel genes that control SNF process, Dr. Veerappan isolated several mutants defective in SNF by screening the Tnt1 retrotransposon mutant population in the model legume plant *Medicago truncatula* (barrel medic). Wild-type plants show green shoots and ovoid shaped large reddish-pink nodules whereas mutants defective in SNF display purple shoots caused by N<sub>2</sub> deficiency and also white colored nodules due to defective N<sub>2</sub> fixation. My goal is to identify mutants with robust defective SNF phenotypes for further characterization. For that, I am performing a secondary screening of 10 putative mutants using a

soil-free aeroponic root phenotyping system to verify the defective SNF phenotypes. I will present data on the phenotypic characterization of a subset of SNF mutants. To find the causative mutation, I will mine the Tnt1 mutants database (<https://medicago-mutant.noble.org/mutant/database.php>) for select mutants to identify Tnt1 insertion sites. I will also send out samples for whole genome sequencing to find additional mutations. Ultimately, understanding SNF process by discovering novel genes responsible for defective phenotypes can potentially help us to transfer SNF to other non-legume plants such as rice and corn.

## **25 HOW CAN AMERICA ADDRESS ITS GROWING ENERGY CONSUMPTION NEEDS?**

**Alexis Buck, Tyler Martin, & Jennine Hohler**

(Education)

*Faculty Mentor:* Mark Fabrizi

Energy consumption is a topic that affects every aspect of American society and is especially relevant for older teens. They drive in cars, live consistently in 'powered' environments, and enjoy certain technologies and electronic commodities, all of which they largely take for granted. High school students have the responsibility to explore how their world is powered, and the impacts associated with America's most popular choice of energy: fossil fuels. In this poster presentation, teacher candidates will illustrate an inquiry-based, interdisciplinary unit of instruction that explores how teachers can encourage students to examine the origins of energy sources in America and how they can make responsible energy choices as individuals. Science students will learn about the environmental effects of non-renewable energy and fossil fuels by investigating a renewable alternative energy source and presenting their findings about the positives and negatives of the energy source to the class. In English class, students will read a selection of informative texts describing America's impact on climate change, as well as imaginative works detailing what American society might look like depending on American choices for energy sources. In history class, students will interpret a selection of primary and secondary source documents that inform the history of non-renewable energy demand in the United States. They will also consider current debates concerning energy demand and its political and social implications. The interdisciplinary design of this unit, as well as its focus on inquiry, help students view the issue as complex and significant, requiring an integration of academic disciplines in order to address it effectively.

## **26 ENVISIONING OUR IDEAL WORLD**

**Rachel Casasanta, Adam Berlin, Jillian Jusino, & Kyisha Bishop**

(Education)

*Faculty Mentor:* Mark Fabrizi

Young adults about to become independent participants in a polarized America must be able to explore controversial topics, consider multiple perspectives, and clearly communicate and support their ideas with evidence. To that end, this creative interdisciplinary unit encourages

high school students to explore issues of identity, equity and equality, and fairness in the context of envisioning their ideal world, all while simultaneously learning critical concepts in biology, mathematics, English, and history. Using an inquiry- and problem-based pedagogy can engage students in learning about academic disciplines and illustrate the relevance of education in their lives as they grapple with controversial topics. In biology, students will learn about the science of genetics while examining the differences between 'equity' and 'equality' and how those terms help shape the conversation in our society around these issues. Students in mathematics will analyze statistics from other countries around the world with respect to the way they implement fairness and equality between the genders and within their general population. In English class, students will explore the human side of the issues, comparing the way authors perceive identity, equity, and fairness by reading and analyzing literary texts by such authors as Langston Hughes and George Orwell. The fight for equality has been a primary concern throughout history, especially in America, from the Revolutionary War and the Declaration of Independence through the Civil Rights Movement and Women's Liberation, and students in this course will learn about how America values and interprets these critical concepts.

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#### **48 PROMOTING PHYSICAL ACTIVITY IN CHILDREN WITH ASD COMPARED TO TYPICALLY DEVELOPING CHILDREN**

**Mark Chmielewski**

(Health and Physical Education)

*Faculty Mentor:* Michelle Ferrer

Physical fitness is important for all children to promote health and well being. Children with Autism Spectrum Disorder (ASD) are shown to be lacking in engaging and physical activity in and out of school. They are reported to be less active due to their disability than typical developing children without ASD. Children with ASD have a difficult time with social, physical, cognitive and behavioral skills. By having these different limitations, this can affect a child negatively that has ASD. This disorder may prevent students from participating in team sports, recess, physical education class and other physical activities. By not being physically active, this will increase health risks such as overweightness. A student with ASD will often have a hard time processing all of the movement, textures and noises in their environment. When a student with ASD becomes overwhelmed, expressing how they feel is difficult. Once frustrated, a student with ASD may exhibit some challenging behaviors such as yelling, running, rocking, becoming aggressive or shutting down completely. Strategies for success that physical education teachers can implement include professional development for themselves and paraprofessionals. Using peer tutoring and a picture communication system during class and during transitions will help lessen frustration. Introducing a student with ASD into the gymnasium slowly and for shorter periods of time would be very beneficial to the student's sensory and communication needs. Physical fitness for students with ASD as well as typically developing peers is extremely important to maintain a healthy body and mind.

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#### **49 STUDENTS WITH DISABILITIES TECHNOLOGY IN PHYSICAL EDUCATION**



**Summer Cipriani**

(Kinesiology and Physical Education)

*Faculty Mentor:* Michelle Ferrer

Adapted Physical Education is an individualized program including physical and motor fitness, fundamental motor skills and patterns, and skills in aquatics, dance, and individual and group games and sports. By law all students are required to have physical education class in their class schedule regardless of whether they have a disability. However, students with disabilities were not always able to get the physical education services they needed, which can lead to health problems. Because of technology and more research, in physical education classes teachers are able to incorporate technology in their class which allows all students to be able to participate. Due to the vast amount of technology available, this poster will focus on the use of applications via phones and tablets that can be utilized in physical education and adapted physical education for students with disabilities. Therefore, this poster will summarize previously published research regarding the use of technology, and will explore such topics as, helping the teacher with preparation and accountability, encouraging inclusion among student without disabilities, promoting creativity in other classes beyond physical education, monitoring the physical activity level of students with physical disabilities, and allowing more time for physical activities.

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**27 HOW CAN WE EFFECTIVELY REDUCE INCARCERATION LEVELS IN THE UNITED STATES?**

**Brianna Crysler, James Rowley, & Erik Rosati**

(Education)

*Faculty Mentor:* Mark Fabrizi

Mass incarceration. Prison overcrowding. Institutional racism. These terms suggest significant problems in the United States with respect to our correctional system. In this poster session, teacher candidates will present an inquiry-based, interdisciplinary unit of instruction designed for eleventh grade students to examine the implications of some of the most significant problems with the prison system in the United States. In addition to examining and trying to address these issues, students will look at the underlying causes of incarceration from a sociological perspective. Designed for high school teachers of history, English, and mathematics, this unit of instruction will illustrate how vital college- and career-ready skills can be taught to high school students through a critical exploration of the issue of over-incarceration in the United States. Through U.S. history survey courses, history teachers can help students explore some of the reasons for our high levels of incarceration as well as the racial inequities of the system. English teachers can help students analyze texts that present individual, human stories around criminal behavior and examine the social forces that seem to impel people to commit crimes. In mathematics, students can examine statistics and learn how to organize and arrange data, then draw conclusions. Interdisciplinary units of instruction such as this one can demonstrate the power of using an inquiry-based approach along with an integration of academic disciplines to illustrate to students the interconnectedness of various content areas and ultimately the value of education in their lives.

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### **35 PHOTOGRAMMETRIC ANALYSIS OF DINOSAUR TRACKS**

**Ryan Cueto**

(Environmental Earth Science)

*Faculty Mentor:* Drew Hyatt

Digital Photogrammetry (DP) is a new technique used to construct highly detailed 3D models of geological features such as dinosaur tracks. This project introduced DP through field work at Dinosaur State Park in Rocky Hill, CT., a tracksite with approximately 500 *Eubrontes* prints thought to have been made by Jurassic Dilophosaurus dinosaurs. Models were created from approximately 400 evenly spaced, overlapping images of the tracksite captured with a Nikon D600 full-frame camera fitted with a 20mm FX lens on a 1.5m tall tripod. Images were processed in Lightroom software and imported into Agisoft Photoscan where they were aligned to create sparse and dense point clouds with millions of x-y-z coordinates. Surveyed DP targets in the original images were used to scale these point clouds, after which a mesh was constructed and images used to create a photorealistic texture for the model. Sections of the full tracksite model were cut out (segmented) and analyzed in Blender software to 3D print physical replicas of selected tracks. This involved using the track-mesh to slice a regular cube and create a .stl file for printing. As well, Cloud Compare software was used to analyze the morphology of tracks by constructing height maps and measuring change in volume and area (hypsometry). Height maps depict distances between the track and a plane fit to the lowest point of the track. These maps were orthorectified at 2mm point spacing after which data were imported into Surfer software to contour and measure volume/area. A Visual Basic script was run in Surfer to determine the planar area, surface area and volume of the track at narrow slice intervals so as to quantify the *Eubrontes* imprint. While research on the tracksite continues, this project introduced DP construction and analysis techniques that are suitable to many geological problems.

