



APRIL 21

2017



**EASTERN
CONNECTICUT
STATE UNIVERSITY**



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APRIL 21, 2017

SCHEDULE OF EVENTS

8:15 am – 8:45 am	Registration, Student Center Café
8:45 am – 9:20 am	Opening Ceremony, Student Center Theater
9:30 am – 10:30 am	Oral Presentations, Session 1, Student Center Meeting Rooms
10:30 am – 10:50 am	Coffee Break, Student Center Café
10.50 am – 11:50 am	Oral Presentations, Session 2, Student Center Meeting Rooms Musical Performances, Student Center Theater
11:50 am – 12:30 pm	Lunch, Student Center Café
12:30 pm – 1:30 pm	Poster Session and Photography Exhibit, Betty Tipton Room
1:40 pm – 2:40 pm	Oral Presentations, Session 3, Student Center Meeting Rooms Dance Performances, Student Center Theater
2:40 pm – 2:45 pm	Break
2:45 pm – 3:25 pm	Oral Presentations, Session 4, Student Center Meeting Rooms
3:30 pm – 4:30 pm	Art Gallery Session, Student Art Gallery, Wood Support Services Room 223



CREATE 2017 is a celebration of the breadth and depth of Eastern Connecticut State University's undergraduate research, experiential learning, and artistic talent. 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 2017 and congratulations to all of our participating students for their hard work and academic achievements!

CONFERENCE ORGANIZATIONAL COMMITTEE

Carmen Cid

Maureen McDonnell

Robert Collins

Martín Mendoza-Botelho

Brendan Cunningham

Niti Pandey, Co-Chair

Dickson Cunningham

Nick Parsons

Ari DeWilde

Afarin Rahmanifar

Jacob Easley

Jenna Scisco

Carlos Escoto

Anya Sokolovskaya

Jehoon Jeon

Patty Szczys, Co-Chair

Mehdi Khorami

Jeffrey Trawick-Smith

CREATE Detailed Schedule 8:15 – 4:30 pm, Friday April 21, 2017

Time	BTR	Theater	MR 107	MR 113	MR 115	MR 217	MR 219	MR 221	MR 223
8:15-8:40	Registration and Poster set up								
8:45-9:20	Opening Ceremony								
			Moderator: Dr. Dickson Cunningham	Moderator: Dr. Elizabeth Scott	Moderator: Dr. Nick Parsons	Moderator: Dr. Robert Collins	Moderator: Dr. Anya Sokolovskaya	Moderator: Dr. Jeff Trawick-Smith	Moderator: Dr. Hope Fitz
9:30-9:50	Poster and Photography Exhibit	Photography Exhibit 1-hour duration See Program for details	Nicole Coughlin Political Science Philosophy & Geography Gendered Views of the U.S. Judicial System: College Students' Perspectives on the Handling of Campus Sexual Assault Cases	Maria Taylor Business Admin. Six Sigma CFS Customer Experience	Olivia Grella Psychology The Relationship of Social Physique Anxiety and Exercise Dependence	Christopher Armstrong Computer Science Using Machine Learning to Explore Predator-Prey Relationships in Biology	Lucy Shea Performing Arts From Research to Performance: Political Theater	Leah Slawinowski Nicole Green Dominique McLean Education How Preschool Teachers Introduce New Play Materials: Impact on Play Quality	Panel Discussion Phillip Hoeps Kayla Giordano Alexa Potter Tess Candler Emma Avery
9:50-10:10			Adam Murphy Political Science, Philosophy & Geography Trusting Washington: Examining the levels of Trust in Government Among College Aged Individuals	Katlyn Little Business Admin. No Pain, No Gain: Moral Arguments in the Animal Testing Industry	Abby Caselli Psychology Relationship Between Attitudes Towards Casual Sex, Gender Roles and Condom Advocacy	Meaghan Kennedy Computer Science Updating the Bladder Cancer Biomarker Evaluation Tool BC-BET to look at differential methylation in bladder cancer	Joshua Perry Performing Arts Holistic Analysis of Indie music scenes: A historical Examination of Willimantic	Stefanie Dominguez Daphne Botteron Samantha Normington Liah Sinquefield Leah Slawinowski Education Math Talk Counts: The Relationship of Teacher-Child Math Talk During Play to Preschoolers' Mathematics Learning	Political Science, Philosophy & Geography Overcoming Obstacles in Undergraduate Research 1-hour duration
10:10-10:30			Megan Hull Political Science, Philosophy & Geography Personality Matters: Challenging Presidential Decision-Making Processes	Anthony Coss Business Admin. For-Prophet Industry: An Examination of the Actions and Values of the Roman Catholic Church	Valerie Vance Sociology, Anthropology and Social Work Military Sexual Trauma and Female Service Members	Anthony DeDominic Computer Science DevOps-FoundryJS	Stephanie Trevethan Education Just (5 minute monologue)	Dominique McLean Stefanie Dominguez Nicole Green Amanda Terenzi Education Effects of Toys on the Quality of Young Children's Play: Effects of Age, Socioeconomic Status, Gender, and Ethnicity	
10:30-10:50	COFFEE BREAK – Student Center Café								

MR: Meeting Room; All meeting rooms are in the Student Center. All oral presentations, poster session, photography exhibit, and music and dance performances will be held in the Student Center. The art gallery session will be held in the Student Art Gallery, Wood Support Services Center, Room 223.

Time	BTR	Theater	MR 107	MR 113	MR 115	MR 217	MR 219	MR 221	MR 223
10:50-11:10	Poster and Photography Exhibit	Music Performances 1-hour duration See program for details	Emma Avery Political Science, Philosophy & Geography A Chronological Study of Congressional Hearings: The Evolution of the Environmental Debate	Jared Kranc Business Admin. The Cocoa Chronicles: Nestle Edition	Joseph White History The Foul Blot of Everlasting Shame: Why 18 th Century American Patriots Told the Story of Benedict Arnold	Rachel Waters Courtney Welch Bryan Frankovitch Ashley Franklin Health Sciences Issues and Challenges with Palliative Care in Connecticut	Kerri McColgan Performing Arts Replicating the Furniture Designs of Frank Lloyd Wright for a Theatrical Stage Setting	Christopher Otero English 'Their guns were ballots, their bullets were ideas': The Battle Songs of the Cold Water Army	Liah Sinquefield Dawn Schluter Political Science, Philosophy & Geography Education: Based on Philosophy, Particularly Critical Thinking and Ahimsa, as Necessary for the Development of Self With Others. 40 minutes duration
11:10-11:30			Valerie Bak Jonas Bjornes Political Science Philosophy & Geography Sacrifices and the Environment: Will college students go organic?	Stefanie Dominguez Business Admin. Social Responsibility of Corporations Towards Workers with Disabilities	Rose Marie Welles History The Mythic Rapist: Destructive Sexual Dehumanization of Black Men in the New South	Goy Voladate Shaniece Jones Health Sciences Organic Foods: Issue and challenges	Emily Miclon Performing Arts Constructing Authenticity through Intertextuality: An Analysis of Kendrick Lamar's To Pimp A Butterfly	Kyle Hottin English This Little Room of Mine: Nineteenth-Century Tragedies of the Youth and the Rise of Power	
11:30-11:50				Ruth Eragene Business Admin. Fast Food, a Deliciously Slow Poison	Isabella Rossi History The Elite Opulence of the Gilded Age: Creation of an 1876 Style Evening Gown			Ashlyn Hart English Real Bodies: Analyzing Representation of Disability in Media, Politics, and Medicine	Ara Daglian Political Science Philosophy & Geography The Foundations and Evolution of Just War Theory
11:50-12:30	LUNCH – Student Center Café								
12:30-1:30	FORMAL POSTER SESSION WITH STUDENT PRESENTERS ATTENDING AND PHOTOGRAPHY EXHIBIT: BETTY TIPTON ROOM								
			Moderator: Dr. Maureen McDonnell	Moderator: Dr. Brendan Cunningham	Moderator: Dr. Niti Pandey	Moderator: Dr. Mehdi Khorami	Moderator: Dr. Mary Kenney	Moderator: Dr. Amy Groth	Moderator: Dr. Gail Gelburd
1:40-2:00	↓	Dance Performances 1-hour duration See Program for details	Meaghan McFall-Gorman Political Science, Philosophy & Geography Not Always a First Lady, But Always a Lady: Continuation and Fluctuation of Media Bias Against Hillary Clinton	Tess Candler Economics The Effect of Educational Inequality on Economic Development in Latin America	Francesco Ricigliano Business Admin. Fake News or False Expectations?	Nicole Biele Emily Sheehan Mathematical Sciences Knot Theory in Relation to Space Harmony Using Harmonic Embeddings	Jolene Potter Sociology, Anthropology and Social Work Perceptions of Rape Culture From Eastern Connecticut State University Students	Tashanna Edwards English Shooting Heaven	Brennan Yau Art and Art History The Value of Arts for Economic Development

Time	BTR	Theater	MR 107	MR 113	MR 115	MR 217	MR 219	MR 221	MR 223
2:00-2:20	Poster and Photography Exhibit		Jonas Bjornes Political Science, Philosophy & Geography The Struggle Through Media: Hillary Clinton's media journey from 2008-2016	Phillip Hoeps Economics Is the Pursuit of Monetary Union Worthwhile? The EMU after the Great Recession	Neil Schneeberg Business Admin. The Anti-Corporation Corporation: The Alternative Business Model of Employee Ownership	Matthew Liebel Mathematical Sciences Two-Dimensional Whitaker Graduation: An Evaluation of Sensitivity to Initial Assumptions	Rachel DiNatalie Elyssa Ferens Melanie Morales Mikaela Hillsberg Neomi Nieves Sociology, Anthropology and Social Work Alcohol Addiction in Willimantic, Connecticut	Reilly McKnerney English Non-Consensual Rule: The Body Politics of Native Americans	Nicholas Khan Art and Art History The Frame; In Context and the Contemporary Era
2:20-2:40				Sarah Brihan History How Do You Bring Down the Wall? With Art	William Jeffries Business Admin. Consumers Chickening Out: U.S. Poultry Labeling Practices and their Effects on Consumer Choice	Tyler Oquendo Melody Kramarz Kinesiology & Physical Education Have a Heart: Testing the Accuracy of Various Heart Rate Monitors	Samantha Winters Education Transitions in the Classroom	Ashley Cholewa English The Mean Reds Ain't the Blues: Conceptual Metaphor and Color in Capote's Breakfast at Tiffany's	
2:40-2:45	BREAK								
2:45-3:05	↓ Samuel Huntington: The Humble Statesman (40 minutes)	Documentary	Christina Hagerty Women's and Gender Studies Organizing for Change	Adrian Hannibal Communication The White House's Assault on the News Media and the First Amendment	Kimberly Mines Labor Relations and Human Resource Management Framing Arab Americans in the Detroit Newspress	Martha Denisky Environmental Earth Science Paleoecology of Mesozoic Strata in the Hartford and Deerfield Basins, Connecticut and Massachusetts	Liselotte Hammer Sociology, Anthropology and Social Work A Norwegian First- Generation College Student in America: An Autoethnography	Zachary Adams Biology Testing Island Biogeography Theory with the islands of Mansfield Hollow State Park in Mansfield, Connecticut	Adam Courbin Art and Art History An American Man: A Semiotic Analysis of Cultural Mythology
3:05-3:25		Yessenia Vargas Women's and Gender Studies Feminism: Opening my Eyes and Mind	Zachary LeDuc Chandler Benoit Communication Coupons and Consumerism	Julia Underhill Labor Relations and Human Resource Management Women, Strikes, and the Early Labor Movement	Madeleine Haynes Environmental Earth Science Local Sources of Arsenic: Natural or Man-made?	Mariana Serrano Kristyn Ryan Sherry Vallone Sociology, Anthropology and Social Work Cigarette Smoking in Willimantic, Connecticut	Weronika Lewkowicz Biology Effects of Glucosinolate Extracts from Various Brassicaceae Species on Salmonella enterica	Andrew Falce Art and Art History Art in the Age of Terrorism	
3:30-4:30	Art Gallery Session: Student Art Gallery, Wood Support Services Room 223								

Social Sciences		Communication & Psychology	
Arts		English & Education	
Business Admin. & Labor Rel.		Sciences	

ARTWORK

Artwork will be on display throughout the day at the Student Art Gallery in Wood Support Services Room 223. The formal Art Gallery session is from 3:30-4:30 pm.

The Sea Voyager

Olivia Bednarek

Faculty Mentor: Robert Greene

Metal, wood, animal bone

24 x 11 x 75 in.

Packaging Design Concept: Kold Lemonade

Kendra Borders

Faculty Mentor: Terry Lennox

Digital Print

24 x 18 in.

Shades Of Blue Study #1

Alison Brundrett

Faculty Mentor: Afarin Rahmanifar

Acrylic on canvas

16 x 20 in.

Costume Study #1

Alison Brundrett

Faculty Mentor: Afarin Rahmanifar

Mixed Media on canvas

16 x 20 in.

Female Nude 2

Scott Campbell

Faculty Mentor: Afarin Rahmanifar

Oil on canvas

36 x 36 in.

The Scream Project

Amy Javarauckas

Faculty Mentor: Afarin Rahmanifar

Charcoal

18 x 24 in.

Artwork

Self Portrait With A Fur Collar

Nicholas Khan

Faculty Mentor: William (Andy) Jones

Acrylic and Mixed Media on Canvas

20 x 16 in.

Bust Of A Young Woman

Emily Lizotte

Faculty Mentor: Robert Greene

Clay

12 x 9 x 9 in.

Catharsis Auras

Bethany Marion

Faculty Mentor: Robert Greene

Mixed Media

34 x 75 x 65 in.

Freedom, Liberty And Arms

Ashley Prouty

Faculty Mentor: Afarin Rahmanifar

Oil on canvas

36 x 36 in.

Packaging Design Concept: Shyn Seltzer

Brennan Yau

Faculty Mentor: Terry Lennox

Digital Print: Adobe Illustrator, Adobe Photoshop

24 x 18 in.

Through the Eyes of an Owl

Ivan Carlson

Faculty Mentor: Lora Lee (Boya Li)

Digital prints, CD cover, DVD cover, video

24 x 30 in.

DANCE PERFORMANCES

In this session the audience will be exposed to how artists create choreography through research. Five “informances” will be presented (performances that provide context to inform an audience’s understanding of what they are seeing). The thematic focus of these informances will range from Tap, West African, Fokloric and Modern/Contemporary genres of dance, exposing key technical and theoretical underpinnings in each case.

KPANLOGO

Alexis Tribble-Bryant, Naomi Childs, Tianna Edwards, Orleen Lauture, Zesmary Flores, Neahmiah Freitas, Dinora Carter, and Tayla Bogle

(Performing Arts)

Faculty Mentor: Alycia Bright-Holland

Traditional dance from Ghana, West Africa

WUMALA West African Dance Ensemble

OBSTACLES TO INDIVIDUALITY

Carylian Allende and Charliece Salters

(Performing Arts)

Faculty Mentor: Alycia Bright-Holland

Utilizing four keywords that we chose together (unique, individual, obstacles/stereotypes, different), we created a poem/message that we were trying to aim at a specific target. My partner and I want to encourage people to be themselves--no matter the obstacles or stereotypes that surround them. We focused on this because of how common and problematic it is to criticize people for things like how they look, what they wear, or where they are from.

BOMBA

Alexis Tribble-Bryant, Naomi Childs, Tianna Edwards, Orleen Lauture, Zesmary Flores, Neahmiah Freitas, Dinora Carter, and Tayla Bogle

(Performing Arts)

Faculty Mentor: Alycia Bright-Holland

Traditional Fokloric dance of Puerto Rico by Zesmary Flores.

Performed by members of *WUMALA West African Dance Ensemble*

Dance Performances

There are many traditional dance forms that originate in Puerto Rico, one of the oldest being Bomba (also known as Bomba Puertorriquena). Though there are many newer forms of 'Bomba' music, what are known as traditional Bomba (with its mix of West African drumming and Spanish style as well as its clothing and dance moves) is without a doubt one of Puerto Rico's most traditional styles of dance. This presentation will include research regarding the Puerto Rican slaves brought over during the slave trade as well as research on the dance style itself. There will also be a short dance performance to complete the presentation.

PAPER DOLLS BREAK THE SILENCE

Brianna Lopez, Elizabeth Heaney, Megan Flynn, Tielar Brown, Alexis Tribble-Bryant, Zoe Czerenda, Naomi Childs, Corrine Krasner, and Marielle Angelo

(Performing Arts)

Faculty Mentor: Alycia Bright-Holland

Original choreography by Alexis Tribble-Bryant

Performed by *Modern Movement* Members:

This piece stems from previous research in the Modern II class during the Fall 2016 semester. The topic originally researched was domestic violence. Given choreographer Alexis Tribble-Bryant's strong advocacy for victim survivors of sexual assault and abuse, she wanted to create a piece that speaks not only to victims but also to people who know victims. This piece began production in January, when the ladies of *Modern Movement* were asked to perform a piece for Eastern's *Take Back the Night* event. The starting point was the poem that can be heard in the beginning of the piece, and the concept grew once a song that spoke to the undertones of the poem was found. Together the dancers created the piece "Paper Dolls Break the Silence". This piece is unapologetically raw and open, drawing on the emotions and hardships that victim survivors have to go through whilst informing the public. The piece thus takes a unique approach to "spreading the word" to the public about a grave problem of both historical and contemporary concern.

GUINEA RHUMBA

Alexis Tribble-Bryant, Naomi Childs, Tianna Edwards, Orleen Lauture, Zesmary Flores, Neahmiah Freitas, Dinora Carter, and Tayla Bogle

(Performing Arts)

Faculty Mentor: Alycia Bright-Holland

Traditional dance from Guinea, West Africa

WUMALA West African Dance Ensemble

DOCUMENTARY

SAMUEL HUNTINGTON: THE HUMBLE STATESMAN

Evan Ortiz

(Communication)

Faculty Mentor: Denise Matthews

The Samuel Huntington Trust of Scotland, Connecticut, is an organization dedicated to the preservation of this founding father's homestead in Scotland, Connecticut, and to educating the public about the remarkable life and legacy of Connecticut's "Humble Statesman." To this end their members worked with Eastern video production students to produce a documentary that spans Huntington's life story. The final chapter was recently completed in the Communication Department's Documentary Video Production class. Writer-producer Evan Ortiz will be presenting the work Samuel Huntington, The Humble Statesman at CREATE Conference on the Eastern Campus on April 21 with a Q & A to follow.

The United States of America has a rich history founded in revolution and a fight for independence. A new democracy was born through the Continental Congress, a union that spawned some of our most well-known historical figures: Washington, Franklin, Jefferson, Hamilton and Hancock. While they all had a lasting impact on the nation, there is another man who has received little to no recognition in the modern day. Samuel Huntington was one of the most prominent founding fathers of the United States. During the Revolutionary War, he served as the president of the Continental Congress. Most of his legacy, however, resides in the state of Connecticut, where he served as the Governor during the final years of his life. He was an active listener with an uncanny ability to moderate between two sides of a debate, and his willingness to hear all arguments made him a respected politician. Huntington brought about many positive changes to the Continental Congress and Connecticut during his career and this documentary celebrates his contributions for local audiences and tourists who visit Connecticut to enjoy our "Still Revolutionary" spirit.

MONOLOGUE

JUST

Stephanie Trevethan

(Education)

Faculty Mentor: Reginald Flood

Monologues are speeches given by an actor or performer as part of a play, movie or theatrical performance. Monologues are helpful in conveying a characters thoughts and emotions at a given time. For my English 100, Power of Rhyme class (instructed by Professor Reginald Flood) I created a one minute monologue that was presented orally. This project exemplifies what life is like after becoming a rape survivor. More specifically, this work includes the day to day struggles of a survivor but also stresses that every survivor's experience is different and shouldn't be generalized. Stigma and generalizations surrounding rape and sexual assault are negatively impacting millions of people every year. My goal through this piece was to inform, impact and inspire viewers to take a stand against sexual assault stigmas.

MUSICAL PERFORMANCES

THE MARRIAGE OF FIGARO, ACT I, SCENE I

Eastern Opera Workshop

Sara Vega, soprano and Jordan Pollard, baritone

(Performing Arts)

Faculty Mentor: Emily Riggs

The Marriage of Figaro (*Le nozze di Figaro*) is a four-act comic opera composed by Wolfgang Amadeus Mozart in 1786 with a libretto by Lorenzo de Ponte. Typical of Mozart's operas, *The Marriage of Figaro* is composed in a style that blends the characteristics of *opera buffa* with *opera seria*. The opera opens with an extended scene that introduces the characters Susanna (Sara Vega, soprano) and Figaro (Jordan Pollard, baritone), two young servants of the Count and Countess of Seville. Figaro and Susanna are engaged to be married and have been given one of the best rooms in the castle to live in once they are wed. They share their excitement in that Figaro is overjoyed about the dimensions and locations of their new bedroom, while Susanna is excited about the wedding bonnet she's been assembling. A recitative (or sung dialogue) follows, during which Susanna reveals her concerns about the location of the room and suggests that the Count's feigned generosity may have far less virtuous motivations. The Count is a scoundrel in many ways, plotting to break up the young couples' wedding so as to continue his pursuit of the young handmaiden. Figaro, on the other hand, does not realize that Susanna is concerned about the Count's advances and fails to comprehend why she finds the new bedroom so distasteful. The scene concludes with Susanna explaining to Figaro that she must tell him the truth about the Count, but not to worry, for she is loyal. Throughout the rest of the opera Susanna and Figaro successfully foil the Count's plans and expose his treacherous behavior.

DON GIOVANNI ACT I RECIT AND DUETTINO

Eastern Opera Workshop

Hannah Bythrow, soprano and Michael Beckstein, bass-baritone

(Performing Arts)

Faculty Mentor: Emily Riggs

This scene is from Act I of Mozart's opera *Don Giovanni*. The duet between Don Giovanni (Michael Beckstein, bass-baritone) and Zerlina (Hannah Bythrow, soprano) is an emotionally charged moment. Zerlina, a young and pretty peasant girl, is about to get married to her love, Masetto. Don Giovanni, a rich and self-centered womanizer (based on the literary figure, Don Juan), tries using his sexual prowess and dominating nature to convince Zerlina to come back to his palace with him and leave Masetto behind. Zerlina, though hesitant and conflicted at first, succumbs to Don Giovanni's advances and they leave together. Following this scene, one of Zerlina's friends steps in and prevents her from cheating on her fiancé.

SAMUL NORI

Caitlyn Braasch, Jason Crocker, Jie Hu, Noah Lerch, Glenden Merrell, Hannah Nilsson, Lanitza Padilla, and Joshua Perry

(Performing Arts)

Faculty Mentor: Okon Hwang

Samul nori is a Korean traditional music genre that first came about in the late 1970s. The roots of *Samul nori* is a folk music tradition known as *p'ungmul* or *nongak* ("farmers' music"). *P'ungmul* was a functional music and performed by mostly amateur musicians while dancing, and its primary purpose was to entertain villagers in an agricultural community on rural holidays or other celebratory events. Although *p'ungmul* would utilize many different types of instruments, its modern offspring *samul nori* is typically performed by trained musicians in a more virtuosic manner while sitting down on a concert hall stage using only four of the drums and gongs from the *p'ungmul* tradition. In fact, *samul nori's* rough English translation would be "playing four objects," and the origin of these four instruments and their performance techniques are intrinsic to understanding how a *Samul* performance was originally put together and *samul* as a genre has evolved over the years to reflect the continual process of experimentation and modification for artistic reasons.

