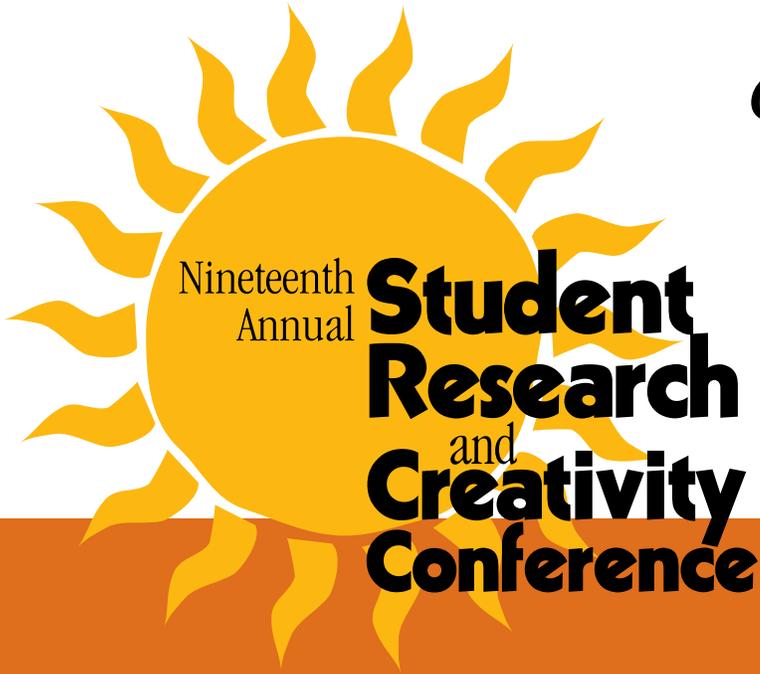


*Celebrating Discovery  
Across the Disciplines*



**BUFFALO STATE**  
The State University of New York





## **Editor**

Jill Singer, Ph.D.

Director, Office of Undergraduate Research

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Nineteenth Annual Student Research and Creativity Celebration**

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## Welcome to the 19<sup>th</sup> annual Student Research and Creativity Conference!

I am pleased to welcome you to the Buffalo State College Student Research and Creativity Conference. 2017 marks the 19th year of this tradition at Buffalo State and we are delighted to present this wonderful forum to our campus and to the surrounding community. This showcase of research and creative activities reflects some of the best and brightest student talent that Buffalo State College has to offer. Our student researchers have worked diligently with their faculty mentors to bring together research projects from all academic disciplines and in a variety of venues and formats. It is through research that we acquire new knowledge, solve many problems and discover new approaches. Studies have shown that research enhances what students learn in the classroom; engages their intellectual curiosity; satisfies their thirst for discovery; and provides an outlet for their creativity and enhances future opportunities. We believe that many of our students also gain self-confidence and grow intellectually by engaging in research and creative activities.



We at Buffalo State College are proud of our efforts to provide stimulating and meaningful initiatives for our students to learn, grow, and develop into strong leaders and solid citizens. The Student Research and Creativity Conference is certainly one of our premier learning initiatives.

I congratulate and commend the remarkable students who are participating in this year's conference. I also thank the faculty mentors who work with such commitment and dedication to bring our students to this level of scholarship. Again, welcome to all. I hope that you enjoy the 2017 Student Research and Creativity Conference at Buffalo State College.

Katherine Conway-Turner, Ph.D.  
*President*



Welcome to the 19th annual Buffalo State College Student Research and Creativity Conference! Undergraduate research is a hallmark program for Buffalo State, and its steady growth is a testament to the commitment we make to academic excellence. Here, students have the opportunity to work directly with faculty members on important research and creative projects in ways that would be impossible at larger universities. The SRCC gathers together outstanding students representing every discipline on campus, and I encourage all attendees to be engaged participants in this signature event.

This conference is the culmination of months of hard work by Dr. Jill Singer, a nationally recognized leader in undergraduate research, and the students, faculty, and staff who have devoted their time and talents to this event. Congratulations, and thank you for your dedication.

Melanie Perreault, Ph.D.  
*Provost and Vice President of Academic Affairs*

This annual event has grown into one of Buffalo State's most valued traditions, and it exemplifies our commitment to high-impact practices. Undergraduate research helps our students understand how scholarship is conducted within their disciplines and provides opportunities for them to contribute new knowledge and works of art. There is compelling evidence to show that undergraduate research increases student success, adds relevance to coursework, and helps students confirm their choice of academic major. The skills students develop serve them well as they continue their education and throughout their professional careers.



This year we continue to make changes to achieve our goal of “going green.” Both the schedule and the program are available online, and each presentation title in the schedule links to the corresponding abstract or artist statement. Accessible on mobile devices, the schedule not only saves printing but also makes it easy to search for presentations using presenters’ last names or key words. Printing on demand is possible for both the schedule and the program, although we encourage you to download the program to your device. You can also return to the Buffalo State undergraduate research website to find archived programs.

You may have noticed that we updated the event’s name by changing the second “C” from “Celebration” to “Conference” to better reflect the academic focus of the event. But we continue to celebrate the discoveries made by our students and acknowledge the dedication of the mentors who provide guidance and encouragement to their students. This event would not be possible without significant help from committed staff members across campus and strong administrative support that places a premium on providing all students with the highest quality learning opportunities.

I hope you enjoy listening to and meeting the student presenters. Enjoy the program!

Jill Singer, Ph.D.  
*Professor of Earth Sciences*  
*Director, Office of Undergraduate Research*

The 19th annual Research and Creativity Conference is one of the highlights of the academic year at SUNY Buffalo State. It provides our undergraduate and graduate students the opportunity to showcase their scholarly and creative accomplishments. The work displayed at the conference attests to our faculty's commitment to mentoring and our students' commitment to engaged learning. As research and scholarship are critical parts of the graduate education experience, the Graduate School is honored to support this work. Congratulations to all those contributing to this inspiring event, especially the graduate students. I also offer sincere appreciation to all faculty and mentors for their contributions to our students' success. Special thanks to Dr. Jill Singer for her passionate leadership and for organizing the Research and Creativity Conference, now in its 19th year!

Kevin J. Miller, Ed.D.

*Interim Dean, The Graduate School*



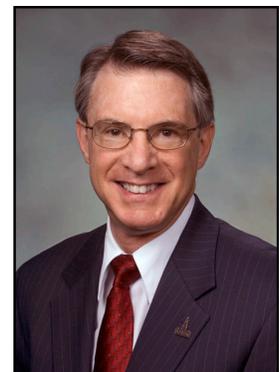
Welcome to the 19th annual Buffalo State Student Research and Creativity Conference. One mark of excellence in a college education is watching students move from being consumers of knowledge to becoming creators of knowledge. The entire Buffalo State community takes great pride in how these students have deepened their learning and demonstrated the quality of their education through these original contributions to their fields of study. Congratulations to the participants and to the faculty colleagues who made this celebration of student learning possible.

Scott L. Johnson, Ph.D.,  
*Dean, University College*

Congratulations to our accomplished undergraduate and graduate students on your participation in this year's Student Research and Creativity Conference! Thank you for sharing your scholarship, creativity and academic achievement and demonstrating how your study changes our world. As dean of the School of Arts and Humanities, I want to recognize the inspiring leadership of your faculty mentors and to warmly welcome families and other guests to Buffalo State. Enjoy the celebration!

Benjamin C. Christy, A.Mus.D.,

*Dean, School of Arts and Humanities*





As the academic home of those whose passion for teaching children, adolescents and adults is the fabric of our curriculum, scholarship and action, the School of Education is particularly honored to welcome students, faculty, staff, and friends of Buffalo State to the 19th Annual Student Research and Creativity Conference. This yearly event illustrates the student/teacher relationship at its best! By researching and creating together to explore issues of current interest in the fields of education, the sciences, the arts and the humanities, students and faculty are enriched, enlivened and enlightened. The best evidence of great teaching has always been profound learning. In today's demonstrations, we see exactly how that looks. Congratulations to student presenters and faculty mentors!

Wendy A. Paterson, Ph.D.,  
*Dean, School of Education*

I am very pleased to congratulate the students and their faculty mentors taking part in Buffalo State's 19th annual Student Research and Creativity Conference, and to welcome students and their guests to this premier Buffalo State event. Student participation in research and creative work is among our highest priorities, and students find it to be an extremely important part of their education. This impressive showcase of the outstanding work of Buffalo State undergraduate and graduate students demonstrates our commitment to student engagement in scholarship, as well as the talent, creativity, and accomplishments of the participants.

Mark W. Severson, Ph.D.,  
*Dean, School of Natural and Social Sciences*



On behalf of the School of The Professions, I would like to welcome students, faculty, staff, and friends of Buffalo State to the 19th annual Student Research and Creativity Conference and to congratulate the student presenters and their faculty mentors on their scholarly and creative accomplishments. The research and creative work of these talented students remind us that there's always something more to learn, to try, to imagine, and to discover. Individually and collectively, the students and mentors we honor today embody Buffalo State's mission to empower a diverse population of students to succeed in a challenging world through our ideas, our innovations, and our engagement. I am honored to congratulate all the students participating in this wonderful event and sincerely thank all the faculty mentors for their contributions to student achievement.

James Mayrose, Ph.D.,  
*Dean, School of the Professions*



# Recipients of Undergraduate Summer Research Fellowships in 2016

**Michael Bartkowiak**, Geology  
Faculty Mentor: Professor Gary Solar, Earth Sciences  
Title: **Laboratory Analysis of Rock Unit Patterns in Rowe-Ratlum Mountain Schist**

Michael Bartkowiak is a Geology major. He graduated in December 2016, and is now applying to graduate schools in geology.

Michael studied select specimens collected from western Connecticut to document the mineralogical content and texture of the rocks that surround a unique locality known as the “Log-Jam” Schist. The specimens surrounding that location are distinctly different from the schist, and Michael investigated how (or not) those rocks relate. Mineral textures correspond, but compositions group into five sets that are not directly related to the schist.



**Jon Battison**, Electrical Engineering Technology  
Faculty Mentor: Professor Stephanie Goldberg, Engineering Technology  
Title: **Electronics Project Testing Board**

Jon Battison is graduating in May 2017 with a dual degree in Electrical Engineering Technology and Computer Information Systems and with a minor in Mathematics. He plans to continue his studies at the graduate level and combine his many interests in science, mathematics, and engineering. Jon was awarded the President’s Medal for Outstanding Undergraduate Student and the SUNY Chancellor’s Award for Student Excellence.

Jon designed a functioning prototype device called the ‘Electronic Prototype Testing Board.’ His design strategy included the incorporation of existing modules for some functions and a complete design of other modules. Jon wrote Python and C based programs that incorporated new and existing functions to produce modules to be controlled by a virtual interface.