### **60 EXAMINING THE RELATIONSHIP BETWEEN DISCRIMINATION & SELF-ESTEEM AMONG COLLEGE STUDENTS**

**Rebecca Cyr & Selena Hinkel**

(Sociology, Anthropology and Social Work)

*Faculty Mentor:* Pamela Chiang

Previous research suggests the possibility of discrimination having a negative impact on self-esteem, in addition to other aspects of life and well-being (i.e. relationships, workforce, education, etc.). Observations are made about the rise in hate groups and radical ideologies in the United States, as well as the rise of bias-related incidences. This study examined the relationship between discrimination and self-esteem among college students, through an explanatory study in which the data were collected through a self-administered questionnaire in Eastern Connecticut State University for three weeks. The questionnaire involves demographic questions and participants' discrimination experiences due to their identities (i.e. race, age, sexual orientation, gender identity, religion, etc.). Self-esteem is measured by using Rosenberg Self-Esteem Scale. The study has implications for social work practice at the micro, mezzo, and macro levels in

helping individuals and groups who may have lower self-esteem due to experiences of discrimination and oppression.

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### **<sup>36</sup> ARSENIC: WATERY DO NOW?**

**Luke Davis**

(Environmental Earth Science)

*Faculty Mentor:* Meredith Metcalf

Arsenic is a life threatening substance that has become more prevalent in drinking water wells of New England. Many studies have suggested that the source of arsenic is directly related to the bedrock, however there has been no statistical evidence to support these findings. This objective of this study was to determine whether arsenic in groundwater was more likely to occur in discharge areas which would support that arsenic occurrences were naturally occurring. In cooperation with the Connecticut Department of Energy and Environmental Protection and the Connecticut Department of Public Health, a random distribution of bedrock wells throughout Pomfret were sampled and analyzed for water quality parameters which included arsenic. Common water quality parameters and the distance between wells and discharge areas were evaluated using multivariate regression to determine which factors, if any, were significant in predicting observed arsenic concentrations. Forty-three percent of the wells tested positive for arsenic; 20% of the wells had arsenic concentrations exceeding the EPA drinking water standard of 10 micrograms per liter. Although the wells sampled were randomly distributed across Pomfret, the distance between the wells and discharge areas was the only statistically significant variable and explained 18.2% of the observed arsenic concentrations. Additionally, wells with arsenic occurred when water quality conditions showed dissolved oxygen concentrations were high and oxidation reduction potentials were positive which suggests that arsenic would mostly likely occur in recharge areas. In conclusion, the observed arsenic concentrations in Pomfret are most likely explained by anthropogenic sources rather than naturally occurring sources.

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### **<sup>3</sup> INVESTIGATING ALZHEIMER'S DISEASE PATHOLOGY: THE EFFECTS OF REDUCED ASTROCYTE BECLIN 1 ON RETROMER TRAFFICKING AND RECEPTOR-MEDIATED PHAGOCYTOSIS**

**Yuberki Delgadillo**

(Biology)

*Faculty Mentor:* Kurt Lucin

Prior research shows that 42% of college students are not adequately prepared by their high schools for the rigor of college demands (Hart, 2005). Another study points out that having adequate time with counselors is crucial to increase college access and inspiration for students (McDonough, 2005). The purpose of our study is to examine the college preparation services and resources that guidance counselors provide to students in public high schools in Connecticut. Data were collected by self-administered surveys with available sampling. The survey questions include sixteen questions about college visits, financial aids information, counseling meetings,

college fairs, college level courses, and workshops provided to students. The results of the study will enhance the knowledge of high schools' assistance for students in terms of their financial, academic and social preparation for a post-secondary education. Alzheimer's disease (AD) is a neurological disease characterized by the accumulation of amyloid plaques within memory centers of the brain, resulting in neuronal death and memory loss. AD brains are also associated with low levels of beclin 1, a protein involved in autophagy (a process the body uses to remove damaged cellular components) and receptor trafficking within the cell. How reduced beclin 1 might affect disease progression is unclear. Astrocytes are an intriguing target, as they are the most abundant cells in the brain and are capable of degrading plaques via phagocytosis, a process where material outside of the cells is engulfed and destroyed. Using C6 astrocyte cells, we reduced beclin 1 with an shRNA lentivirus. Reducing beclin 1 impaired phagocytosis of latex beads. This appears to be mediated via reduced expression of the beclin 1-associated protein kinase Vps34, a protein that tags the membrane surrounding phagocytosed material by adding phosphate groups. These phosphate groups are required for the recruitment of protein complexes. Associated with these changes are diminished levels of Vps35, a protein that is recruited to the phosphate groups and is linked with receptor recycling. Interestingly, levels of SR-B1, a scavenger receptor that can uptake macromolecules, were diminished when beclin 1 was reduced, indicating trafficking of this receptor might be impaired. These findings suggest a link between the protein beclin 1, receptor trafficking, and receptor-mediated phagocytosis. Therefore, strategies that enhance beclin 1 levels in astrocytes may provide a novel approach for the treatment of AD.

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### **37 MONITORING BEACH REPLENISHMENT AT MISQUAMICUT STATE BEACH, WESTERLY, RHODE ISLAND USING RTK-GPS**

**Michael DePinto**

(Environmental Earth Science)

*Faculty Mentor:* Bryan Oakley

Misquamicut State Beach (MSB), Westerly, RI, was replenished with 65,000 m<sup>3</sup> of sediment at a cost of \$3.1 million in May 2014. The replenishment was in response to Superstorm Sandy (October 2012) which caused extensive erosion along the Rhode Island south shore. The replenishment project is being monitored using a combination of beach profiles, mapped position of the last high-tide swash, and RTK-GPS topographic surveys. The focus of this project is to assess the overall volume of MSB using the results of the topographic surveys. Topographic data was collected using a Trimble R10 Real-Time-Kinematic (RTK) GPS mounted on an ATV and points were collected every meter with >90% retention. Topographic data was analyzed in ArcMap ESRI software with a Natural Neighbor interpolation to create a 3-D surface of the beach. The Surface Volume Tool was used to collect the 3-D volume and area of the beach for each survey. The volumes were then compared to the initial (30 May 2014) volume to comparison with the initial volume. The starting volume in May 30 2014 was 120,667 m<sup>3</sup> with an area of 48,531 m<sup>2</sup>, and eroded down to a volume of 94,898 m<sup>3</sup> with an area of 37,478 m<sup>2</sup>. Results showed that in 4 years 39.64% (~40%) of the replenished sediment volume was lost. Erosion was not uniform over the 1km beach of MSB, with the western and central portion of the beach losing most of the replenished sediment. This variation could be a result of wave focusing

due to forcing on the upper shoreface. The purpose of this research is to understand the importance and longevity of beach replenishment for the future, as sea level/climate continues to change and affect the shorelines. Only a handful of beach replenishment projects of this scale have been conducted along the Rhode Island south shore, and understanding the efficacy of these projects remains an important research question moving forward into a time of rising sea level and potentially increased storminess.

#### **4 CORAL REEF HERBIVORES: IS THERE AN INFLUENCE OF DIET OR HABITAT ON GUT MICROBES AND VISA VERSA**

**Jessica P. Durkin & Nicole M. Govert**

(Biology)

*Faculty Mentor:* Joshua Idjadi

The recovery of coral reefs following coral mortality can be influenced by the behavior of local herbivores. The removal of algae by herbivorous fish and urchins may prevent the establishment of algal stands and may slow the positive feedback loop toward macroalgal-dominated reefs. In some vertebrates, investigators are finding a link between diet and the composition of the gut microbiota with diet influencing the gut community and the gut microbes, in turn, influencing food choice. We were interested in whether the gut microbiota of herbivorous fish can be influenced by diet and whether food choices may be influenced by gut microbe communities. Using a combination of laboratory manipulations and field sampling, we tested 3 hypotheses: 1) Can diet changes influence the composition of the gut microbiota of a model fish (*Gambusia affinis*) on short time scales? 2) Do food availability and habitat quality influence the composition of the gut microbiota of herbivores (*Sparisoma viridis*)? 3) Do herbivorous fish (*S. viridis*) prefer algae from their own habitat? Although fish do not appear to prefer 'local' foods, our results support the idea that fish gut microbe communities can be influenced by diet and that gut microbe communities in *S. viridis* show strong habitat associations.

#### **55 ADHERENCE TO DIABETIC TREATMENT REGIMES AMONG CHILDREN AND ADOLESCENTS**

**Nathan Edwards**

(Psychology)

*Faculty Mentor:* Jeffrey S. Danforth, Ph.D.

This paper reviews the published research literature regarding Type 1 Diabetes and internalizing disorders among adolescents. The purpose of this research was to better understand if Type 1 Diabetes impacts mental health, and how to achieve better glycemic control amongst adolescents. Research articles were found in PsycInfo, PsycArticles, Medline, and SocIndex using the following search terms: 'Type 1 Diabetes,' 'internalizing disorders,' 'Psychosocial illness,' and 'adherence.' Articles were sorted into three categories—one showing the link between Type 1 Diabetes and internalizing disorders, evidence showing a relationship between

better controlled mental health and better diabetic outcomes, and evidence of how to achieve better diabetic outcomes in general. Strengths and weaknesses of the research are discussed.