ORAL PRESENTATIONS

TESTING ISLAND BIOGEOGRAPHY THEORY WITH THE ISLANDS OF MANSFIELD HOLLOW STATE PARK IN MANSFIELD, CONNECTICUT

Zachary Adams

(Biology)

Faculty Mentor: Joshua Idjadi

Island Biogeography Theory predicts that larger islands and those that are closer to the mainland will have the highest number of species. This is attributed to the greater variety of habitats available on larger islands and the higher likelihood of chance migration of organisms from the mainland. There is evidence for this theory at larger global scales and smaller local scales. We sampled arthropods and trees on the islands of the Mansfield Hollow Lakes, Mansfield, CT, to test the hypothesis that communities on these islands will be consistent with the predictions of Island Biogeography Theory. We sampled five islands and two mainland sites in Mansfield Hollow State Park in Summer 2016. Data was collected using transects for trees and sweep nets and pitfall traps for arthropods. The relationships between the independent variables of island size and distance to mainland and the dependent variable of species richness were tested with linear regression. In addition, community composition was compared among locations using Bray-Curtis similarity indices. Analyses are ongoing but results suggest significant differences in community composition between islands and mainland sites. Additional results will be discussed when analyses are complete.

USING MACHINE LEARNING TO EXPLORE PREDATOR-PREY RELATIONSHIPS IN BIOLOGY

Christopher Armstrong

(Computer Science)

Faculty Mentor: Garrett Dancik

Recently, a mathematical model describing the relationship between the North American Eastern Hemlock Tree and the Hemlock Woolly Adelgid (an invasive predatory species) has been described. Analysis of this model and the associated parameters revealed that the species' relationship is likely to eventually stabilize, allowing the tree and predator to coexist. However, this mathematical model did not allow for spatial or other variation, and was not developed within a framework for visualization of the ecosystem over time. There is an opportunity for further research using agent-based modeling (a type of emergent, digital, and visual simulation), with parameters optimized using a genetic algorithm (a method of machine-learning used for optimization.) In this work, we use an agent-based model and a genetic algorithm to estimate the parameter values leading to coexistence, and compare these results to those of the mathematical model. Importantly, the tools presented here can be used to better understand the predator-prey relationship, and their application will contribute to the expanding dialog about the use of machine-learning in biology.

A CHRONOLOGICAL STUDY OF CONGRESSIONAL HEARINGS: THE EVOLUTION OF THE ENVIRONMENTAL DEBATE

Emma Avery

(Political Science, Philosophy & Geography)

Faculty Mentor: William Salka

Climate change has been a very controversial subject for many years, with compelling arguments from both sides of the issue. While members of Congress are expected to represent their constituents, the lines tend to blur when environmental issues are discussed, as the most beneficial solution is often unclear. Certain groups assert that American resources, including reserves of oil and natural gas, should be properly exploited in order to benefit the American economy and the energy industry. Others counter that the burning of fossil fuels presents negative health impacts and future availability concerns that negate any positive impacts that this resource extraction may produce. Members of Congress, environmental groups, and industry representatives are all key players in this debate. This study examines the evolution of this debate in Congress by examining testimony in congressional hearings from 1997 through 2016. Particular attention is given to whether competing scientific arguments are used, misused, or both, and by whom? Findings indicate that the opinions of members of Congress have solidified over time. Although they have listened to presentations from a variety of viewpoints, the trends indicate that many members of Congress have decided that global warming is a legitimate concern and have conceded that it is anthropogenic, but are still dealing with the issue of mitigating climate change while minimizing damage to the American economy. Members of Congress are embattled in the debate between environmental groups, who feel that fossil fuels should be eliminated at any cost, and industry representatives, who proclaim that the current economic benefits of these resources trump any associated, negative side effects.

KNOT THEORY IN RELATION TO SPACE HARMONY USING HARMONIC EMBEDDINGS

Nicole Biele & Emily Sheehan

(Mathematical Sciences)

Faculty Mentor: Mehdi Sarikhani-Khorami

In this talk, we present the results of our interdisciplinary research project on applications of Knot Theory in Space Harmony. A mathematical knot is a tangled piece of string with the two ends attached. Space Harmony concerns the study of harmonized human movements in the space. In the theory of Space Harmony, one is interested in understanding and encoding harmonized movements in space. These movements then create a sense of balance in the body. Tracing the body of a dancer in space often gives rise to a mathematical knot. This is where the connection between the two fields originates from. From a Knot Theory point of view, harmonized movements correspond to a certain type of knot embedding that we refer to as “Harmonic Embedding”. We present our results on each embedding and explain how each such embedding gives us a choreographically interesting sequence.

SACRIFICES AND THE ENVIRONMENT: WILL COLLEGE STUDENTS GO ORGANIC?

Jonas Bjornes & Valerie Bak

(Political Science, Philosophy & Geography)

Faculty Mentor: Martin Mendoza

As the ill effects of climate change begin to present themselves within our environment today, the time has come to ask serious questions about what individuals can do to protect the earth that we all share. This work sought to uncover the levels in which individuals are willing to make changes to their lifestyles in order to combat the negative effects of environmental degradation. This was a comprehensive study gauging individual conceptualizations of environmental issues. Additionally our work measures the types of consumer sacrifices individuals would be willing to make based on such environmental conceptualizations. This examination was done using a series of closed ended surveys conducted on Eastern Connecticut State University's campus. Our analysis discovers that while most students concede that climate change is a human induced issue, very few are willing to make sacrifices to change this trend. Individuals with strong connections to climate change issues were the most likely to change their consumer choices to support a more sustainable environment. This work seeks to broaden the discussion on how individuals interact with climate change and its effects on the environment.

THE STRUGGLE THROUGH MEDIA: HILLARY CLINTON'S MEDIA JOURNEY FROM 2008-2016

Jonas Bjornes

(Political Science, Philosophy & Geography)

Faculty Mentor: Nicole Krassas

The Struggle Through Media discusses how the media has changed their attitude towards politician Hillary R. Clinton in the period 2008-2016. This article looks at academic studies that have discussed Clinton in the past, and articles that focus on the gender perspective of women in the media. Research suggests that Clinton has been in the media a lot, which has made an unrealistic perception of her that she never fully can satisfy (Romaniuk, 2009). Research also suggests that Clinton cannot fit the gender role the media wants her in, but the media is in general fair when it comes to air time between candidates of different genders (Lavery, 2013). The methodology used in this study is mixed-method analysis, and measures the media's attitude towards Clinton from radio and television news programs in the period 2008-2016. In total 30 transcripts are analyzed. The findings show overall that the media has become more negative towards Clinton through the years, and often makes claims without any attributed source; suggesting the claim as a known fact. If they are using any attributed source, it is mainly neutral. The media does not necessarily critique Clinton based on gender, but based on political and personal scandals faced through the years.

HOW DO YOU BRING DOWN THE WALL? WITH ART

Sarah Brihan

(History)

Faculty Mentor: Joan Meznar

The Cold War proved to be one of the most emotionally violent wars in history. This emotional isolation was most clearly conveyed at the construction of the Berlin Wall. The Wall created concrete barriers, which separated families, friends, and allies. The people who resided on the East Side of the Wall fought

back by painting murals on the tangible representation of their separation and pain. The research I have conducted looks at primary sources, the artwork itself, to analyze what those affected by the Wall painted. Many used the Wall to showcase political beliefs, emotions and to commemorate those who were murdered during the Holocaust. These paintings influenced the government and eventually helped aid the fight to bring down the Wall. People from all over the world went to paint and photograph the Berlin Wall, but unfortunately much of it had been painted over or destroyed after its destruction. By looking at what was preserved I aimed to answer many questions that are posed by the Wall. What does this historical event say about Government and its effect on its citizens? What does this say about art and its emotional ties to humans? How do we remember horrific historical artifacts such as the Berlin Wall? Should we remember it? Will similar walls be erected in the future, and if so, will art bring down the wall, just as it did in Berlin?

THE EFFECT OF EDUCATIONAL INEQUALITY ON ECONOMIC DEVELOPMENT IN LATIN AMERICA

Tess Candler

(Economics)

Faculty Mentor: Jennifer Brown

Despite improvements in recent decades, educational inequality is a problem that persists across the globe. In particular, inequality exists between the educational opportunities of males and females. Such inequality is unacceptable in its own right, however prior research has also shown that educational inequalities can lead lower economic growth. This study builds on that literature by considering how educational inequality relates to economic development in Latin America. In order to study this question, an econometric model was created to explain the relationship between economic growth and educational inequality while controlling for other variables that affect growth.

RELATIONSHIP BETWEEN ATTITUDES TOWARDS CASUAL SEX, GENDER ROLES AND CONDOM ADVOCACY

Abby Caselli

(Psychology)

Faculty Mentor: Carlos Escoto

Several studies have examined condom advocacy in relation to sexual transmitted infections; however, few researchers have explored condom advocacy in relation to gender role beliefs and attitudes towards casual sex. A sample of students from a Northeastern university (N = 94) completed a series of self-reported measures. Two hierarchical linear regression models were evaluated to examine whether gender moderates relationships between gender role beliefs and condom advocacy, as well as gender role beliefs and attitudes towards casual sex. The first overall model was found to be significant, indicating that gender does moderate the relationship between gender role beliefs and condom advocacy. Those with more traditional gender roles advocated for condom use less than people with modern gender role beliefs. In addition, the interaction between gender and gender role beliefs was found significant, which adds further support that gender does moderate the relationship. In the second model, gender significantly moderated the relationship between gender role beliefs and attitudes towards casual sex. Gender was also significant, indicating that men have more positive attitudes

towards casual sex than women. In addition, gender role beliefs were also found to be significant. Those with modern views of gender roles had more positive attitudes towards casual sex. Overall, the findings from this research can help to identify at risk individuals who do not advocate for condom use.

THE MEAN REDS AIN'T THE BLUES: CONCEPTUAL METAPHOR AND COLOR IN CAPOTE'S BREAKFAST AT TIFFANY'S

Ashley Cholewa

(English)

Faculty Mentor: Elena Tapia

The author uses conceptual metaphor theory to analyze Truman Capote's novella *Breakfast at Tiffany's*, paying particular attention to the novel's original usage of the term 'the mean reds' to describe a negative emotion. The presence of the structural metaphor MEAN REDS IS ILLNESS indicates that the characters view the emotion represented by 'the mean reds' negatively--as a sickness that a person can contract rather than an emotion--and also indicates the characters' belief that emotions are physical entities that one can have or give. The presence of conceptual personification indicates the negative characteristics that the characters ascribe to 'the mean reds' as well as the fact that the characters separate themselves from their emotions so completely that they conceptualize their emotions as different pieces. Finally, the presence of the conceptual metonymy EFFECTS OF THE EMOTION FOR THE EMOTION further reinforces the fact that characters speak about their emotions in terms of their physical effects. A full conceptual metaphor analysis of the phrase 'the mean reds' and its connected conceptual metaphorical structures shows that the characters of *Breakfast at Tiffany's*, and Holly in particular, separate themselves from their own emotions, a phenomenon indicative of the emotionally stultifying time period in which the novel was written--the 1950s.

FOR-PROFIT INDUSTRY: AN EXAMINATION OF THE ACTIONS AND VALUES OF THE ROMAN CATHOLIC CHURCH

Anthony Coss

(Education Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This research will examine the Roman Catholic Church, through its rules and actions, as an approximation of a for-profit corporation, reviewing the doctrine of the Roman Catholic Church as a mission statement for the Church as a business. The doctrine will be interpreted to understand how the Church has expanded so effectively, to hold the largest consumer base on earth. The doctrine will also identify the employment opportunities and requirements within the 'corporation', as well as the Church's perception of their responsibilities on a global scale. The writings of the Second Vatican Council, will be used to analyze the modern actions of the Roman Catholic Church on a global scale, and specifically in the United States. This paper will draw comparisons between the actions and values of a for-profit corporation with the actions of the Roman Catholic Church.

GENDERED VIEWS OF THE U.S. JUDICIAL SYSTEM: COLLEGE STUDENTS' PERSPECTIVES ON THE HANDLING OF CAMPUS SEXUAL ASSAULT CASES

Nicole Coughlin

(Political Science, Philosophy & Geography)

Faculty Mentor: Courtney Broschius

Studies show that 20% of female undergraduates report having been sexually assaulted since starting school (BJS, 2016). Research on campus sexual assault often addresses institutional responses, victims' rights and reporting, and offender behavior and consequences. Though most affected by campus sexual assault, college students' perspectives are rarely addressed in the literature. This research seeks to identify the ways in which gender influences the perception of legal recourse for those involved in campus sexual assault cases. Through this research, student's views on the ethics of the judicial system as well as their opinions of access to the judicial system is prominent. The one on one interview style of this project allows for accurate assessment of student's perceptions of the court system. Perspectives on the court's handling of these issues highlight differences in gender perceptions of the severity of sexual assault and the appropriate legal responses. During the course of this research, college students indicate that they do not have significant knowledge of the functioning of the court system and its relationship to college sexual assault cases. Female students often identify with victims and expect lengthy court sentences. Male students were less decisive and less opinionated about responses to campus sexual assault. Male students consistently expressed a lack of awareness on the topic and absence of consideration of the topic prior to the interview. The findings of this research indicate a large knowledge gap among university students and can be used by professors, campus advocates, public safety, and other university officials to change the way that information on campus sexual assault and legal resource is provided to students.

AN AMERICAN MAN: A SEMIOTIC ANALYSIS OF CULTURAL MYTHOLOGY

Adam Courbin

(Art and Art History)

Faculty Mentor: Gail Gelburd

The Frontier Thesis, first presented in 1893 by Fredrick Jackson Turner in "The Significance of the Frontier in American History," has served as a model for both veneration, as well as emulation. Giving birth to popular beliefs about the development of the American West, Turner's thesis has been a critical component in the development of the mythology of the American Cowboy. Existing as a fictional hero who embodies the essence of American exceptionalism, Arthurian chivalry, independent entrepreneurial spirit, and the use of violence as a moral instrument, the cowboy continues to be significant part of the cultural media milieu. The cowboy has also come to represent a specific paradigm of masculinity in American culture. This paper will examine the place of photojournalism in the production of public discourse and the use of the mythology of the American cowboy in photojournalism during the Iraq and Afghanistan Wars. It will then employ a semiotic methodology to explore the use of the cowboy myth as a political instrument that positions American soldiers as archetypes of this mythology and how this contributes to a narrow interpretation of masculinity in American culture.

THE FOUNDATIONS AND EVOLUTION OF JUST WAR THEORY

Ara Daglian

(Political Science, Philosophy & Geography)

Faculty Mentor: Hope Fitz

Just war theory draws on ancient traditions of war. Evolving from the writings of the Roman statesman Cicero, the Christian theologian Augustine of Hippo, Indian epic poets, and others, just war theory took shape. For this presentation, we will focus on the historical bases for just war theory, including classic just war tradition in Rome, India and early Christendom. Both jus ad bellum and jus in bello will be explored, as well as how those concepts have evolved over time to influence the development of just war theory.

DEVOPS-FOUNDRYJS

Anthony DeDominic

(Computer Science)

Faculty Mentor: Sarah Tasneem

Dev Ops, CICD and Agile workplaces require fast delivery to market. To achieve this, developers and system administrators need advanced, cross-platform automation tools. This paper is concerned with a new automation tool that attempts to address limitations of Ansible. This is accomplished having a module system that is easy to develop for and allows for finer control over the flow of execution. Automation frameworks could greatly benefit by implementing these features. This is demonstrated by comparing devops-foundry to Ansible.

PALEOECOLOGY OF MESOZOIC STRATA IN THE HARTFORD AND DEERFIELD BASINS, CONNECTICUT AND MASSACHUSETTS

Martha Denisky

(Environmental Earth Science)

Faculty Mentor: Peter Drzewiecki

Throughout time, Connecticut's land and ecosystems have constantly evolved. During the Mesozoic era, Pangaea began to drift apart, causing a rift basin to form in central Connecticut, known as the Hartford Basin. This basin, as well as the Deerfield Basin in western Massachusetts, contained a variety of ancient environments and organisms. Research into the sedimentology, paleontology, and geochemistry of four sedimentary formations is essential to understand the paleoecology of these basins and how it evolved over millions of years. The sedimentology of the Triassic New Haven Arkose indicates a fluvial environment first occupied the basin. The overlying Jurassic Shuttle Meadow, East Berlin, and lower Portland Formations display cycles of alternating playa and lake environments; information from these cycles confirms previously collected data supporting an overall drying climate during this time period, with superimposed higher frequency climate cycles. Finally, the upper Portland Formation records a return to a fluvial environment. Sedimentary structures support the identification of these ancient

environments. The lake environments in particular contain traces elements, such as organic carbon and sulfur, which identify a range of lake types, varying from freshwater to saline/alkaline, which also indicate a changing climate. As the environments and climate changed, so did the organisms. Changes in biotic diversity are related to the shifts of the ancient climates and environments, both locally and globally. At least four taxa of fish have been identified along with numerous reptiles, dinosaurs, invertebrates, and plants. Lacustrine biota consist of fish and plants and over time display an overall decline in fish diversity. Continental biota consist of plant remains and both fossils and tracks of invertebrates, reptiles, and dinosaurs. Over time, the continental fossils display a transition from a reptile-dominated fauna to a dinosaur-dominated fauna. An analysis of the changing diversity of these fossil specimens both spatially and temporally reveals the changes in Mesozoic Hartford and Deerfield Basin ecology with respect to tectonic activity, environmental factors, and climate.

ALCOHOL ADDICTION IN WILLIMANTIC, CONNECTICUT

Rachel DiNatalie, Elyssa Ferens, Melanie Morales, Mikaela Hillsberg & Neomi Nieves

(Sociology, Anthropology and Social Work)

Faculty Mentor: Mary Kenny

Our group carried out research on the impact of alcohol addiction on interpersonal and familial relationships, on one's health, and on the local community. For four months in 2016, our group carried out research in Willimantic, CT. Research shows that this area has a large number of alcohol and drug addicted persons, as well as numerous services for intervention and treatment. We conducted in-depth interviews with recovered alcoholics, the directors of addiction centers, nurses, and police officers. Participant observation was conducted at AA meetings and during ride-alongs with police. We found a strong correlation between mental illness and alcohol addiction, as well as homelessness and alcohol addiction. We also found that services in Willimantic draw alcoholics/addicts from other areas into the town, and that recovery is a very difficult process that requires a deep individual commitment to the recovery process. Narratives spoke to the stigma associated with alcoholism, and the ways this can impact recovery. Finally, we found that alcohol addiction negatively impacts relationships, especially with children.

MATH TALK COUNTS: THE RELATIONSHIP OF TEACHER-CHILD MATH TALK DURING PLAY TO PRESCHOOLERS' MATHEMATICS LEARNING

Stefanie Dominguez, Daphne Botteron, Samantha Normington, Liah Sinquefield & Leah Slawinowski
(Education)

Faculty Mentor: Jeffrey Trawick-Smith

Mathematics abilities in preschool are a powerful predictor of school success in later years, particularly for children living in poverty. Classroom "math talk"- conversations about mathematics between teachers and children - has been associated with growth in early math learning. In the present study, we identify the specific types of math talk during free play time that predict children's math learning in preschool over the course of a year. We administered a pretest assessment of early math ability to 44 preschool children and are examining the math talk they naturally engage in with teachers during free play time. We are coding specific features of teacher-child math conversations, including the math

domains being discussed, such as number or geometry, the syntactic structures they use, such as open-ended questions or declarative statements, and the purposes of teacher math utterances, such as posing a problem or clarifying a child's reasoning. We will identify the relative contributions of these math talk features to growth in math learning at the end of the year, as measured by posttests math assessments. Findings of the study will inform professional practice by identifying effective math teaching behaviors to implement within preschool classrooms.

SOCIAL RESPONSIBILITY OF CORPORATIONS TOWARDS WORKERS WITH DISABILITIES

Stefanie Dominguez

(Education Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

Despite legislation aimed at protecting people with disabilities, many experience discrimination throughout their lives. Discrimination in the workplace is a common experience for people with physical, mental and intellectual and developmental disabilities. Only 20% of people with disabilities find themselves within the workforce, and those that do are often denied accommodations required by law. Offenses fall into categories of failure to hire, failure to accommodate, wrongful termination, discrimination based on perceived disability, harassment, and retaliation. The purpose of this research is to investigate the violations of the ADA by looking at examples of companies such as Wal-Mart and AutoZone. The study will seek to identify the most common types of violations and how they affect the disability community, and report on how these injustices can be addressed and prevented in the future. This paper will critique the Americans with Disabilities Act and provide suggestions for its improvement.

SHOOTING HEAVEN

Tashanna Edwards

(English)

Faculty Mentor: Lisa Fraustino

Shell, a sixteen-year-old cocaine addict makes an instant connection with a wealthy high-schooler named Gabe, one day at a health clinic. Shell moves into Gabe's house while his parents are out of the country and she introduces him to her world full of superhero parties, needles and cocaine. When it came to accurately depicting the foster care process, I turned to Anne Marie Stonoha, Supervisor for the Department of Children and Families. She was kind enough to let me interview her and she answered every question with more detail than I could have hoped for. I also did an extensive amount of research on cocaine and its long term effects on the human body. I have recently completed this novel and I am currently seeking publication.

FAST FOOD, A DELICIOUSLY SLOW POISON

Ruth Eragene

(Business Administration)

Faculty Mentor: Niti Pandey

This paper focuses on the fast food industries' growing negative impact on the United States' population as well as the role of government and the USDA dietary guidelines. The fast food industry has experienced exponential growth while the U.S and other parts of the world are seeing high levels of obesity and other health risks. This research specifically focuses on McDonalds' negative impact on public health and their continuous public denial of these issues as well as the extensive amount of funding spent negating the results found by multiple health organizations. Many studies have been conducted linking fast food consumption to the increasing level of child obesity. This paper also considers the different reasons why people continue to consume fast food, despite knowing the health risks associated.

ART IN THE AGE OF TERRORISM

Andrew Falce

(Art and Art History)

Faculty Mentor: Gail Gelburd

The September 11th terrorist attacks had a profound impact on contemporary artists. Their work gives expression to the tragedy of the act; the art that they have created reminds people of the horrifying events from that day. Michael Arad, Gordon Bennett, Richard Drew, and Susan Heller demonstrate how contemporary art has exposed people to this tragedy. Michael Arad, an architect, created the plans for Ground Zero, which is the memorial for the people who died during September 11th. Gordon Bennett, a painter from Australia was inspired by Jean-Michel Basquiat's abstract paintings, and created paintings that related to the September 11th terrorist attacks. Richard Drew, a photographer from New York City, captured the most iconic image from the September 11th attacks, 'Falling Man,' which brought controversy to newspapers. Susan Heller, a native from New York City, had a studio in the North Tower a year before the attacks. Her work is inspired by her personal relationship to the buildings and the psychological impact it left on her. The signifiers in the artwork help viewers understand what the pieces are about, and how they create an impact on the viewers. The current generation of young adults did not experience September 11th. These young adults are viewing art often through the internet and smartphones, and research shows that they have an attention span of about eight seconds. They have grown up in an age of war and terrorism and these images speak to them. They need to be exposed to visuals that will teach them about events of the past which should not be repeated in the future. Art is a powerful window to not just experience what others felt from September 11th, but it can also influence them towards different movements against terrorism.

NOT ALWAYS A FIRST LADY, BUT ALWAYS A LADY: CONTINUATION AND FLUCTUATION OF MEDIA BIAS AGAINST HILLARY CLINTON

Meaghan McFall-Gorman

(Political Science, Philosophy & Geography)

Faculty Mentor: Nicole Krassas

This paper performs a critical analysis of thirty news articles spanning Hillary Clinton's political career, specifically during her time campaigning, to uncover whether media is or has been biased towards

Hillary Clinton, and if so, how the level of bias has fluctuated throughout her political career. The thirty news articles include a range of moderate news sources with heavily left-leaning and heavily right-leaning news sources included so as to accommodate for and demonstrate the scale of media bias. The articles are from across three different time periods of Clinton's political career including: her first Senate race in New York (1/31/1999--11/30/2000); Re-election to the Senate in New York (10/1/2004--9/12/2006); and, her 2016 Presidential campaign (07/26/2016 -- 11/7/2016). The content analysis of the news sources will be performed while specifically keeping in mind unreasonable opposition, unfair characterizations, and portrayals made primarily through a gender bias born of Clinton's being a prominent, female political figure.