**Robert Carnevale**, Television and Film Arts  
Faculty Mentor: Professor Meg Knowles, Communication  
Title: **Web Television: Maintaining Narrative Consistency in Literary Adaptation**

Robert Carnevale is a Television and Film Arts major who will graduate in May 2018 with a B.F.A. After graduating, he plans to move to New York City or Los Angeles to pursue a career in filmmaking. Robert hopes to become a director/producer of feature films and television programs.

Robert’s research focused on the theory of narrative adaptation. He wrote an adapted screenplay of Sir Arthur Conan Doyle’s short story, *Sherlock Holmes and The Adventures of Charles Augustus Milverton*, and then wrote, produced and directed a 20-minute web-television pilot project from his screenplay. He presented the short film at Hallwalls Contemporary Art Center and conducted an audience survey to determine the adaptation’s consistency with the original material despite revisions in the setting, time, and story elements. In that particular sample population, the majority of people perceived the adaptation as faithful to the source material due to tonal and thematic consistency.



## **E. Elise Cloutier**, Philosophy

Faculty Mentor: Professor John Draeger, Philosophy

Title: **Rights versus Responsibilities: Should the Mentally Ill be Parents?**

Elise Cloutier is a Philosophy major with minors in psychology and legal studies. She will graduate with a B.A. in May 2018, after which she plans to attend law school.

Elise worked on developing philosophical research strategies, including a literature review, annotated bibliography, and developing an extended philosophical argument. In particular, she explored the nature of parental obligations towards their children and the ways in which mental illness might compromise a parent's ability to fulfill them. Elise argued that the debate should shift away from a focus on child rights and towards parental duties to promote individual agency.



## **Jillian Custodi**, English

Faculty Mentor: Professor Lorna Perez, English

Title: **The Postcolonial Feminine: Power and the Periphery in *Wide Sargasso Sea***

Jillian Custodi is an English major with a minor in Sociology. She will graduate with her B.A. in May 2017, after which she plans to pursue graduate study in English.

Jillian's work looked at Jean Rhys's *Wide Sargasso Sea*, a famous re-contextualization of Charlotte Bronte's classic British novel *Jane Eyre*. Jillian used an intersectional theoretical framework drawn from postcolonialism, feminism, and critical race studies to highlight how Antoinette Cosway, the novel's main protagonist, occupies simultaneous positions of privilege and marginalization. Jillian presented her research at the Race and Social Justice conference in February 2017, hosted by Buffalo State.



## **Sara Dannebrock**, Individualized Studies

Faculty Mentor: Professor Gregory Wadsworth, Biology

Title: **Neither GRP170 Chaperone is Essential for Protein Folding in *Caenorhabditis elegans***

Sara Dannebrock is an Individualized Studies major, concentrating on Biochemistry and Molecular Biology. After graduation in May 2017, she plans to pursue a Ph.D. related to genetics.

Sara studied a component of the protein folding machinery in cells, the GRP170 class chaperones. She investigated how genetic deletion of GRP170 chaperone genes affected protein folding in the cells of a small round worm *Caenorhabditis elegans*. She determined that neither of the two GRP170 genes in *C. elegans* was essential to protein folding in the worm. Unexpectedly, deletion of one of the GRP170 genes enhanced protein folding in adult worms.



**Sarah Holenstein**, Psychology  
Faculty Mentor: Professor Dwight Hennessy, Psychology  
Title: **The Big Five Traits and Individual Attitudes**

Sarah Holenstein is a Psychology major who plans on graduating in December 2018. After graduation, her plans include pursuing a graduate degree in psychology and working in the field of applied research.

Sarah investigated the potential impact of attitudes towards personality trait descriptors and self-esteem when present in an individual's own personality. She found that there is strong consensus towards the social desirability ("good" traits vs. "bad" traits) of Big 5 personality traits, however these attitudes did not relate to self-esteem. One explanation might be that trait self-esteem was measured and it is possible that social desirability of personality relates more to state indicators of esteem. She presented these findings at the Eastern Psychological Association conference this spring.



**Devon Holler**, Exceptional Education  
Faculty Mentor: Professor Alexander Means, Social and Psychological Foundations of Education  
Title: **Creativity and Common Core from the Perspective of Teachers**

Devon Holler is an Exceptional Education major with a concentration in Social Studies. She will graduate with a B.S. degree in Education in December 2017, after which she plans to attend graduate school and become an early special education teacher.

Devon travelled to Zambia, Africa where she examined the education system and learned about the national curriculum and examined how creativity was used in Zambian classrooms. Back in Buffalo, she interviewed local teachers about the Common Core State Standards and its effects on the education system and general creativity. She compared her findings from both settings to better understand creativity in classrooms.



**Kristopher Hoyt**, Chemistry  
Faculty Mentor: Professor Jinseok Heo, Chemistry  
Title: **Freezing-Induced Gold Nanoparticle Aggregation and its Effect on Surface Enhanced Raman Scattering**

Kris Hoyt is graduating with a B.S. in Forensic Chemistry in May 2018. He plans to go to a graduate school in the field of analytical and forensic chemistry.

Kris discovered that a quick-freezing of gold nanoparticle (AuNP) solution could induce aggregation of the AuNPs. This phenomenon was confirmed by spectroscopic methods. The simple freezing method enabled easy preparation of substrates for near-IR Surface Enhanced Raman Spectroscopy, which will be useful to detect a micromolar concentration of analyte with a strong background fluorescence. He presented his research at the Northeast Regional Meeting 2016-American Chemical Society in Binghamton, N.Y.



## **Jude Lester**, Arts and Letters

Faculty Mentor: Professor Aimee Levesque, English

Title: **Writers Get Digital: Discovering New Tools for Writers in the Digital Age**

Jude Lester is an Arts and Letters major with a concentration in English, who is graduating in Spring 2017. He would like to pursue a career in writing after college.

Jude researched the trade and self-publishing industry. Jude then attended the Writer's Digest Conference in New York City, where he went to workshops run by writers, editors, and publishers who work in the industry. Jude also informally met with publishers from across the United States to discuss their current publishing practices. Upon completion of the conference, Jude continued his research and concluded that the advent of digital publishing and social media has given the writer a much more active role in selling their work, and also, that success in publishing lies in the writer's ability to sell their work through these means.



## **Russell Luke**, Political Science

Faculty Mentor: Professor Patrick McGovern, Political Science

Title: **Back to the Future: Path Dependency in Venezuela**

Russell Luke is a Political Science major with an interest in international relations and Latin America. He is graduating in May 2017 and would like to continue his studies at the graduate level.

Russell applied Acemoglu and Robinson's theory concerning nation-state failure to Venezuela. The theory posits that there is a strong connection between a nation's historical political and economic institutions and its present political and economic performance. Reviewing Venezuela's colonial, revolutionary, post World War II, and recent history, Russell found compelling evidence to suggest a strong case for Acemoglu and Robinson's theory in describing Venezuela's current political troubles.



## **Abby Mathew**, Biology

Faculty Mentor: Professor Robert Warren, Biology

Title: **Can Native and Non-Native Ants Coexist?**

Abby Mathew is a Biology major and will graduate in Spring 2018. After graduation, she plans to attend veterinary school.

Abby investigated exotic species invasion using ants at the Tiff Nature Preserve. She found that workers from different invasive ant colonies do not compete, likely because they are genetically identical; whereas the native ants compete with each other and the invasive species. As a result, the invasive species undergo exponential population growth at the cost of native ants and other arthropods.



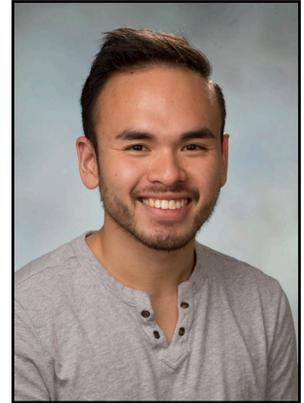
## **Long Nguyen**, Theater

Faculty Mentor: Professor Joy Guarino, Theater

Title: **Centre Stage**

Long Nguyen is a Theater major and is also studying dance and music to create his own Musical Theater Performance program. He will graduate with a B.A. degree in May 2018 and plans to relocate to New York City to pursue his career.

Long attended the “West End On Demand” Musical Theater program in London, England to investigate whether the accumulation of skills learned in a general liberal arts college setting is sufficient preparation for the professional world of musical theater. Long studied theater, music, and dance and discovered that the learning objectives of the two programs were comparable. He concluded that success in musical theater is not defined by where one studies, but how one studies their craft.



## **Amanda Paruta**, Music and Anthropology

Faculty Mentor: Professor Tiffany Nicely, Music

Title: **Staged Authenticity in Modern Fado Tourism**

Amanda Paruta will complete B.A. degrees in Music and Anthropology in May 2017, with a minor in Sociology. She plans to go on to earn a Ph.D. in musicology and pursue a career in academia.

Amanda traveled to Lisbon, Portugal to study the historical and current reception history of fado, a genre of song known internationally as “the music of the Portuguese soul.” She identified important parallels between the “official” sanctioned presentation of fado under the Estado Novo dictatorship of the mid-twentieth century, and that of modern tourist-targeted presentations. Her research paper explores this as an example of “staged authenticity.” Amanda presented her research at the SUNY Undergraduate Research Conference and the National Conference on Undergraduate Research.



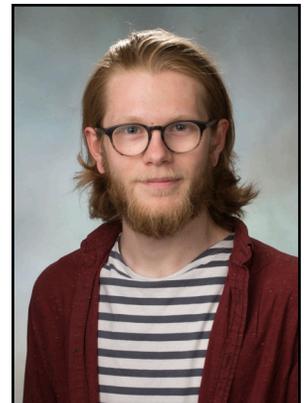
## **Clayton Pitcher**, Philosophy and English

Faculty Mentor: Professor Aimable Twagilimana, English

Title: **Learning to Wait: Reading, Writing, and Individuation**

Clayton Pitcher is a double major in English and Philosophy. He plans to attend graduate school and hopes to become a college professor.

Drawing upon the work of French philosopher Gilles Deleuze, Clayton explored the concept of “waiting” in the work of Japanese writer Haruki Murakami, especially his seminal novel *Kafka on the Shore*. Clayton’s work defines “waiting” as an active, creative, and expansive force and offers it as a critical perspective to read Murakami’s fiction.



**Samantha Rossignol**, Sociology  
Faculty Mentor: Professor Lindsey Freeman, Sociology  
Title: **The Effects of Linguistic Discourse on Group Relations**

Samantha Rossignol is a Sociology and Public Communication double major and will graduate in December 2017. She is interested in pursuing research at the intersection of linguistics and critical race studies and plans to attend graduate school in sociology.