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### **18 SUSTAINING FACTORS IN IS/IT STUDENT RECRUITMENT AND RETENTION**

**Peter Ereshena & Kyle Coleman**

(Computer Science & Business Information Systems)

*Faculty Mentor:* Dr. Alex Citurs

With declining student enrollments in the IS/IT fields and simultaneous growing demand for more IS/IT professionals in the workforce, this study examines potential significant factors in student recruitment and retention into IS/IT related academic programs (majors and minors). Some of the variables being examined in this study include: social influences (family, societal, and academic) in pursuing and persisting with the IS/IT field, school engagement (social and academic), student demographics, academic performance and relevance to their IS/IT career interests, students' interest in particular IS/IT career areas and their visualization of successful pathways to those career areas, and students IS/IT capabilities and experiences. Students being able to see how they can utilize their IS/IT education in solving complex real world business problems, will also be considered. Further potential factors being considered include: courses taken before declaring or dropping the IS/IT academic program, students' academic performance indicators such as SAT/ACT test scores, GPAs, course grades as well as extracurricular college involvement (social and academic). Study results will provide insights on critical factors (information, experiences and influencers) in students declaring or persisting in an academic major or minor program in IS/IT. Based upon the study findings, different academic program strategies and courses of actions can be developed to more effectively recruit and retain students in IS/IT academic majors and minors.

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### **38 CARBON SEQUESTRATION IN CONNECTICUT FARMLANDS**

**Alexander Fazzino**

(Environmental Earth Science)

*Faculty Mentor:* Paul Torcellini

The Earth has four major sinks that absorb carbon; the ocean, atmosphere, forests, and grasslands. The industrialized food system requires a large amount of grain and the consequential tillage releases ground carbon. It is estimated that this system is responsible for 44-57% of all global greenhouse gas emissions. Leading permaculturist Darren Doherty reports that recent research indicates a 2% increase in organic material in the planet's grasslands could soak up all the excess CO<sub>2</sub> within a decade. This study assembles literature for determining the rationale for a long term research project to examine levels of carbon in soils to different environments. A testing protocol was established and samples were taken from land in Eastford, Connecticut. The specific environments being tested were a pine forest, deciduous forest, wetland, gravel quarry, well established field, and a conventionally tilled corn field. This data will be gathered over the next five years to gain a better understanding on how carbon is sequestered in different

environments. Results currently include preliminary research on carbon sequestration, reading equipment manuals, and taking initial readings.

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### **<sup>5</sup> INVESTIGATING THE ROLE OF GLUTAMATE REUPTAKE BY ASTROCYTES IN ALZHEIMER'S DISEASE**

**Alicia Finegan**

(Biology)

*Faculty Mentor:* Kurt Lucin

Neurons are able to communicate with other neurons by releasing communication factors called neurotransmitters. Astrocytes are directly responsible for the uptake of these neurotransmitters within the central nervous system by using various receptors. Glutamate is the predominant excitatory neurotransmitter in the central nervous system and if its levels become too high, they can promote neuron death. While glutamate-induced neuron death is apparent in Alzheimer's disease (AD), the mechanisms behind this phenomenon are unclear. The protein beclin 1 may play a role in this dysfunction given that beclin 1 is reduced in AD and is known to regulate receptor recycling. The goal of these studies is to establish a baseline relationship between the ability of astrocytes to protect neurons from glutamate-induced cell death and then to investigate whether reduced beclin 1 influences this protection. To test this hypothesis, we first confirmed that our astrocyte cell line (C6 cells) expressed the glutamate receptor GLT-1 by western blot. GLT-1 is responsible for most of the glutamate uptake in the central nervous system. We next determined the concentration of glutamate needed to promote neuronal death in 50% of cells using a neuroblastoma cell line (N2A cells). Using these same concentrations of glutamate, preliminary data indicate that less cell death occurred with C6 astrocytes cells, which express GLT-1 receptors. Future studies will explore whether C6 astrocytes can protect N2A neurons from glutamate-induced cell death by taking up extracellular glutamate and whether reduced astrocyte beclin 1 impairs this function. If beclin 1 affects glutamate uptake, possibly by regulating GLT-1 recycling, then recovering beclin 1 levels could be a novel approach for reducing glutamate-induced cell death in AD.

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### **<sup>39</sup> USING PHOTOGRAMMETRY TO DETECT COASTAL CHANGE, NAPATREE POINT, RI.**

**Jeffrey Fontaine**

(Environmental Earth Science)

*Faculty Mentor:* Drew Hyatt

Coastal erosion can cause dramatic change in shorelines, particularly in response to rising sea level and ocean surge. Digital Photogrammetry (DP) is increasingly used to model these changes along actively eroding shorelines. This poster reports on DP fieldwork at Napatree Point RI and data processing techniques that use DP to model an eroding till-cored bluff at the end of Napatree Point, a coastal spit, near Watchill, R.I. DP utilizes overlapping high quality images to construct dense X-Y-Z point clouds. Fieldwork collected 275 images of the bluff using a Nikon

D600 full frame camera equipped with a 20mm Nikkor AF lens. Approximately 54 photogrammetry targets (ground control points; GCP) were placed throughout the field of view and 10 were surveyed using a RTK GPS and a laser total station. Model construction included importing images into Agisoft Photoscan software to create X-Y-Z point clouds, which were scaled in real space using the GCP survey coordinates. Data processing involved several steps, which increased detail and resolution of point clouds, resulting in a dense cloud model that consisted of 91.2 million points. Data were then exported to other visualization and modeling software. Blender was used to manipulate the model, creating a 3-D print of the bluff face. Cloud compare enabled change detection calculations between DP models built from 2016 and previously collected 2017 images. Cloud compare computed changes between these models to visualize and quantify erosion, deposition, and areas of little/no change. Initial findings indicate that the bluff face is eroding by undercutting some boulders, deposition occurs mostly at the toe of the bluff and vegetation obscures many areas. These efforts show that close range photogrammetry can be used to detect and quantify change in a coastal environments at Napatree Point.

#### **6 POST-GLACIAL EXPANSION OF THE BLACK-CLAWED SCORPION, ANUROCTONUS PHAIODACTYLUS (WOOD, 1863)**

**Haley Grimason**

(Biology)

*Faculty Mentor:* Matthew Graham

The black-clawed scorpion, *Anuroctonus phaiodactylus*, is distributed throughout the Mojave and Great Basin deserts of the western United States. The more northern Great Basin Desert was not desert-like during Pleistocene glacial periods, whereas much of the Mojave Desert remained warm and dry. This leads to the question of whether desert scorpions like *A. phaiodactylus* persisted in the Great Basin during the cooler and wetter glacials, or recently colonized the area from desert refugia in the Mojave as climates warmed during the Holocene. Phylogeographic theory states that areas that have been recently colonized by dispersal-limited taxa like scorpions should be less genetically diverse than population that have remained stable. We collected *A. phaiodactylus* from throughout the species' range and extracted, amplified, and sequenced mitochondrial DNA (COI) from leg tissues. Phylogeographic analyses of the DNA data indicate that *A. phaiodactylus* populations are much more diverse in the Mojave Desert, consistent with our hypothesis of recent northward expansion in the Great Basin. This result is contrary to patterns from co-occurring vertebrate taxa, suggesting that the Great Basin desert harbors a remarkably young desert fauna.

#### **40 INVESTIGATION OF WATER REFILL STATIONS ON EASTERN'S CAMPUS AND THE IMPACTS ON WASTE DISPOSAL**

**Noah Hallisey**

(Environmental Earth Science)



*Faculty Mentor:* Paul Torcellini

Data collection pertaining to the number of water bottles saved at the 6 water bottle filling stations located in the Student Center and Sports Center of Eastern Connecticut State University has been conducted over the past three academic year. Student interns headed the data collection, determining that since the installation of these stations, over 315,000 water bottles have been saved. Using this number, the amount of plastic produced, oil needed to make the plastic, water consumption, and carbon emissions of producing and transporting the water bottles can be considering. The Center is also considering the economics behind the water bottle station, comparing the cost per station to the amount of money saved by Eastern Connecticut State University in terms of removing the plastic bottles from campus, as well as comparing the cost of bottle water to water from the tap, as if students are aware it is significantly cheaper from the tap, then they may be more inclined to use the water bottle filling stations. By reducing the amount of waste ending up in the trash, Eastern is able to spend less on tipping its dumpster and continue to improve as a green campus.

### **53 ADDRESSING MISSING DATA WHEN ANALYZING THE IMPACT OF EMPLOYED WORK ON COLLEGE APPLICATIONS**

**Colleen Hart**

(Mathematical Sciences)

*Faculty Mentor:* Chantal D. Larose

Missing data is often overlooked in applied statistical research, yet missingness can skew the results of the analyses unless handled appropriately. Applied research often handles missing values using complete case analysis (CCA), which deletes observations with missing values and is prone to adding bias to the results. Alternative methods such as multiple imputation (MI) have been developed to better handle missingness in the data. In a previous analysis of high school students' college application choices, probit and ordinary least squares models looked at how time spent in employed work impacted the probability that a student applied to college and the number of applications they submitted. The work used CCA, resulting in 28% of observations being dropped from the analysis. However, there are patterns in the missingness, for example the number of applications submitted tends to be lower when the number of hours spent in employed work is missing. These patterns indicate that using CCA may have biased the results of the previous work. The current project examines the nature of missingness in the data, and addresses it appropriately. MI is used to handle missing values, and regression analyses from the previous work are rerun to see how the models change. Results include the comparison of CCA and MI models, including changes to point estimates, standard errors, and significance levels.