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

Olivia Grella

(Psychology)

Faculty Mentor: Kristalyn Salters-Pedneault

Previous research has demonstrated that there is a positive relationship between social physique anxiety (SPA) and exercise dependence. Research has also displayed that females typically have higher levels of SPA and exercise dependence, but it is not uncommon in males. Although this research is typically done among athletes, a positive relationship has been found in non-athletes. This study examined whether college students who showed signs of SPA would also display symptoms of exercise dependence. It also examined gender differences on SPA and exercise dependence. 72 students from Eastern Connecticut State University completed the Social Physique Anxiety Scale (SPAS) and Exercise Dependence Scale-21 (EDS-21). An independent samples *t*-test demonstrated that the relationship between SPA and exercise dependence was nonsignificant, $t(65) = .63, p = .53, d = .17$. A Pearson's correlation was then used to test the relationship between SPA and the exercise dependence subscale of withdrawal. This relationship was shown to be nonsignificant, $r(69) = .18, p = .12$. A Chi Square analysis tested the relationship between exercise dependence and gender and was shown to be nonsignificant, $\chi^2(2, N = 71) = 1.17, p = .56, \phi = .13$. An independent samples *t*-test then demonstrated that there was a significant relationship between SPA and gender with females scoring higher than males, $t(69) = 2.16, p = .03, d = .52$. With the exception of SPA and gender, these results don't support previous research findings. It demonstrates that college students score differently in comparison to athletes.

ORGANIZING FOR CHANGE

Christina Hagerty

(Women's and Gender Studies)

Faculty Mentor: Maureen McDonnell

Organizations have been creating change through different means for as long as there have been contrasting opinions. Creating change can look like fundraising for a women's shelter, or policy changes on a national level. As a Planned Parenthood Generation Action intern and Treasurer of NOW on campus, I've sought to educate peers on different strategies and tactics to be the change they want to see on their campus and in their communities. Throughout the last year, there have been so many

events held regarding cross-movement social justice work, and they were successful because of the leaders that motivated others to do the work as well. From the Black Lives Matter movement, to Dumbledore's Army, to our own clubs on campus, these groups have a core set of tactics for success that start by identifying leaders, building power and community, and using that power to make that change.

A NORWEGIAN FIRST-GENERATION COLLEGE STUDENT IN AMERICA: AN AUTOETHNOGRAPHY.

Liselotte Hammer

(Sociology, Anthropology and Social Work)

Faculty Mentor: Nicolas Simon

First-Generation College Students (FGS), or students whose parents did not graduate from college, are 'strangers in a strange land'. As a FGS from Norway, I experienced the challenges of my parents' level of education and the cultural differences on the American way of life. Using autoethnography, I will present my own story in relationship to the stories of the 25,000 Norwegian students who chose to study abroad. I will explain why I chose the U.S. school system over what my home country has to offer. I will discuss the pros and cons of my decision, focusing on the challenges of lack of parental involvement based on not knowing the American system of higher education and not knowing the language. Come to hear my story of challenges and success to apprehend the intersection of parental education and different culture.

THE WHITE HOUSE'S ASSAULT ON THE NEWS MEDIA AND THE FIRST AMENDMENT

Adrian Hannibal

(Communication)

Faculty Mentor: Terri Toles-Patkin

The US Constitution and the attached Bill of Rights have been the very foundations of America. It guides all aspects of the federal government and the 50 states as well as the American people. The first amendment guarantees that Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances. Throughout its history there have been many challenges to its tenets and its interpretation as it pertains to freedom of speech, some resulting in exceptions being made and others dismissed based on the understanding of both documents. But, the Supreme Court has always had the final decision when it came to interpreting the constitution, and these decisions have always prevented our society from descending into totalitarianism or a dictatorship. During the presidential campaign of 2015 and 2016 those very same tenets and interpretations were once again challenged. Mr. Trump's labeling of some news media outlets as fake news broadcasters, as well as his claims that the media has too much freedom to say what they want and not suffer any consequences may very well test the limits of the news media's ability to do its job, and once again, the Supreme Court may have to intervene to ensure that the laws as per the first amendment are adhered to. The media is an advocate for, and an

intermediary between the government and the American people and they are very important in the democratic process.

REAL BODIES: ANALYZING REPRESENTATION OF DISABILITY IN MEDIA, POLITICS, AND MEDICINE

Ashlyn Hart

(English)

Faculty Mentor: Maureen McDonnell

Disability is a factor of life that can affect any individual at any age regardless of that person's ethnicity, gender, sexual orientation, religion, or culture. Yet, despite its wide breadth, disability issues are not advertised in society. Rather, disability is rarely addressed in media, is pushed to the wayside throughout history, and can be seen as a potential threat in medicine. This paper will explore why society reacts in such a way to disability while paying close attention to the ways in which living in a cure-driven society has shaped treatment toward people with disabilities. To show society's attitudes towards disability, I draw on material that includes the movie *Me Before You*, work by disability activists Rosemarie Garland-Thomson and Susan Wendell, and the career of model Aimee Mullins to show the impact of disability on society and vice versa. Through this research, I have learned that disability is extremely powerful and potentially terrifying to some able-bodied people because of its ability to remind people of their humanity and eminent mortality.

LOCAL SOURCES OF ARSENIC: NATURAL OR MAN-MADE?

Madeleine Haynes

(Environmental Earth Science)

Faculty Mentor: Meredith Metcalf

Arsenic and uranium have recently become more prevalent in drinking water wells across Connecticut. While uranium is due to the geologic conditions, evaluating sources of arsenic is complex as it can be both geologic and anthropogenic. Appropriately identifying the sources of arsenic is crucial such that proper treatments are applied to ensure clean drinking water. In 2014 distributions of arsenic in private drinking water wells were evaluated for Lebanon due to the unexpected occurrence of arsenic at the elementary school. Results were inconclusive and a similar study was initiated in Bozrah, adjacent to Lebanon with similar hydrogeologic characteristics, to further evaluate potential sources of arsenic locally. Of the 100 wells that were sampled in Bozrah, observed arsenic concentrations were much lower than previously observed in Lebanon yet uranium concentrations remained relatively consistent. The geologic conditions in which arsenic was detected varied between the two towns; arsenic was detected primarily within the Scotland Schist in Bozrah whereas arsenic was detected in the Hebron Gneiss in Lebanon. A one-tailed F-test was conducted to determine the statistical variability between arsenic occurrences in the same rock type between the two towns. Results indicated that arsenic concentrations in the Hebron Gneiss and Scotland Schist were statistically variable between the two towns yet there was no statistical variability in uranium occurrences. Furthermore, arsenic was typically detected in areas with high alkalinity and pH for both towns which was verified using the best subsets regression. This suggests that the historical uses of arsenic must be further investigated given the

altered water quality conditions. In conclusion, studies of a similar nature must recognize and account for both the anthropogenic and geologic sources of arsenic in order to make appropriate decisions regarding the safety of our drinking water.

IS THE PURSUIT OF MONETARY UNION WORTHWHILE? THE EMU AFTER THE GREAT RECESSION

Phillip Hoeps

(Economics)

Faculty Mentor: Brendan Cunningham

On the issue of the European Union, and the European Monetary Union (EMU), there has been much social debate regarding the merits of the common currency. This paper aims to examine this topic by doing a comparative analysis between the recoveries of members and non-members of the European Monetary Union after the Great Recession. Monetary unions, such as the EMU, but also the United States, are faced with the difficult challenge of integrating multiple, often very different economies, into a single currency, with a single monetary policy. To examine this issue, panel data consisting of quarterly statistics of European Union (EU) member nations is examined. The output gap, the difference in the measure of actual GDP and potential GDP, is taken as a measure of recovery, to which a Hodrick-Proscott filter is applied to smooth the data. A Structural Vector Autoregression (SVAR) is then run to determine the effects of various factors, including membership in the EMU, on recovery from recessions. The paper aims to demonstrate either an economic value in the maintenance of monetary unions, or that EMU members would be better off on individual currencies, with greater control over monetary policy and provides a valuable contribution to discussion of the virtues of monetary unions.

THIS LITTLE ROOM OF MINE: NINETEENTH-CENTURY TRAGEDIES OF THE YOUTH AND THE RISE OF POWER

Kyle Hottin

(English)

Faculty Mentor: Allison Speicher

When we think of a child passing, we can only conceptualize it as a time of sorrow. However, there was a unique form of literature that chose to accentuate a moment like this by referring to the benefits that came about, especially for the dying child. In nineteenth-century fiction, specifically within the genres of temperance (the revolt against alcohol), slavery, and school reform literature, a dying child is seen as an angelic being, whose death ultimately brings about some form of hope. This hope exists solely to help return righteousness to a fractured society, and this reformation is brought into existence from within a small, confined room, particularly one that fosters absolute sorrow. This passing is portrayed primarily as a golden opportunity for the children of the nineteenth century to take control, an option that would otherwise never be available to them. By emphasizing the 'beauty' of the passing of a glorious youth, a plethora of influential pieces such as Harriet Beecher Stowe's *Uncle Tom's Cabin* and Timothy Shay Arthur's *Ten Nights in a Bar-Room* and *What I Saw There* have not only captured a unique period of thinking, but have also given us, a modern generation of readers, the opportunity to examine a compelling way to go about presenting the morals that need to be heard. This essay offers insight into

authors' ingenious method of utilizing childhood fatalities to change the world, turning sadness into hope.

PERSONALITY MATTERS: CHALLENGING PRESIDENTIAL DECISION-MAKING PROCESSES

Megan Hull

(Political Science, Philosophy & Geography)

Faculty Mentor: Courtney Broschius

The art of decision-making comes in many forms, from individual decisions that hold little to no weight, to Presidential decisions that hold the weight of millions. The present work addresses the importance of examining the processes in which the president make decisions, using bargaining, decision-making, and game theory as well as informal and formal management style of their advising team. In particular the comparison of two presidents, George W. Bush and Barack Obama shows that the difference in management style and the use of these theories offer the availability of alternatives of going to war. The work also defines U.S foreign policy decision-making, this means identifying the connections between president's management style and the bureaucracies that are tasked with developing policy. The theory of decision-making can be defined as the process of weighing alternatives with different risk or expectations of gain or lose depending on an outcome (Snyder, G. H. & Diesing, P. 2015). Another approach is the use of game theory, which is applied when actors are in a competitive situation, and the actions of one actors highly alters or depends on the outcome of another one. An alternative model explored is bargaining Theory, which focuses on weighing objectives and alternatives. Finally, crisis bargaining theory is also explored, and it is commonly used to analyze bargaining processes between governments of two or more sovereign states, which leads to decision-making theory which is closely related to both bargaining theories in the sense that interaction between states is a consequence of decisions made by the government of states. These theories help to explain the management style used by these actors. In other words, by examining these styles one can determine the use or lack thereof these theories used by these actors. The empirical work begins looking at the administration of George W. Bush (2000-2009). This president used a formal management style, which consisted of a hierarchical structure where policy options are generated among advisers, then the president chooses among presented options. The analysis moves to the Presidency of Barack Obama (2009-2016). President Obama and his administration used a trans-formal management style, defined as a leader who works with subordinates to identify needed change, creating a vision to guide the change, through inspiration and then executing the change with committed members of the group. The question that still lingers is: by taking into account these theories and management styles, are we tailoring our next president? There are many details needed to look for the usage of these theories that have been exploited successfully by previous administrations. Perhaps this is foreshadowing the future decisions-making process in this democratic nation.

CONSUMERS CHICKENING OUT: U.S. POULTRY LABELING PRACTICES AND THEIR EFFECTS ON CONSUMER CHOICE

William Jeffries

(English Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This paper investigates the role large food corporations have played in producing inconsistent poultry labeling practices in the United States and how this has limited consumer buying power. A number of studies have shown a majority preference for ethically-sourced and cruelty-free food when given the choice, but actual buying habits reflect less ethically-focused decisions. This paper draws on business analyses of the political influence of food corporations and economic studies of the behavior of poultry consumers to examine the impact of the poultry industry. The conclusion of this paper provides an overview of current efforts by third-party consumer-rights organizations to lobby for better labeling.

UPDATING THE BLADDER CANCER BIOMARKER EVALUATION TOOL (BC-BET) TO LOOK AT DIFFERENTIAL METHYLATION IN BLADDER CANCER

Meaghan Kennedy

(Computer Science)

Faculty Mentor: Garrett Dancik

Cancer is a genetic disease characterized by changes in gene expression. Changes in gene expression may result from alterations in the DNA sequence, DNA methylation, or other mechanisms. DNA methylation involves the addition of a methyl mark to the DNA and predominantly silences gene expression, but can increase gene expression depending on the location of the methyl mark. Since cancers can be driven by the repression of tumor-suppressor genes and the activation of cancer-causing genes (oncogenes), the discovery of genes that are differentially expressed can lead to insight about a gene's role in regulating tumor formation, and can identify targets for cancer treatment. Ultimately, identifying the cause of the differential expression (such as DNA methylation) is desired. In this work, we describe the incorporation of methylation data into a gene expression database called the Bladder Cancer Biomarker Evaluation Tool (BC-BET), which consists of 1451 patients (13 datasets) and 40 bladder cancer cell lines. Methylation data from 4 publicly available datasets were downloaded from the Gene Expression Omnibus (GEO) and The Cancer Genome Atlas (TCGA), and 231 tumor samples and 40 control samples were added to BC-BET. Data was processed using R and a web interface was developed using the R package shiny. A user can now evaluate differential methylation between tumor and normal samples for a selected gene. We then found the most consistently differentially expressed and differentially methylated genes, and used these genes in a classifier for differentiating cancer samples from normal samples. Specifically, we compared classifiers using genes that were differentially expressed to classifiers using genes that were both differentially expressed and differentially methylated. Our results give insight into the importance of using methylation data to identify important biomarkers in bladder cancer.

THE FRAME IN CONTEXT AND THE CONTEMPORARY ERA

Nicholas Khan

(Art and Art History)

Faculty Mentor: Gail Gelburd

The frame is a border, void, connector, or the embodiment of a dissociation between the artist's primary vision and the world outside the intended viewer's experience. Styles of art have changed throughout

history, and as a result, the visual context surrounding the work has also been altered. While the intentions of the frame have changed, this border has always provided an aesthetic and sensory experience. There is a continual debate between philosophers and art critiques, such as Ruskin, Eastlake, Kant, Derrida, on the necessity and use of the frame. These writers, as well as others, support and dismiss the integrality of the frame as part of the finished artwork and the overall viewer experience. The writings of Derrida and others, bring the viewer to compare the ways in which trends in framing have shifted over the course of modern history. Throughout the ages, trends and technology have both widened the use of the frame. Changing styles in art and a variety of cultural contexts have minimized it. As a result, the long development of the frame is that of the history of art. The 21st century artist must now look beyond the historical uses of the frame and the opinions of the philosophers and critics. The contemporary artist must develop a cross between originality and familiarity when displaying their artwork in a frame. The artist must choose what best fits their style and creative vision, yet they must reach out to the viewer's sensibilities. As a result, the artist has the difficult task of finding a context that is neutral, yet beneficial to the work, and supports the object-hood or window-like properties of the art. Each artwork commands a specific experience which demands a unique visual context, be it a matte, frame, wall color, room, or lighting. Consequently, this context becomes not only a necessity to how the art is viewed, but also an irremovable aspect of its visual experience.

THE COCOA CHRONICLES: NESTLE EDITION

Jared Kranc

(History Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This research explores how multinational corporations have endorsed the exploitation of children in Sub-Saharan Africa within the cocoa industry. This is problematic in Ghana and especially Cote d'Ivoire from where most of the world's cocoa supply is grown. Concerns about labor abuses in the cocoa industry became widespread in the United Kingdom and other countries in 2000-2001 via documentaries and newspaper coverage alleging the use of child slaves in West Africa, particularly young men in the Côte d'Ivoire. In 2001, Nestle agreed to sign the Harkin-Engel Protocol, agreeing to eliminate the worst forms of child labor in the cocoa industry. Unfortunately, that has not been met and the Swiss company has been involved in several legal battles since then. The Ivorian Civil War has not helped matters in regards to child labor. This research takes a deep dive into Nestle's chocolate sourcing practices and continued rejection of social responsibility around child labor.

COUPONS AND CONSUMERISM

Zachary LeDuc & Chandler Benoit

(Communication)

Faculty Mentor: Terri Toles-Patkin

The reason for this study was to evaluate the relationship between consumers, coupons and local businesses. Looking at the reasons behind retailers implementing and accepting coupons as well as the affect it has on customer relations. Examining the use of coupons and its greater implications on consumer culture in Connecticut and how it relates to customer satisfaction. This entails comparing and

contrasting different retailers and how they achieve and maintain consistent customer loyalty with different types of coupons and reward programs.

EFFECTS OF GLUCOSINOLATE EXTRACTS FROM VARIOUS BRASSICACEAE SPECIES ON SALMONELLA ENTERICA

Weronika Lewkowicz

(Biology)

Faculty Mentor: Ross Koning

Glucosinolates are an anti-feeding compound against herbivores, and are found in a variety of cruciferous vegetables of the Brassicaceae. While some vegetables like broccoli are bred towards low glucosinolate levels to reduce bitter flavor, others, such as horseradish, are prized for their spicy taste. Besides providing flavoring, glucosinolates have been found to act as antibacterial and bacteriostatic agents towards some bacteria. I utilized a variety of Brassicaceae species including Spicy Green Mustard, Wild Wasabi Arugula, Wasabi, and Horseradish to analyze any bacteriostatic effects their glucosinolate extracts may have on Salmonella enterica. Using the Kirby-Bauer disk method allowed for measuring of zones of inhibition which would have been indicative of bacteriostatic effects. I also compared the findings to spectrophotometer absorption measurements of broth cultures to directly measure bacterial growth. The study showed that crude glucosinolate extracts from the four vegetables chosen did not have a bacteriostatic effect on Salmonella enterica. Further studies need to be conducted to find additional natural remedies for bacterial infections as antibiotic resistance is on the rise.

TWO-DIMENSIONAL WHITAKER GRADUATION: AN EVALUATION OF SENSITIVITY TO INITIAL ASSUMPTIONS

Matthew Liebel

(Mathematical Sciences)

Faculty Mentor: Peter Johnson

Graduation is a mathematical technique which, through using prior opinion about what a dataset would look like under ideal circumstances, combined with a formulaic approach, allows a statistician to 'smooth' a dataset. This technique is used by actuaries to price their policies, ensuring that the prices reflect a logical understanding of mortality, whereas a purely data-based approach can cause inconsistencies. This occurs because mortality rates are typically very low, so the data can be inconsistent and susceptible to outliers skewing the data. Our research aims to apply graduation to two different datasets, one being the famous Build study, which identified 'ideal' weights based on mortality data. The second dataset being used is a select and ultimate table, which shows the relationship between policyholders' age and the number of years since purchase, to their mortality rates. The purpose of the research is to analyze the range of mathematically sufficient results, and determine the influence of prior opinion within these results.

NO PAIN, NO GAIN: MORAL ARGUMENTS IN THE ANIMAL TESTING INDUSTRY

Katlyn Little

(Biology Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This paper is going to examine the advantages and disadvantages of animal testing from an ethical, legal, and economic standpoint. From the ethical perspective, the research will demonstrate the advantages of animal testing through product safety and medical advances. However, the viewpoints of animal rights advocates will be used to show the ethical disadvantages. From the legal perspective, sources will identify how regulations can be both advantageous and disadvantageous to the industry. Court cases involving animal cruelty in testing will be used to show the adverse effects of this practice. From the economic standpoint, this paper will examine the loss of revenue due to animal testing and the cost of experimentation as disadvantages. It will also examine the economic advantages of animal testing by looking at the revenue gained from new products and drugs being sold. Lastly, this paper will show that the practice of animal testing cannot be simply deemed good or bad but has competing moral arguments when viewed from different perspectives.

REPLICATING THE FURNITURE DESIGNS OF FRANK LLOYD WRIGHT FOR A THEATRICAL STAGE SETTING

Kerri McColgan

(Performing Arts)

Faculty Mentor: F. Chase Rozelle

Eastern Connecticut State University's Performing Arts Department's upcoming production of Cantilever, an original play written by J. J. Cobb, is set in Taliesin West, a home designed by Frank Lloyd Wright. Wright is not only famous for his architectural designs of homes but also for his designs of the furniture in them. In order to meet the needs of the production, it was deemed essential to replicate Wright's home and furniture designs. Discussions with the playwright/production director and set designer led to Frank Lloyd Wright inspired designs of three pieces of furniture that I was assigned to further research, engineer and build. These pieces will work in tandem with the set to create a setting for our production. It was my ambition to utilize our variations of Wright's designs in a way that helps tell the story not just of the play but of the home itself.

NON-CONSENSUAL RULE: THE BODY POLITICS OF NATIVE AMERICAN WOMEN

Reilly McKnerney

(English)

Faculty Mentor: Meredith James

Today there is a large movement to remove the control the government has on people's bodies, especially women. While many are aware of the movement to legalize marijuana and provide safe abortions, few are aware of the body politics certain communities faced and still face today. The forced sterilization of Native American women in the 1970's and inability for Native communities to use Peyote during ceremonies is commonly unheard of. The forced sterilization of Native American women took place all across the United States, and a federal study from 1976 found that from 1973-1976 there were

approximately four thousand native women sterilized without consent (Udel 46). In addition to this, the portrayal of Native American women in film, television, pictures, and illustrations are degrading and a poor representation as life as a native woman.

EFFECTS OF TOYS ON THE QUALITY OF YOUNG CHILDREN'S PLAY: EFFECTS OF AGE, SOCIOECONOMIC STATUS, GENDER, AND ETHNICITY

Dominique McLean, Stefanie Dominguez, Nicole Green & Amanda Terenzi
(Education)

Faculty Mentor: Jeffrey Trawick-Smith

This study examined the effects of ten toys on the play of 44 three- and four-year-old children in culturally diverse preschool classrooms. The toys, which varied in their features and intended uses, were selected from a list of those that were nominated by teachers as being developmentally beneficial. Each toy was videorecorded twice for 30 minutes during free play time in each of four different classrooms. Researchers coded 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 length of time it was available in the classroom. Implications for selecting toys for classrooms and observing children's play with them are presented.

CONSTRUCTING AUTHENTICITY THROUGH INTERTEXTUALITY: AN ANALYSIS OF KENDRICK LAMAR'S TO PIMP A BUTTERFLY

Emily Miclon
(Performing Arts)

Faculty Mentor: Timothy Cochran

From the inception of hip-hop music in America, the voice of the urban community has been represented through layered musical samples. This intertextual style is indicative of a rich culture of self-referential interactions. Kendrick Lamar contributes to the conversation by adding new musical and lyrical examinations of institutionalized exploitation of urban culture in his album *To Pimp a Butterfly* (2015). This study will attempt to understand the ways Kendrick uses layers of sampling, genre references, and lyrical themes of institutionalized oppression to assert authenticity. This authenticity is intensified by thematic ironic contrasts, which add complexity and importance to Kendrick's message. These elements work together to capture an intricate approach that Adam Krim's (2000) calls the hip-hop sublime. Within rap music history, artists have often authenticated their art through violence which contributes to a sense of hardness: for example, Tupac's first album, *2Pacalypse Now* (1991), utilizes a persona of violence to construct authenticity. Kendrick strays away from this Gangsta Style approach. For example, his use of jazz influences, slavery references, and sampled conversations in 'For Free-Interlude?' contribute to realness in a more holistic way. To further emphasize Kendrick's devices, this study will use Tupac's album as a foil. Throughout *To Pimp a Butterfly*, Kendrick tells the story of his rise from Compton; themes of isolation and exploitation are ironically contrasted with themes of community and freedom. The multidimensionality of Lamar's lyrics and musical style is indicative of the hip-hop

sublime, or a dense collection of musical layers, detuned and combined to instill realness. This analysis will help us understand the way authentic conversations can be constructed through ironic contrast and self-conscious references, while invoking the hip-hop sublime will highlight the aesthetic impact of the music and message.