Samantha set up a study on linguistics and race building based on the work of Collins, Du Bois, and Fanon. She developed an 'imitation game' to see how people of different races understood each other's cultures. Results of the imitation game have shown that the lack of cultural transmission is evident through the process of linguistic discourse between members of differing cultural groups. This hints to the contrasting obligatory factors within dominant and minority groups that determine the extent of one's knowledge of a race, and the success or failure of the socialization process.



**Kathleen Shaw**, Elementary Education  
Faculty Mentor: Professor Christopher Shively, Elementary Education and Reading  
Title: **How Does a Squishy Circuit Work?**

Kathleen Shaw is a Childhood Education and English major who is graduating in May 2017. After graduation, Katie will seek a job in elementary or English education.

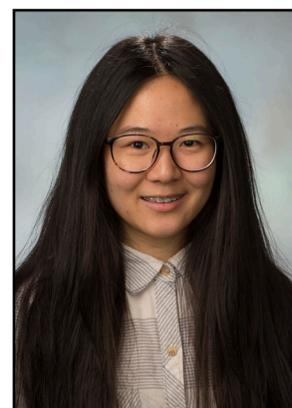
Katie examined 5th grade students' explanations to the following question: "How does a 'squishy circuit' work?" Her findings suggest that while most students mimicked the dramatization of a squishy circuit in their explanations, they often lacked the academic language in their explanations describing science concepts. She also found that the students were able to describe attraction and repulsion forces in particles too small to be seen.



**Ke Shi**, Painting  
Faculty Mentor: Professor Lin Jiang, Fine Arts  
Title: **They're Not My Peers: Cultural Changes in Generations**

Ke Shi is a B.F.A. painting major with a jewelry making minor. She will graduate in December 2017, after which she plans to attend graduate school. Ke Shi ultimately hopes to pursue her studio practice at a professional level and to teach in higher education.

Ke studied her family's practice of keeping and maintaining a Jia Pu, a written document of a Chinese family lineage, including their stories and visual portraits. Traveling to visit relatives in China, Ke explored the practice of Jia Pu and created a body of artwork using the visual references of her family Jia Pu to reflect social, economic, cultural and political changes that have taken place within the last century.



## **Roseanna Spencer**, Childhood Education

Faculty Mentor: Professor Jevon Hunter, Elementary Education and Reading

Title: **Using #Black&BrownLives to Enhance Learning and Teaching in Elementary Schools**

Roseanna Spencer graduates in May 2017 with a B.A. in Childhood Education with a concentration in Mathematics. Roseanna plans to pursue her Master's degree in education and further develop her work as a social justice advocate.

Roseanna conducted qualitative research on the intergenerational elementary schooling experiences of African Americans and Latinos and the use of this information to develop academic learning activities that speak to, enhance, and improve upon these individual and collective experiences. Her findings suggest that despite the difference in age, there are many similarities African-American and Latino elementary-age students experience when it comes to feeling marginalized in and by schools. She also found that developing a responsive/sustaining curriculum that takes into account the lived and living experiences of African-Americans and Latinos generates high interest and deep engagement among elementary students.



## **Bridget Torsey**, Mathematics and Physics

Faculty Mentor: Professor Peter Mercer, Mathematics

Title: **Investigating a Conjecture About Integrals from Probability Theory**

Bridget Torsey graduated in December 2016 with B.A. degrees in Mathematics and Physics. In fall 2017 Bridget will begin her graduate studies at RIT and pursue a Ph.D. in Mathematical Modeling.

For her research, Bridget obtained a proof of a 2015 theorem that considerably simplifies the original proof. It also broadened the theorem's applicability. In particular, her proof led to a new theorem of independent interest. In addition, a proof providing another bound was discovered, making the theorem more complete.



## **Viivi Vaattovaara**, Biotechnology

Faculty Mentor: Professor Gary Pettibone, Biology

Title: **Next Generation Sequencing in Assessing Bacterial Populations in Beach Sands**

Viivi Vaattovaara is a Biology major with a concentration in Biotechnology. She is graduating with a B.A. in May 2017. After graduation she plans to pursue a Master's degree in biotechnology after which she hopes to enroll in medical school to achieve her ultimate goal of becoming a physician.

Viivi collected samples from both water and sand at Bennett Beach (Angola, NY) in order to determine if potentially pathogenic bacteria establish populations in beach sands and therefore pose a health risk to beach users. She found larger numbers of Escherichia coli in sand even at distances of 20 feet from the shoreline. She optimized a procedure to extract the DNA from the bacteria in the sand communities and has archived the DNA for future analyses.



## **Dylan Vlaovich**, Psychology

Faculty Mentor: Professor Pamela Schuetze, Psychology

Title: **The Association Between Prenatal Substance Exposure and Social Competence During Middle Childhood**

Dylan Vlaovich is a Psychology major graduating with a B.A. in May 2017, after which he plans to attend graduate school. Dylan is interested in counseling adolescents after he completes his Ph.D.

Dylan examined the indirect association between prenatal substance exposure (cocaine, alcohol, cigarettes) and social competence in middle childhood through physiological regulation during infancy, environmental risk, and the quality of the home environment. His results indicated indirect associations between prenatal substance exposure and social competence during third grade through both environmental risk and physiological regulation.



## **Patrick Wagner**, Ceramics

Faculty Mentor: Professor Colleen Toledano, Design

Title: **Plaster and Silicone Mold Making**

Patrick Wagner is a Ceramics major graduating with a B.F.A. in May 2017. After graduation, he plans to pursue a masters' degree in ceramics.

Patrick explored the capabilities of plaster and silicone molds in the field of ceramics. During his research, he created molds of organic objects, which were then cast in clay and resin. Patrick also experimented with attaching clay forms from different molds. Having the ability to cast objects in various materials allowed Patrick to expand his material vocabulary, furthering the conceptual complexity of his artwork.



## **Britten Walker**, Sculpture

Faculty Mentor: Professor Kenneth Payne, Fine Arts

Title: **The Abstract or War**

Britten Walker is a B.F.A. sculpture major graduating in May 2017. After graduation, his goal is to work and exhibit as a studio artist.

Britten is a veteran and served in Iraq and Afghanistan. His research combined aspects of his experiences in war to the early days of abstract expressionism. Further understanding of the effects created by the artists he studied allowed Britten to develop a deeper understanding and successful resolution of the development of abstract space in the two dimensional format. He also developed and applied techniques necessary to paint very large canvases. Britten has exhibited his work at several local galleries including Project 308 Gallery, 515 Main Street Gallery, and Hi-Temp Gallery.



## **AC Williams**, Physics

Faculty Mentor: Professor Dermot Coffey, Physics

Title: **Topological Insulators**

AC Williams is a Physics major graduating in May 2017 with a B.S. in Physics and a minor in Astronomy. He is applying to graduate programs in physics and hopes to pursue a Ph.D. starting in the fall.

AC investigated the current carrying edge states in the Quantum Hall Effect and the corresponding states that are present at the interface between normal and topological insulators. He developed a program to calculate current and density distributions in models of samples used in the Quantum Hall measurements. He also used model Hamiltonians to investigate edge states in CdTe/HgTe/CdTe quantum wells.



## **Tiana Wilson**, Social Studies Education

Faculty Mentor: Professor Hibajene Shandomo, Elementary Education and Reading

Title: **Effectiveness of Teaching Strategies in Zambia**

Tiana Wilson is majoring in Social Studies Education and is graduating with a Bachelor of Science in May 2017. She plans to attend graduate school and earn a Ph.D. in American History with a concentration in African American history.

Tiana's research took place in Zambia where she investigated the effectiveness of teaching strategies in a government and in a private school. Her findings identified challenges in a free government school including: overcrowded classrooms; lack of teaching resource materials; shortage of adequate staffing; too few schools; and lack of technology in homes and in schools that resulted in many teachers' use of 'direct instruction' as a primary teaching strategy. Her results reveal that Zambian private schools did not face the same challenges as free government schools.





## Arts

### The Abstract or War

**Britten Walker**, Sculpture

Faculty Mentor: Professor Kenneth Payne, Fine Arts

Through my research I was investigating the similarities between my art work now and the abstract expressionist's painters working after World War Two. I was working to invoke emotions from the viewer by the use of color and abstract construction of space. When living in a world that is filled with War and violence I wanted to see the viewer's reaction to both happy color and dark angry colors. My abstract paintings are a mixture of rhythmic lines and colors that are painted to the sounds of the music that I listen to while I paint, as well as the change in my own mode while I'm painting. I found through my research that after World War Two people all over the world were looking for peaceful uplifting experience that can be found in abstract expressionist painting. Having been on the front in two wars myself I am able to channel what I have learned and put it into my own painting. I will present my art work and process of making my art work. I will be talking about the abstract expressionist painters that were working after World War Two, and abstract artist like myself that are working today. I completed 8 large paintings twelve feet long by 8 feet tall as well as another 6 smaller works. I am developing a series of prints from the paintings. I have had four exhibitions of the work produced during the grant.

### The Accordion and its Ever-Changing Music Culture

**Michael Broome**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

My research investigates the accordion and specifically how immigration and technology changed the instrument to spread its popularity. For over one hundred and fifty years, the accordion and the music that it involves has been popular in many countries. The accordion achieved this popularity during the 1830's due to mass marketing. The first "accordion" developed in 1821 by Christian Buschmann, then called an "Aura", made out of a single piece of metal attached to wood and blowholes to be played by mouth. This first accordion closely resembled a harmonica. A year later he added keys, thus the beginning of the first accordion. The accordion since then has gone through many changes. The accordion has made it around the world and this project looks at the tradition and impact the instrument has had. My project discovers this change and how these changes in the instrument affected the instrumentation and the music that it produced.

### The Adaptation of Suriname's Music

**Brianna Jenkins**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

My project focuses on the ways in which the various musical genres of Suriname reflect its ethnic roots. Suriname is a small country along the northeastern Atlantic coast of South America. Suriname's music has changed since its indigenous roots to its now popular Caribbean flow. Suriname has borrowed and adapted elements of music from its neighboring countries. Why, how, and when did Suriname's music become what it is today? Popular music of all countries has the capability to travel across borders due to the increase of globalization. Suriname's music is known for its deeply rooted indigenous traditions, but it is also known for its exploration and melding of elements from other popular genres. Suriname's newly invented popular music shares the appeal of African-Caribbean popular music because of outside influences. There are three popular styles of music that reside in Suriname-kawina, kaseko and aleke. These styles have traces of styles such as reggae, jazz, soca, and more. Suriname's current music even has many Jamaican dancehall overtones. Surinamese popular musical is a product of some of the same elements that have been included in the development of other popular music in the world. The main thing that sets the popular music of Suriname apart from Afro-Caribbean popular music is that the indigenous cultural roots on which it is derived from are more deeply African than those available to popular musicians anywhere else.