### **56 CHRONIC PAIN IN UKRAINE: PREVALENCE AND RISK FACTORS FOR DIAGNOSIS AND SEVERITY**

**Elizabeth Hilton**

(Psychology)

*Faculty Mentor:* Luralyn Helming

Chronic pain can pose a serious challenge for everyday life for many individuals globally, especially in developing countries. While several theories have posited psychological factors and treatment perceptions as influential in pain development, studies explicitly exploring risk factors to chronic pain beyond demographic characteristics using survey data have been scarce. To address this problem, this study analyzed World Health Organization data on chronic pain in Ukraine (N = 4725) to explore demographic, psychological, and treatment perception-related risk factors to chronic pain. We replicated previous reports of older age, female sex, married status, inadequate financial resources, and comorbidity of other physical conditions as significant demographic risk factors for chronic pain diagnosis, but not necessarily for severe pain. Moreover, in terms of psychological risk factors, psychiatric diagnoses and psychological distress were significant predictors for chronic pain diagnosis and severity. Novelty, we also found that treatment perception was also a significant predictor for diagnosis and severity in that. These results can be used to help influence chronic pain-related policy making in Ukraine and other developing countries as a first step in understanding the relationship between chronic pain and previously explicitly unexplored risk factors.

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## **57 CONTROLLING BEHAVIOR AND RELATIONSHIP SATISFACTION**

**Alexandria Hollwedel**

(Psychology)

*Faculty Mentor:* Peter Bachiochi

This study examined controlling behaviors between males and females to see if such behaviors decrease relationship satisfaction. The study also examined if males or females experience more relationship dissatisfaction. Previous research has shown that men can achieve dominance and control in their relationships through the use of violence (Elias-Lambert, Black & Chigbu, 2014) and that their use of possession increases their relational satisfaction (Guerrero, 2014). Controlling behaviors, like jealousy, are also used as a form of possession. Romantically involved heterosexual students from Eastern Connecticut State University (N = 27) filled out questionnaires related to controlling behaviors, conflict in the relationship, and relationship satisfaction. The questionnaires also addressed their romantic partners, the behaviors they recognize in the relationships, and their level of satisfaction with their partner in the relationship. Results indicated that there are not gender differences in controlling behaviors in a relationship or relationship satisfaction. There was a negative correlation between relationship satisfaction and controlling behaviors. These results imply that individuals can assess why they may have decreased satisfaction in the relationship and they will be able to determine if controlling behaviors exist in their relationship. Knowing if these behaviors occur can help prevent future complications from occurring.

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**41 INVESTIGATING THE MINERALOGICAL VARIABILITY AND FELDSPAR EXTRACTION HISTORY OF SOME PEGMATITE QUARRIES IN HADDAM, EAST HAMPTON, PORTLAND AND SOUTH GLASTONBURY, CT**

**Katherine Hope**

(Environmental Earth Science)

*Faculty Mentor:* Dickson Cunningham

One hundred and fifty years ago, Connecticut was considered the gemstone state of America. Semi-precious gems such as aquamarine and tourmaline were discovered in pegmatite veins in many parts of the state, especially within a N-S belt running through Glastonbury, Portland, Haddam and East Hampton. The pegmatites were also mined for feldspar, quartz and mica, and the mineral products were sold throughout New England and beyond. The pegmatite mines are now abandoned, but some remain publicly accessible to geologists and mineral collectors. In this project, seven different pegmatite quarries were examined to determine their mineralogical characteristics and to gain insights into the diversity of pegmatite geology in the region. All quarries have mine dumps with standard pegmatite material containing massive feldspar, quartz, muscovite and usually some biotite, black tourmaline (schorl) and local garnet. Some quarries contain other notable mineral occurrences such as the Clark Hill quarry which has large crystals of bladed annite (biotite), the Slocum Quarry which presents abundant gemmy golden heliodor (beryl), the Hale Walker Quarry and Case Quarries which contain beautiful gemmy blue aquamarine, and the Hollister Quarries which contain small green tourmaline (elbaite) crystals. Although these quarries are heavily picked over, good specimens of these unusual minerals can still be found. The quarries were most heavily mined in the mid-late 1900's and early 20th century for feldspar which was used in ceramics, porcelain and fertilizer. Today, few people realize that hundreds of disused pegmatite quarries can be found all over the state, including in Willimantic. Collectively, the many small-scale pegmatite mines contributed significantly to Connecticut's 19th and 20th century economic development.

**28 THE IMMIGRATION EXPERIENCE: EAST VS. WEST**

**Jolee Iannantuoni, Tyler Burleson, & Laina Rivers**

(Education)

*Faculty Mentor:* Mark Fabrizi

The stories of immigrants through Ellis Island and Angel Island offer revealing looks into the ways our country welcomes new arrivals. Through this conceptual, interdisciplinary unit, prepared by teacher candidates, middle school students will conduct research to help understand the concept of immigration, and to compare and contrast immigration experiences through Ellis Island in New York City and Angel Island in San Francisco. The United States population is founded on immigration, and the experiences of new arrivals has a significant impact on their view of society. This exploration links to numerous subjects and therefore provides an effective transition to academic studies in high school. In mathematics, students will develop graphs and other charts and tables to visualize and interpret immigration data. From a historical standpoint, students will interact with primary and secondary sources that illustrate the experiences of the

immigrants. Students will also participate in interactive assignments that will help them comprehend those sources. In English class, students will engage with creative texts, such as excerpts from Amy Tan's *The Joy Luck Club*, to explore the human perspective on immigration and cultural assimilation from an individual perspective. This topic is relevant to present-day issues in America. Further, classrooms in the United States are now more diverse than ever, so it is important for students to explore both historical and contemporary immigration trends. The interdisciplinary aspect of this instructional unit will help students understand the interrelatedness of academic topics, and it will provide teachers with a model of ways to integrate content areas to create a more seamless, relevant, and rational approach to education.

## **<sup>50</sup>EFFECTS OF EXERCISE ON AUTISM**

**Ryan Kelly**

(Kinesiology & Physical Education)

*Faculty Mentor:* Michelle Ferrer

Every year, more children are diagnosed with Autism Spectrum Disorder (ASD). ASD is a neuro-developmental condition that specifically affects communication with others and social interactions. Children with ASD can also experience delayed motor skills which can lead to a decrease in physical activity participation. Sedentary lifestyles are associated with decreased physical health and obesity/overweightness. This poster serves to highlight health risks associated with low levels of physical activity in children with ASD as well as ways that exercise intervention can increase quality of life and decrease negative factors associated with ASD. The factors examined are physical activity and exercise interventions, reduction of stereotypical negative behaviors, screen time effects and comparisons between youth with ASD and their typically developing counterparts.

## **<sup>42</sup> POLY-DEFORMATIONAL GEOLOGICAL HISTORY BETWEEN COLCHESTER AND SOUTH SALEM, CT: DOCUMENTING THE MID-CRUSTAL STRUCTURE NORTH AND SOUTH OF THE HONEY HILL FAULT ZONE**

**Madison Knox**

(Environmental Earth Science)

*Faculty Mentor:* Dickson Cunningham

The Honey Hill Fault Zone is the most important tectonic boundary in southeastern Connecticut separating the Avalonian and Iapetos basement terranes. However, for most of its length, it is poorly exposed and poorly understood in terms of its internal architecture, nature of fault rocks, kinematics, and record of reactivation. Therefore, in order to understand the deformational history of this key region of Connecticut, a field-based lithological and structural transect was completed during summer 2017 along a 7-mile section of Route 11 in Colchester and Salem that crosses the mapped trace of the fault system. Outcrops along Route 11, from north to south, comprise rusty quartz-muscovite Brimfield schists, grey biotite-garnet-sillimanite schists, pegmatite boudin-rich quartzite, hornblende-biotite gneiss, feldspar augen-rich granodioritic

orthogneiss, and dioritic-gabbroic orthogneiss and amphibolite. The northern half of the transect consists of a major recumbent south-vergent antiform; this interpretation is new and supported by minor fold asymmetries and lithological repetition. Cutting the southern overturned limb of the antiform are top-to-the-north low-angle extensional shear zones with spectacular kinematic indicators including macro-and micro-scale S-C fabrics, extensional shear bands, rotated objects and amphibole fish. Surprisingly, the Honey Hill Fault Zone is not exposed nor is there much outcrop evidence for it. The entire transect is dominated by NW-SE shortening and vertical flattening overprinted by sub-horizontal extensional structures of both a ductile and brittle nature. The highway road cuts reveal world-class examples of boudinage, folds and fabrics typical of mid-crustal polyphase deformation.

## **61 THE COMPARISON OF WORK ETHIC BETWEEN MILLENNIALS AND BABY BOOMERS**

**Makayla Lamson & Brooke Unikewicz**  
(Sociology, Anthropology and Social Work)  
*Faculty Mentor:* Pamela Chiang

Work ethic is defined as 'a set of values centered on the importance of doing work and reflected especially in a desire or determination to work hard' (Webster, 2017). People believe baby boomers have a different work ethic from their millennial counterparts. The purpose of this study is to examine the similarities and differences of work ethic across two generations. Work ethic is measured by integrity, sense of responsibility, emphasis on quality, discipline, and sense of teamwork (Jenkins, 2017). The study utilized available sampling to recruit participants in the Willimantic community, as well as in our home communities of Portland, CT and Mansfield, CT. The data collection was done over the course of three weeks with both members working to collect similar amounts of surveys from each generation. This study will bring forth better understanding of work-related values and overall work ethic among two different generations.