FRAMING ARAB AMERICANS IN THE DETROIT NEWSPRESS

Kimberly Mines

(Labor Relations and Human Resource Management Honors Student/Sociology)

Faculty Mentor: Kimberly Dugan

A significant proportion of today's Arab Americans descended from Christian immigrants, though are often conflated with both Muslims and 'unhinged' caricatures who do not contribute to society. This study observes the post-9/11 evolution of Arab American representations within the mainstream Detroit newspress, a city known as the 'capital of Arab America.' Using commonplace media news frames, a content analysis of 358 Detroit Free Press and The Detroit News articles from 2001-2013 captured a dynamic glimpse into what it publicly means to be 'Arab in America'. Arab Americans' lives were considered most newsworthy in years closest to 9/11; attention trailed off with time. Most years, media representation primarily relied on the Human Interest frame the most personalized depiction followed by Conflict, Morality, and Economics, with some variation in the latter three. Though, the absolute reliance on given frames was variable. This variability suggests high responsiveness to 'frame building' variables. Furthermore, the personalized representations may indicate some integration of Arab Americans in Detroit society and/or successful efforts to gain influence on their public image all of which are consistent with the relatively smaller anti-Arab backlash in Detroit, compared to other backlashes across the nation.

TRUSTING WASHINGTON: EXAMINING THE LEVELS OF TRUST IN GOVERNMENT AMONG COLLEGE AGED INDIVIDUALS

Adam Murphy

(Political Science, Philosophy & Geography)

Faculty Mentor: Nicole Krassas

Studies of public opinion suggest that as trust in government declines we see a rise in public cynicism towards the government (Chanley 2002). As a consequence, declining public trust leads to increasing public support for devolution of federal responsibility, increased likelihood to vote third party candidates, and less support for government spending on areas such as education and the environment (Hetherington, 1999, Hetherington & Nugent, 2001, Chanley, 2000). This explores the relationship between college aged individuals and the government, recording levels of trust and public cynicism. As the term 'political insider' becomes more of an insult and 'Outsider' becomes a political qualification, the role of trust among individuals deserves more study. Is there a distinction between how people view politicians and how they perceive the government institution in general? Using interviews of students in a political science class, this study examines the individuals trust or distrust the federal government.

HAVE A HEART: TESTING THE ACCURACY OF VARIOUS HEART RATE MONITORS

Tyler Oquendo & Melody Kramarz

(Kinesiology & Physical Education)

Faculty Mentor: Ari de Wilde

Consumer-based physical activity monitors have made heart rate (HR) measuring technology highly accessible to the public. These emerging technologies have made HR monitoring fashionable by creating accessible, creative, designer driven devices. Despite the popularity of these devices, there is growing concern for the accuracy and validity of such wearable accessories. Ongoing lawsuits have surfaced as a result of possibly dangerous inaccuracies in the technology used in FitBit devices (Robb v FitBit Inc., 2016). Therefore, purpose of the present study is to analyze the accuracy of the FitBit (Charge 2) in measuring HR as well as other methods of HR measurement and calculation. The method employed in this study comprises collecting HR readings from the Polar Fitness H7 Chest Strap HR Monitors, the FitBit (Charge 2), a Pulse Oximeter, and manual radial pulse palpation. Heart rate will be taken at rest, and during moderate and vigorous physical activity. Testing protocols were adopted from Astrand Cycle Ergometer Maximal Test Protocol (1965). Participants (N=10) were college aged males of average fitness levels. Findings of this study aim to supplement the existing literature on wearable HR monitor accuracy compared to other modalities of measuring HR in the field of fitness testing.

'THEIR GUNS WERE BALLOTS, THEIR BULLETS WERE IDEAS': THE BATTLE SONGS OF THE COLD WATER ARMY

Christopher Otero

(English)

Faculty Mentor: Allison Speicher

Inspired by the beliefs of the Second Great Awakening, many Americans in the nineteenth century sought to create a society that mirrored heaven on Earth. This mindset helped propel many influential movements of reform during this time, and while the most notable is the abolitionist cause leading to the Civil War there is another noteworthy reform movement: temperance, the movement to prohibit the consumption and production of alcohol. Inspired by alarming levels of drunkenness, reformers felt they needed to create organizations devoted to controlling consumption rates. Their militant dedication aided the temperance movement in shaping its image as an army ready to wage a moral war on liquor. The reformers utilized many different media to spread their message such as novels and plays, but one has seemingly been overlooked: temperance songs. Temperance reformers strategically adapted the battle songs and war rhetoric of their time in order to reframe the fight against alcohol as a moral war. Through analysis of common tropes within these temperance songs—a call to arms, waging a holy war, and inevitable victory—and the peak periods of temperance's influence on popular culture we can strive to understand the rhetoric that led to such a successful grassroots social reform movement. The reform mindset of the nineteenth century, and specifically the cause of the temperance movement, should be seen not as a failure to ban alcohol, but rather as a successful crusade to unify the American public during a time of constant violence and uncertainty.

HOLISTIC ANALYSIS OF INDIE MUSIC SCENES: A HISTORICAL EXAMINATION OF WILLIMANTIC

Joshua Perry

(Performing Arts)

Faculty Mentor: Timothy Cochran

The term 'music scene' refers to physical localities that feature focal music styles representing a collective body of individuals who share a common definition of authenticity and social norms. Ethnomusicologists have developed theoretical frameworks for music scenes that are often refined to magnify singular aspects of a scene. However, scholars tend not to view popular music scenes as whole entities. In this paper, I will combine pre-existing theories in order to develop a hybridized, holistic theoretical framework for examining the entirety of music scenes, providing an objective analytical model for any scene in the modern era of American popular music. The theories I will be assessing and combining include: the definition of music scenes and the factors that define them (Straw 1991); the concepts of local, trans-local, and virtual environments (Peterson 2004); the notion of embodiment in both scene-actors and spaces (Driver, 2015); and influences of socio-economical contexts on scenes (Silver, Clarke, 2010). Combining these perspectives will help us take a full look at the aspects that affect music scenes: that is, the environments that define the scene as a space, the actors who participate as either musicians or consumers, and the socio-economic factors that affect them. To develop this theoretical framework, I will examine Willimantic across several historical periods as a case study: the 1970s in which the Shaboo Inn was one of the most popular venues on the eastern seaboard; the musical lull that took place in the 1980s-1990s during a local economic decline; and current day renaissance of local indie music. By utilizing journalistic sources such as the The Norwich Bulletin, The Hartford Courant, and The New York Times, alongside interviews with locals such as David Foster (an original owner of Shaboo Inn), I will demonstrate the application of a new holistic theoretical framework that can be applied across a variety of music scenes by future scholars.

PERCEPTIONS OF RAPE CULTURE FROM EASTERN CONNECTICUT STATE UNIVERSITY STUDENTS

Jolene Potter

(Sociology, Anthropology and Social Work)

Faculty Mentor: Mary Kenny

The prevalence of sexual assault alone speaks to the pervasive rape culture present on many college campuses around the nation. On college campuses 23.1% of females and 5.4% of males will experience rape or sexual assault. Women enrolled in college aged 18-24 are three times more likely to be sexually assaulted when compared to women the same age who are not enrolled in college (RAINN 'Statistics,' 2016). Due to the pervasiveness of sexual assault on college campuses, the current study examines student awareness of rape culture as well as their tendency to engage in victim-blaming behavior. Interviews with males and females were conducted explore the way in which students define the concept of 'rape culture' and the language surrounding it. Preliminary findings show that awareness and understanding of rape culture decreased tendency to engage in victim-blaming behavior and increased concerns pertaining to campus safety as well as awareness of services offered to victims of sexual assault. Limited understanding of rape culture increased victim-blaming behavior and decreased concerns related to campus safety as well as awareness of resources. Participants with a limited understanding of rape culture, consent and sexual harassment were less likely to report that they have

been a victim of sexual assault or harassment and more likely to believe catcalling to be a compliment when compared to those with a high level of awareness of rape culture, consent and sexual harassment. Based on the preliminary results, it is suggested that universities consider providing sexual assault education programs that go beyond statistical and procedural education, including concepts such as rape culture, rape myths, affirmative consent, victim blaming and empathy, focusing particularly on the complexity and necessity of consent. In addition, they should update the sexual assault information on their websites with more comprehensive, organized and useful information on rape culture.

FAKE NEWS OR FALSE EXPECTATIONS?

Francesco Ricigliano

(Political Science Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This study will examine the effect that type of media ownership on the consumption of news by society. More specifically, this paper will take a look at how various types of media networks - public service broadcasting, state-owned, private and corporate media, domestically and internationally - prioritize and modify news segments differently to align with their values. A vast majority of people believe that the media is exclusively dedicated to reporting accurate and unbiased information, when in reality, they may have an alternate set of objectives. By comparing and contrasting how each network publicizes the same story, it will be possible to see why each network would portray an event or story differently to ensure their goals are met. This comparative analysis is expected to show that networks modify their coverage of events based on their agendas, while the subsequent discussion will seek to explain why this occurs, the impact it has on society, and whether or not the public views media organizations as socially responsible.

THE ELITE OPULENCE OF THE GILDED AGE: CREATION OF AN 1876 STYLE EVENING GOWN

Isabella Rossi

(History)

Faculty Mentor: Barbara Tucker

The Gilded Age, the period between the end of the civil war and the beginning of the First World War, was a time of prosperity and the ostentatious display of wealth for the new American elite. The nouveau riche who had made their names in industry were developing their own complex society in the area of New York, Connecticut, and Rhode Island where they separated themselves from the rest of the population. There was a world of balls, etiquette, ornate clothing, and a curated list of who was allowed inside. The female fashion at this time reflected the extravagancy of the era. While class distinctions widened, these aristocratic women laced themselves into more and more intricate clothing. I have put myself in their shoes by creating a ball gown designed in the style of 1876. This included the production of all of the undergarments required: drawers, chemise, corset, corset cover, and petticoat, as well as the dress itself. Through the creation of these items of clothing and research into this period, I have explored the motivations of these elite women in donning their elaborate garments.

THE ANTI-CORPORATION CORPORATION: THE ALTERNATIVE BUSINESS MODEL OF EMPLOYEE OWNERSHIP

Neil Schneeberg

(English Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This paper investigates employee-owned corporations and businesses, analyzing their ability to make socially responsible business decisions compared to the traditional model of a hierarchically managed corporation. Investigated are questions such as: If employee ownership contributes to an increased sense of well-being among employees does this lead to more environmentally and socially conscious decision-making? Are some models of employee-ownership more effective at attaining these goals than others? Companies analyzed in this paper include New Belgium Brewing Company, a completely employee-owned craft brewing company based out of Colorado; Publix, a supermarket chain based in Florida using the ESOP model; and Mondragon, a Spain-based corporation and federation of worker cooperatives working in diverse fields including finance, retail, and knowledge. This research concludes with a discussion of the advantages of alternative models of corporations for addressing social responsibility issues.

CIGARETTE SMOKING IN WILLIMANTIC, CONNECTICUT

Mariana Serrano, Kristyn Ryan & Sherry Vallone

(Sociology, Anthropology and Social Work)

Faculty Mentor: Mary Kenny

Our research explored smoking and smokers in Willimantic, CT as part of a project on pressing public health issues in Connecticut. The town of Willimantic was chosen as the area for our research due to its wide range of economic and ethnic disparities, and to include the smoking environment on Eastern Connecticut State University campus. For four months, we conducted participant observation and semi-structured interviews. Our interviewees were predominantly white males and females between 19-60. Our research found that the primary reasons for smoking was that it was part of a repertoire of strategies for suppressing anxiety, enhancing social networking, and providing a sense of well-being and stability. We discuss the association between smoking and social context, the power of addiction, stress and anxiety, as well as the profound challenges associated with cessation and abstinence due to a lack of cessation classes and other available resources.

FROM RESEARCH TO PERFORMANCE: POLITICAL THEATER

Lucy Shea

(Political Science, Philosophy & Geography & Performing Arts)

Faculty Mentor: Nicole Krassas & David Pelligrini

Theater is a very diverse tool that can be used to give light to highly political and moral issues. My first exposure to political theater started with my research paper looking at the Syrian/Arab refugee crisis, an issue that started in late 2014. With so many people fleeing from their homelands, it has become a

question of what countries are responsible for their safekeeping. This study examined the way people talk about refugees, willingness to accept them, and also looked to see how large of an influence parties have on an individual's issue opinions. The second part of this project was taking the results of the study, and combining them with a memoir written by Eastern student Sabina Mamedova, a Islamic Turkish refugee to create a political theater performance piece. That showcased the urgency of this issue. The performance was called The Immigrant Project and told Sabina's story, along with the findings of my former qualitative study, and the current status of Syria. Political theater/performance is a powerful option to utilize as they inform the public in a more accessible way. The show was part of Eastern's Democracy at Work week this past fall. My oral presentation will show the link between political empirical research and how it led to such an impactful performance created by Eastern Students. Showcasing the necessity of politically active theater.

EDUCATION: BASED ON PHILOSOPHY, PARTICULARLY CRITICAL THINKING AND AHIMSA, AS NECESSARY FOR THE DEVELOPMENT OF SELF WITH OTHERS.

Liah Sinuefield & Dawn Schluter

(Political Science, Philosophy & Geography)

Faculty Mentor: Hope Fitz

As a student in Philosophy and Early Childhood Education, I have been recognizing the studies not as separate but cohesive pieces in creating self-aware, liberated, productive, inclusive members of society. In this presentation I will expand on the idea of Philosophy and Ahimsa i.e. (an ancient idea that culminated in the thought and way of life), in Early Childhood, and its benefits on the self. I will discuss not only the works that foster this idea but the implications in and out of the classroom. I will be focusing on students in middle and high school. Via philosophical rigor, students can be taught to problem solve as well as insight through Ahimsa, i.e., (through non harm and compassion) into understanding people as individuals. This will eventually lead those in knowing and achieving what should be the unifying concept of "Separate but equal" citizenship.

HOW PRESCHOOL TEACHERS INTRODUCE NEW PLAY MATERIALS: IMPACT ON PLAY QUALITY

Leah Slawinowski, Nicole Green & Dominique McLean

(Education)

Faculty Mentor: Jeffrey Trawick-Smith

Introducing new play materials for children to use in preschool has long been recommended in the early childhood education literature. Yet there have been no empirical studies on the precise ways that teachers conduct these introductions or the impact they have on children's subsequent play quality. In this emergent, mixed methods investigation, we recorded and analyzed video of four teachers introducing 10 new toys during group time in their preschool classrooms. Specifically, we transcribed each introduction, and then broke the transcriptions into smaller units to then be categorized and coded. The analytical methods were an adaptation of technique recommended by ethnographic researchers in education. We then identified categories of toy introduction. We then examined whether each category of introduction was associated with subsequent, various aspects of play quality.

SIX SIGMA CFS CUSTOMER EXPERIENCE

Maria Taylor

(Business Administration)

Faculty Mentor: Fatma Pakdil

In the light of Six Sigma methodology, this project aimed to waste and create more efficiencies to help support a growing market with the existing resources while improving the customers experience by focusing on quality. DMAIC (Define-Measure-Analyze-Improve-Control) process was utilized in the project and the team came up with ideas to decrease the waste by focusing on the root causes of the problem analyzed in the project.

WOMEN, STRIKES, AND THE EARLY LABOR MOVEMENT

Julia Underhill

(Labor Relations and Human Resource Management)

Faculty Mentor: Niti Pandey

This research focuses on the role of women in the labor movement prior to 1910 and the dominance of AFL unions and how women in the labor movement were portrayed, especially in comparison to women in other social movements of the time. This paper provides an in-depth archival look at the challenges faced by women workers in the early years of the labor movement and their struggle to leave an impact on unions. The paper begins by examining the early efforts to include women in the workforce in the labor movement, which proved to be a unique challenge and ultimately failed. The research identifies the statistics pertaining to the involvement of women in unions and the workforce during this time period. This is followed by a critique of the type of jobs held by women at that time, as well as how their social role and identity affected their progress in the labor movement, making it difficult for women to join major unions and organizations such as the Knights of Labor. Next, the paper analyzes how women leaders, both in the labor movement and other social movements, were portrayed at that time and continue to be done so today. Finally, the study attempts to connect the events from the early labor movement to state of the movement today. The study will conclude with examining how women's memberships in unions have changed and how modern events such as World War II and the Civil Rights Movement have altered the role of women in the workforce.

MILITARY SEXUAL TRAUMA AND FEMALE SERVICE MEMBERS

Valerie Vance

(Sociology, Anthropology and Social Work)

Faculty Mentor: Kimberly Dugan

In many ways, the experiences of members of the Armed Forces in the United States have acted as a microcosm for the larger society and this is especially true in relation to the role of women. The inclusion of women in the United States military throughout times of war is in the process of evolvement as far as the duties performed during combat periods are concerned. Looking at the data in

terms of how many women and what specific training and jobs that they performed over a period of time beginning during WWII to present day; progress has been made as far as inclusion but not without difficulties. Military Sexual Trauma, both in terms of sexual assault and sexual harassment, is a broad topic that requires further research and analysis in areas of mental health treatment, reporting, disciplinary action, and prevention. The goals of this study are to: (1) Identify the frequency of occurrence(s) of MST in a sample of previously enlisted female service members in the Armed Forces; (2) To investigate the reasoning behind a decision to report/not report the trauma; and (3) To assess the perceived support from the chain of command to the victim of sexual trauma during the reporting process.

FEMINISM: OPENING MY EYES AND MIND

Yessenia Vargas

(Women's and Gender Studies)

Faculty Mentor: Maureen McDonnell

I have been the teacher assistant for Professor McDonnell's Introduction to Women's Studies course. Upon taking this class, I have enjoyed being a part of the course again, but it is also the course that helped me change my way of thinking, encouraged me to have my own opinions, and helped me not be afraid to point them out. In the process of helping Professor McDonnell, I sometimes get to discuss the readings, ask my own questions and see how well the students respond to me. I listen to everyone's opinions and sometimes I even input my own. I try to understand the ideology of each person in the room and even though I may disagree or agree, it's amazing to be able to listen and understand the way they think. In this course, we read about many different topics including; Childhood & Beauty Norms, Privilege & Problem solving on Eastern's campus, and many more to discuss. These topics include not only the problems of before but the problems that are still happening in the world. The authors who tell or write the stories from experience give an insight in the topics that society either doesn't want to talk about or tries to avoid acknowledging it in general. Authors like Audre Lorde, Lois Gould, Tonya Maria Golash-Boza, and Peggy Orenstein give their own insights on women's rights. They talk about what women's rights are, what it means to them, and what they believe should be done for all women. In reading what the authors have to say, seeing that not only are women encouraged to speak their voice, it is also a way everyone in the world who feel oppressed can express their opinions and stories.

ORGANIC FOODS: ISSUE AND CHALLENGES

Goy Voladate & Shaniece Jones

(Health Sciences)

Faculty Mentor: Mary Kenny

Consumer demand for organic foods is increasing, grossing an estimated \$35 billion in 2014. There is emerging research on the quality of organic foods in comparison to conventional foods, but consumer perceptions and knowledge about organic foods requires additional attention. For example, the price of organic produce, is on average more expensive than conventional foods, which impacts accessibility for some groups. Our research explored some differences in conventional versus organic foods, and found negligible differences in nutritional content. Our presentation will summarize other results of research

we carried out 2016 on the local organic foods industry, and consumer knowledge about local organic food in Willimantic, CT. We used face to face interviews with organic food and non-organic food consumers, made inquiries at local organic food stores and conventional food stores, made visits to local farms that harvests organic foods and non-organic foods, and conducted an interview with a professor at Eastern Connecticut State University who specializes in the organic foods and sustainability. We found that consumers lack knowledge about the origin and agricultural processes related to food production. For example, a majority of the consumers we interviewed did not know the origin of the food they purchased. Supermarkets such as Stop & Shop and Wal-Mart received a majority of their produce from Mexico, California, and from surrounding states and transported by commercial trucks. However, at the Willimantic Food Co-op, the store receives their foods from local farms such as the Lebanon farm and Mountain Dairy farms. Organic food is costlier than conventional produce, creating a divide amongst consumers. Healthy foods are expensive and the costs put it out of reach for many local families. Marketing and marketing labels are misleading. Consumers perceive that a natural label on food packaging is the same as an organic food label. They are mostly unaware of differences between natural foods and organic foods. We suggest that more accurate and relevant information be disseminated to consumers to help in making informed decisions and to bridge the knowledge gap between the food producers and the consumers. Consumers who prefer organic foods should consider learning how to produce organic produce for themselves.

ISSUES AND CHALLENGES WITH PALLIATIVE CARE IN CONNECTICUT

Rachel Waters, Courtney Welch, Bryan Frankovitch & Ashley Franklin

(Health Sciences)

Faculty Mentor: Mary Kenny

According to research, palliative care is a growing area of expertise in medicine. There are several palliative care facilities in Connecticut that provide personalized care to patients, depending on their diagnoses. However, education concerning clinical and managerial expertise appear to be lacking in state programs. In Fall 2016, our team carries out exploratory research on this issue. Through in-depth interviews with palliative care experts and observation of facilities, we were able to gain insight on attitudes and perceptions concerning some of the challenges of working in this field, as well as strategies for enhancing a more balanced separation between work and one's personal life. We found a strong correlation between lack of knowledge about palliative care and its intent, and high stress levels among staff. Our research highlights some limitations of palliative care programs in Connecticut, and suggests ways to better the working conditions for palliative care practitioners, which in turn improves the quality of care of patients.

THE MYTHIC RAPIST: DESTRUCTIVE SEXUAL DEHUMANIZATION OF BLACK MEN IN THE NEW SOUTH

Rose Marie Welles

(History)

Faculty Mentor: Thomas Balcerski

After the end of the Civil War in 1865, an abrupt series of cultural shifts occurred in the American South which challenged the long-held status quo. Black men in particular found themselves under a new kind of scrutiny, related directly to their recent emancipation from slavery and, more importantly, their political enfranchisement as voters. In response, the society of white Southern Democrats forged a vicious, and admittedly successful, campaign to delegitimize the black male voter by painting him as a violent, sexually deviant menace to white Southern society, white women in particular. Using testimony from the 1877 Congressional investigation into the growing Ku Klux Klan, as well as prominent books and movies which employed the stereotype of the oversexual black man (such as Thomas Dixon's 1905 novel *The Clansman* and the even more infamous movie based on it, *Birth of a Nation* (1915) directed by D.W. Griffiths) this paper delves into the climate of sexual racism found in the New South. While there is much scholarship done on the root of hate groups like the KKK in this tumultuous period, there is little that explores the connection between masculinity and race to explain the climate of white supremacy fostered after black men became active participants in the democratic process. This paper argues that the intensely violent culture of accusing black men of sexual crimes and lynching them, especially when the more likely crime was political activism, has had irreparable effects on the civil advancement of black people in the century since.

THE FOUL BLOT OF EVERLASTING SHAME: WHY 18TH CENTURY AMERICAN PATRIOTS TOLD THE STORY OF BENEDICT ARNOLD

Joseph White

(History)

Faculty Mentor: Anna Kirchmann

In 1789, American revolutionaries received a stunning blow. Benedict Arnold, one of their greatest military leaders, had betrayed them, offering his loyalty and the important military stronghold of West Point to the British in return for a lump sum of money and a position in the British military. When this traitor's plot was revealed, Patriot printing presses began to produce various documents responding to this event. Some works told their readers the story of a villain's betrayal, and others examined Arnold's life for evidence of his evil intentions; some did both. Effigies of the general were burned throughout the land and newspapers reported on investigations into his life. In 1791, just a little more than year after Arnold's treachery, an anonymous Connecticut author published 'The Fall of Lucifer: An Elegiac Poem on the Infamous Defection of the Late General Arnold.' This poem may be one of the earliest examples of Benedict Arnold's 'negative commemoration,' a concept developed by Lori J. Ducharme and Gary Alan Fine involving the use of demonization and nonpersonhood. In my paper, I analyze 'The Fall of Lucifer,' exploring both the rhetoric of demonization and nonpersonhood and the poem's construction of Arnold's opposite image: the American hero and patriot. I argue that the poem uses demonization via comparisons to traditional Christian villains and nonpersonhood via attributing Arnold's good actions to deception so that the poet may portray Benedict Arnold as a complete villain. This shadow of villainy is then contrasted with the light of the heroic acts performed by true American Patriots. The poet's comparison builds up the figure of a good and virtuous American Patriot; an image employed alongside that of Arnold the Traitor in the histories of future generations.