### Archduke: Prop Research and Design for a New Play

**Airi Kohlbach**, THA 488: Internship

Faculty Mentor: Professor Ann Emo, Theater

A prop, formally known as property is an item that enhances the performance of theatrical production. Either symbolic or realistic, props are a very important part of the theatrical experience, moving the story along, augmenting the set design and contributing to the characters' life on stage. I have studied prop design specifically throughout my college career, honing research and prop construction skills through my involvement in several productions at SUNY Buffalo State College and work on independent projects. I had the amazing opportunity to work with Road Less Traveled Productions' 2016 National Playwright Residency program as an Intern. Working along side theater professionals, I was tasked with creating research boards and designs for this work in progress. We met with the playwright, producers and the performers to discuss the content and needs of the play and the aesthetic direction/

vision. This presentation shows my research process for the brand new play *Archduke* by nationally honored playwright, Rajiv Joseph. This experience culminated in a staged reading on campus and is being produced this spring at the Mark Taper Forum in California.

### **The Art of Tension: Creating a Thriller the Fincher Way**

**Robert Carnevale**, TFA 420: Producing Short Films II  
Faculty Mentor: Professor Meg Knowles, Communication

*Lockdown* is a short film project in the thriller genre, written, produced and directed over the course of one semester. The project, based upon research on David Fincher, a renowned Hollywood director of thriller films such as *Seven* and *Gone Girl*, is designed to explore his techniques for directing a tension-filled film. Fincher is known for his minimalist, cold color-palettes as well as the use of dry-humored, dark realism. *Lockdown* is the story of one student's unluckiest day as she becomes trapped by a hitman, one who's after a thumb drive she's unwittingly procured from a recently murdered researcher. Her only option: escape. This 8-minute film adopts Fincher's directorial methods in its execution, as it passes through the entire production process, from crafting a script to directing and editing.

### **The Art of Seeing**

**Jennifer Crowley**, Sculpture

Faculty Mentor: Professor Kenneth Payne, Fine Arts

I am interested in how much do we really see in the world around us and how does it impact our emotions and state of mind. We see things like a flower and our emotional response is a favorable one, we can appreciate its beauty. The question arises when you consider what is it that actually causes it to be beautiful, why is our response a positive one. Is it the color, the shape of the petals, the contrast between the flowers and the leaves, or just the implications associated with it. With my research project I intend to break down different visual effects into small parts, natural and man made, and consider what it is about the visual that produces our emotional response. My goal is to recreate the pieces of visual information in a unique way, considering composition and its interaction with the viewer, in an attempt to get the same response from the viewer. Frequently I am finding that the initial reaction stays true, while at times it is necessary to combine visual elements or add compositional techniques to achieve my goal. Inspiration is all around us, with this project I am learning how to appreciate and utilize the smallest parts of it.

### **Catharsis**

**Enya-kalia Jordan**, ALT 490: Senior Seminar  
Faculty Mentors: Professor Joy Guarino, Theater and Mr. Bruce Fox, College Photographer

As an Arts and Letters major concentrating in dance and photography, I have come to understand the importance of artistic voice. My undergraduate senior thesis, *Catharsis* was more than a choreographic exploration. As artistic director and production manager, I was the driving force behind all aspects of the production, as well as choreographer and photographer. Catharsis is defined as "the process of releasing, and thereby providing relief from, strong or repressed emotions." I chose this theme because it is the very reason I dance. In many ways, it has been my own personal form of "self-care" that is often discussed in social work. I decided to incorporate catharsis in my artistry, to express a difficult story of hope, dedication, and perseverance to an audience. I empowered my dancers to do the same. By integrating this emotional and physiological element into dance and photography, I dig deeper by create movement and design images that really speak to each dancer individually and resonates with the audience. I wanted to challenge my limits as a choreographer and photographer. Overall, I am interested in using emotions and personal experience as inspiration for future artistic endeavors. The challenge is discovering how to dig at emotions while still allowing for a healing space.

### **Centre Stage**

**Long Nguyen**, Theater

Faculty Mentor: Professor Joy Guarino, Theater

The purpose of this project was to investigate whether the accumulation of skills learned as a Theater major in a general liberal arts college is sufficient preparation for the professional world of Musical Theater. To examine this question, I became my own "test subject". My methods included a student learning outcome rubric to measure skills pre and post intervention, reflection journal, and video. To document current knowledge, syllabi from my first two years of theater, dance, and music courses were used to build a rubric of student learning outcomes (SLOs). Specific skills learned from my undergraduate program were entered next to each learning outcome. To compare current knowledge to skills needed for professional work, I attended the "West End On Demand" Musical Theater program in London, England. "West End On Demand" consisted of three weeks of intensive dancing, acting, and singing classes in professional rehearsal spaces. While there, I documented my progress using the SLO rubric, a reflection journal, and video. After analyzing the data, findings indicated that most of the skills taught in the general liberal arts theater program were utilized and reinforced in the West End program. I concluded that success in a musical theater career is not defined by where one studies, but by what and how one studies their craft.

## Children of War

**Britten Walker**, Sculpture

Faculty Mentor: Professor Kenneth Payne, Fine Arts

Since the beginning of mankind wars have always been a highly documented event. Most often the documentation is factual, with little or no interest put on the people it directly effects. With this project I would like to put a more personal level to the effects war has on children. Based on my experiences in Iraq and Afghanistan I feel it is important that these children are represented and their struggles are documented for future generations to always remember. These children bring a sense of humanity and innocence to the soldier that nothing else can. I am creating a sculpture that is slightly larger than life size, in metal and cement. The sculpture represents the relationship between the American soldier and the children of war. My hope is that anyone viewing this sculpture will realize the situation these children are in, and how deeply it effects the American soldier.

## Déjà-View:

### Artistic Appropriation in America

**Lucia LaPlaca**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Harriet Blitzer, Fine Arts and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

American society prides itself in always coming up with the “newest and latest:” fashion, cars, technology, and more. How are the trendiest products and styles presented so that the public is attracted to them? By taking and using objects or images that already exist and creating new works--otherwise known as appropriation. This poster examines how we, the public, are familiar with well-known styles or symbols from past cultures, and how we recognize and understand what a new image represents. Appropriation has been used for hundreds of years, but evolved into a popular element in the creation of imagery in the 20th century because of the rise of capitalism and consumerism in America. Television, magazines, newspapers, and advertisements have served as vehicles for the appropriation of art in the wake of consumerism. One of the most famous logos in America using an appropriated image, the origins of which can be traced all the way back to Greek mythology, is that of Starbucks Coffee. Understanding the history of the art of past cultures stimulates interest in and comprehension of the use of symbols in modern society. Because cultural understanding repeats itself within an artistic context through the reuse of styles and symbols, it is ever pertinent to study and learn the history of art.

## The Evolution of the Irish Bagpipe

**Rebeca Ruesch**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

The bagpipe has been a symbolic mainstay in Irish music and culture for centuries, however, it has also undergone several changes, both in physical appearance and symbolic purpose. The modern Irish bagpipe, or uilleann pipe, is derived from the Irish warpipe, whose primary functions in the 14th century were to communicate across battlefields, and to strengthen morale among soldiers. At this time, the pipe was a simple, long wooden pipe through which the player would blow air. In the 16th century, however, the design of the pipe changed to include a wooden pipe attached to a leather bag that would fill with air, and the player would use their arm to expel the air through the pipe. This is the beginning of the modern Irish bagpipe. The Irish bagpipe is characterized by a wooden pipe and a bag blown by bellows held under the elbow, and three closed chanters called regulators which can provide harmony when their keys are pressed. The bagpipe has a range of two octaves, usually D-D”, and has three continuously sounding drones. The pipes also contain up to seven reeds, which are difficult to keep in tune. This lends to the instrument being played primarily in a solo setting. In a modern setting, Irish bagpipes are found mostly at celebrations, such as parades, and at funerals. These are not far from its original usages. My project is intended to further explore not only the differences of the bagpipe throughout Irish history, but also the similarities.

## The Evolution of Taiko Drumming

**Elliott Michki**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

In Japanese culture, the taiko drum is one of the central percussive instruments in a majority of traditional music. The art of creating these drums is one that has changed little since the drum's inception. What has developed within the world of taiko is their use and cultural significance. Taiko's first notable use was within the courts of royalty during the late 6th century- early 7th century. The music of the courts has been protected as a part of a cultural preservation initiative since the late 9th century. The use of taiko drums outside of the courts quickly spread, most notably into the Japanese classical performing arts known as “Noh”, Japanese “Kabuki” theatre, and into folk and religious music. The use of taiko drums in Japanese culture changed little until after the end of World War II. In the 1950's four groups, each in their own time frame, began working in all drumming styles. From these groups started the popularization of the modern taiko drumming groups we see today. These groups use techniques that date back to the origin of taiko drums and view them as essential to the success of this art form. My research discusses the origins and popularization of taiko drums and taiko drumming ensembles.

## **The Heartbeat of Hungary**

**Nolyn Brunner**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

Although many Americans may be unfamiliar with Hungarian history and culture, traditional Hungarian music and folk dance is still performed live today. My research looks at the origins and current practice of the *Táncház*, a casual Hungarian folk dance event where participants can learn dances accompanied by live music. *Táncház* literally translates to “dance house” and it is derived from a Transylvanian tradition of holding dances at private residences. After learning basic steps, participants are then able to improvise. Improvisation is a notable characteristic of Hungarian dancing. Two folk dances that have enjoyed an especially prominent place in Hungarian life are the *Csárdás*, meaning “tavern”, and the *Verbunkos*, a term which comes from the German – “*Werbung*” meaning recruitment. Both are characterized by alternating sections; slow (*lassú*), with a characteristic dotted rhythm, and fast (*friss*), with virtuosic running note passages. The *Verbunkos* arose circa 1730 when the Austrian Imperial Army would recruit at taverns with drinking and dancing. Despite the foreign name, this music was derived from Hungarian folk melodies. This style of music would later become a national symbol of Hungary and a virtuosic men’s dance in the folk tradition. The *Csárdás* is closely related and it developed around the same time as the *Verbunkos*, however women are involved in this dance. It was considered the main dance of the villages and village gypsy bands played little else because it was popular among the young people. These dances are still performed today and hopefully will continue to be with the help of the *Táncház* movement.