## **58 THE ROLE OF RELIGION IN THERAPY FOR TRAUMATIZED CHILDREN**

**Danny Lee**  
(Psychology)  
*Faculty Mentor:* Jeffrey S. Danforth, Ph.D.

This paper examines published research that reports on children's religiosity following trauma. The purpose of the research was to determine if religion plays a role in therapy for children that have gone through trauma. Articles were reviewed based on four subgroups: research on death trauma, physical violence trauma, community violence trauma, and how religiosity changes in children who have gone through trauma. General results show that many children who experience trauma use religion and spirituality as a coping strategy for the trauma they have experienced. Examples of results from representative research will be provided.

**62 DOES SOCIAL MEDIA USE AFFECT COLLEGE STUDENTS' STRESS?**

**Priscilla Leon, Ashely Acosta, & Alanna Taylor**

(Sociology, Anthropology and Social Work)

*Faculty Mentor:* Pamela Chiang

Studies show that 98% of American college students are on social media (Akhter, 2013). While social media help connecting people, studies have found some detrimental effects of social media use such as internet addiction, depression, and anxiety, little is known if social media use triggers stress. The study examines whether there is a correlation between the use of social media and stress levels among college students. We conducted a self-administered survey study at the Eastern Connecticut State University using the available sampling strategy for three weeks in the spring of 2018. We hypothesized that increased technology use would positively correlate with increased stress levels in students. Our study will illuminate the understanding of social media use among college students and if that reduces or increases students' stress.

**63 ADVOCACY THROUGH SOCIAL POLICY & LEGISLATION: A REVIEW OF FEDERAL, STATE AND WILLIMANTIC RESPONSES TO DACA**

**Priscilla Leon, Daniel Newland, & Julie Thompson**

(Sociology, Anthropology and Social Work)

*Faculty Mentor:* Pamela Chiang

A review of the 'Deferred Action for Childhood Arrivals' (DACA) policy and background highlights the dramatic policy change over the recent two presidencies and helps explain the controversy. The presentation will present a literature review of federal policy and responses from the top five states of DACA recipients' residences - California, Texas, Illinois, Connecticut and New York - to enhance our understanding of how each state protects and supports these 'opportunity scholars' or 'dreamers' in different forms of services (such as mental health, higher education, financial aid, legal assistance, etc.). Also, using Willimantic as a local example of a sanctuary town, we will present a debate skit to illustrate the different stances between Trump's office and sanctuary towns. The study will expand our knowledge on how states and municipalities may respond to federal policy while waiting for Congress to make a decision by March 5, 2018.

**64 THE EFFECTS OF PARENTAL DIVORCE ON COLLEGE STUDENTS' PERCEPTIONS AND EXPERIENCES OF DATING VIOLENCE**

**Hanna Levesque, Brooke Barney, & Sarah Piscatelli**

(Sociology, Anthropology and Social Work)

*Faculty Mentor:* Pamela Chiang

The experience of a parental divorce can affect children and adolescents socially, emotionally, academically, and psychologically. This study examined the effects of parental divorce on the perceptions and experiences of dating violence in their own dating relationships among college students. We utilized convenient sampling to recruit more than 100 students to participate in self-administered surveys in the Eastern Connecticut State University over a period of three weeks in February, 2018. The results of this study will enhance our understanding of the prevalence of experiencing dating violence among college students and the correlation with parental divorce.

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#### **43 SEDIMENTOLOGY AND STRATIGRAPHY OF DINOSAUR STATE PARK (ROCKY HILL, CT) AND SURROUNDING AREAS, EARLY JURASSIC EAST BERLIN FORMATION**

**Dominic Livoti**

(Environmental Earth Science)

*Faculty Mentor:* Peter A Drzewiecki

An exposure of about 500 Eubrontes dinosaur tracks occur at Dinosaur State Park (DSP) in Rocky Hill, CT, but current interpretations of the depositional environments in the park are outdated. A detailed sedimentologic and stratigraphic study at DSP and nearby sites resulted in an improved interpretation of Jurassic depositional environments and provided new insight into dinosaur behavior. The trackway at DSP is preserved in the early Jurassic East Berlin Formation within playa (dry) lake deposits below a perennial lake sequence. The Eubrontes tracks are interpreted to have been made by Dilophosaurus, a large carnivorous bipedal dinosaur, and occur in five distinct layers. Four outcrops and three cores were examined to provide a regional context for the tracks. The playa strata contain coarse sand intervals with trough cross-bedding and planar beds created by flowing water from unchannelized flood events. These sheet flood deposits are capped by thin, wave-rippled surfaces interpreted to form during brief periods characterized by standing water associated with the flooding. Mud-cracks, adhesion structures, and rain drop imprints indicate these bodies of water dried completely. The tracks occur on the dried surfaces. Our observations are in sharp contrast to current interpretations which claim that dinosaurs were hunting fish and swimming in deep, broad bodies of water that covered the Hartford rift valley during the early Jurassic. The interpretation in this study is that the dinosaur tracks occupied a predominately dry playa environment with episodic flooding intervals. It is postulated that the Eubrontes track-makers were gregarious carnivores that congregated in open playa sandflat environments. Furthermore, the presence of 'swim tracks' are reinterpreted as poorly constructed footprints made on firm, drier substrate.

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#### **29 HOW HAS THE USE OF TECHNOLOGY AFFECTED THE SOCIAL INTERACTIONS OF YOUNG PEOPLE?**

**Matthew Lyons, Yanira Hernandez, & David Babbitt**

(Education)

*Faculty Mentor:* Mark Fabrizi

Developing technologies, which often incorporate the use of artificial intelligence, are being used more and more frequently by high school students. But how have students' use of social media, interactive technologies, and cell phones impacted their social lives? Have they become more connected to one another, or less? How has their increased use of technology impacted their mental health? In this poster presentation, teacher candidates will share an inquiry-based interdisciplinary unit of instruction that helps high school students examine the impact of technology on their lives. Through reading and analyzing the novel *Fahrenheit 451* as well as ancillary nonfiction material, students will explore Bradbury's interpretation of the impact of technology on the individual in an imagined dystopian future. Students can compare his vision with the reality of our society today and the trajectories they perceive in the future. In science, students can build off Bradbury's vision to explore the mental health impact of technology's tendency to distance us from one another, rather than bring us together. Students in a history class will examine the pros and cons of artificial intelligence on their lives, from the development of more effective medicines and enhanced communications to the creation of lethal weapons and the diminishment of face-to-face human contact. The development of new technologies to enhance our lives has been significant part of the experiences of young people, but this interdisciplinary instructional unit will help them question the value of such technological developments in a critical, thoughtful way so that they do not become swept up in a superficial race for the newest technologies.

#### **44 PHOTOGAMMETRIC STUDIES AT BLOCK ISLAND, MAPPING EROSION AND COASTAL CHANGE**

**Bryce Mase**

(Environmental Earth Science)

*Faculty Mentor:* Drew Hyatt

New digital photogrammetry (DP) techniques increasingly are used to construct and measure detailed 3D models, called point clouds, for eroding coastlines. This study uses DP to model two sites on Block Island that are experiencing coastal erosion and change. This included a municipal dump near West Beach (WB) and eroding bluffs at Clayhead Beach (CB) on the northeast coast. CB is 17m tall, composed of complex glacial sediment including eolian sand, stratified drift, and displaced boulder rich till. In contrast, erosion at WB exposes a historic landfill, only meters from the water edge, that is underlain by sandy coastal deposits. Regular wave activity as well as severe storms like Hurricane Sandy have exposed the landfill. DP analyzes overlapping high quality images to construct models. We collected images (WB= 284, CH= 108) using a Nikon D600 full frame camera, with DP targets placed throughout the site. Most images were captured from a tripod using low ISO and narrow apertures to maintain sharp focus throughout the field of view. The locations of the targets were surveyed using a Total Station and RTK GPS. Images were processed using Agisoft Photoscan software to build, refine, and calibrate detailed 3D models. This involved importing and aligning images to create a tie point cloud, refining the cloud with gradual selection filters, and constructing a dense cloud. Visualizations were created using Cloud Compare (CC) to develop elevation and relief models, as well as Blender to produce 3D prints of CH. DP models for both sites were generated from images collected in June and



August 2017. Change in these coastlines is caused by erosion and deposition and are visualized in CC by calculating the distance between the two models. Currently erosion at CB and WB continues. In fact, the town of Shoreham has decided to remediate the site to limit the transport of material away from the dump.

### **32 FROM FEMALE HYSTERIA TO HOOK-UPS: SEXUALITY IN AMERICAN WOMEN**

**Jessica Miclon**

(English)

*Faculty Mentor:* Christopher Torockio

This research examines the evolution and future of female sexuality in America, which is currently at odds with itself. A girl may be told in school that they are a cake, and every time they have sex, they give a piece of that cake away. The same girl may go home and watch popular TV shows like 'Friends,' where modern, successful women engage in sex happily, and generally, without remorse. Historically, the meaning of sexuality is often defined for people, especially women, making their relationship with their sexuality a reflection of culture. Still deeply affected by Catholic roots, the 1920s were America's first true sexual revolution. Spurred by WWI, women had enough economic and psychological independence to begin fighting against the dominant culture. The feminist movement (and with it, the move for sexual liberation) was rebirthed in the 60s, a time often associated with the creation of the birth control pill. In under a hundred years, with sexuality in the public eye, the conversation switches from 'how could you be having sex?' to 'how could you not be?' Hook-up culture is a new and unexplored territory that Americans dive into—or avidly avoid—every day. Because the value of female virginity is deep-seated in our culture, the tug-of-war between preservation of old values and experimenting with new ones is fierce for women of all ages. This research not only aims to explore how hook-up culture developed, but its effect on the modern relationship, and assess the degree to which sexual freedom is attainable for women.