TRANSITIONS IN THE CLASSROOM

Samantha Winters

(Education)

Faculty Mentor: Jeanelle Day

Students who often have difficulty focusing in the classroom are disrupted even more so by interruptions that are distracting. These interruptions can contribute to less learning time if not managed well. Students who appear to have these difficulties with attention and focus need to have interruptions managed effectively. Therefore, it is important to create rules and procedures for transitions and interruptions to establish classroom management. There are many useful strategies for transitioning in the classroom that teachers can apply to help students focus and stay on track. The rules or procedures that can be established vary in complexity depending on factors such as the students' age and maturity. Using a variety of sources such as university professors, colleagues, elementary school teachers, educational texts, and published articles I have researched methods and strategies that can be used to help teachers ensure a quick and non-disruptive changeover between lessons. These transitional methods were then implemented in a classroom setting to determine the effectiveness and outcomes of the selected strategies in an effort to help teachers learn how to transition in the classroom.

THE VALUE OF ARTS FOR ECONOMIC DEVELOPMENT

Brennan Yau

(Art and Art History)

Faculty Mentor: Gail Gelburd

Art attracts us, stimulates us, and serves as a means of communication and reflection. We surround ourselves with art of one form or another, create and seek out attractive buildings, productions, paintings, sculptures, and areas. We are drawn to aesthetics as well as to the sense of place that art is able to cultivate. Therefore, as the definition of art is broadened and re-imagined by our willingness to accept it throughout our lives, so too should the way we think about art be transformed. Art is no longer confined to a museum and artists now seek to present their work wherever possible. Art can be used as a powerful mobilizing force to develop economies, improve livability, and revitalize communities. The hidden power of art comes from its democratic quality. It is available to the entire community at large, and can function not only as art, but as a centerpiece around which all people may gather, share experiences, and express ideas. The ability of art to create social epicenters can produce economic benefits for the town, businesses, and stores through an increase in publicity and foot traffic. It is through this direct correlation between increased social interaction and economic surplus that art is positioned as a tool that can effectively rebuild struggling communities. In this way, art is able to create a collective community vision of the future that expresses a tone of progress, innovation, and creativity simply by virtue of its presence.

PANEL DISCUSSION

OVERCOMING OBSTACLES IN UNDERGRADUATE RESEARCH

Phillip Hoeps, Kayla Giordano, Alexa Potter, Tess Candler & Emma Avery

(Political Science, Philosophy & Geography)

Faculty Mentor: William Salka

After engaging in undergraduate research for several years one begins to develop a sense of the appropriate methodological approaches to any given topic, as well as a sense of the motivations found throughout professional literature. This panel aims to discuss common methodologies used in undergraduate research in the social sciences and humanities, and will include short narratives of some of the challenges the panelists faced over various different projects, and how these challenges were overcome. Of the panelists, Kayla Giordano has done research in Political Science and Economics, and will discuss the difficulties of conducting surveys and data collection. Alexa Potter has done research in History and will address some of the methodologies of her field. Emma Avery engaged in research in Political Science and Environmental Earth Sciences, and will discuss obtaining and coding qualitative data from the transcripts of congressional hearings. Tess Candler has done research in Economics and Political Science and will contribute by explaining her approaches to data collection in Environmental Economics. The Chair of the panel, Phillip Hoeps, has done research in Economics and Political science, and will address Macroeconomic data collection, and quantitative methods of data analysis. The panel discussion will be structured to encourage audience participation and provides underclassmen with an excellent introduction to the vast research possibilities at Eastern.

PHOTOGRAPHY EXHIBIT

The annual Communication Department Student Photography Exhibit consists of the framed print exhibit, in The Betty Tipton Room, and a PowerPoint show in the Student Center Theater. The exhibit includes work from Fall '16 and Spring '17 semesters from both the Photography 1 and Advanced Photography classes.

For the framed print exhibit students are asked to choose an image from one of the class assignments which they print during the lab/lesson for digital printing. Through this lab, students learn to match and choose color profiles in Adobe PhotoShop paired with an Epson Stylus Photo R2000 inkjet printer.

The PowerPoint show is a compilation of student work from assignments that ask students to pre-conceptualize images for visual communication. Photography 1 students are given a series of "Titles" to illustrate with a single image. The Advanced Photography images are from a weekly photojournalism assignment where students are given 3 to 4 time sensitive, "Headlines" to illustrate with a single image, due at the end of each week.

2016 Fall
COM 210
Photography One
Coughlin, Daniel T.
Dastous, Jessica R.
Dodd, Jessica E.
Flores, Zesmary
Fulcher, Brooke M.
Gonzalez, Luis A.
Hulstein, Jennifer
Hunte, Carlton E.
Maughan, Victoria J.
Nichols, Anne
O'Hearn, Kylen S.
Philippas, Joshua G.
Price, Samantha A.

2017 Spring
COM 210
Photography One
Allen, Monique
Archambault, Isaac D.
Belmont, Matthew A.
Chaisson, Joseph T.
Crotty, Alexander J.
Earle, Shaneece S.
Gonchar, Jillian M.
Griffing, Samantha A.
Hannibal, Adrian
Larmett, Max R.
Manierre, Sean M. x
Mendez, Katiana N.
Miner, Abby L.
Pellegrino, Deanna M.
Pugliese, Katherine G.
Tonucci, Alyssa N.

2017 Spring
COM 310
Advanced Photography
Coughlin, Daniel T.
D'Costa, Dominique A.
Dastous, Jessica R.
Dzikas, Anastasia C.
Falce, Andrew W.
Fletcher, Matthew H.
Mendelsohn, Alana B.
Newton, Kasara B.
Powell, Joshua
Ruocco, Michelle A.

POSTERS

THE EFFICACY OF ACCEPTANCE AND COMMITMENT THERAPY WITH CHILDREN AND ADOLESCENTS

Madison Ahearn

(Psychology)

Faculty Mentor: Jeffrey Danforth

Acceptance and Commitment Therapy (ACT) is a relatively new psychological treatment protocol that aims to treat clients by helping them acknowledge their values and accept the events or feelings that are holding them back from achieving their goals. Most research has been conducted with adult clients. The purpose of this paper is to examine peer-reviewed research that demonstrates the efficacy of ACT when used with children and adolescents. Studies will be discussed in the areas of internalizing disorders, externalizing disorders, and pediatric health. Results indicate that throughout a majority of the studies, ACT was an effective treatment for children and adolescents. Limitations involve the minimal number of studies conducted with children and adolescents and the small sample sizes used throughout the studies. Further research on the use of Acceptance and Commitment Therapy with children and adolescents is needed in order to truly examine the effectiveness of the therapy.

EXCESSIVE SOCIAL MEDIA USE AND SOCIAL INTERACTION

Ben Arpin, Jade Ferguson, Eleanor Sullivan, Naomi Childs & Christelle Dauphin

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Prior studies show that 98% of American college students are on social media and that almost one third of students spent more than six hours on social media a week (Akhter, 2013). Furthermore, when face-to-face communications are available, 11% of adults still prefer to communicate through electronic devices (Hussein, 2014). Given the prevalence of social media use among college students, the purpose of this study is to examine the effect of excessive social media use on students' social life. In the study, we utilized available sampling to recruit survey respondents among students at Eastern Connecticut State University. The self-administered survey asked survey respondents a variety of questions about their social media use habits, their participation in extracurricular activities and the frequency of interacting with their families and friends. The results of the study will contribute to a better understanding of the use of social media among college students and if that influences their interaction with families and friends as well as their life.

EFFECTIVE COMMUNICATION IN ORGANIZATIONAL CHANGE

Yunus Badiab & Cara Lang

(Communication)

Faculty Mentor: Terri Toles-Patkin

Organizational change and leadership processes occur on a daily basis. From a managerial standpoint, change is essential for an evolving business in the highly competitive professional workplace. Changes can manifest out in a number of internal and external consequences for a growing business. Organizational change from a communications standpoint just goes to show how, for effective leadership, a company must be run by a successful hand and people to follow with control and ease. Time is of the essence when facing current obstacles as well as what it means for the future prospects of the organization. Effective leadership is vital and from the beginning stages of planning to crisis mode. At times, change in an organization is unpredictable but essential to keep a business moving forward and overcoming obstacles. Theories derived from the classical approach, the Theory of Scientific Management, the Systems Theory, as well as information from critical theorists, and the Transformational Leadership Model emphasize the cohesion necessary for leadership and employees.

THE EFFECTS OF CHILDHOOD CANCER ON CHILDREN AND THEIR EDUCATION**Olivia Bednarek**

(Education)

Faculty Mentor: Tanya Moorehead

Innumerable people experience loss in their lives, whether due to harm from another person, emotional trauma, accidents, or even diseases; it happens. More importantly, death happens. Most choose to ignore the idea of death until their time has come, but some people, whom death has effected very intimately, have come to the realization that death is imminent, no matter the age. Cancer can suck the lives out of anyone, no matter the circumstances. In fact, cancer is becoming more and more common in the lives of children as years go by. It is so common in parts of the world that many people do not even see it as a disease, simply a fact. Children who beat it are not always seen as the “survivors” they used to be known as, because having some form of cancer is almost as common as breaking an arm or leg. However, one thing that cancer will always do, and that will never change about it's circumstances, is that cancer can change futures. Not just in the sense that it can kill, but also in a way that effects a child's interests and growth in education. Cancer can have a lasting effect on children's educational experience, altering how they learn and absorb information. Many types of cancer can affect not only a person's physical health, but also their mental or emotional health. Learning disabilities and impairments can arise before, during, or after the treatment of cancer in a young person's body. I hope to illustrate how childhood cancer can affect the families of those who have gone through such an experience. Above all, though, I hope that my study surrounding childhood cancer can shed some light on the impairments and changes that can occur to young people's educational experiences, specific to those who have gone through and/or are currently going through treatments for cancer.

DOES CREATIVE EXPRESSION AS A COPING STRATEGY REDUCE STRESS?**Jennifer Blanchette, Jennifer Kiely, Marissa Gardner & Destiny Sammut**

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Research indicates that college students experience higher levels of stress than any other age group (Stallman, 2016) and those who take part in creative expression as a coping strategy effectively experience less stress (Ugurla, 2009). The purpose of this study is to examine the effects of participation in creative expression activities on reducing the stress of college students. Creative expression activities are defined as any individual style of music expression (playing, listening, attending live), dance expression (watching, partaking either formally or informally), art expression (painting, drawing, coloring, sculpting, attending art gallery) writing expression (poetry, novels, journaling, attending poetry slams, etc.). The data were collected through self-administered surveys on campus using the snowball sampling. Stress is measured by nine questions modified from the State-Trait Anxiety Inventory scale (Toyoshima, 2011). These findings will contribute to the understanding of college students' coping strategies, their stress levels, as well as the relationship between creative expression activities, and stress reduction.

THE WAY WE WORE

Sarah Brihan

(History)

Faculty Mentor: Barbara Tucker

One of the best windows into an era is fashion. Before World War II, many women dressed elegantly and in classic feminine dresses for work. After Pearl Harbor, however, the government encouraged more and more women to enter the labor force, to take jobs in aircraft, weapons, automobile and rubber plants or to join the Women's Land Army and help bring in the crops. Fashion changed as women adopted a male inspired uniform complete with trousers and cotton shirt. Female farmhands became known as "farmerettes in overalls" because of their outfits. After the war, many women willingly and unwillingly left their jobs, returned home, and resumed a lifestyle reminiscent of the 1930s. Dresses and skirts replaced trousers for work; husband, home and children consumed most of their attention. Connecticut women followed this pattern and dress code. Through an examination of local newspapers, I concluded that women were expected to conform to a dress code dictated by a patriarchal society. This is reflected in fashion patterns from the 1930s to the 1950s.

IMPLICATIONS OF TEACHER APPEARANCE AND ITS IMPACTS ON STUDENT PERCEPTIONS

Sarah Brihan

(Education)

Faculty Mentor: Susannah Richards

How students view their teachers may affect the dynamic of any classroom. This research investigates how students' attitudes towards a teacher's appearance may impact their learning and comfort in the classroom. The research results include a literature review, observational data and student responses from a teaching activity about what they notice about their teachers. The focus of the research is on what students notice about how teachers' dress (clothing and accessories), gender, and age may impact students' ideas about the classroom. The research inculcates that teachers who dress in general

business casual are viewed as more professional. Another element of this research explores how the media contributes to student perceptions of teachers. First impressions are very important and students spend a most of their school day observing teachers. Before students even meet their teachers, it is possible that images of educators in the media may have influenced student's ideas about their current and future teachers. This research adds a contemporary lens to understanding how teachers' physical attributes and clothing choices may impact the learning environment.

MILKING FOR PROFIT

Taylor Brown

(Biology Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

It is well known that the dairy industry is significant to the economy. In the United States, \$35.5 billion worth of cow's milk was sold and this accounted for 9% of all agricultural sales. This paper explores the relationship of animal abuse and industry profit in the dairy industry, more specifically the practices implemented on cows. The dairy industry has become widely criticized in recent years by animal activists and health concerned consumers. Like most businesses, their goal is to maximize their profits. Corporations accomplish this by increasing milk production with fewer cows in order to maintain cheap prices. Although it sounds positive for the customers, this contributes to the industry's involvement with animal cruelty. The aim of this paper is to provide information on the dairy industry's practices, explain why they operate in this manner, and to provide solutions for improving these practices. By researching examples of successful farms with good animal welfare, alternative practices and business models that benefit the stakeholders and the farmers will be discovered.

PREDICTING TREATMENT RESPONSES IN MULTIPLE MYELOMA PATIENTS

Megan Brudz-Rodriguez

(Computer Science)

Faculty Mentor: Garrett Dancik

Multiple myeloma is the second most common hematologic malignancy in the United States, though it is relatively uncommon with an incidence rate of 0.7%. There is not a cure for this disease but there are many types of treatment options that allow a patient to manage the disease and live their life relatively normally for a time. However, patients do not always respond well to treatments, and relapse is common. The objective of this project is to identify genetic biomarkers of treatment response by analyzing gene expression profiles with the goal of predicting whether a specific treatment will be successful in a patient. Several genes associated with response to myeloma treatment will be discussed. Ultimately, being able to predict whether a patient will respond to a particular treatment will enable doctors to prescribe treatments that are more likely to be effective.

IT SECURITY AND HEALTHCARE INFORMATICS

Julie Bruffee

(Business Administration)

Faculty Mentor: Doncho Petkov

Healthcare organizations can be improved through Information technology by improved access to patients, better quality of care and reduced expenses. To achieve these benefits of healthcare IT, security challenges need to be adequately addressed. The purpose of this paper is to investigate IT security threats in Healthcare and ways of their mitigation. Healthcare IT must acknowledge the potential impacts of cybercrime and remain committed to taking aggressive steps to protect sensitive information during the process of patient care. Healthcare data is valuable to cybercriminals and the number of cyber-attacks on healthcare organizations has been increasing. It is crucial for healthcare IT to be able to detect cyberattacks rapidly. Rapid detection can prevent more information being stolen and let the organization better respond. If healthcare organizations protect and monitor their data in real time, breaches can be detected quickly and security issues can be swiftly addressed. Human error provides a potential access point to data. Common human errors are employee negligence, external theft of a device, employee theft, or failing to recognize phishing e-mails or downloading malware and Trojans. Cybercriminals also often use social engineering to target internal systems and connections outside the healthcare organization. Some of the greatest threats an organization can face can be from internal threats and carelessness rather than threats arriving from the outside. That is why proper training of staff within the healthcare organization is essential. It is important not to overlook any potential flaws in the organization's security infrastructure and that medical devices have adequate security. Healthcare organizations must also consider the monetary and non-monetary costs of potential incidents and understand that through preventing these incidents the amount of cost-avoidance that can be achieved. IT security should be recognized as a core business process and receive top-down support and accountability. Stakeholders need to support the implementation of best practices to ensure that threats to the organization are minimized and patient data is protected.

INTERDISCIPLINARY PROJECT ON HUMAN CONNECTION

Amanda Burkhart, Andrea Gayeski, Miguel Barrientos, & Joshua Carpentier

(Education)

Faculty Mentor: Mark Fabrizi

Within today's education system, there is a push for teachers to work together and design Interdisciplinary Units in such a way that students are able to draw connections between multiple disciplines, a skill that makes learning more enjoyable and meaningful. This project targets high school students and focuses around the question, 'What is the importance of human connection?' One of the inspirations for this idea comes from the movement #BridgesNotWalls, which was created in response to the proposal made by the President of the United States to build a wall on the border with Mexico. Those who are involved in this movement believe that human connection and acceptance should be valued, not further destroyed through the construction of walls. Within this project, there will be two math units, two English units, and a history unit. The first math unit will be based on Transportation Through the Ages and will include probability and statistics to reflect on how different forms of transportation bring people together. The second math unit will focus on bridges and the math behind the geometric structure of different types; students will be able to not only learn about bridges but reflect on how this relates to human connection. The English unit will incorporate Sandra Cisneros's *The House on Mango Street* into the discussion of human connection in a way that brings the Mexican-

American culture to light and sympathizes with Esperanza and her desire to abandon her neighborhood. The history unit would consist of research and examination of previous attempts at separating societies through the use of a wall. Students would look at primary sources, investigate the outcomes and conclude why human connection prevailed at the end. Teaching the power of human connection is important, and having students explore this concept in each discipline is valuable to who they will become as future citizens in society.

BURNOUT AND STRESS AMONG FEMALE DIRECT CAREGIVERS OF INDIVIDUALS WITH DEVELOPMENTAL DISABILITIES

Bonita Byars, Alex Marquis, Christopher Maynard & Jessica Boyle

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Individuals with developmental disabilities display a variety of mental and physical functions and behaviors that require caregivers' proper supervision throughout their daily activities. Due to the high level of responsibilities associated with direct caregivers for people with developmental disabilities, prior studies identified adverse effects such as burnout, stress and a high turnover rate associated with caregivers with developmental disabilities (Caldwell, 2008; Casey, 2011; Colangelo, 2015). This study specifically aims to understand the work effects on female caregivers working in agency settings in Connecticut. Using snowball sampling, the study recruited survey participants from the Arc, group homes, and hospitals within the area of the New London County and Northeastern areas of Connecticut. The survey consists of 28 questions, including participants' burnout and stress, preparation for the job and future prospect. The findings of study will contribute to a better understanding of the impact of caregiving work on female caregivers for people developmental disabilities.

THE IMPACT OF SPORTS PARTICIPATION ON EMOTIONAL WELL-BEING OF ADOLESCENTS

Melody Bych, Christina Kydd, Terri Edmiston & Kara Thibodeau

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Despite extensive research on how participation in sports can impact the academic performance of adolescents, there is limited knowledge on how participation in sports impacts their emotional well-being. The purpose of the study is to examine if the involvement in sports has a positive effect on the emotional well-being of adolescents in fifth through eighth grade. The emotional well-being in the study is measured by self-image, self-esteem, coping skills, and relationships with others. Participation in sports include school sports and recreational sports. The study utilized an availability sampling strategy. Data were collected through self-administered questionnaires to the parents of children who participate in different sports. The results of the study will shed light on the use of sports as an intervention to enhance adolescents' emotional well-being.

HOW HAS TECHNOLOGY AFFECTED OUR WORLD TODAY?

Matthew Camarco, Ujjwal Davda, Joseph Demarco & Nicole Gamberale

(Education)

Faculty Mentor: Mark Fabrizi

A steady and unbroken current of research on education makes clear that students learn best when instruction is relevant to their lives and is therefore engaging. For this reason, we have developed an Essential Question that unifies classroom instruction for one week and covers four academic disciplines in grade nine: How has technology affected our world today? Technology is integral to so many aspects of a ninth grader's daily routine. Emailing mom to let her know that chess club has been cancelled for the afternoon, going to the school media center to research a topic on the internet, and learning via text message that a friend has been suspended for cyberbullying are just a few of the countless ways in which technology can touch their lives. The purpose of this unit is to let students explore through math, science, history, and language arts how technology has impacted their modern lives as well as those of past generations, how it may impact the future, and whether present classroom instruction is consistent with present technology levels. The focus of this innovative unit will be relevant to students while incorporating subject area content that teachers would present regularly. It also represents a fundamental shift in the approach teachers take to deliver content instruction in their classes, a shift marked by integration rather than isolation.

BEHAVIORAL RESPONSES OF BRIDLE SHINERS (NOTROPIS BIFRENATUS) TO NATIVE AND NONNATIVE PREDATORS

Jessica Cebelius

(Biology)

Faculty Mentor: Kristen Epp

The Bridle Shiner (*Notropis bifrenatus*) is a small-bodied freshwater fish endemic to the northeastern United States. Populations of Bridle Shiner are in decline across the native range, though research on the causes of these declines is sparse. Anthropogenic causes such as the introduction of nonnative predators through sportfish stocking have been suggested as potential contributors, because native prey may not recognize or respond to nonnative species as threats. The goal of this study was to compare the behavioral responses of bridle shiner to a native predator (brook trout) and a commonly-stocked, nonnative predator (brown trout). We used behavioral assays to measure changes in activity level and shoaling behavior, common anti-predator responses of shiners, in response to the chemical stimuli of the predators. If fish exhibit different activity levels and shoaling behaviors to nonnative trout than to native trout, it would suggest that shiners may not be responding appropriately to nonnative predators in their natural habitat. The results of this study may have important implications for conservation and management of this imperiled species.

THE IMPORTANCE OF PHYSICAL ATTRACTIVENESS IN THE MATE CHOICES OF DAUGHTERS AND THEIR PARENTS

Caitlynn Chabot & Kaitlyn Doucette

(Psychology)

Faculty Mentor: Madeleine Fugere

Prior research investigating the mate preferences of adult children and their parents reveals two important findings with regard to physical attractiveness. Daughters more strongly value mate characteristics connoting genetic quality than their parents, and both daughters and their parents report valuing characteristics other than physical attractiveness most strongly. A major limitation of prior research is the reliance solely on individual self-report; we sought to expand on this. We assessed mate preferences among 80 women and one or both parents (61 mothers, 31 fathers) in an experimental design varying physical attractiveness as well as personality profiles. We hypothesized that adult children and their parents would prefer the attractive rather than the unattractive men. We also hypothesized that the personality profiles would impact favorability ratings only when a minimally acceptable level of physical attractiveness was met; the attractive man with an unfavorable description would likely be rated higher than an unattractive man with a moderately favorable description. We found that both women and their parents were strongly influenced by the physical attractiveness of the target men. Men with the most favorable personality profiles were rated more favorably than attractive men only when they were at least moderately attractive. Unattractive men were always rated less favorably than attractive men, regardless of the accompanying trait profile, supporting our hypothesis.

ENERGY AUDIT ON EASTFORD ELEMENTARY SCHOOL IN CONNECTICUT

Hannah Cheney & Sean Bodnar

(Environmental Earth Science)

Faculty Mentor: Paul Torcellini

U.S. school districts spend \$6 billion each year on energy, which is only a little less than they spend on salaries. Kindergarten through high school buildings in the U.S. spend an average of 67 cents per square foot on electricity and 19 cents/ft² on natural gas each year. In a typical school building, lighting and heating use the most energy, making those systems the best targets for energy savings. This study targeted an elementary school in Eastford, Connecticut with a goal to reduce energy consumption by 20% by creating an action plan to meet the targets. Research was done regarding the current energy consumption of the school building using data loggers to collect temperature data and boiler data, and also a photometer to measure the illuminance of the lights in both the hallways and the classroom, all in order to determine if the school is being over-lit or overheated so the proper corrections can be made to reduce energy consumption. After careful analysis of the collected data, it was found that there were multiple classrooms that were being over-lit with respect to their areas and the amount of sunlight they are receiving. Some rooms were also being overheated, and some of the thermostats were changed, meaning the rooms were being heated when they didn't need to be. Correction of the thermostats was implemented and suggestions were made to the school about using lights that only lit the room to the amount that is needed per m².