## **Helping Hands: M.C. Escher Inspired Fiber Art**

**Lucas Colon**, DES 444: Fibers Senior Studio  
Faculty Mentor: Professor Jozef Bajus, Design

We live in a divided world in which political and social influences separate us from accepting each other. My series of artworks seeks to explore this division. I was inspired to create these pieces following the controversial rhetoric surrounding the election of Donald Trump. I was horrified at how little it took for the closest to us to become the most isolated, most discriminated against, the farthest away. M.C. Escher was my inspiration, as his use of positive and negative space worked well with my theme. I chose the medium of knitting, as the its precision proved beneficial to my designs. In *Nearer Than We Think*, we see the effects of a divided population. Some hands are reaching for each other, longing for help or assistance, but they fail to realize that others are right there, hiding in the negative space, longing for the same thing. *The Farthest Away Are Nearest to Us* shows us those that are sometimes invisible. When viewing the illusion, it is easy to see only one color of figures, yet the others still exist - supporting, hiding in the background. They are not

forgotten - they are far away yet nearby at the same time. And in *Plea For Help*, the disconnect between those nearby and far away comes together into a hauntingly beautiful illusion. Each hand is reaching for assistance from far away, leading to a confusing circle of struggle, despite the hands in the negative space yearning for exactly the same thing.

## **Hip-Hop Music in South Africa: Music Crossing Borders**

**Taylor Brown**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

In the 1980’s Hip-Hop music began to have an influence on the South African music scene. The scene was mostly made up of black artists who used the music to criticize government policies that encouraged racial segregation. At the time Hip-Hop entered the South African music scene Apartheid had carved deep rigid racial barriers among citizens. Apartheid made a systematic effort to segregate the country by race. The government promoted social and economic inequality with media censorship and other discriminatory legislation. Due to the legacy of separatism predominantly black genres in South Africa were severely underrepresented. South African Hip-Hop music shares the same spirit as Hip-Hop music in America. The artists write songs to express their political views and opinions. While American Hip-Hop has been criticized for promoting commercialism and sexism, South African artists have instead criticized such ideas in their lyrics. The artists talk about their distaste for government policies that promoted racism. They also speak out against segregation and encourage integration across all communities. My research explores the ways in which Hip-Hop music appealed to South Africans because it encouraged unity and opened barriers.

## **The History and Evolution of the Keyboard Instrument**

**Francisco Quebral**, MUS 491: Capstone in Music  
Faculty Mentors: Professor Emily Boyce, Music and Professor Tomás Henriques, Music

In my research presentation, I will be talking about the history of the keyboard instrument and how it evolved. There are many different kinds of keyboard instruments including the organ, harpsichord, piano, and electronic synthesizer. Great composers and innovators like Johann Sebastian Bach, Frederic Chopin, and Robert Moog influenced the sound of these instruments. I will talk about each keyboard instrument in the order in which they were invented and will show how each of them sounded like as well as the impact they had on the music at the time they were invented. During my presentation, I will also bring a few electronic keyboards and demonstrate how they sound like. I will feature some musical scores of the time in which each instrument was invented. The keyboard instrument,

from the organ to the synthesizer, has had a long history and my presentation will demonstrate how keyboards have evolved into the instruments they are today.

### **Hometown Haunts: Urban Legends of New York**

**Darrian Dowdy**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Brian Milbrand, Communication and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This project explores local urban legends and why people believe in them. It uncovers the history behind the legends to determine what truth may be behind them, as well as to discover how history has influenced the creation of urban legends. In order to determine this information, interviews were held with locals, people who have visited the locations, and experts on the topics. These interviews were compared with known facts to find threads that may connect them. The motivation for this work was to uncover answers to the stories people have been spreading for generations, why people tell these stories, and what influence these stories have had on the towns that they take place in. It also gives context as to the history of certain towns and where their cultures may stem from. In order to collect this data, I traveled through the state to conduct interviews, as well as uncover history. Interviews were recorded with both visual and audio elements in order to gain enough content to edit into a film. This project has culminated as a documentary approximately 45 minutes in length. Preliminary results have proven that people believe in urban legends in a light-hearted sort of manner, whereas these stories help to preserve the history of the past in a more entertaining manner.

### **How Tumbadoras Influenced Cuban**

**Brianna Tatum**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

My research is on the tumbadora, also known as the conga drum, a percussive instrument that was developed after the abolishment of slavery in Cuba in 1886. Originally, tumbadoras were used in music for dancing, predominantly in poor neighborhoods as the drums were less expensive than other instruments. Over time, Cuban music progressed and changed, and the tumbadora's importance grew and receded with the passage of different eras. After a period when they were used less frequently, in the last decade tumbadoras have regained popularity in Cuba, along with many other percussion instruments. The demographic of people that use them has also expanded over time. My project examines the uses of tumbadoras in Cuba when they were first invented compared to today, focusing on the evolution of the instrument's status as linked to the aftermath of slavery to its current popular and affluent status.

### **Influences of Brazilian Choro Music**

**Gabriel Baquero**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

Choro is a form of Brazilian popular music which utilizes small instrumental ensembles with a soloist; usually a flute, clarinet, or guitar. Originating in Rio de Janeiro around 1870, choro is a form of music that is associated with Brazilian celebrations, festivals, and dances. The central focus of this research is the influence of music from other cultures on choro, and also the influence that choro has had on other world music. I also focus on non-music related influences of choro, such as technology and the political climate. Choro has been considered to be a further development of Samba, another Brazilian style of music and dance, and the similarities between the two of them are apparent. American jazz music is another example of a musical culture that had an effect on choro music. Choro incorporated new instrumentation, like the clarinet and the trumpet, into its music, along with new danceable rhythms like the fox-trot. The increase in availability of the radio and recording equipment are some ways technology helped in shaping what choro music is today. The boehm flute, or the modern day system that flutists use today is also a technological influence on choro and its instrumentation.

### **Interpreting the Magic: Performance Practice of Mozart's Aria *Ach ich fühl's***

**Kacy Harrison**, MUS 499: Vocal Literature  
Faculty Mentor: Professor Holly Bewlay, Music

This project will examine seven different sound recordings of Wolfgang Amadeus Mozart's aria *Ach ich fühl's* from the opera *Die Zauberflöte*. The artists on the recordings are Elisabeth Schwarzkopf (1952), Anna Moffo (1958), Lucia Popp (1982), Kathleen Battle (1991), Barbara Bonney (1992), Renee Fleming (1996), and Pretty Yende (2015). This research will be vital to the singer/actor's ability to balance the demands of interpretation and communication through a unique, captivating, and authentic performance. In addition to interpreting the musical score, the singer/actor should be able to communicate the interpretation to the audience. The aria consists of a sorrow filled text, which is accompanied by a dissonant orchestral part. Mozart provides a simple accompaniment, allowing the soprano to take numerous artistic liberties. This is particularly so with the melismatic passage on the text "meinem Herzen" (my heart) and "so wird Ruh' im Tode sein" (I'll only find peace in death). The researcher will compare and contrast how these seven singers each treat these technically challenging sections differently. Using these findings, the researcher will further develop her own interpretation for this piece so she can communicate in a performance. This poster presentation will consist of links to the seven recordings plus the researcher's own performance.

## **Just Folking Around: The Social and Stylistic Changes of Traditional Irish Music**

**Kristine Murnieks**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

My research looks at the many social, political and stylistic changes traditional Irish folk music has experienced over time. Folk music has had a great impact on the socio-cultural history of Ireland. Participation in traditional Irish folk music has protected the traditions and styles of Irish folk music from past years. However, musical instruments have changed and new styles and ways to tell social and political stories have been invented. Throughout history, Irish music has set political and social trends by reflecting stances on social and political debates. In doing so, this music has not always found itself safe and welcome. Irish folk music has been supported by social and political rioters, and has also been banned by the government. Politics in Ireland changed drastically, affecting the music Irish citizens could listen to. Socially, Irish citizens could partake in music making, lend a supportive listening ear, or resent music for speaking an inconvenient truth. Those who choose to participate in creating Irish music have experienced many political, social and stylistic advances in Irish music. Social roles in music gained recognition and started a trend for the importance of Irish folk music and style on the social and political history of Ireland. The socio-political influence of Irish music became increasingly powerful over time. Overall, traditional Irish folk music has changed socially and stylistically along with the history of Ireland.

## **Karaoke: Origins and the Worldwide Phenomenon**

**Shayla Lance**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

My research explores the origins of Karaoke, and its growth into a world-wide phenomenon. Karaoke translates to “empty orchestra,” Kara- is short for Karappo, meaning “empty;” and –oke is short for okesutora meaning “orchestra.” This term does not mean ‘empty orchestra,’ but should be understood as ‘the orchestra on the recording is void of vocals.’ This research delves into the beginning and spread of karaoke around the world. There is a popular song genre that is closely associated with karaoke in Japan: Enka. After World War II, the song genre became popular and meaningful to those coming of age at the time. If you were to perform Enka in karaoke, you do not just perform the songs’ words and music, you must reproduce the singers’ original style. In the early 1970’s, a Japanese musician named Daisuke Inoue invented the karaoke machine, and although he failed to patent it Inoue is known as the ‘granddaddy of karaoke.’ My project will show how Karaoke has since made its way around the world, and has embedded itself into every culture.

## **Kumanovo and Listen: Music’s Role in the National Development of Macedonia**

**Zivko Popovski**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

After World War II, the country of Macedonia became an independent power in Europe. Along with a newfound discovery of nationalism, called “Macedonism” among the populace, the country also began to develop its own identity among the superpowers of the world. Although it never came close to the heights achieved by the USSR or the United States, Macedonia was able to differentiate itself from other European nations through the creation of new social and political advancements, such as the development of its own language. One such social aspect that changed dramatically was the music of the region. The early folk music of Macedonia is actually the folk music of Yugoslavia, since the country was originally just a sect of the Slavic nation before World War II, and shares many similarities with Bulgarian and Albanian folk music as a result. However, once its national identity was discovered, the style of Macedonian music began to separate itself from the music of the nations it used to be connected to. This resulted in a unique sound that influenced the pop music of the nation in the near future, and provided an avenue of expression that the country did not possess prior. This research will focus on how music influenced the growth of the young nation, developing into a driving force in the establishment of Macedonia as an independent European power.

## **Marimba: Here and There**

**Nicholas Leo**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

The Marimba is an instrument that has relatives all over the world in various cultures. It originated in many African countries and then was brought into Latin America with the slave trade. The term marimba has many meanings depending on where you’re from but to us, it’s most commonly thought of as a mallet percussion instrument with tubular resonators below wooden bars. Though playing technique is consistent, the musical uses throughout the world are quite diverse. In Latin America and in Africa, the marimba is a folk instrument for several cultures. In North America, the marimba is mainly an orchestral instrument. The evolution from folk instrument to orchestral instrument began in the 1940’s by composers such as Darius Milhaud who introduced the marimba in his 1947 Concerto for Marimba and Vibraphone. This project traces that evolution.