### **51 THE CHALLENGES OF AUTISM AFFECTING TEACHER, PARENTS AND STUDENT**

**Michael Moore**

(Kinesiology & Physical Education)

*Faculty Mentor:* Dr. Ferrer

Autism is increasing here in the United States and making sure we have effective programs for kids with Autism is very important. They come across many challenges that many people may not realize. In this presentation I will discuss these challenges and how it affects everyone not just the student. These challenges include how parents are satisfied with the programs that the teachers are running in physical education through communication, qualification, and rapport. Another aspect is how the student feels being in physical education whether that be positive or negative. Then the teacher themselves and how to be prepared for those challenges for current practices and what the future brings. These findings will help with the entire population so we

can see where things need to be fixed and where we can stay consistent at the positive aspects of the programs being run already. We want all children to succeed and to be happy. Through these studies I hope to bring awareness not just for educators in physical education but for everyone in education, and for the people that are not. This will allow people to become aware of all aspects of Autism and raise questions to how these programs affect other people who need adaptations in the world we live in today.

### **30 WHAT ARE THE POSSIBLE NEGATIVE LONG-TERM CONSEQUENCES OF OVER-RELIANCE ON TECHNOLOGY, SPECIFICALLY SOCIAL MEDIA?**

**Jacquelyn Orlowski, Holly Scheck, & Jessica Durkin**

(Education)

*Faculty Mentor:* Mark Fabrizi

American society has become over-reliant on technology and over-dependent upon social media. This is an issue that impacts teenagers and pre-teens in particular. But what kind of impact does social media have on our ability to communicate complex ideas effectively and efficiently? How have communication methods changed over time as technology improves, and are these changes beneficial to our society at large and to individuals within the society? This poster presentation will illustrate an inquiry-based interdisciplinary unit of instruction intended to be used in high school classrooms. The unit is relevant considering the population to whom it is directed, a population who are among the most prolific consumers of communication technology: high school sophomores. The presenters will describe how the above essential question may be explored within the context of a traditional high school to help students examine critically their own use of communication technology. In English class, students will focus on how technology and social media have shaped literature and access to literature. History students will explore how communication has evolved over time, and the benefits and detriments to society and the individual brought on by each new development in communication media. Students in biology class will explore the physiological impact of technology on the individual, particularly how the nervous system responds to stimuli from communication technologies and how the body receives and processes information. For example, students will research how new technology such as virtual reality goggles can impact the way an individual interacts with the world. Through an inquiry-based interdisciplinary approach, teachers can simultaneously teach essential academic content and help students apply that content to address real-world problems.

### **7 ESTABLISHING AN EFFECTIVE SAMPLING PROTOCOL FOR THE COMMON MUDPUPPY SALAMANDER**

**Samuel Pallis**

(Biology)

*Faculty Mentor:* Kristen Epp

The Common Mudpuppy, *Necturus maculosus* (Family: Proteidae), is a fully-aquatic salamander found throughout Canada and into the northeastern and midwestern United States. Mudpuppy

populations have declined throughout their entire geographic range. A wide array of sampling techniques ranging from hand netting to electroshocking have been used to sample populations; however, no consistent sampling protocol has been endorsed by management agencies. This experimental study will compare two collection techniques, active searching and baited trapping, selected from the primary literature due to their reported effectiveness, low expense, and high feasibility. Population sampling will be conducted in the Connecticut River and associated drainages. Active searching involves flipping rocks and seine netting while baited trapping employs mesh traps originally described by Foster et al. (2008) and modified by Briggler et al. (2013) and Murphy et al. (2016). The effectiveness and efficiency of baited trapping versus active netting will be compared by determining capture rates and assessing capture demographics of salamanders. Baited trapping is expected to be more efficient than active searching due to the ecology of the study species and because 20 baited traps can be deployed for 24 hours in only 3-4 effort hours, while active searching is limited by the number of collectors.

### **8 HARNESSING THE POWER OF DNA TO IDENTIFY A POTENTIALLY DANGEROUS POPULATION OF INVASIVE SCORPIONS IN SOUTHERN CALIFORNIA**

**Michelina Pinto**

(Biology)

*Faculty Mentor:* Matthew Graham

Bark scorpions (genus *Centruroides*) are a diverse group of venomous arachnids found throughout North America. Of the species in the United States, the Arizona bark scorpion, or *C. sculpturatus*, has the most toxic venom and has been responsible for human deaths. Interestingly, a related species from Baja California, *Centruroides exilicauda*, is morphologically indistinguishable from *C. sculpturatus*, and for years was considered the same species. Analyses of DNA sequences and venom data, however, indicate that they actually comprise two divergent species with very different venoms: *C. sculpturatus* has strong, medically significant venom, whereas *C. exilicauda* has mild venom comparable to that of a bee sting. Recently, a population of bark scorpions has invaded homes and landscaping in the highly-populated Coachella Valley of Southern California. Morphology suggests that the invasive scorpions represent one of these two species, so the potency of their venom remains largely unknown. Are they mildly venomous *C. exilicauda* or the dangerously venomous *C. sculpturatus*? To address this question, I generated DNA sequence data from samples collected throughout the ranges of both species, as well as two samples from the invasive population. If the invasive population is *C. sculpturatus*, then phylogenetic analysis of the DNA sequences will show that they are more genetically similar to that species than *C. exilicauda*. Furthermore, phylogeographic analyses of the DNA sequences may even be able to reveal the approximate source location of the invasive bark scorpions.

### **9 PHYLOGEOGRAPHY OF A MOUNTAINTOP SALAMANDER, PLETHODON PUNCTATUS (PLETHODONTIDAE)**

**Alexsis M. Powell**

(Biology)

*Faculty Mentor:* Matthew Graham

The cow knob salamander, *Plethodon punctatus*, is a little-known member of the lungless salamander family Plethodontidae. The species only occurs in a few isolated mountain ranges and mountaintops that straddle the Virginia and West Virginia border. West Virginia has designated *P. punctatus* as a S1 (Critically Imperiled) species of concern due to habitat fragmentation, low abundance, and its narrow distribution. This led to the question of whether *P. punctatus* populations in different isolated mountain ranges are genetically divergent and should be managed as separate units. Tail tips were collected from specimens throughout the known range of the species, and DNA was extracted. Three genetic loci, two mitochondrial (Cyt-b, ND4) and one nuclear (BF1), were amplified and sequenced. Phylogenetic analyses of the DNA data revealed that individual mountain ranges do not each harbor a unique genetic lineage. Instead, *P. punctatus* is comprised of two genetic clades, one found in northern half of the species' range and another in the south. Haplotype networks and population genetic analyses indicate that the northern clade of *P. punctatus* underwent recent population expansion, while the southern clade may have been more stable. Interestingly, the two clades appear to have diverged around 2.6 million years ago, coinciding with the onset of the Pleistocene.

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#### **47 THE REGULATION OF MRP4 ACTIVITY BY AMPK IN THE RENAL PROXIMAL TUBULE**

**Jessica Purick**

(Biology)

*Faculty Mentor:* Amy Bataille

Uric acid is a powerful antioxidant occurring naturally in our blood that works to neutralize harmful free radicals. Maintaining an appropriate balance of urate levels is essential to many aspects of our health. Excess amounts of urate in the blood is associated with cardiovascular disease and metabolic syndrome. Conversely, reduced levels of urate has been associated with degenerative diseases such as Alzheimer's and Parkinson's Disease, as well as certain cancers. The renal system largely controls the amount of urate excreted from the body, contributing 70% of the body's uric acid excretion. Multidrug resistance protein 4 (Mrp4) is the dominant pathway for urate secretion from the epithelial cells of the renal proximal tubule. Urate secretion varies when the cell becomes stressed, or when AMP-activated protein kinase (AMPK) is activated. We are hypothesizing that during cellular stress, AMPK is activated and physically interacts with Mrp4 to regulate energy conservation. To determine this, we will be using conditionally immortalized human proximal tubule cells grown in a culture and treated with AMPK activators or inhibitors. We will examine the protein interactions of Mrp4 and AMPK in the presence and absence of AMPK activators. We expect that the activation of AMPK by a cellular stressor results in the formation of protein complexes that include Mrp4. If we are able to understand the regulation of the mechanism of urate secretion between these two proteins, it could give insight on how to regulate urate levels and prevent or alleviate the diseases associated with urate imbalances.