ANALYSIS OF THE MICROBIOME OF SCORPION GUTS FOR ANTIBIOTIC PRODUCTION

Yunsung Cho & Lauren Atkinson

(Health Sciences)

Faculty Mentor: Barbara Murdoch

Scorpions have persisted for millions of years with very few changes to their structure and have coevolved with pathogens. This means that as pathogens evolved, their mechanisms for infection and defense changed. In order to defend against these newly evolved pathogens, scorpions must have also evolved and changed in some way. Through their diet, scorpions are persistently exposed to deadly pathogens, yet scorpions are not adversely affected by these pathogens. What is it that protects scorpions from succumbing to these pathogens? Our research seeks to find an answer to this question. Our working hypothesis is that the scorpion microbiome, the collection of bacteria within a scorpion, comprises of bacteria that produce antibacterial molecules, which will play an essential role in the protection and survival of scorpions. Our aims are to i) isolate bacteria from the guts of *Hadrurus arizonensis* (Arizona hairy scorpion); ii) test the isolated bacterial colonies for antibiotic production; iii) using genetic analysis, determine the array of bacterial species isolated. Antibiotic production will be tested against safe relatives of ESKAPE pathogens, *B. subtilis* and *E. coli*. ESKAPE pathogens are the world's leading cause of hospital-acquired infections and are considered a global public health threat, because most are drug resistant. So far, twenty-six bacterial colonies have been isolated. Tests for antibiotic production are underway. Genetic analysis will identify bacterial species using PCR by detecting rDNA. At the completion of this project, we will have a better appreciation for the collection of bacterial species forming the scorpion microbiome and their ability to produce antibiotics. This project has implications applicable to the global health threat of antibiotic resistance, as it may reveal a novel source of antibiotics.

ALCOHOL BEHAVIORS AMONG UNDERGRADUATES: THE IMPACT OF MAJORS, SPIRITUALITY, AND FAMILIAL AND SOCIETAL INFLUENCES

Tara Alosky & Tracy Johns

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Binge drinking among college campuses is prevalent today. This research study aims to gain a better understanding of various factors that may influence college students' drinking behaviors. The purpose of this study is to examine the relationship between undergraduate student alcohol consumption and factors including their educational major, as well as with the spiritual, familial and societal aspects in their lives. Using availability sampling, data were collected through self-administered surveys to undergraduate students in a liberal arts university in the Northeast region of the country. The survey results will shed light on how higher education universities can more effectively respond to the drinking patterns among students from different disciplines on campus.

GUIDANCE COUNSELORS & COLLEGE PREPARATION

Tynia Cooper, Thomas Willingham, Carlos Vega & Fatama Sesay

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

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 aid 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.

HOW DO YOU IMPROVE YOUR TOWN, SPECIFICALLY LOOKING INTO WILLIMANTIC, CONNECTICUT?

Anthony Coss, Taryn McCabe, Ashlyn Hart & Natalia Torcaso

(Education)

Faculty Mentor: Mark Fabrizi

How can an education help 10th graders improve their community of Willimantic? Engagement with literature, writing, mathematics, and social studies are key components in answering this question. Throughout this mini-unit, a team of teachers is actively working to show high school students how school is not a separate entity from their community, but a resource that students can use to create positive change within their community. This mini-unit seeks to educate, enlighten, and empower students to become active citizens, mathematical problem solvers, informed advocates for change, political artists, and team players in a mock campaign. As a group, we have created 20 individual lesson plans that will adhere to the subject of community as it pertains to Willimantic. Conceptualizing the American political systems, as well as the role of a citizen, is crucial to the developing student in order to understand how they, as an individual, can contribute to the betterment of their own community. Starting with Social Studies, our students will learn what it means to be a contributing member of society during early American history, pertaining specifically to Willimantic. Students will look into primary documents from Willimantic town meetings to receive background knowledge of the roles citizens took in the community as well as the events that took place. In Language Arts, students will read Paul Fleischman's *Seedfolks*. They will reflect on the characters and their town and then write a proposal about how to improve Willimantic. The students will be able to understand their own role in shaping the community of Willimantic. Third, Mathematics instruction will have students manipulate and interpret statistics. The statistics will explain, through data, the problems in the Willimantic community. By interpreting these data sets, students can begin to draw conclusions and develop solutions to the problems that are most prevalent in Willimantic. With all that has been touched upon in the subjects Mathematics, Language Arts, and Social Studies/History, students will now start the project of running for office in Willimantic to show how they are able to contribute to the betterment of the community. This project will illustrate what students have learned during their academic engagement and perform a mock campaign by innovatively generating their own videos and political cartoons. Through our interdisciplinary instruction, tenth grade students will be able to reflect on themselves and their role in the Willimantic community. This mini-unit will give insight to students about how they can make a difference in Willimantic.

CONSTRUCTING 3D DIGITAL MODELS AND PHOTO LOGS OF JURASSIC CONGLOMERATES FOR SITES IN CENTRAL CONNECTICUT

Jennifer Croteau

(Environmental Earth Science)

Faculty Mentor: James (Drew) Hyatt

This study investigates the use of new imaging and mapping techniques to build 3D digital models and construct high-resolution photographic logs of conglomerates within the Newark geological terrane near Glastonbury, CT. These rocks record episodes of high-energy deposition from mountainous streams that existed approximately 200 Ma. These rocks are of interest for their paleoenvironmental significance and because of anticipated infrastructure improvements near the site. A Nikon D600 fullframe camera was used to collect detailed overlapping images for this research. Images were refined in Adobe Lightroom to adjust exposure, sharpness and white balance. Agisoft Photoscan (AP) photogrammetric software was used to build 3D models. This involved importing images into AP, aligning photos to determine their original locations and constructing a sparse point cloud. These points were then optimized to eliminate any obvious errors before generating a dense point cloud that consists of millions of X, Y, Z coordinates. Point clouds were converted to a mesh, and textured using image RGB color data. Finally, the model was scaled using calibrated photogrammetric markers included in the original images. These techniques were applied to images from the outcrop, rock cores boxes and selected individual core segments. As well, photos of the core boxes were used to create high quality, full-length image logs of each boxed core (in Adobe Photoshop). Model and/or point cloud data from AP are manipulated to visualize and measure the conglomerate further. For example, I am using Cloud Compare software to unroll a 3D core segment in order to examine and measure bedding, fractures and particle sizes. Similar analyses are possible for outcrop models. As well, model data were exported as .STL files and used to create 3D prints of portions of the outcrop. Techniques presented in this project illustrates the many new ways in which 3D modeling can be used for geological visualization and analysis.

DEVELOPING GEOLOGICAL LEARNING UNITS FOR COMMUNITY OUTREACH AND RECRUITMENT ENHANCEMENT

Luke Davis

(Environmental Earth Science)

Faculty Mentor: Dickson Cunningham

Developing Geological Learning Units for Community Outreach and Recruitment Enhancement Davis, Luke (Environmental Earth Science) Hands-on learning experiences in elementary science education are an effective means of stimulating children's curiosity and sustaining their attention and interest. Rocks, minerals and fossils are ideal materials to teach children about the Earth, its evolution and resources. Environmental Earth Science Department faculty visit local schools on an annual basis to teach about the wonders of our planet. This is part of the department's community outreach program to raise local awareness of the importance of earth science and the EES program at Eastern. We want to share our science with the surrounding community and also potentially attract future environmental earth science majors. In this project, 3 distinctive learning units were created using department samples to introduce children to: 1) fossils and their importance, 2) common rock-forming minerals and their uses, and 3) garnet, the state mineral of Connecticut. In addition, a separate Google Earth learning unit was created whereby students tour the planet and zoom in on specific geological settings and features to better understand geological processes and landforms. The Google Earth exercise is tailored for middle and

high school-age students. For all four exercises, accompanying booklets or study guides were created to pose questions and provide additional information to support student learning. The activities were designed to encourage completion and provide a sense of achievement. The learning units are boxed and re-usable; this will make it more convenient and time efficient for EES faculty in the future. In addition, a permanent department display on the bedrock geology of Connecticut was created for the 2nd-floor corridor of the Science Building using existing departmental materials and new rock samples collected during collecting trips to key localities in eastern CT. This display is a new educational resource for current EES students and future visitors to Eastern. In this poster, I will summarize the work that was carried out in developing these new educational resources as part of a summer, 2016 practicum that is tied to my EES interests and future plans to teach science at elementary-middle school level.

TEMPORAL CHANGES IN GENETIC DIVERSITY OF THE MASSACHUSETTS BREEDING POPULATION OF ROSEATE TERNS (STERNA DOUGALLII) FROM THE 1880S-2016

Jacob Dayton & Stefanos Stravoravdis

(Biology)

Faculty Mentor: Patricia Szczys

Understanding the impact of bottleneck effects on a species' overall genetic diversity, adaptive potential, level of inbreeding, and extinction risks are primary concerns of conservation geneticists. Specifically, the Northwestern Atlantic population of a migratory seabird, the Roseate Tern (*Sterna dougallii*), was federally enlisted as endangered in 1987 after experiencing severe population declines in the late 1800s with ongoing population fluctuations. To quantify this population's temporal changes in genetic diversity (i.e. allelic richness, heterozygosity, and haplotype, gene and nucleotide diversity), we are genotyping Roseate Terns (N=80) sampled from the 1880s ('pre-bottleneck'), 1990s, and 2016 at nuclear microsatellite markers and one partial mitochondrial cytochrome-b gene. Conclusions from these results will evaluate the effectiveness of the intensive conservation actions initiated in 1991 by the U.S. Fish and Wildlife Service, Massachusetts Audubon Society, and Massachusetts Natural Heritage and Endangered Species Program, and will ultimately inform ongoing management decisions that strive to retain genetic diversity.

POPULATION GENETIC ANALYSIS OF THE DECLINING NORTH AMERICAN BLACK TERN, CHLIDONIAS NIGER SURINAMENSIS

Megan Deacon, Melody Slater & Brittany Velikaneye

(Biology)

Faculty Mentor: Patricia Szczys

The North American Black Tern (*Chlidonias niger surinamensis*) is a wide-ranging, colonial water bird that spends the breeding season in wetlands of the Northern United States and Canada and winters on the coasts of Central America and northern South America along salt lagoons and estuaries. Between 1966 to ~2000, this species has experienced a steady annual decline of 3-5% across its North American breeding range. The decline is thought to be a consequence of deteriorating marsh quality due to drainage, human disturbance, and more frequent flooding. This study explores the effect of geographic distribution of the North American Black Tern on genetic diversity and differentiation among colonies.

It's aim is to describe dispersal patterns to target priority regions for conservation initiatives. DNA was extracted from the blood sampled from individuals breeding in Maine (N=14), Ontario (N=10), Michigan (N=11), Wisconsin (N=20), Nebraska (N=20), and Oregon (N=10) between 2005-2016. By assessing nuclear microsatellites (genetic markers) via PCR reactions, we can examine indices of genetic variability such as allelic richness and heterozygosity to infer genetic differentiation among colonies.

INVESTIGATING ODD-SKIPPED EXPRESSION PATTERNS IN C. ELEGANS

Elizabeth Del Buono

(Biology)

Faculty Mentor: Amy Groth

Caenorhabditis elegans has been a useful model nematode in biological research with its fast reproductive rate, transparent body, and small genome with about forty percent similarity to that of humans. Using *C. elegans*, we have examined and further characterized the role of the odd-skipped family of genes, a highly evolutionarily conserved gene family that has been associated with human developmental disease. Specifically, human genes odd-skipped related 1 (OSR1) and odd-skipped related 2 (OSR2) have been linked to cleft palate, cystic kidney disease, and other developmental disorders. *C. elegans* has two homologs of mammalian odd-skipped family genes, odd-1 and odd-2, which have been shown to be expressed in the gut of developing worms. We have further characterized the expression of these genes using green fluorescent reporter strains of *C. elegans*, and report that odd-1 appears to be strongly localized in the nucleoli of the posterior intestinal cells, while odd-2 appears to be expressed in the posterior intestinal nuclei and in rectal gland cells. To further define expression patterns, we are utilizing staining and immunohistochemical techniques to demonstrate the co-localization of a nucleolar antibody, DAO-5, with odd-1 expression. Additionally, to show that odd-2 is expressed in rectal gland cells, we are looking for co-localization with a red fluorescent rectal gland cell marker. Specifically, we have crossed a rectal gland cell reporter (*bus-1::dsred*) into both of our odd-skipped reporters to evaluate the specific areas in which odd-1 and odd-2 are expressed. Overall, we aim to further elucidate the roles of odd-1 and odd-2 in the development of *C. elegans* and gain insight into their roles in human diseases.

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

Alzheimer's Disease (AD) is a neurological disease that degrades a patient's brain caused by amyloid plaques that accumulate and result in memory loss and even death. AD is associated with low levels of beclin 1, a protein involved in autophagy and receptor recycling. Astrocytes are the most abundant cell in the brain that internalize and degrade plaques. We hypothesize that the low levels of this protein is impairing astrocyte phagocytosis of the plaques. By focusing on the effects of beclin 1 on astrocyte function, we have been able to reduce levels of beclin 1 in astrocyte C6 cells through successful transfection and perform a phagocytosis assay that resulted in a decrease in bead consumption. If

proven to be an underlying reason for astrocyte dysfunction, we will be capable of redirecting AD's treatment by focusing on trying to balance out the levels of beclin 1.

SOCIAL MEDIA INFLUENCES

Jessica Dodd

(Communication)

Faculty Mentor: Terri Toles-Patkin

I am going to present how social media influences and controls our thoughts and judgements on events, people, and situations. In our generation especially, we lack knowledge and are viably gullible to most things we read, without looking deeper into them. To accurately display this on a poster, I will be finding several facts on how many fake news sites there are to date, how the media effected the 2016 elections, what percent of our generation has Twitter, Instagram, Facebook, etc., and how that number has increased over each year. Politicians rely on social media to spread their message and to help themselves win over the eyes of the country.

STUDENT PERFORMANCE, MAJOR PROGRESSION, AND RETENTION

Sean Doherty

(Business Administration)

Faculty Mentor: Alex Citurs

Student retention is an issue plaguing institutions across the United States. Nearly forty percent of higher education students fail to complete their degree, with seventy five percent of those student dropping out after their first year. While there are a multitude of factors behind a students decision to leave higher education, this study will attempt to draw connections between student course progression, their performance in their classes, and their choice to drop out. I hope that the information uncovered by this study will allow for student advisers to help students pick a course progression that will have a higher chance of keeping them within the educational system.

THE EFFECT OF CHILDREN'S LITERATURE ON OVERALL STRESS AND CURRENT MOOD

Amber Dupont

(Psychology)

Faculty Mentor: James Diller

Anxiety and elevated stress levels can be problematic to college students who need to focus on their studies. This research experiment will study the effect of children's literature on current mood and overall stress levels in hopes of decreasing the intensity of these emotions among college students through the use of bibliotherapy. A group of college students who attend Eastern Connecticut State University will be asked to participate. After giving consent, participants will be asked to take surveys to measure their overall stress levels and current mood. After taking these surveys, half of them will read a children's book and the other half will read a brief informatory article. Immediately following the

reading, participants will be asked to retake the surveys to measure their overall stress levels and current mood. The Stress Rating Questionnaire will be used to measure students overall stress levels and the Current Mood Assessment to measure participant's current mood. It is hypothesized that as college student's overall stress increases, their current mood will become more negative. This hypothesis will be tested with a Pearson Correlation. It is also hypothesized that college students will be in a better mood after they are exposed to children's literature and will have less stress after exposure to children's literature. A Paired Samples T-test will be used to test this hypothesis. The information collected during this study can be used to provide college students who are experiencing high stress and unwanted emotions with more coping strategies.

EFFECTS OF ADVERSE LIFE EXPERIENCES ON COLLEGE MAJOR CHOICE

Adilsa Encarnacao, Janet Macon, Elizabeth Myers, Amber Naglie & Ashaya Nelson

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Research has suggested that life experiences have a great impact on individual's career choices (Sellers, Sherrill & Hunter, 2005), especially social work students seem to report a higher likelihood of having family trauma in their early life (Black, Jeffreys & Hartley, 1993). Studies show that one's experience with trauma in childhood may help their future practice in social work, such as enhancing their empathy and sensitivity for clients and increasing their familiarity with social welfare system and social work roles (Rompf & Royse, 1994). The purpose of this study is to examine if adverse life events affect a students' choice of major. We hypothesize that students in social work major are more likely to have experienced adverse life events as compared to their counterparts enrolled in other areas of study. Adverse life events are measured by twenty questions modified from the World Health Organization's (WHO) Adverse Childhood Experiences International Questionnaire (ACE-IQ). Participants were asked about their parents' divorce, family death, illness, unemployment, abuse history and so forth. Using an availability sampling, participants were recruited through different majors of classes at Eastern Connecticut State University. The findings of this study will shed light on understanding the psychosocial trauma experiences students of different majors have and provide implications for both social work education and practice.

DETERMINING THE GEOTHERMAL PROPERTIES OF THE HARTFORD BASIN STRATIGRAPHIC COLUMN

Alexander Fazzino

(Environmental Earth Science)

Faculty Mentor: Stephen Nathan

Geothermal energy is a sustainable resource that is available 24/7. Ground source heat pumps (GSHP) are systems that tap into the Earth's natural energy source, or sink, depending on the season. To help engineers design more effective and reliable heat pumps, which can increase the efficiency of heating and cooling a building, we set out to determine the geothermal properties of rocks found in the Hartford Basin. Depending on the types of underlying rocks, certain formations in the Hartford Basin have higher thermal conductivities, which makes them more suitable for trapping the Earth's energy. When

designing a GSHP, engineers use thermal conductivity data from outcrops. For this study we compared outcrop thermal conductivities to those of bedrock cores in which heat pumps are actually installed. To obtain accurate data for this geothermal project, we used core samples (i.e., test borings) from the Metropolitan District Commission (MDC), who is building a tunnel for the City of Hartford. To determine the thermal conductivities of these rocks, samples were prepared and analyzed in collaboration with colleagues at UMass Amherst. We studied the thermal conductivities of the Holyoke Basalt, East Berlin Formation, Hampden Basalt, and the Portland Formation. Preliminary analysis of our pilot study concludes that thermal conductivities do vary between cores and outcrops. Specifically, the thermal conductivities of the basalts from our cores were significantly different from the reported National Geothermal Data System (NGDS) outcrop values. In contrast, the sedimentary rocks (East Berlin and Portland Formations) had outcrop and core thermal conductivities that were similar. Future work would be to correlate outcrop and core samples to determine a more accurate comparison.

KNOT THEORY IN SPACE HARMONY

Jonathan Gonzalez

(Mathematical Sciences)

Faculty Mentor: Mehdi Sarikhani-Khorami

In this poster presentation, I present the results of my interdisciplinary research project on applications of Knot Theory in Space Harmony. A mathematical knot is a tangled piece of string with the two ends attached. Space Harmony concerns the study of harmonized human movements in space. In the theory of Space Harmony, one is interested in understanding and encoding harmonized movements in space, movements that create a sense of balance in the body. Tracing the body of a dancer in space often gives rise to a mathematical knot. This is where the connection between the two fields originates from. From Knot Theory's point of view, a harmonized movement corresponds to a certain type of knot embedding that we refer to as a Harmonic Embedding. This poster will contain some of the harmonic embedding's that I've come up with, with help from Dr. Khorami.

THE CHINESE WINE INDUSTRY: EXPLORING NEW FRONTIERS FOR ONE OF THE WORLD'S OLDEST INDUSTRIES

Evann Goss-Lemelle

(Business Administration)

Faculty Mentor: Emiliano Villanueva

It's no secret that China has produced wine for thousands of years. However, due to recent economic growth, China has seen a recent boom in their wine industry. By using various research methods, I look to compile data to interpret the extent of this growth as well as gain an understanding of Chinese wine culture. The aspects of the industry examined include import and export data, production data as it compares to historical data and other major producers, consumption, and consumer demographics. The significance of this data gives an insight into trends which are not exclusive to China's wine industry, but reflect a transition occurring on a global scale.

UNCOVERING THE DIRT BEHIND GREENWASHING

Nicole Govert

(Health Sciences Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This paper will seek to analyze the effect 'Greenwashing', the dissemination of information by a corporation to present a more environmentally conscious public image, has on corporate activities. It will examine the reasons behind the use of greenwashing by companies such as consumer advocacy, competition, activist stress, and media pressure. It will also compare how greenwashing can be used as a positive marketing strategy that encourages companies to move towards greater sustainability juxtaposed with how it can be misused, eliminating transparency and misleading consumers. Greenwashing practices from large companies and industries spanning from energy to food will be studied and the implications of greenwashing for various stakeholders will be considered. Finally, this paper will seek to identify alternative mechanisms for companies that do use greenwashing in order to establish legitimacy and integrity around social responsibility issues.

THE EFFECT OF GENDER OF RECEIVER AND FREQUENCY OF TEXTING ON PERCEIVED QUALITY OF ROMANTIC RELATIONSHIPS AMONGST COLLEGE STUDENTS RECEIVING TEXTS

Joshua Henton

(Communication)

Faculty Mentor: Jehoon Jeon

Quality of relationships can be affected by many factors, the two that will be focused on are Gender and Frequency of text communication. Gender is crucial within relationships, since society dictates how both genders show act, and what roles they should play within the relationship. Gender then has a double affect, where the partner's gender affects how they perceive the quality of the relationship, based on their needs being met, safety, and overall satisfaction. Communication between partners is a part of this quality of relationship, and since text communication is one of the most common forms of communication, it's effect on relationships should be studied. But, with text communication, there is a difference where it can happen all the time, reaching a limit of too much communication. This study researches the affect that these two variables have on the perceived quality of relationships.

IS LEGALIZED, RECREATIONAL MARIJUANA GOOD FOR AMERICA?

Shannon Hill, Katherine Cutting, Jason Conn, Cassandra Morton & Gregory Scheiber

(Education)

Faculty Mentor: Mark Fabrizi

Cannabis has been used by many cultures around the world for thousands of years. Cannabis, commonly known as marijuana gained popularity in the United States in the late 1960's. Since then, medical properties have been discovered which has led to the legalization in most states in America to treat certain medical issues. In the past five years, several states have legalized marijuana for recreational use. The issue of recreational use has been a hot political topic at both the state and federal level. With

the recent acceptance of marijuana, scientists can more freely study the beneficial properties, use statistics and mathematical data to support their findings, and create literature to further educate the public. The question is, if marijuana is legalized for recreational use in every state across the country, will it be good for America? In biology, students will study what happens in the human body when marijuana is consumed, how long the effects last, and how long it is in one's system. In math, students will be provided statistics about recreational marijuana and learn how to comprehend, categorize, and graph the statistics. Also, students will learn how to deal with real world examples of running a dispensary. In history, students will research the previous legal uses of marijuana and the effects revenue has had on the economy. Students will hold a debate using information from both social and economic standpoints. With English, students will read both fiction and non-fiction texts exploring the impact of drug use on the individual and formulate their own opinions of the possible benefits and detriments. An interdisciplinary approach to teaching will help students understand the connections among academic content areas, and exploration of this particular topic will demonstrate the relevance and value of education in their lives.