## Napoli Della Canzone: The Music the World Knows as Italian

**Benjamin Levitt**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

Naples Italy is a major hub in Southern Europe which for centuries has been a meeting place of cultures, ideas, trade, fine art, craftsmanship and has been on forefront of popular music. Out of its tough and rocky past, Naples developed rich cultural traditions and the city's geo-political position has created a vast canopy of musical expression. This has influenced a global perception of Italian folk music and Italian culture. This music has affected me positively, I visited this city and felt its aura, the experience pushed me to seek out and learn about Neapolitan traditional folk and popular music. Naples is world renowned for Verdi and opera, but another genre of music comes from there too, one based on rustic country tunes called villanelle (often sung in Neapolitan dialect). These folk tunes highly influenced opera and modern popular music worldwide. Songs like "O'Sole Mio," "Torna a Surriento," "Santa Lucia," "Volare," and "Mambo Italiano" are well known and loved around the world and my research is focused on why. What are the historical, geographic, cultural and religious factors that make Neapolitan music so and which personalities helped propel its modern popularity?

## The Native American Powwow by Region

**Kara Mayeu**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

My research looks into the uses of music in the powwows of Shoshone and Navajo ethnic groups. Traditions such as storytelling, music making, and powwows have been passed down through generations and are still practiced by Native Americans today. Powwows are spiritual gatherings in which members of a tribe gather to dance and sing honoring aspects of their culture. Pieces of the music incorporated in a powwow are passed down orally and not much of Native American music is notated. My research centers around the comparison of powwows in different regions of the United States, specifically as practiced by the Shoshone and the Navajo peoples. Shoshone tribes are located in the eastern part of the United States, while the Navajo are located in the west. How are their powwows performed? How do Shoshone and the Navajo powwows differ?

## The Negro Spiritual in the Nineteenth and Twenty-First Centuries

**Nicholas Irion**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

My research traces the negro spiritual from its inception in the 19th century deep south to today. How did spirituals help people deal with life under slavery, and what about this genre still speaks to modern Americans? The negro spiritual was conceived

in the late 19th century when enslaved Africans in the southern United States invented a type of song that was also a form of coded communication using biblical texts. When they would be working from sunrise to sunset, they needed something to keep them entertained and informed at the same time. The negro spiritual was birthed at the peak of slavery. Although it was most popular in those days, the genre still lives today in the 21st century. Many versatile musicians have kept this alive and have used it to bring back the wealth of knowledge that was coded in the songs. These spirituals have been used to teach lessons and traditions in households, so people understand the origin of our music today. As we think back to how far we have come, we can say our ancestors gained strength through their singing of spirituals, and people today still tap into that strength.

## No Exit: Fusing Technical Design With Research Strategies

**E. Elise Cloutier**, THA 234: Introduction to Theater Design  
Faculty Mentor: Professor Ann Emo, Theater

Space is an important concept both to the theater and to the existential philosophy of Jean-Paul Sartre, who wrote *No Exit*. One of Sartre's primary beliefs regarding human existence was that people are the product of their choices, and therefore are required to own them, as the characters in his famed play must do when they find themselves in hell. Sartre believed that limitations on the possibilities of the human experience were only figments of one's perception and that people were individually responsible for their decisions and the resulting outcomes. Time and space are not only critically meaningful to Sartre's philosophy, but also to theatrical design. The ways in which a designer fills a space convey emotion and intentionality, as well as provide an atmosphere for the production. My project seeks to illustrate the critical research process that is involved in designing a theater production. The design tells the audience a story which transcends the words uttered by the actors. Each component of the set must unite to transport the audience to another place and time. In order to achieve this goal, the designer of a play must perform extensive research on the facts surrounding the play, such as the era in which it occurs. After collecting this information, the researcher must then dress both the actors and the stage, bringing life to the story being told.

## Plaster and Silicone Mold Making

**Patrick Wagner**, Ceramics  
Faculty Mentor: Professor Colleen Toledano, Design

My work is sculptural with a focus on textural elements. My intention is to peak the viewers interest with temptations of touching the surfaces. They see sticky surfaces and drips of slime curled around its edges. This work is my interpretation of the natural world around me. It is a series of specimens that

showcase and expand on behaviors and characteristics I have seen in nature. This body of work is meant to set the viewer in a place of discomfort while also providing visual interest. The work exists on a scale that is meant to overpower the viewer. The main idea in this work is that the natural world is full of grotesque and uncomfortable moments, but in these moments there is beauty; there is life. With the use of silicone and plaster mold I have the ability to use textures and organic forms that currently exist in my surrounding environment. Creating molds allows me to use textures and forms that allow my viewer to recognize and associate to their own natural environment. This helps them to use these specific objects as icons for ideas that carry through each piece. I use molds in my work because they allow me to create the same object multiple times. With an exact replica of each object the viewer is able to identify the specific object. The use of other materials such as resin, a liquid that can be colored and over time cures into a solid mass, with clay creates other ways to interpret the organic objects. With this knowledge of making a variety of molds and casting an array of materials I allow the viewer full visual exploration of the environments that interest me.

### **Popping the Bubble: Television's Place in Society**

**Marissa Brannick**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Lou Rera, Communication and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

How does society affect a piece of media? Does a content provider have a responsibility to be socially conscience? For better or worse, works of art do not live in a bubble. My presentation will explore how this specifically applies to television. A filmmaker may intentional tell a story to reflect a real life issue. Others are meant to represent a specific group or minority. However, artists are not always as in control of the narrative as they would believe. Production elements can take on new meaning never intended once an audience cast their own culture and experiences upon it. I experienced this first hand through the creative process of making a television pilot. I will use examples from my pilot, *Kill Frame*, to illustrate how this concept applies in the several stages of production, from development to final edit. Further, I hope my presentation will teach both content creators and consumers alike that television affects their lives and society, influencing them to take more consideration of diverse representation and social issues in their media.

### **Rajiv Joseph: An Opportunity to Work With a National Playwright**

**Shannon Stacy**, THA 488: Internship  
Faculty Mentor: Professor Ann Emo, Theater

Through Buffalo State and The Road Less Travel Productions, I had the opportunity to do a project based costume design for Pulitzer Prize finalist Rajiv Joseph's upcoming play, *Archduke*, about the events leading up to the assassination of Archduke Franz Ferdinand. Because it was still in development, the script continued to change during the process. This made for a lot of scraping ideas and starting from scratch. Even with these changes the design process remained the same. It started by reading the script several times and making a list of every costume piece needed by the characters. Once I did that I would go back through the script and look at characters personalities, and back stories. Then I did extensive research. The play is historical and the characters are based on real people. I found catalogs or historical photos to draw upon for accuracy. Next I sketched. There were two big creative problems. The first and most challenging was that the script changed every couple of weeks. I would have everything done for one character, then I would get a new script and I had to admit that my choices would no longer work. Start again. The second problem was finding the balance between a play based on historical facts and a reenactment. Because the characters are real people and it is easy to gather information. But they are also theatrical characters. I had to go back to how Rajiv Joseph portrayed them.

### **Resin Casting Techniques**

**Patrick Wagner**, Ceramics  
Faculty Mentor: Professor Robert Wood, Design

During my summer undergraduate research grant involving mold making, I began using resin to cast into the molds. Resin is a liquid plastic that is poured into a mold. Often there is air that is trapped inside the liquid when it is being poured, causing incomplete castings and foggy cast surfaces. Since resin is often clear it is important that it is clean and free of any air bubbles. This is difficult to achieve because resin is a two part mixture that once combined must be stirred, which naturally introduces air to the mixture. When I began working with this material I ran into this problem so I set out to investigate a solution with this small grant. How do I remove the air from the mixture before the resin has the chance to harden? After researching different types of resins and their specific environmental, cure, and clarity requirements, I selected the type that would provide the effects I desired for my artworks. After experimentation, I found that the best way to achieve clear castings is to put the mixture in a vacuum chamber. The vacuum creates a lower pressure in the chamber than the room, thus air in the mixture is released or degassed. During my research I found that the resin I selected

must go under -14 psi in order for the gas to be released. That established, I proceeded to add colorants and different materials to the resin and cast parts that will become components in my own artwork. The presentation will include samples of the castings and discussion on its relevance to my artwork.

## Rubber Molding to Produce Multiple Objects

**Ke Shi**, DES 499: Mold Making

Faculty Mentor: Professor Stephen Saracino, Design

Casting is a process of making jewelry pieces that involves carving, in wax, an object and preparing a plaster mold that is heated to eliminate the wax. Liquid metal alloy is then poured into the mold. It is usually referred to as lost-wax casting because the casting mold is created using a wax model that is melted away to leave a hollow cavity in the middle of the mold. As an art form, Jewelry casting has been in existence for thousands of years. Since the time that man attained the ability to melt metal, artisans have been pouring molten gold into cavities shaped in stone, plaster, sand, and cuttlefish bone. It is still widely used today by both master craftsmen and home crafters to make precise reproductions of original jewelry pieces. Once the object has been cast, an artist can make a flexible vulcanized rubber mold to allow the original casting to be recast in multiples without having to carve it from scratch once again. Because the mold is made from vulcanized rubber, the molds last for quite a long time. This affords an artisan a manner in which to produce multiple objects at a much lower cost for resale. It is worthwhile mention that 90% of all the equipment goods and a vast variety of manufacturing machinery have casting applications. Virtually any metal that can be melted is used in casting. I am studying the processes of casting and molding to determine how best to become more efficient and economical in pursuing a manner to produce multiples of my jewelry pieces. In this respect, I will be able to lower my overhead costs to offer lower prices on my pieces. I am creating a series of designs of rings utilizing 5 and 8 millimeter cabochon stones which I will rubber mold in a series of designs that include rings, pendants and earrings.

## Saxophone: Intention and Invention

**Angela Carrero**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

In its inception, the saxophone was intended to provide orchestras with the power of brass, yet the ease of playing a woodwind instrument. The saxophone was first denied by European cultures because of how the saxophone combined all the typical instrument groups into one. Saxophone, however, has brought many different cultures together and created the revolutionary sound it was intended to. Modern saxophones are the result of technological advancement in music and has been

adopted by distinct global cultures. These developments have led to saxophones inclusion in jazz, rock, blues, and Latin music, altering the cultural significance of the instrument. French Impressionism led to the cultivation of saxophone repertoire that remains popular in the modern day. Globalization led to the spread of saxophone repertoire, which took on a new significance after being introduced to American music cultures. The saxophones significance underwent another change and is now closely associated with American Jazz and Swing. My project explores the development of saxophone's identity within Western music traditions, from its incipient stage as Belgian military horn to its position as a modern symbol of Americana.

## SCAMPER: Creativity Through Junk Art

**Lucas Colon** and **Erica Theise**, CRS 303: Creative Leadership

Faculty Mentor: Professor Jo Yudess, Center for Studies in Creativity

We are exploring a series of divergent tools for creative thinking. One of these tools is called SCAMPER. This is an acronym for Substitute, Combine, Adapt, Modify, Put to other uses, Eliminate, and Reverse. It is utilized to increase the amount of creative ideas when brainstorming. Both of us have practiced using this tool to improve creative thinking during class time, and our research involves putting this tool to practical usage. We intend to demonstrate the practicality of this tool live during the research and creativity celebration, by bringing a plethora of old electronic and mechanical devices to disassemble and reconstruct throughout the day. As one of our team members is an art major, with a minor in creative studies, this presentation naturally falls into our areas of study.