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## **10 DISCOVERING HOW GENES INTERACT: RNAI SCREEN FOR TRANSCRIPTIONAL REGULATORS OF ODD-SKIPPED GENES IN C. ELEGANS**

**Jonathan P. Rappi**

(Biology)

*Faculty Mentor:* Amy C. Groth

Genes interact with each other to form complex networks called pathways. Transcription factor genes code for proteins that activate or inhibit the transcription of other genes. Odd-skipped genes are an important group of evolutionarily conserved transcription factors. In humans they are called Osr1 and Osr2 and they play important roles in the development of the kidney, heart, colon, skeletal muscle and palate. Incorrect expression of Osr1 has been linked to pancreatic and gastric cancer. These genes can be studied in the model organism *C. elegans*, a microscopic worm. About 60% to 80% of human genes are related to *C. elegans* genes. Osr1 and Osr2 have related genes in worms called odd-1 and odd-2. We aim to identify transcription factors that regulate odd-skipped genes. Gene expression can be visualized using reporter strains that have green fluorescent protein (GFP) fused to odd-1 or odd-2. Cells that fluoresce under confocal microscopy express these genes. RNA interference can be used to inhibit various transcription factors in the odd-skipped reporter strains. Changes in expression indicate that the knocked-down gene regulates odd-skipped transcription, directly or indirectly. We have identified several candidates from ~15 genes tested to date, and the screen is ongoing.

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## **11 CHARACTERIZATION OF A NOVEL MUTANT TRAPEZIA WITH ENHANCED ANTHOCYANIN ACCUMULATION IN THE MODEL LEGUME PLANT MEDICAGO TRUNCATULA**

**Ramis Saleem**

(Biology)

*Faculty Mentor:* Vijaykumar Veerappan

Anthocyanins are red, purple or blue colored flavonoid compounds produced by plants which play an important role in stress tolerance. Anthocyanins have shown numerous health benefits including anti-inflammatory and anti-oxidant effects. Anthocyanins are also used as therapeutic agents to improve human health. To identify novel genes that regulate anthocyanin accumulation in the legume model plant *Medicago truncatula*, Dr. Veerappan screened ~500 mutant plants from a Tnt1 mutant population. I am characterizing one of the mutants called trapezia (tpz) which shows enhanced anthocyanin accumulation. tpz mutant was named after the red-spotted guard crab (genus *Trapezia*) which protects coral reefs. Compared to wild-type leaves, tpz mutant displays increased number of reddish-purple anthocyanin spots on both adaxial (top) and abaxial (bottom) sides of the leaves. Data on phenotypic characterization of tpz mutant will be presented. To identify the causal mutation responsible for tpz phenotype, I will search *Medicago Tnt1* mutant database and also perform whole genome sequencing. Discovery of novel genes and mechanisms regulating anthocyanin accumulation in plants will enable us to manipulate crop plants for enhanced stress tolerance and improved human health.

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**65 DO PHYSICAL ACTIVITIES REDUCE COLLEGE STUDENTS' STRESS?****Ashley Sanzaro & Alexandra Caruso**

(Sociology, Anthropology and Social Work)

*Faculty Mentor:* Pamela Chiang

Nearly 60% of college students rated their stress levels as high or very high (Nguyen-Michel, Unger, Hamilton, & Spruijt, 2006). Research also suggests that stress can have negative effects on the immune, cardiovascular, neuroendocrine and central nervous systems (Alvord, Davidson, Kelly, McGuiness, & Tovian, 2018). Due to the prevalence of stress in college students, the purpose of this current study is to examine the relationship between recreational physical activity and the perceived stress college students experience. Participants in this study were selected using available sampling and were recruited at various locations on campus at a state university in the Northeastern region. The measure of stress drew on Perceived Stress Scale (1994). The results from the study will offer a better understanding of college students' stress levels and the effects of physical activity on stress management.

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**12 IDENTIFICATION OF ODD-1 AND ODD-2 TARGET GENES THROUGH SOAKING RNA INTERFERENCE OF FLUORESCENT REPORTER STRAINS IN CAENORHABDITIS ELEGANS**  
**CHRISTIANNE R. SENECHAL****Christianne R. Senechal**

(Biology)

*Faculty Mentor:* Amy Groth

*Caenorhabditis elegans* is a nematode and effective model organism due to its sequenced genome, transparent body (allowing for visualization of individual cells) and genetic similarity to most animal species. For example, *C. elegans* genes are related to ~60-80% of human protein-coding genes, making it a useful organism for studying human diseases. Two of these *C. elegans* genes include *odd-1* and *odd-2*, which belong to the *odd-skipped* gene family and affect the expression of other genes. *Odd-1/2* are related to human odd genes, which are important for the development of various tissues and cancer. Both worm genes affect development of the intestine, while *odd-2* also affects the rectal gland cells and is lethal when mutated. We are using soaking RNA interference (RNAi) to knock-down *odd-1* and *odd-2* in fluorescent reporter strains for genes that are likely transcriptional targets of *odd-1* or *odd-2*. The worms are soaked in *odd-1* or *odd-2* RNA that will knock-down odd expression. The potential odd target genes we are testing include *skn-1*, *ref-1*, and *pha-4*, which all function in gut development. If they are targets of either odd gene, they will have changes in their fluorescent pattern when treated with odd RNAi.

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**59 IS ADHD OVER-DIAGNOSED IN CHILDREN?**

**Jessica Seymour**

(Psychology)

*Faculty Mentor:* Jeffrey Danforth, Ph.D.

This study evaluates empirical research analyzing whether ADHD is over-diagnosed or under-diagnosed in children. The keywords: ADHD, over-diagnosis, children and adolescents were searched in PsychINFO to find published data-based research articles discussing over- and under-diagnosis of ADHD. There is evidence supporting and refuting over-diagnosis of ADHD in children. Variables influencing over-diagnosis include child age, gender, ethnic status, location, and racial identity. Over- or under-diagnosis of children with ADHD could also be a function of which edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) was used for evaluation of the child. Future research may also examine the location of the children diagnosed with ADHD to determine if rural, suburban, or urban settings influence the diagnosis. Implications for treatment are addressed.

**13 IDENTIFYING THE SCORPION GUT MICROBIOME****Christopher Shimwell**

(Biology)

*Faculty Mentor:* Barbara Murdoch

Every year about 23,000 people die from harmful antibiotic resistant bacteria. Antibiotic resistance is a global crisis that needs to be intensively researched by scientists. Unlike humans, some organisms however, have been resistant to the constantly evolving bacteria that contribute to antibiotic resistance. Scorpions, a member of the arthropod family, have been around for over 400 million with little physical change. This is a sign that scorpions have advantageous traits that keep them safe from harmful bacteria. One possible explanation for the scorpion's successful longevity could be the collection of bacteria found inside of them - their microbiome. There has been little research on the scorpion microbiome and our project is hoping to fill this void. We have cultured bacteria from scorpion guts. DNA from bacterial isolates was subjected to PCR, to amplify the 16S rRNA gene. The sequence analysis of these ribosomal genes is the basis for the identification of individual bacteria. We have sequenced 50 bacterial samples. Interestingly, several identified bacteria are associated with food-borne illness in humans. Our results shed light on the diversity of bacteria found within scorpions and may lead to new sources of antibiotics to help combat antibiotic resistance.

**14 POPULATION STRUCTURE AND DISPERSAL PATTERNS OF NORTH AMERICAN BLACK TERNS (CHLIDONIAS NIGER) INFERRED BY CYTOCHROME-B GENE****Melody Slater and Stefanos Stravoravdis**

(Biology)

*Faculty Mentor:* Patricia Szczys

*Chlidonias niger*, the North American Black Tern, is a marsh-nesting waterbird that migrates using specific flyways from different areas across North America (breeding distribution) to Central and South America (wintering distribution). Studies of this waterbird species have previously documented declining population sizes across North America since the 1960's, at about 3-5% per year. This decline is likely a result of loss of high-quality nesting habitat. This study examines the population structure and sex-specific dispersal patterns among multiple colonies within the Northern United States and Canada. DNA was extracted from blood samples and DNA sequences obtained for a 480+ bp region of the Cytochrome-b mitochondrial gene following methods of previous studies. Birds (N = 106) from Maine (N = 13), Michigan (N = 11) Ontario (N = 12), Wisconsin (N = 30), Nebraska (N = 30), and Oregon (N = 10) were also assayed at the CHD region of the Z and W chromosomes to determine sex. Following procedures of previous studies, we quantify genetic variability indices such as haplotype diversity and heterozygosity to make inferences about the connectivity of Black Tern colonies across North America. This study should enhance understanding of vital population parameters and inform conservation for this species of special concern.

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### **19 BANKING IN THE BAHAMAS: THE HAVES AND THE HAVE NOTS**

**Ndack Nikki Sow**

(Business Administration)

*Faculty Mentor:* Candice Deal

In the United States, roughly about 33.5 million households (25% of the U.S. population) were recognized in 2015 as unbanked or underbanked. Of those who have a bank account, most do not have adequate access to the financial services and security that banks can provide. They are banking but not to the standard that most of us know it as banking. These people are the 'underbanked'. The unbanked on the other hand are defined by the Federal Reserve Survey of Consumer Finances (FRSCF) as 'individuals who do not have a transaction account with a traditional financial institution, like a commercial bank, thrift institution, credit union, or securities operation. The same FRSCF survey thus stipulates that 'under this definition, 9 percent of all families are unbanked' (Federal Reserve Survey of Consumer Finances (FRSCF), 2001). The unbanked and underbanked together constitute a large market that is not well served or not served at all by existing institutions. In developing countries, large banks tend to shy away from extending credit to the underbanked. In the event they do extend credit, they charge very high interest rates to offset the risks. This is not an unknown practice in the US whereas the poor do not fare well with banks as they are labelled as high risks. Using the Federal Reserve's definition of underbanked and unbanked, this study seeks to analyze the banking framework in the Bahamas. Specifically, this study looks at the population of those considered underbanked and unbanked. The study is extended by analyzing the reason why the population may be considered underbanked and unbanked and also the contributing role that financial institutions in the Bahamas play in creating such an unbalanced wealth.