PERFECTIONISM, LIFE SATISFACTION, AND SPIRITUALITY

Elizabeth Hilton

(Psychology)

Faculty Mentor: James Diller

Effortless Perfectionism is a type of perfectionism that emphasizes doing work perfectly while showing no visible effort (Travers, Randall, Bryant, Conley, & Bohnert, 2015). With the limited research on effortless perfectionism, this study aims to begin its preliminary research by first comparing effortless perfectionism to two types of well-researched perfectionisms: adaptive and maladaptive perfectionism and, secondly, to two common variables in the perfectionism literature: life satisfaction and spirituality. Based on previous research, it is hypothesized that higher scores of effortless perfectionism will correlate with higher scores of maladaptive perfectionisms and lower scores on both life satisfaction and spirituality. A sample size of 100 students ($N = 100$, $n = 55$ females, $n = 45$ males) from Eastern Connecticut State University and additional participants from an online source will be asked to fill out an informed consent form, a packet of measures, a demographic form and a debriefing form. The expected results are that there will be a significant positive relation between effortless perfectionism and maladaptive perfectionism and significant negative relations of effortless perfectionism with life satisfaction and spirituality. In addition to adding to the literature of effortless perfectionism and providing ideas for future research, this study suggests ways these results could inform counseling services on college campuses to help college students who are struggling with perfectionism.

A STATISTICAL ANALYSIS OF ECONOMIC POLICIES TO MITIGATE OCEAN POLLUTION

Phillip Hoeps

(Economics)

Faculty Mentor: Jennifer Brown

Ocean pollution and degradation proves to be an almost unquantifiable problem, which has, in the past, been viewed from a very narrow lens. Research has focused on individual topics, such as over-fishing,

agricultural run-off, plastic pollution, or bycatch, but such a specific approach often treats problems and solutions as separate entities. This study aims to address this gap in the literature by examining economic solutions to ocean pollution, which can be easily and generally applied. To this extent, various economic constructs, such as Pigouvian and leviathan taxes, self-governing institutions, and Tradeable Environmental Allowances, are examined. To compare these policies, three categories for analysis are established: implementability, efficacy, and impartiality. Implementability, measured by the costs of implementation, the benefits of implementation, and the costs of maintaining the policy, is important to gauge the likelihood of a government to adopt a policy. Efficacy assesses the odds of a policy succeeding, based on the successes of similar policies in the past. Impartiality assesses the effect a policy will have on an individual's ability to access the market, both as a consumer and a producer. Using data representing these three measures, this study found that Tradeable Environmental Allowances with a universal trading fee were the optimal economic policy to limit ocean pollution. This policy would allow for all parties with a vested interest in a resource to engage in open market trade for it, while still providing a revenue source to governments, allowing for expenditures such as clean-up initiatives or funding for research, as stated in the double dividend hypothesis.

BRINGING DOWN THE HOUSE: THE EFFECTS OF EXPONENTIAL POPULATION GROWTH

Kathryn Jankura, Samantha Walter, Zachary Loughead & Jena Cardoso

(Education)

Faculty Mentor: Mark Fabrizi

How will the projected population growth affect future generations? What exactly is the future population increase, what has been the trend in history, and how will this affect the environment and future generations? Now more than ever, population is increasing throughout the world. This exponential population increase is a result of various factors such as medically advanced technology, a focus on health and wellness, easy access to food sources, and a decrease in infant mortality. Students in American classrooms need to learn about the causes and effects of overpopulation and how to address this growth because it will affect generations to come. In order to make students aware of this current issue, our cross-curricular project is composed of twenty lesson plans about the topic of population growth for eleventh grade students in four content areas. For English, students will read literature on population growth and creatively envision their own lives with the projected growth. For mathematics, students will be analyzing different countries around the world, and creating population profiles, focusing on how the population of that country has changed over time. Students will create graphs and make projections about their country's future population. In earth science, students will study sustainability and how it relates to population growth, making predictions about the future based on changes in earth's geology in response to the exponentially increasing population. In history, students will study past population growth within the United States in particular and the particular reasons behind exponential population growth in the past. Population growth is a relevant topic regarding eleventh grade students because it focuses on family, community, and national effects. Once students have developed their knowledge in the topic of population growth, they will be able to understand how big of an impact their personal actions have regarding the rest of the world.

CORRELATION OF CONGLOMERITIC FACIES IN THE LOWER JURASSIC EAST BERLIN AND LOWER PORTLAND FORMATIONS NEAR THE EASTERN BORDER FAULT, HARTFORD BASIN, CT

Christopher Kaminski

(Environmental Earth Science)

Faculty Mentor: Peter Drzewiecki

Recently collected cores from the Access Northeast Connecticut River Crossing project reveal a prolonged period of coarse clastic deposition associated with a relay zone in the Eastern Border Fault system of the Hartford Basin. Rift basin border faults are commonly composed of several normal faults separated by relay zones containing topographic lows wherein rivers commonly enter the basin. The cores, along with a nearby outcrop, suggest that this area was a point source for sediment entering the Hartford Basin for a prolonged time. The cores were collected in the Hartford Basin, straddling the boundary of Glastonbury and Rocky Hill, CT, and were obtained during gas line surveying under the Connecticut River. Five cores were described (information was obtained from engineering reports for an additional core) spanning a 0.5 km transect, all within 2.5 km of the basin margin. Additional data was collected from an outcrop located at the Dufford Sand Pit, in Portland, CT, 1 km to the southeast of core locations. The area of the cores and outcrop was interpreted to be a relay zone between two segments of the Eastern Border Fault system based on fault geometry. The cores are composed primarily of the Lower Jurassic Hampden Basalt with lesser amounts of the underlying East Berlin and overlying Portland Formations (both Lower Jurassic). The Hampden Basalt is light to dark grey in color, with open and filled vesicles and common fracturing. The Portland Formation is made up of cobble and pebble conglomerate displaying clast imbrication, interbedded with planar-bedded sandstone units with some crinkly laminae. The East Berlin Formation is characterized by coarse planar-bedded sandstone and conglomerate, and shows a gradual coarsening towards the Eastern Border Fault. All stratigraphic intervals were correlated using the Hampden Basalt as a datum, and placing faults between cores to compensate for offset beds. Correlation to the Dufford outcrop is poorly constrained. The cores indicate that there was long-term point source for deposition of sediment into the Hartford Basin in this location, at an interpreted relay between two fault segments. The faults represent the primary control on facies distribution along the syndepositional Eastern Border Fault, with superimposed climate controls reflected in the finer-grained sediments.

AN INTERDISCIPLINARY APPROACH: THE EVOLUTION OF IMMIGRATION**Kristina Knapp, Morgan Guimond, Sheyland Young, Francis Saraceni & Overian Gordon**

(Education)

Faculty Mentor: Mark Fabrizi

Central Question: 'How has immigration evolved over the last century?' Student Population: Grade 11
 Throughout the history of the United States, immigration has formed the backbone of the country. Even the central metaphor of our population – “the Melting Pot” – suggests the significance of our immigrant population. In today's political world, increasing emphasis has been placed on immigration, leaving adolescents with numerous questions and concerns about the issue. This presentation will outline a week-long interdisciplinary unit in which eleventh-grade students will focus on answering the question: 'How has immigration evolved over the last century?' They will explore the question across the core subject areas of English, history, and math to address how immigration patterns have changed as well as our perceptions of immigrants themselves. Students in an English class will examine different cultural attitudes relevant to the issue through the study of fiction and nonfiction texts from the U.S and other

countries. Students will develop an understanding of how the American dream is reflected today, how it is portrayed in forms of poetry like that of Langston Hughes, and how workers can become jaded through the example of Death of a Salesman. Students in mathematics class will look into the various races and religions of immigrants over the past century and use linear regression to interpret graphs and data sets. In addition, math students will explore the differences in immigration over the past century using real data sets including the numbers of immigrants in the past century, interpreting the correlation coefficient and residual points. A history classroom will go back and look at the reasons that immigrants had for migrating, examining policy changes in immigration to compare and contrast the most recent immigration changes with policies from over the last century. Overall, this unit will teach students how immigration has changed, not only for finding a new home or better living prospects, but the influences on our culture today.

SOCIAL NETWORK ANALYSIS USING GRAPH THEORY

Haley Knox

(Mathematical Sciences)

Faculty Mentor: Megan Heenehan

Social networks provide insight into how individuals are connected as communities, and the role that each individual plays. We can identify when someone is the leader of a community, when someone bridges different communities, and brokers who connect otherwise disconnected individuals. Social networks can be modeled by graphs with people as vertices, and edges as connections, such as friendships or exchange of emails. For example, given data from a company consisting of 1,700 employees, Guimarães, Danon, Díaz-Guilera, Giralt, and Arenas identified the informal communities that form as a result of the network of emails among employees using graph theoretic techniques. In this poster, we will present the techniques that Guimarães et al. used to identify the correlation of the different departments, and individuals' roles within their department. The structure of the network can provide key information to help understand the role of departments and individuals for successful management. I plan to apply these techniques to the network created by the spread of fake news to identify similar correlations.

EXERCISE ADHERENCE PERCEPTION BETWEEN PHYSICALLY ACTIVE AND INACTIVE COLLEGE STUDENTS

Melody Kramarz & Tyler Oquendo

(Kinesiology & Physical Education)

Faculty Mentor: Anita Lee

About 60-85% of the world's population is considered inactive (WHO, 2002). Research shows that sedentary lifestyles increase all types of mortality (WHO, 2002). Of individuals who start an exercise program, only about 45-60% persist (Dishman, 1988). In order to increase exercise adherence, researchers need to examine non-exercisers' perceptions of exercise and how these can be altered to mirror those of a consistent exerciser. The research questions for the present study were: (a) how do the exercisers' perceptions differ; (b) what variables of self-efficacy, intent or motivation can be detected from the subjects' responses. The exerciser exercises six days a week for about one hour per

session, and intends to persist; the non-exerciser wants to start regular exercise but cannot adhere to a program (N=2). The hypotheses are; (a) the exerciser would display positive self-efficacy, intent and self-determination; (b) the non-exerciser would have little to no intent, self-determination and self-efficacy (c) the exerciser would perceive exercise as necessary, enjoyable, self-fulfilling (d) the non-exerciser would perceive exercise as hard, sometimes unpleasant and not a priority; and (e) the exerciser would display intrinsic motivation and the non-exerciser would display extrinsic motivation and amotivation. A questionnaire was adapted from Roberts, et.al. (1999, p. 182). Results were that the exerciser showed unrestrained self-efficacy, had uncontemplated intent to exercise, and had heightened intrinsic motivation. The non-exerciser showed low-self-efficacy, competence, self-determination and intent and expressed extrinsic motivation to exercise. The results of this study give future researchers examples of perceptions that need to be altered in order to increase exercise adherence.

HOW DOES ECONOMY INFLUENCE THE GLOBAL 'FOOD CRISIS'?

Alexus Maschinot, Devin Stanley, Jeffrey Stalaboin & David Helmin

(Education)

Faculty Mentor: Mark Fabrizi

Working with educators from different content areas can be challenging for even the most experienced teacher. However, merging math, science, social studies, and family and consumer science curriculum around a big-picture idea is an effective method of instruction. Interdisciplinary instruction requires educators to embed appropriate topics connected with a major theme. The benefit of this will allow learners to reinforce knowledge from class to class. Here, a team of interdisciplinary teacher candidates developed mini-units designed for a student population of urban tenth-graders to explore the essential question: how economy influences the global 'food crisis'. Each discipline used content specific learning objectives in order to connect concepts that relate back to the essential question. In biology, students will learn how pollution of the atmosphere hinders crop production and increases the cost of goods, affecting the overall economy and human nutrition. In social studies, students will study the economic damage caused by the Dust Bowl and find connections between this and the Great Depression. In mathematics, students will learn the fundamental statistics and economic reasonings that demonstrate how significant the global food crisis is based on topics such as the percentage of people that suffer as a result of food shortage, and how much food is wasted on a yearly basis. Mathematical models will also be examined to demonstrate what can be done based on current economic evidence, and what will happen if the world remains stagnant. In family and consumer sciences students will research the ever-changing options families have in selecting food despite global warming. Particular attention will be paid to current trends in how food is viewed; regionally available choices of food, the over-marketing of processed food, and the farm to table concept and its impact on local economies.

RECOGNIZING MOVEMENT SCALES THROUGH GEOMETRIC SHAPES

Kerri McColgan

(Performing Arts)

Faculty Mentor: Kristen Morgan

The human body operates on various scales in order to move through space. Movement practitioners, such as choreographers and kinesiologists, have developed various methods of recording these scales. In the early part of the 20th century, Hungarian choreographer Rudolf Laban developed a method of notation, which is now referred to as Laban Movement Analysis, and widely used by movement specialists. My research explores the representation of Laban Movement in physical space. One of the most basic scales on which the body operates can be demonstrated through the use of a geometric cube. The idea behind the research is to create an oversized geometric cube, in which a person can physically move to the different points on the scale. Each corner of the cube represents a point on the Laban scale. These points have been painted in relation to Sir Isaac Newton's color theory, so that the participant can clearly visualize the points on the scale. Additionally, the cube has been wired with sonar sensors, which detect movement to the corners, triggering a related musical tone, providing an auditory response to the participant's movement. Overall, the participant can have a sensory experience while exploring movement in various ways through the provided space.

COMPARING REGIONAL DIFFERENCES IN VIDEO-GAME RELATED TWEETS ACROSS THE UNITED STATES

Kevin Molyneaux

(Computer Science)

Faculty Mentor: Garrett Dancik

Twitter is a social network that is used by many to communicate with one another by posting messages. These messages are known as tweets, which can have up to 140 characters of text and can also include photos and videos. Because tweets are public, Twitter provides a large amount of information that can be used for research purposes. Twitter is also used for marketing. For example, an analysis of electronic cigarette (e-cigarette) references on Twitter found that tweets related to e-cigarettes were overwhelmingly commercial in origin, and that a large proportion mentioned the end of smoking. In this project, we collected tweets containing keywords including 'Nintendo', 'Playstation', and 'Xbox', and grouped tweets by region in the United States, with regions divided into western, northern, eastern, and southeastern. We used the R programming language to retrieve and analyze the Twitter data, in order to identify regional differences in video-game related tweets. This information will be valuable to gaming companies seeking to understand their social media presence and to improve their marketing efforts.

QUANTIFYING SEDIMENT DEPOSITION SINCE THE CONSTRUCTION OF THE POINT JUDITH, RHODE ISLAND HARBOR OF REFUGE BREAKWATER USING SEISMIC REFLECTION PROFILES

Cody Murphy

(Environmental Earth Science)

Faculty Mentor: Bryan Oakley

The Point Judith Harbor of Refuge (HOR), a breakwater harbor completed in 1914 at the eastern end of the Rhode Island south shore (RISS) was surveyed as part of a larger seismic reflection survey in 2016. A distinct, acoustically transparent reflector in the center of the HOR is distinctly different from the adjacent shoreface. The interpretation is that this reflector represents sediment deposited post-1914, and the HOR is a sediment sink at the end of the (net) longshore sediment transport direction for the

RISS. An additional significant sink is the ebb-tidal delta at the Point Judith inlet. The volume of sediment deposited post-construction is estimated at 2,800,000 m³. A qualitative estimate based on the changes in water depth between a 1913 lead line survey (depth was adjusted for sea level rise) and a 2009 hydrographic survey reports a slightly lower volume (2,200,000 m³). The hydrographic data suggests sediment eroded (340,000 m³) from the upper shoreface could not account for much of this sediment, making longshore transport from adjacent shoreline the likely source. While the interpretation is that much of sediment deposited is likely sand, there also anomalous reflectors within this unit (possibly gas). Verification would require sediment coring. Previous work calculated a sedimentation rate of ~10,000 m³yr⁻¹ (or ~ 1,000,000 m³ in 100 years) on the flood tidal delta within Point Judith Pond. The sediment volume deposited in the HOR was at least double that estimate (22,000 - 29,000 m³ yr⁻¹). Taken together this suggests the HOR is an important component of the RISS sediment budget

SOCIAL ANXIETY AND ALCOHOL USE AS PREDICTORS OF SLEEP QUALITY AMONG COLLEGE STUDENTS

Katie Nelson

(Psychology)

Faculty Mentor: James Diller

Past research has suggested that individuals with Social Anxiety Disorder (SAD) may be at a higher risk for developing an Alcohol Use Disorder (AUD), than those without SAD. Other previous work has found that there is a strong relationship between poor sleep quality and high rates of alcohol consumption. However, there is little current research that examines the possibility of SAD and rates of alcohol consumption as predictors of sleep quality among college-aged students. The current study aims to analyze the effect of these variables on sleep quality with current students from Eastern Connecticut State University using survey methods. Anxiety will be measured with a revised version of the Social Anxiety and Avoidance Scale for adolescents, sleep quality will be measured with the Pittsburg Sleep Quality Index, and alcohol frequency of use will be measured with a revised version of the Risky Drinking Questionnaire. It is hypothesized that there will be a negative correlation between SAD and sleep quality. A negative correlation between sleep quality and frequency of alcohol use is expected among participants, individuals who engage in more frequent alcohol use will report lower quality sleep. Finally, a positive correlation is expected between SAD and frequency of alcohol use, participants that exhibit higher levels of SAD will in turn engage in more frequent alcohol use. Keywords: social anxiety, alcohol drinking patterns, sleep quality

THE DIRTY TRUTH BEHIND CLEANING PRODUCTS

Lindsay Pattavina

(Education Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

The purpose of this research is to examine how the responsibility to investigate corporate greenwashing of household cleaning products has fallen to the consumers in the absence of strict regulations on chemical ingredients and labeling. Greenwashing is defined by the Oxford English Dictionary as,

'Misleading publicity or propaganda disseminated by an organization, etc., so as to present an environmentally responsible public image.' TerraChoice, a widely-referenced environmental marketing consultancy, released a report in 2010 saying that household cleaning products are, 'among the worst greenwash offenders,' which is due in part to the lack of regulations for eco-friendly advertising certification. This raises questions about the responsibility of the Federal Trade Commission and the Environmental Protection Agency to be stricter and provide more defined regulations. In this paper, the current regulations as well as ways to improve upon them will be discussed.

THE IMPACT OF ROBOTICS ON SOCIETY

Dalton Piecka, Merin Chiramel, Tyler Hinde & Michaela Anderson

(Education)

Faculty Mentor: Mark Fabrizi

Robots have become fundamental to human survival; however, as with most new technological advancements, there are pushbacks. Will robots follow the course of some science fiction story in which humans suffer at the hands of an out-of-control artificial intelligence? Or is this an exaggerated idea that ignores the possibility of human ingenuity to use robots to benefit society? In this interdisciplinary teaching unit, 10th grade English, Social Studies, Math, and Biology teachers will collaborate to effectively teach the curriculum of each discipline while meeting the Common Core State Standards. The unit will focus on a common theme of the impact of robotics on society, using the following three essential questions: (1) How and for what purposes are robots used, (2) How can robots change society? and (3) What are the benefits and drawbacks of robots replacing human labor? This theme will engage the students, teach curriculum through an interesting and relevant topic, and provide students with a context for their learning that stretches across four disciplines. The English class will read a collection of science fiction stories, watch scenes from Chaplin's *Modern Times*, and participate in a Socratic seminar to discuss the positive and negative impact of robotics on society. Math students will create a robot that moves a specified distance straight ahead and turns a specified number of degrees, relating the distance to the product of circumference of the wheels and the number of revolutions. The Social Studies course will focus on the development of robotics within American industries during the 1990's in order to understand the development and lasting impact of robotics. In Biology, students will research the advancing field of Biorobotics, found at the intersection of bio-mechanics and neural-engineering, to discover how Biorobotics allow humans to defy natural consequences that pose a threat to the survival of the human race and other keystone species.

IMPACT OF CROSSFIT ON PHYSICAL FITNESS AND AFFECT FOR AN INDIVIDUAL WITH A SPINAL CORD INJURY

Mischak Potter-Rivera

(Health Sciences)

Faculty Mentor: Michelle Ferrer

The objective of this study is to identify any physical fitness and affect benefits that a CrossFit training regime could give an individual with a spinal cord injury (SCI). The specific benefits of CrossFit for individuals with SCI are lacking scholarly research and literature. CrossFit gyms have been working to

adapt training in order to include any and everyone with great success; however they have not been officially documenting the direct benefits that individuals with SCI have been receiving from partaking in this exercise routine. This study was designed to address that identified need. This study follows one subject with S.C.I as they are introduced to CrossFit and tracks both the potential physiological and psychological impact of participating in CrossFit.

RECYCLE WITH FRIENDS: PROTOTYPING A MOBILE APP

Eric Price

(Business Administration)

Faculty Mentor: Sukeshini Grandhi

The objective of this project was to conceptually design and test a prototype of an app to aid recycling, using user-centric design principles. The motivation for this project comes from both our observations as well as a Minsk Study published in 2010 (Miafodzyeva, Brandt, & Olsson, 2010) that highlighted the different attitudes and motivations for recycling in that of many young adults/youth/people, who have trouble recycling, either due to no motivation for recycling or due to lack of knowledge of recyclable items. Our design process consisted of five phases each informing the next. We began with a need-finding phase where we interviewed potential consumers of this app. Through interviews, we found that potential consumers lacked motivation to separate their trash and recycling into proper receptacles but felt that they would be more inclined to recycle given an external catalyst. This led us to identify broad goals for our app design, namely to produce an app where people become more inclined to recycle and to inform the public to help recycle. To motivate users, the app would function partly as a competitive social media app where you score points for scanning and recycling items. The number of points collected is stored and competitively compared to peers. To inform users about what items are recyclable the app will allow for discovering items that are recyclable along with lists of common misconceptions and recyclables by scanning barcodes of certain items and exploring stored recycling information. The next phase was to test the app for usability and understanding using a paper prototype. Testers consisted of university students who performed 5 tasks that covered various functionalities implemented in the design. To collect both qualitative and quantitative data, we timed each task the users performed, as well as recorded the number of hesitations of the user in performing various steps to accomplish a task. We found that users performed well in setting up a profile and scanning items, but struggled with certain features such as scrolling. After analyzing the results, we adjusted the app to be more user friendly. Together using the above user-centric approach to designing interfaces for technology, we understood and appreciated the process involved in conceptualizing, designing, testing and implementing an app.

THE RELATIONSHIP BETWEEN PAX GENES AND ODD-SKIPPED GENES IN CAENORHABDITIS ELEGANS

Jonathan Rappi & Rebecca DeFeo

(Biology)

Faculty Mentor: Amy Groth

Both odd-skipped and pax genes play important roles in regulating whether genes are activated or not. Pax genes influence skeletal development and cell-death resistance. Odd-skipped genes are found to be crucial in certain areas in humans including kidney, heart, and gut development, as well as cancer. An over-expression of odd-skipped-related-2 has been linked to gastric cancer and therefore any new links found between odd-skipped genes and other developmentally crucial genes could give new leads for treating human cancer and developmental abnormalities. *Caenorhabditis elegans* (*C. elegans*) is a nematode worm that is commonly used for developmental research due to their simplicity, transparent skin, and ability to be easily manipulated. The five *C. elegans* pax genes are pax-1, pax-2, pax-3, vab-3 and egl-38, but this experiment will focus on pax-3 and egl-38. For these experiments, the *C. elegans* odd genes will be inhibited by RNA interference (RNAi), a method that turns off genes. RNAi works better in worms with a mutation in a gene called *eri-1*, thus this mutation was crossed into worms containing pax-3 and egl-38 fluorescent reporters to increase RNAi sensitivity. To view the expression of these genes, egl-38 is tagged with green fluorescent protein (GFP) while pax-3 is tagged with red fluorescent protein (RFP) so cells that express these genes will glow. Using RNAi, which inhibits the expression of genes, we plan to knock down the function of odd-1 and odd-2 to determine if they affect the expression of pax-3 and egl-38 genes. If these strains are affected by the odd-skipped genes, we will see a different pattern of fluorescent cells.