## Send the Epistles

**Corey Talford**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

The Jazz Epistles were one of the few glimpses of hope that came out of the apartheid era of South Africa. This group of musicians - Abdullah Ibrahim, Kippie Moetski, Jonas Gwangwa, Makaya Ntshoko, Johnny Gertze, and Hugh Maekela - became the first South African bebop band who were inspired by Art Blakey and the Jazz Messengers. During the rise of this group, South Africa was being influenced heavily by the American Jazz scene. Jazz clubs were being created with men dressing up and imitating the styles of both Dizzy Gillespie and Charlie Parker. This American Jazz influence (specifically bebop) is what sparked the formation of the Jazz Epistles in 1959. Due to harsh apartheid laws, they disbanded in 1960. Apartheid is the social structure that was put in place by the white South Africans to oppress and control the native people. This research project looks at the affect the Jazz Epistles had on apartheid and South Africa as a whole, as well as the affect apartheid had on The Jazz epistles. Lastly this

project explores what contributions the Jazz Epistles brought to the overall world of jazz with their South African background.

## **Service-Learning: From Buffalo, NY to Guimarães, Portugal**

**Enya-kalia Jordan**, Theater and Dance  
Faculty Mentor: Professor Joy Guarino, Theater

This project explores whether skills obtained through local service-learning encounters, transfer to a global or international one. In late March 2017, I will be traveling to Guimarães, Portugal to participate in an International Service-Learning project with a refugee population. All of my local S-L involvements have provided a practical opportunity to apply concepts and content learned. What was most significant, however, was working with children from diverse populations at schools and community centers throughout Buffalo, NY. My research question, Do the benefits of participating in local service-learning, embedded in dance education courses, prepare me for an international teaching dance experience? My research method includes reviewing my reflection assignments from previous service-learning projects to reveal comments written about process, progress, and change. I will compare and analyze these comments to the international reflection assignments from my time in Portugal for comprehension, communication, engagement, and skill transfer. My reexamination of past journal entries have already indicated that I am better prepared emotionally, intellectually, and mentally for this interaction than I was prior to my first service-learning experience. I look forward to further discoveries of growth and comfort with teaching new populations in Portugal. In my poster presentation I will share experiences through photographs and journal entries.

## **She Saw That it Was Good: Sculptural Works**

**Maryrose Fridley**, FAR 440: Senior Studio in Sculpture  
Faculty Mentor: Professor Kenneth Payne, Sculpture

From the way we decorate our homes, our bodies, our faces... to the poems and books and blogs we write...to the songs we create, the pictures we take or paint...to the meals that are made and the seasonings used to make them...these are all our finite attempt at creating something from nothing and saying "it is good." I am working more on formal elements of sculpture, color, aesthetic presence, and energy in my pieces. I want to create works in sculptural material that are strong in relation to the concept or idea behind the piece. I will work in cast metals such as aluminum or cast iron. Being a woman, I am thinking a lot about femininity and what it means to me, what it means to society and how it relates to the art world and to the entire world on a universal level. I want to create works that appear animated with a high energy that draws the viewer in. I believe that these

forms feeling animated, they will give off a more familiar feeling to the viewer. In creating these sculptures, I will need to start with an armature to create the skeleton or structure of the form using steel re-bar and pencil rod. Then, I will use chicken wire, burlap, plaster, and clay to create the patterns to be rammed into sand molds. The sand molds will be created from the patterns in two or more different parts and then cast in aluminum. This will help my sculptures last. I may also include welded steel bases for these sculptures. I will display my final pieces of abstract sculptures created under these ideas of womanhood and goodness.

## **Slocum: The Process of Runway's Senior Collection**

**Ashton Warner**, FTT 451: Senior Project  
Faculty Mentor: Professor David Brinson, Fashion and Textile Technology

This project is based on my senior collection and complements this year's theme, "Remember/Imagine," I am using the Spring/Summer 2018 trends from the forecasting website WGSN to research my four piece collection. My collection is Slocum, which draws inspiration from the 1904 shipwreck in New York. The General Slocum set off along the East River for what was intended as a leisurely steamship trip. It was not long before the ship mysteriously caught fire. The crew was not trained in fire safety, so it was not long before the flames grew to impossible size. Although it appears to be a small piece of forgotten history, it is known as one of the deadliest disasters New York had seen in the 20th century. My concept comes from the desire to remember this tragedy and memorialize it. For my collection, I prepared twenty sketches from which I selected four designs. After measuring each models, I planned the optimal way to develop each design using flat patterning techniques and tested different fabrics to see how each fabric burns. Each garment is made of all white fabrics, including a silk chiffon. Burning the edges of the silk created a charred effect to reflect the clothing worn by the passengers.

## **Staged Authenticity in Modern Fado Tourism**

**Amanda Paruta**, Music and Anthropology  
Faculty Mentor: Professor Tiffany Nicely, Music

Modern-day fado tourism is the intersection of political policy, globalization, and the socio-psychological concept of staged authenticity. Fado, which translates to "fate," is at the heart of Portugal's tourism industry and has been codified as Portugal's emblematic musical genre. In June of 2016, I personally experienced the Lisbon tourism industry seeking to gain firsthand knowledge of fado presentations. My time in Lisbon revealed transformations to the genre intended to align with tourist ideals, rooted in mid-19th century political policy.

Fado emerged in Lisbon's most impoverished neighborhoods in the early 20th century. In its primordial state, fado was the anthem of the destitute, later transcending socio-economic boundaries to become the music of the city. Tumultuous changes in government leadership—a military dictatorship (1926-1932) that imposed heavy censorship laws on fado, and the Estado Novo (1933-1974), a fascist regime that employed fado as its unofficial propaganda—left fado in a liminal state between music of the people and propaganda. Throughout its reign, the Estado Novo shaped Portuguese culture to suit its “peasant, but pleasant” ideal. The Estado Novo's imagined Portuguese community was somber, religious, and plain. These ideals were disseminated throughout the country and became a way of life, seeping into fado presentations—particularly those directed at tourists—freezing the genre's development until its revival in the late 1990's. Tourist exhibitions, however, remain encased in the Estado Novo's shroud of ideals and censorship. My research explores the influence of the Portuguese dictatorship on the presentation of fado to tourists and how the concept of staged authenticity perpetuates its effects.

## They're Not My Peers: Cultural Changes in Generations

**Ke Shi**, Painting

Faculty Mentor: Professor Lin Jiang, Fine Arts

Growing up as the only child in my family under the government policy of one child one family, sometimes, I feel it's not easy to get along with them (the rest of my family)—they're not my peers. At the end of last semester, I studied a series of paintings (“Bloodline: The Big Family”) from Zhang Xiaogang, who is a contemporary Chinese symbolist and surrealist painter. His work inspired me to pursue the study of my family tree. During my research fellowship project of exploring my family tree, I discovered something similar hidden in my family as well—the reason why they think and act differently from my peers is very likely due to rapid and profound cultural changes that took place in the last few decades in China. The practice of keeping and maintaining a Jia Pu has been part of Chinese culture and civilization for more than two thousand years. As a written document of a Chinese family lineage, it includes the family genealogy, key information of the family history, everyone's name, the relationships between them, the contents of their stories and visual portraits. The visual and artistic nature of my project adds both depth and attractiveness to the practice of keeping my Jia Pu. More importantly, visual images of each generation's daily lives directly reflect the times and the social conditions they live in, which emphasize the rapid and radical changes happened at both personal and family levels. I visited my grandparents to collect old photos of my family members as visual reference. And I also took some new photos of them mostly engaging in their routine daily life activities, which probably

reflects and reveal their characteristics more authentically. Combining the study of Chinese history over last hundred years, I wrote caption for each portrait.

## Tinging Tonality

**Nicholas Torre**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

In Western music there are musical elements which are familiar to the common ear, such as melodies and tunes, major scales, and chords. In Indian music, there exist what are called “raga.” If one were to approach an Indian musician and request to hear them perform a Raga, the sound would appear as more a tune rather than something similar to a scale or series of notes. There are a total of six ragas and each raga is tuned in an ancient mode. For each raga, there are six more variations of the tune, which these are referred to as raginis. Typically, the Indian tonal system has seven notes that divide the octave. From here it is divided into twenty-two intervals. It is often said how one is not able to sing all twenty-two of the pitches accurately. Some musicians argue that there can be up to forty-nine or even sixty-six unique pitches. Twenty-two intervals are the standard that is agreed upon. These microtones are a sensation in music which would sound different to Western ears. These microtones do not appear everywhere, but are used with extreme caution in Indian music. The tonic is also not fixed in Indian music, and can be moved to the performers desire. The concept of tonality is far more complex in Indian music when compared to Western music.

## Traditional Music in Modern-Day Japan

**Jamie Grimm**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Tiffany Nicely, Music

Traditional music plays a major role in modern-day Japan, where people have a deep respect for historical folk music. Traditional music is played at festivals, traditional weddings, concert halls, and television programs. Japanese people are taught to have a respect for the tradition and culture surrounding this music. Traditional Japanese music originates in other Asian musics and is adapted into the music that many Japanese citizens know well. Traditional Japanese music uses the yo scale, a 5 note scale that is considered “pentatonic” in Western music theory. This scale used in many styles of Japanese music, including gagaku and shomyo. Traditional Japanese music has its own instruments that are treasured by the Japanese. Instruments like the biwa, gottan, shinobue, taiko drum, and the koto have a rich history in Japan and are respected by its citizens. These instruments also play a huge part in the culture in Japan. My research is about how traditional music is represented in the culture of Japan, and to modern Japanese citizens.

## **Trinidad and Tobago: Steel Drums, Culture and Tourism**

**Michael Schwartz**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

This project focuses on how steel drums influence the tourism and culture of Trinidad & Tobago. Steel drums, or steel pans as what they are called in Trinidad, were established when drums were banned there during the early 20th century. The making of the steel drums goes back to the early and mid-20th century. Fifty-five-gallon oil drums washed up on the shores of Trinidad & Tobago during the war. These oil drums were used to establish a way of life for underprivileged teens of all backgrounds. The oil drums turned into steel drums that consisted of tenor (melody pan), double second (harmony/counterpoint), cello pan and bass pan. The steel drum bands also incorporated shakers, maracas, iron brake drum, cowbells, and drum kits. These bands can play music in the styles of Calypso, Soca, Reggae, Classical, Pop, Rock, and many others. The steel drums are also the first acoustic instrument that does not need any form of amplification. Government-sponsored competitions bring people from all around the world to compete in the Panorama festival. Tourism comes into the picture during the Carnival/Panorama festival competitions at the Capital of Trinidad and Tobago. My project focuses on what steel band music looks/sounds like, and how steel drums brought culture and tourism together in Trinidad and Tobago.