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## **15 SUBPLOT POPULATION DYNAMICS IN PLETHODON CINEREUS MALE TERRITORY FIDELITY AND HORIZONTAL MOVEMENT RANGE**

**Lia Spencer-Dupret**

(Biology)

*Faculty Mentor:* Kristen Epp

Given the global decline of amphibians, monitoring populations has become especially important. Many amphibian species, including salamanders, are especially sensitive to environmental changes, making them good indicator species of ecosystem health or stability. The Redback Salamander, *Plethodon cinereus*, is a native amphibian important as both predators and prey in forest ecosystems of the northeastern United States. To assess factors that affect survival and reproduction of Redbacks, salamanders were surveyed using mark-recapture techniques in six 5x10-m coverboard plots at Church Farm Preserve, Ashford, CT, USA during the fall 2016, spring 2017, and fall 2017 seasons. Captured salamanders were tagged with an elastomer dye for identification during future surveys, and then sexed, measured, and examined for eggs before release. This research analysis examined subplot population dynamics, particularly male site fidelity and movement range within plots, as well as cohabitation patterns and recapture patterns across seasons and plots. These plots represent one of 21 sites that are part of a larger regional research group that is studying the effects of climate change on salamanders at broad geographic scales.

## **52 CEREBRAL PALSY AND PHYSICAL ACTIVITY FOR STUDENTS IN AMERICA**

**Adam Traxler**

(Kinesiology & Physical Education )

*Faculty Mentor:* Dr. Michelle Ferrer

Cerebral Palsy is currently the most common physical disability in children, affecting 2.0-2.5 out of every 1000 children. Cerebral Palsy is caused by a non-progressive brain injury or malformation that takes place while a child's brain is in development. It mainly effects muscle movement, coordination, tone, reflexes, posture, balance, motor skills and speech. As an aspiring physical educator it is my role and duty to make physical activity accessible and available for our young students of all varying abilities. After completing peer-reviewed journal research it has come to my attention that more must be done to help our young students with Cerebral Palsy experience the benefits of physical activity. Through research I was able to find out through studies that young students with Cerebral Palsy are not: 1) achieving adequate health levels 2) as active as their peers without disabilities. Aside from physical challenges, there are many more factors that go into lack of participation in physical activity. These factors range from environmental factors like parents not having the time to help provide physical activity for their children, to emotional and behavioral problems that arise from the pain these children experience, and as well as not being provided an inclusive environment at their school. Through the journal research I was able to find out that for health related reasons physical activity is very important for these individuals and for their Cerebral Palsy as well. Through one of the studies I found that intense physical activity improves cognitive functioning in those with CP. Overall, the

goal of my poster is to call attention to an issue that I as an aspiring health and physical educator would like to help find a solution to. Knowledge of the results will help me become a better teacher because it is apparent that there is a specific population that I need to help facilitate a healthy lifestyle for.

**45 EVALUATION OF SHORELINE CHANGE AND SPIT NAPATREE LAGOON, WATCH HILL, RHODE ISLAND USING HISTORICAL AERIAL PHOTOGRAPHS, DIGITAL ORTHOPHOTOGRAPHS AND DIFFERENTIAL GPS**

**Madie Varney**

(Environmental Earth Science)

*Faculty Mentor:* Bryan Oakley

The lagoon at the west end of the Napatree Point Conservation Area (NPCA) is a 2km long barrier spit connected to Watch Hill Point and Napatree Point. The Hurricane of 1938 breached the barrier in several places, including disconnecting the Sandy Point barrier from Napatree Point. This marked the onset of spit formation and the current lagoon, which began in earnest following a hurricane in 1944. The last high tide swash (LHTS) shoreline along the spit was mapped using georeferenced historic aerial photographs and digital orthophotographs (1939 and 2017). The position of LHTS has been mapped quarterly using handheld DGPS. The annualized rate of change as well as width and length of the spit have been measured using ESRI ArcMap software. Mapping results show the spit extended east from 1945-2010 approximately 440 m via longshore transport, while migrating south ~100 m through overwash and washover fan deposition during storms over the same period. Storms induce drastic changes of the spit; the inlet position switched from the eastern end to a more western position in 2010/2011. The spit eroded significantly during Sandy, the spit has reformed over the last six years and continues to grow to the east, with the inlet in a more eastern position. Ongoing work using RTK-GPS measured cross-shore profiles will examine changes in onshore/offshore sediment transport. The lagoon spit and the processes that shape it serve as a model of natural shoreline change and spit migration on other larger barriers.

**20 UNDERSTANDING LIBRARY USE IN THE DIGITAL AGE: IMPLICATIONS FOR DESIGN OF LIBRARY WEBSITES AND DIGITAL TOOLS**

**Matthew Voelker**

(Business Administration)

*Faculty Mentor:* Sukeshini A. Grandhi

For centuries, libraries have played a major role in collecting, organizing, and providing content for universities and communities in general. In the digital age while the role of the libraries has not changed, their offerings have expanded to include many digital services. However, a recent study by Pew Research Center in 2016 found that only 27% of 1601 adults surveyed in the USA reported using library websites as compared to 48% who reported visiting the library at least once in the past year. Furthermore, the survey found that the number of people who have used

the library websites has declined by 4% from 2015. To understand the underlying reasons for this low as well as seemingly downward trend in the use of library websites/digital tools, this research aims to understand the current attitudes, usage, and engagement of library users within the context of a university campus (Eastern Connecticut State University). Data obtained from a qualitative study (semi-structured interviews) and a quantitative study (survey) will be analyzed to identify design implications for library websites/digital tools that encourage use and enhance user experience.

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### **31 WHAT DOES IT MEAN TO BE A PATRIOT IN AMERICA?**

**Kyle Wilkinson, Adam Phelps, & Jewel Clavin**

(Education)

*Faculty Mentor:* Mark Fabrizi

This poster presentation will illustrate a creative and progressive way middle school teachers can simultaneously teach content and help students become more culturally and politically aware through an interdisciplinary, inquiry-based unit of instruction that employs an essential question. This essential question will guide instruction for an eighth grade conceptual mini-unit within three content areas: U.S. history, English language arts, and social studies. The essential question is intended to encourage discussion and debate regarding potential definitions of patriotism, a topic of crucial importance in contemporary society that capitalizes on recent national media discussions of which students might be familiar, such as kneeling in protest during the national anthem, Shaun White's Olympic performance and subsequent treatment of the flag, and national support of the executive branch. At the same time students are exploring the issue, the essential question provides students the opportunity to access specific content and skills within each content area in a more authentic manner, particularly since the unit of instruction integrates several subjects.

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### **21 STATISTICAL PROCESS ANALYSIS IN A RESTAURANT**

**Jimmy Yuen**

(Business Administration)

*Faculty Mentor:* Fatma Pakdil

Our project researches the amount of time it takes a restaurant to serve the customers once they have placed their orders. For this project, we used several Operations Management-based methods and tools to analyze the problem. We analyzed the serving time it took restaurant employees to prepare and serve the customer's order and later used the statistical process control methodology with the gathered data to arrive at our conclusion. We began our research by collecting data with receipts that automatically records the time when it is inputted and we recorded the time once the food is delivered to customers. The type of graphs we used to analyze the data in our research is on Probability Plot, Process Capability, Run chart, I-MR chart, and X-bar chart. Using these tools, we analyzed the service delivery process and help the restaurant recognize the process time of our research.

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## **66 SOCIAL EVALUATION ASSOCIATED WITH CHOOSING "HEALTHY" SNACKS FOR PRESCHOOL AGED CHILDREN**

**Alyssa Daneault, Yohan Krumov, Lauren Leavey, Kaylee Defelice, Christine Graffeo, Carlos Borja**

(Psychology)

*Faculty Mentor:* Jenna Sisco

Children may select packaged foods based on “fun” characteristics, such as bright colors and characters, while parents may consider the social context in which they are making their choice (Nelson, Duff, & Ahn, 2015). Parents report choosing certain products depending on the social situations, price, and how healthy they perceive themselves to be. It was hypothesized parents would choose 100% natural yogurt when the scenario involved other adults, and choose dinosaur yogurt when the scenario involved only the child being present. It was also predicted that parents would rate the 100% natural yogurt as being healthier, more expensive, and be willing to pay a higher price compared to the dinosaur yogurt. The final hypothesis stated parents rated as more health conscious would be more likely to choose the 100% natural yogurt. The data was collected using Amazon Mechanical Turk, limiting participation to residents in the United States. Parents of preschool-aged children read eight scenarios, completed the Healthfulness Perceptions Measure, a demographics form, and received compensation of \$.50. A paired samples t-test found participants selected the 100% natural yogurt significantly more often than the dinosaur labeled yogurt when being socially evaluated than when no social evaluation was present. Additionally, participants with higher levels of health consciousness selected the 100% natural yogurt more often regardless of the situation. Participants also rated the 100% natural yogurt as significantly healthier than the character yogurt and perceived natural yogurt as more expensive than the dinosaur yogurt. Parents were also willing to pay a higher price for 100% natural yogurt when compared to the dinosaur yogurt. Limitations include use of self report measures, completion of the study online and lack of face-to face interview which could lead to rushing or responding inaccurately. Future research should examine parents’ choices in real-world scenarios..

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