SAMSON OCCOM'S LIFE AND LEGACY

Jacqueline Ray

(History)

Faculty Mentor: Thomas Balcerski

Samson Occom's life and legacy is often overlooked within Connecticut history, which is why we would like to present a poster panel on this topic. Occom, a praying Mohegan Indian, helped found Dartmouth while under the tutelage of Eleazar Wheelock around the time of The Great Awakening. In his later years, he continued his passion of teaching fellow Indians before creating and settling Brothertown, New York. Occom stands out in Connecticut history due to his unique circumstances; his conversion to Christianity combined with his extensive education under Wheelock granted him the opportunity to bring a positive light to praying Indians during the time period. Although American Indians that rejected conversion initially mocked Occom, today he is recognized with pride by the Mohegan tribe. Our poster panel will be a visual representation of this case study, including a timeline consisting of major life events during Occom's life and subsequent legacies. The oral aspect of the presentation will provide a narrative, fleshing out the details of his accomplishments. Primary sources that we have accrued are his sermon 'The Execution of Moses Paul,' as well as his personal diary and correspondence with Wheelock; ¾ these sources have been gifted to Eastern Connecticut State Universities's Connecticut Studies by Dartmouth. To supplement we have a number of secondary sources including W. DeLoss Love's renowned book Samson Occom and the Christian Indians of New England. Occom's life and legacy is worth sharing because of the role he played between colonist and native societies.

DESIGN FOR TWO GENTLEMEN OF VERONA

Nicole Rivera, Megan O'Brien & Daniel Chevalier

(Performing Arts)

Faculty Mentor: Kristen Morgan

Nicole Rivera, Megan O'Brien, and Dan Chevalier designed the public performances of *Two Gentlemen of Verona: a Musical*. These performances, directed by faculty member David Pellegrini, were part of the Theatre Program's main stage season. This 1970's rock musical was adapted from William Shakespeare's *Two Gentlemen of Verona* and deals with themes of love and betrayal. In order to create a theatrical design, one must first develop a concept that frames the entire production. Scenic, Lighting, and Projection Designers must research and analyze the play, collaborate with the director and each other to establish a concept based on its themes, and gather supporting visual research. Once the design is finalized, designers work with a creative team to realize the design for public performances. This creative process formed the work structure for the student designers; Nicole Rivera (Scenic), Megan O'Brien (Lighting), and Dan Chevalier (Projections). This presentation includes research images, a three-dimensional model, and production photos.

FREEDOM OF EXPRESSION IN AMERICA

Dominic Rizzitano

(Communication)

Faculty Mentor: Terri Toles-Patkin

For my create project, I want to focus on the Freedom of expression. My goal for the project is to learn and understand how it has been restricted throughout the history of America. I also want to show in my research how people who have told stories anonymously have caused some controversy in court cases. For example, the Espionage Act of 1917 had a role in freedom of expression. The major point that I would want to accomplish in my project is to have an overview of how freedom of speech is affected in modern day America. The project will be looking at how it has affected the past election and media today as well.

UNDERSTANDING THE RELATIONSHIP BETWEEN PRIMARY LANGUAGE USE & PARENTAL INVOLVEMENT IN MIDDLE SCHOOL

Elizabeth Rodriguez, Chelsea Houston, Megan Doyle, Joey Wnuk & Kaeshla Vega

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Middle school is a crucial transitioning process. Parental involvement in schools can help to encourage their children as well as to address any concerns parents may have about their child's education. However, language barriers may hamper parents or guardians from being actively involved in school events. To further understand the impact of language use, we compare the parental involvement of Spanish-speaking parents to that of English-speaking parents in middle schools. Parental involvement in schools is defined as participating in PTO meetings, attending the school's open house, chaperoning field trips, and making appointments for parent-teacher conferences in the study. Through available sampling, the self-administered survey questionnaires in English and Spanish versions were distributed to parents of students from middle school in the Northeastern region of Connecticut. Study findings will

raise the awareness of the difficulties experienced by Spanish-speaking parents and therefore will inform more efforts of the school to increase parental involvement despite language barrier.

SOCIAL MEDIA AND BODY ESTEEM

Christina Rossomando

(Communication)

Faculty Mentor: Jehoon Jeon

Social media has taken over the lives of many, and has shown many negative correlations relating to college-aged individuals and the way they view their bodies and how much they compare themselves to others. All the different types of social media provide a world of opportunity for individuals to compare themselves to advertisements and many unrealistic body expectations. The problem at hand is the negative connection between social media, age group and how it relates to body esteem and social comparison. This research study will look at the way social media negatively impacts society, especially college-aged students. I am hoping to uncover what types of media, advertisements and sites cause the greatest chance for social comparison and lack of body esteem.

TROPHY HUNTING AND ETHICS

Kayla Royce

(Communication)

Faculty Mentor: Terri Toles-Patkin

There is a lot of controversy when it comes to trophy hunting or the hunting for sport. Looking from an ethical standpoint this type of hunting should not be permitted. People who hunt for food have every right to because it is done with a legitimate purpose. Hunting just for entertainment is wrong. Nothing is actually being gained from it. Looking at the fundamental principles of ethics, specifically the Principle of Beneficence and the Principle of Nonmaleficence, it is clear that trophy hunting cannot be considered ethical. There is no good coming from those actions and harm is being done to the animal and that entire species. Other animals do not hunt for sport therefore neither should humans.

CUSTOMER SATISFACTION MEASUREMENT BASED ON DINESERV SCALE AT WILLIMANTIC BREWING COMPANY

Cayla Ruiz & Majesta Brouillette

(Business Administration)

Faculty Mentor: Fatma Pakdil

Increasing customer satisfaction is one of the core competencies for service organizations. In the light of this fact, service delivery organizations aim to maximize their customer satisfaction level. In the project of BUS 260 Operations Management class at Eastern, we measured customer satisfaction based on DINESERV scale at Willimantic Brewing Co. To create the questionnaire, previous studies on DINESERV were analyzed. In the data collection stage, we collected 500 customers' responses in two weeks. Next,

we analyzed data using SPSS 22.0 and determined what areas should be improved in order to increase customer satisfaction at Willimantic Brewing Co.

THE EFFECT OF MICROGRAVITY ON THE GROWTH AND FUNCTION OF NEURAL CELLS

Benjamin Rumrill & Kailey Pisko

(Biology)

Faculty Mentor: Barbara Murdoch

Space exploration has continued to rapidly advance over the past sixty years. As more missions were completed, scientists began to notice the possible health risks of spaceflight. In 2012, NASA scientists discovered that spaceflight can harm an astronaut's cognitive abilities and increase the chances for early onset Alzheimer's disease. Additional deficits caused by spaceflight included lapses of attention and reduced reaction times. Focusing on the nervous system, our working hypothesis regarding these deficits is that the microgravity experienced during spaceflight impairs the function of neural stem cells. Stem cells are found throughout the body, including the nervous system, and serve to replace cells following cell death. Impairing the ability of neural stem cells to replace the cells of the brain -neurons and glia- may explain the cognitive changes seen after spaceflight. To test our hypothesis, we first needed to develop an assay to grow brain cells in the lab. We isolated cells from the brain of chicken embryos and cultured them with growth factors, to stimulate cell division and the production of neurospheres. Neurospheres are non-adherent clusters of cells formed from dividing cells. Under the appropriate conditions, these dividing cells can go on to form neurons and glia. This 'neurosphere' assay, allows us to quantitate and test for the ability of dividing cells to contribute to the cell types of the brain. So far, we have grown neurospheres from chick brains in the lab and using fluorescent labels with confocal microscopy, tested our ability to make neurons and glia. Once the assay can be replicated accurately in normal conditions, additional experiments will test for changes in neurosphere and cell production when cells are grown in simulated microgravity. We hope to see a difference in the number or proportions of neurons and glia produced in microgravity as compared to normal conditions. If the production of neurons and glia is affected by microgravity, it may explain the cognitive deficits found in astronauts after spaceflight.

CHARACTERIZATION OF MEDICAGO TRUNCATULA MUTANTS DEFECTIVE IN SYMBIOTIC NITROGEN FIXATION

Ramis Saleem

(Biology)

Faculty Mentor: Vijaykumar Veerappan

The legume plant *Medicago truncatula* or commonly known as the 'Barrel Medic' is part of the bean family. However, what differentiates it from the rest is its ability to form symbioses with soil bacteria collectively called 'Rhizobia'. This mutualistic relationship allows *M. truncatula* to repurpose Rhizobia bacteria as their personal slaves, trapping them within their specialized nitrogen fixating organs called nodules. In these structures, the perfect biochemical environment is created for symbiotic nitrogen fixation (SNF) to take place. For the Rhizobia to survive in their new prison they must exchange their newly bioavailable nitrogen with their host in return for the photo-assimilates (sugars) produced by *M.*

truncatula. SNF eliminates *M. truncatula*'s dependence on industrial fertilizers in nitrogen poor environments simply because it with an unlimited supply of nitrogen from the atmosphere by utilizing rhizobia. This highly choreographed process and all the genes that underlie SNF have yet to be identified and characterized for their functions. To identify genes vital to SNF and characterize their functions efficiently, a large-scale mutagenesis using a class I transposable element isolated from *Nicotiana tabacum* called Tnt1 was employed. As a retrotransposon, it utilizes copy-and-paste mechanism to insert itself throughout the *Medicago* genome in euchromatic regions during somatic embryogenesis in tissue culture. The Samuel Roberts Noble Foundation (<https://noble.org/>) created nearly 21,000 Tnt1 mutant lines in this manner, with each line containing 20-100 individual insertions events. Through forward genetic screening, my mentor Dr. Veerappan isolated 32 mutants, 30 of which are defective in SNF. The goal of my project is to rescreen those 32 mutants to confirm defective phenotypes. For that, I have already established growth conditions and I am working towards setting-up an aeroponic system which acts as a chamber for the root systems of *M. truncatula* to safely grow. An aeroponic system includes a humidifier to provide a steady supply of water and nutrients to the root system of *M. truncatula* (<https://youtu.be/7F1-TTfTLgc>). After phenotyping, I will work towards finding the mutated genes in the mutants using genetics and genomics approaches.

THE CORRELATION BETWEEN SYLVESTER STALLONE MOVIES AND VIOLENT CRIME ARRESTS

Erica Sanders

(Economics)

Faculty Mentor: Jennifer Brown

Sylvester Stallone is a handsome, daring, and bold action-movie star. Beloved and idolized by people of nearly all ages and backgrounds, he has countless fans who aspire to be like him. Respected for his famous roles in *Rocky*, *Rambo*, and *The Expendables*, he has received a great amount of recognition for his on-screen violence. There are so many people who have watched his various movies that it begs the question: Do the popularity of his movies affect the number of violent crime arrests in the United States? By comparing the box-office gross profits of all his movies and the number of violent crime arrests in the corresponding release years, I will conduct a 2-tailed t-test to examine if there is a correlation between the two variables. The main objective is to ascertain if people are incited by the violence produced by the film industry, specifically in the case of Sylvester Stallone movies.

FLIPPING THE NARRATIVE: THE END OF SEA WORLD'S ORCA SHOW

Erica Sanders

(Economics Honors Student/Business Administration)

Faculty Mentor: Niti Pandey

This research investigates how non-government organizations and public protests can work to end corporate animal mistreatment. To do so, this research will examine the case of Sea World's famous Orca show. Unknown to the public, after Shamu does his final flip he is put into a small container filled with other Orcas, leaving no room to swim, but only room for physical abuse. This paper explores what happens after the horrors of animal mistreatment for entertainment and profit are revealed to the public. The case study of Sea World and their treatment of Orca whales will demonstrate how

interested stakeholders respond to social issues as a result of increased awareness. Finally, this paper concludes with a model of public advocacy that can be successful in shutting down a socially irresponsible corporation.

THE RESPONSE OF BRIDLE SHINERS (NOTROPIS BIFRENATUS) TO CHEMICAL AND VISUAL CUES OF PREDATORS

Nicole Scinto

(Biology)

Faculty Mentor: Kristen Epp

The Bridle Shiner (*Notropis bifrenatus*) is a small fish species native to the Northeastern United States whose populations are declining throughout its range. There is increasing interest in determining the causes for declines, though little is currently known. One hypothesis is that changes in habitat quality, such as increased turbidity, may interfere with the ability of the shiners to identify or respond to predatory threat. An important first step in testing this hypothesis is to determine how shiners recognize and respond to predatory stimuli. The purpose of this study was to determine how bridle shiners use visual and chemical cues to detect and respond to native predator stimuli. If these fish rely on one sensory modality more than another, it may suggest that habitat changes that disrupt those recognition mechanisms impede antipredator behaviors in this species. Our results will further our knowledge of how bridle shiners respond to predator stimuli, which will aid in conservation efforts.

HOW TO CONTROL EMOTIONS IN THE WORKPLACE RESEARCH

Allison Silva & Valeria Gonzalez

(Communication)

Faculty Mentor: Terri Toles-Patkin

This research illustrates how humans in the workplace can only control their emotions until a certain point and how those emotions can easily become compromised. According to the Hawthorne Studies, paying attention to people shapes their behavior. This is especially true in the workplace. Modern companies promote healthy lifestyles and offer ways to cope with emotions primarily at the workplace. This is compared to organizations that have not implemented these techniques and have more conflicts. Organizations who provide emotional support to their employees have a higher success rate. For those not as fortunate to be part of the successful organizations, they are forced to find their own ways to manage their work struggles. After conducting our own 'how to control emotions at work' research, we have created a system to help handle emotions in the workplace by being proactive instead of reactive. We hope that the system we've created positively improves the way employees manage their emotions.

NARCISSISM VS. ALTRUISM: TRUMP AND THE INCREASE OF BULLYING IN PUBLIC SCHOOLS

Leah Slawinowski

(Education)

Faculty Mentor: Theresa Bouley

Empathy is the key to understanding and working with others. In today's world, now more than ever, it is extremely valuable to nurture children's sense of empathy. Children are hearing that it is okay to criticize and make fun of others. The level of intolerance in today's political climate has trickled down to children in schools in unprecedented ways. Schools have seen an increase in bullying across the country. Research has shown that children living in poverty can develop a decreased sense of empathy due to the level of violence all around them. This is an example of how violence and intolerance can negatively impact children's development and understanding of social justice. In climates like these children can become desensitized and disempowered. While schools are responsible for teaching children reading, writing, and arithmetic it is also a necessity for schools to teach children how to empathize with others and understand the power of their actions. With this increase in bullying, empathy education is more important than ever. Children's books have longtime been used as a therapeutic and effective way for teachers to start discussions with their students about controversial topics. In addition to examining the literature on past and present bullying in schools, the aim of this project was to use bibliotherapy in a first grade classroom to foster discussions around bullying, empathy and self-worth. With each classroom visit a new book was read aloud addressing one of these three issues. Through reading these books children participated in discussions about these issues and participated in role playing activities to foster empathy, in not only the classroom, but outside of the classroom as well.

SERVICES AND CHALLENGES OF SCHOOL SOCIAL WORK IN CONNECTICUT

Amanda Terenzi, Reyni Sexius, Thomas Madden & Melissa Jorsz

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

School social work not only serves psychosocial needs of school-age youths, organizes community resources and provides advocacy for parents and students (Huxtable & Blythe, 2002), but also helps increase school graduation rates and reduces dropout rates (Alvarez, Bye, Bryant, & Mumm, 2013). Given the limited funding, the labor force of school social work is often understaffed and provided by professionals of different titles such as counselors, school psychologists or social workers. This exploratory study examines the services and challenges that school mental health professionals (school counselors, social workers and psychologists) provide in the school system of northeastern region of Connecticut. The study will contribute to the better understanding of school social work challenges and services.

LOVE IS LOVE: THE RISE AND FALL OF THE DEFENSE OF MARRIAGE ACT

Patrick Thomson

(History)

Faculty Mentor: Thomas Balcerski

On May 6, 1996, Congressman Bob Barr from Georgia Congressional District 7 introduced the Defense of Marriage Act (DOMA). Barr believed in states' rights, and saw a potential issue arising from the ongoing Hawaiian Supreme Court case, *Baehr v. Miike*. Same-sex marriage was the issue, and Barr was adamant that the Hawaiian decision should not be applicable to all states by Article IV Section I of the United

States Constitution. Why this bill was so discriminatory? Why did it alienate same-sex couples? Why did Barr want DOMA passed? Why did Clinton sign the bill into law? Was DOMA just a bill that was necessary for the time period but later was not needed? This project examines the role Barr played in authoring the bill and securing 106 Republicans and 11 Democrats as co-sponsors, mostly from southern districts, and the support from President Bill Clinton. This study examines primary sources from Barr's legislative files to shed some light on the Republicans' motives and actions. This project concludes by considering the two Supreme Court Cases that led to the fall of DOMA, *United States v. Windsor* (2013) and *Obergefell v. Hodges* (2015). In the end, President Barack Obama declared that a victory had been secured for the belief that 'love is love.'

FAMILY STRUCTURE AND SUBSTANCE USAGE

Sarah Tricarico, Danielle Bolin, Ciera Harris & Denzel Anderson

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Family structure has an impact on many aspects of life, which includes but is not limited to substance usage. The purpose of this study is to examine the relationship between family structure and substance usage among college students in a liberal arts university. Data were collected from college students through a self-administered survey on campus using availability sampling. The survey includes questions that pertain to family structure, various type of substance usage and frequency of these substances in use. The implications for this study will identify at-risk students of using substances due to their familial structure.

FINANCIAL IMPACTS ON MIDLIFE DIVORCE FOR WOMEN

Mariana Vega, Alison Adams, Lisa Babcock & Haylee Olson

(Sociology, Anthropology and Social Work)

Faculty Mentor: Pamela Chiang

Given the decline of divorce rate since 1980's (Cohen, 2014), there has been a striking increase in divorce among the middle-aged (Kennedy & Ruggles, 2014). Studies show that generally women are more likely than men to experience financial hardship after divorce (Weston & Smyth, 2000). The impact of marriage dissolution during midlife for women is greater than when a divorce occurs during an earlier life stage because it is more difficult to remarry and to find jobs for women after midlife. The purpose of this study is to examine the financial change of women following their midlife divorce, including women's income, welfare receipts, insurance, and life style. Using non-probability sampling and snowball sampling, we collected data through self-administered and online questionnaires. Our research contributes to a greater understanding of women's financial hardships after a divorce and brings attention to their greater need for support and services after a divorce.

ANKE DJE ANKE BE

Janeidy Villar

Posters

(Performing Arts)

Faculty Mentor: James Holland

Acrylic paint, Blank Canvas Stapled back 11x14

When exposed to new cultures, one can begin to understand the unique frameworks that make a nation unique. It is eye-opening when you can see an image and picture for a moment what the person in the frame was thinking. It is very important to understand that everyone has a unique set of preferences, personality traits, and other things to be considerate of. It is also important to understand these differences especially when exploring a new place or speaking to a person from a place completely unlike your home. Here at Eastern Connecticut State University, I have been learning about the essential role that the drums called the dunduns play in traditional West African music, especially the music of Guinea. As a beginning student of this music, the Dunduns have captivated my attention and motivated me to find a way to translate the cultural genius, artistic beauty and music of these instruments into a visual image. When I was introduced to these drums, I was immediately captured. The Dun-Duns are charming and are from a region that is disparate than anything I've ever laid my eyes on. They are a West African instrument used to keep track of time, give a beat, and set the tone. How does one perceive such a beautiful item without diminishing its worth? Opening your mind to new cultures that you've never experienced before is worth the try, even if you're nervous. I am inspired to create an image that translates the sound and power of the DunDunba, which comes from the DunDun family: DunDun, Songba and Kenjeni. With this information, I want to fuse them into an image of personal resonance. The words Anke dje, anke be are often called out to the people in the community when it is time to gather and play the drums in harmony with one another. This term is translated to everyone gather together in peace.

RECYCLING BEHAVIORS OF FITNESS CENTER ATTENDEES

Courtney Welch & Brittany Hill

(Psychology)

Faculty Mentor: James Diller

The ability to influence behavioral change through the principles of applied behavior analysis (ABA) is widely practiced on the individual level; however ABA principles can be implemented on a large scale to promote significant changes in our environment. It is advantageous to change our behaviors to more sustainable ones, as extensive scientific research supports the notion that the future of our ecosystem is in jeopardy. This project focuses on the creation and establishment of a behavior change plan to reinforce the sustainable behavior of recycling. Recycling is the target behavior, defined as, placing materials in designated blue recycling bins that are considered allowed materials (ie. plastic water bottles, paper, etc.). It is hypothesized that implementation of our behavioral interventions will increase the amount of correct materials placed into the recycling bin instead of the trash bin. In the study, Eastern Connecticut State University's (ECSU) Fitness Center's (located in the Student Center) recycling bin will be monitored and measured two times per week to evaluate the effects of our behavioral interventions. Our participants are ECSU staff, faculty, and alumni who use the Fitness Center. One intervention will include the implementation of behavioral prompting; signs placed above the recycling bin and at other locations in the Fitness Center will have pictures of correct recyclable items, as well as prompting phrases. The second intervention will include implementing feedback; users will be informed

of their progress in respect to the amount of items recycled using a visual graph near the trash/recycling bins. The recycling will be measured for two weeks without intervention (baseline), two weeks with intervention, and two weeks after withdrawing intervention to assess if the treatment has a lasting effect. Overall the research in this project works to better understand the effectiveness of visual prompting and feedback in relation to recycling behaviors.

CERAMICS AND THEIR STORIES: AN ANALYSIS OF POTTERY FROM THE NATIVE AMERICAN CITY OF CAHOKIA CA. AD 1050-1150

Emma Wink & Christopher Burkle

(Sociology, Anthropology and Social Work)

Faculty Mentor: Sarah Baires

The creation of ceramics is an inherently social process that requires interactions: teaching/learning, transferring techniques from one group to another, and adapting styles to fit cultural or functional needs. In turn, by studying ceramics we can learn more about the social climate and ideas of a society. Cahokia was an urban settlement that occupied the Mississippi River floodplain about 1000 years ago that had significant historical and archaeological implications. Cahokia was the site of a large-scale, population convergence of many different cultures who brought with them their own technologies and traditions, and fostered the synthesis of crafts and styles. This poster features a selection of ceramics that were uncovered at a multi-faceted suburb of the Mississippian city off the Grand Plaza, ca. AD 1050-1150. By analyzing ceramic designs, construction and depositional context we can learn about the people who made them; we can trace the origin of styles, examine the combination of technologies, determine what the use of a vessel might have been, analyze the iconography of designs, and look at the way in which they were discarded to examine these artifacts as a reflection of the culture in which they were constructed.

GENDER COMPARISON OF GUIDED PHYSICAL RELAXATION EFFECT ON COLLEGE STUDENTS

Rebecca Witkoski & Shannon Law

(Kinesiology & Physical Education)

Faculty Mentor: Anita Lee

The purpose of this study was to investigate the relationship between arousal and physical relaxation of college students. The factors investigated were influence of relaxation in physical activity and overall health. The ability for athletes to regulate their emotions, whether it be by anxiety or stress driven, during critical moments of competition is a skill that is necessary in performance. The researchers explained the role of side effects in emotional play on athletic performance. The hypothesis was that both college students would have lower resting heart rates at the post-relaxation intervention compared with pre-intervention. Participants were two college students, one female and one male. They volunteered to provide resting heart rates by carotid pulse for one minute, before and after the physical relaxation intervention of listening to a recorded relaxation script (Roberts et al., 1999, pp. 136-137). This procedure was repeated for seven days. The results showed that Amy (pseudonym) had lower resting heart rate after the intervention in general. However, John (pseudonym) had higher post-intervention resting heart rates on four out of the seven days. John is an avid exerciser and his resting

heart rates were collected in the morning, while Amy performed more cardiovascular exercises with fewer sessions per week, and her resting heart rates were collected in the evening. Amy perceived that daily relaxation practice reduces her stress level, but John did not. This could be due to Amy being more familiar with and following the relaxation procedures, but John perceiving that this relaxation method was not sufficient in lowering his stress levels. Therefore, this increased his resting heart rates after most of the interventions. In conclusion, the relaxation intervention is more effective for women college students. Confounders such as gender, height, weight, time of day intervention was executed should be considered.

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