## **U.S. Reggae Movement**

**Joe Kaplan**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Tiffany Nicely, Music

This project explores how the expansion of the U.S. Reggae scene is helping people to do more, give back, and enrich the lives of others, based on the ideals and principals of the original reggae movement that came out of Jamaica in the 60s and 70s. Reggae music is usually associated with Jamaica and other Caribbean islands. When you tell people you play reggae music in the U.S., they don't really know what to expect. I'm trying to shed more light and dig deeper to the music scene I'm a part of that spans the entire globe with an emphasis on the U.S. Bands are getting the chance to speak their mind, and be truthful/ conscious about what they're writing. Most importantly these U.S. acts have found a way to remain in control of their music while completely avoiding the major record companies by either going towards indie record labels geared towards certain reggae acts such as *Easy Star All Stars* who help get these bands on the big reggae circuit and a decent amount of exposure. On a somewhat similar but separate place of the spectrum is Rootfire. The *Rootfire Cooperative* is a label services program created through a joint partnership between Ineffable Music Group and Rootfire. The intention was to provide interest-free loans for the production and marketing of recorded music. Rootfire has only been around since 2016 but this is the start of something

something completely new as the next step in the progression of the U.S. Reggae scene giving the DIY bands in the states more freedom and control with how their music is distributed, marketed and perceived by a large demographic.

## **The Use and Development of Leitmotifs in Final Fantasy VI, VII, and VIII**

**Timothy Schmidt**, MUS 491: Capstone in Music  
Faculty Mentor: Professor Jose Tomas Henriques, Music

Starting his career in the late 80's, Japanese video game composer Nobuo Uematsu has gone on to establish himself as a standard in the video game industry. With little formal music education, his compositions demonstrate a unique perspective on music that isn't typically found in the classical realm. Most notably, his scores for the Final Fantasy video game franchise have paved the way for compositional development in video games alongside that of the technological advancements of the time. One musical technique in particular, the leitmotif, plays a dominant role in the composer's expansion through the series. The leitmotif, a reoccurring theme which represents a person, place, or concept, can be a literary device when used in distinctive contexts. Of the dozens of soundtracks composed by Uematsu, three in particular, those of Final Fantasy VI, VII, and VIII, demonstrate the exploratory nature of Uematsu as a composer, exposing the strong development of the leitmotif. In addition to tracking the leitmotif's historic value dating back to Richard Wagner, this project will firsthand discover musical examples of leitmotifs in the scores and analyze their effectiveness in use, paying close attention to their use as a compositional effect for storytelling.

## **Vessel Raising Through Geometry**

**William Prendergast**, DES 337: Metalsmithing II  
Faculty Mentor: Professor Tara Nahabetian, Design

The goal of my research is to create a set of pieces which incorporate both tenets of the modernist movement, as well as geometric construction carried throughout the series. The idea is to have a body of work that draws from a period of design that is currently underutilized, while also applying a contemporary feel. Additionally, each piece created will function as an individual work in addition to being a cohesive series. To complete the project, I utilized the knowledge I have of metal working to create a three piece table set; a coffee server, a creamer and a sugar bowl. I designed and constructed models of each object. This ensures both the design is correct, in addition to addressing any problems with construction before attempting the final pieces. Once these models were finished, I created the final works, from sterling silver sheet metal, acquired with the assistance of the research grant. The final works will be presented during the SRCC, in addition to a poster cataloging progress pictures and information documenting my research.

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# ***Business, Fashion & Textile Technology, Hospitality and Tourism***

## **Are Our Business Students Prepared for Life After Graduation?**

**Kaitlyn Lisiecki**, Business Administration and  
**Asiah Abdulla**, Business Administration

Faculty Mentor: Professor Robert Delprino, Psychology

Being seniors in college fearing the after graduation job craze, it was very important that we spend this last semester soaking up every resource we could from Buffalo State College. Like every other student, we were concerned about the big changes that were to come in our lives: no more college, no more professors, no more small part-time jobs. We soon realized that the majority of the opportunities on campus seemed underused, unhelpful, or no one knew they even existed. Building off a previous study on student awareness, we created a survey to administer to business students to find out what their thoughts, concerns, and perceptions of career opportunities were after graduation. Whether it was graduate school or trying to find the perfect job, we investigated if these students felt prepared and if so, how did Buffalo State College contribute to their career development. The survey we developed asked questions about advisement, classes, internships, professors, and support services with a goal to identify what aspects were most and least important during the college experience for students related to their career development. Overall 200 undergraduate students were surveyed. Also a smaller sample of alumni who graduated in the past six years were studied. The use of this smaller sample of alumni was to provide some insight into responses gained for the larger undergraduate sample. Our goal is to identify from a student perspective what works and doesn't work for students in terms of career development.

## **Art, Literature and Entertainment: Influencers in the Tourist Experience**

**Destiny Abernathy, Jacob Kenny, William McDermott, Khadijah Hawkins** and **Jasmine Moreira**, HTR 318: Cultural Tourism

Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

The history of Ireland depicts people who have distinguished their culture and all of their accomplishments over many centuries. As a result, there is an abundance of art, literature and entertainment which truly captures the culture of Ireland giving reason for tourists to visit in big numbers each year. Overseas tourist visits to Ireland in 2015 grew by 13.1% to 8.0

million. What are the main reasons for this surge? Our research project examines the nature of art, literature, and entertainment in Ireland. Specifically, in what ways do these cultural forms influence tourists' experiences? Our central question is "Are cultural activities significant and powerful enough to lead to a sustainable tourism market and strong tourist economy in Ireland?" The travel itinerary for our study abroad program in Ireland provides the perfect opportunity to conduct cultural tourism research. The names and geographic locations of venues in Dublin and Galway most popular for art, literature, and entertainment are highlighted in a poster presentation. The engagement of our own Buffalo State students in various cultural forms while visiting different attractions is also studied. The research is conducted using an open-ended, and subjective approach in a realistic setting (on tour) and reflections of our own tourist experiences. Data collection methods including peer-to-peer interviews, observations, and field notes are also used. A concept mapping process leads to an analysis of impacts and a concluding statement that reveals the power of cultural activities to influence the tourist experience.

## **Born to Be Me: The Social and Psychological Impact of Dress on Vietnamese Women**

**Scott Jarvis**, FTT 495: Special Project

Faculty Mentor: Professor Lynn Boorady, Fashion and Textile Technology

This research explored the current dress of Vietnamese women and what factors affect their wardrobe choices. Vietnamese dress, specifically the Ao Dai, was an indicator of the wearer's status in society; the brighter colors and the use of higher end materials meant that you were of high status. Throughout the 20th century, this garment evolved to match the changing global trends – for example, in the 1960s Ao Dai's had mod prints and raglan sleeves. In person interviews with three young Vietnamese women enrolled in college in Ho Chi Minh City were conducted in order to obtain information on what their traditional dress means to them. The results show that the younger generation of Vietnamese women is much more liberal concerning their dress than what tradition would imply. Social media, inexpensive counterfeit goods and the influx of western retail stores are all factors in this new direction. This study found that the new status garments of Vietnam are not traditional dress but Western style garments obtained through local branches of western retailers or online purchases.

## **Buffalove: A Comparison of Festivals and Events**

**Vyktoria Staufenberger**, HTR 495: Festival Management  
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

There are many segments which are part of the rapidly growing hospitality industry. Internationally, the business of special events has grown to enormous proportions and now represents a significant contribution to the tourism sector of the economy. Tourism dollars are increasing as a result of visitor attendance at festivals and events across the country. Tourist spending brings in revenue for event operators, and creates what is known as a "multiplier-effect" for the surrounding community. This research project shows the importance of events and festivals and illustrates economic impacts. Festivals and special events have been and will continue to be an important medium for nonprofit and public organizations to carry out their missions, and to be a catalyst for community development. The Buffalo Niagara region hosts events and festivals to visitors and residents 12 months a year. Over twelve million tourists spend their vacation time here and many cite events and festivals as the reasons they visit. What type of events and festivals are most beneficial to the community here? Two festivals and two concerts will be the subjects of a comparative study. Information on the history, logistics, attendance and revenue for each will be presented. A model depicting the "multiplier-effect" will illustrate the importance of festivals and events in a community like ours. This model can serve as a tool to conduct ongoing research to study events and festivals. Its usefulness may extend to politicians, festival organizers, event managers and hospitality professionals.

## **Comparison of Children's Leggings: Price vs. Quality**

**Molly Griffin**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Arlesa Shephard, Fashion and Textile Technology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The purpose of this study is to determine whether the quality of children's leggings varies among price points. Two price points were compared, with two leggings (one black and one gray) in each category. Four different tests were run on each of the leggings in addition to fabric count and weight to check for quality. The tests were chosen based on reviews of children's leggings, and consumer research. The top complaints were compiled, and standard industry tests were chosen accordingly. The first test is AATCC 130, which tests for soil release. The second test, ASTM 4970, tests fabrics for pilling. The next test determines the bursting strength of the fabric, which is ASTM D3786. The final test, AATCC 150, tests the dimensional stability of fabrics after home laundering. The results of each of the four tests were

compared against the standard performance specification for women's and girls' knitted sportswear fabrics. The higher priced leggings outperformed the lower priced leggings in every test. The higher priced gray leggings laundered the best out of the four garments. They had the least amount of shrinking and did not retain any staining. The higher priced gray leggings also outperformed the other garments in the pilling test. When it comes to bursting strength, the higher priced black leggings outperformed the rest. Although cheaper, the lower priced leggings are not a good investment when looking for a garment that will withstand children's everyday wear and tear.

## **Everything I Am: A Women's Self-Love Campaign**

**Tatiyana Bellamy**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Fred Bristol, Business, Professor Andrea Guiati, Director, Muriel A. Howard Honors Program and Professor John Nolan, Business

I will create a video that is approximately five minutes in length, and an accompanying photo series of about 10 pictures, that will serve as the source of content behind a social media marketing campaign. The artistic motivation behind this social campaign is to advocate for self-love amongst a diverse array of women. Cosmetic plastic surgeries have been on the rise in America and women consistently make up over 85% of cosmetic surgical procedures. Each year, more young women ages 13-19 are deciding to undergo these operations. Females also consistently have higher rates of low self-esteem compared to males in the same age group. With an increase in intrusive advertisements that display "perfect" bodies and lifestyles, this content will urge women to stay true to themselves and recognize their worth. To create this campaign, I will use a Panasonic AG-AC 90 to ensure that it is produced with high quality that makes it stand out from competition. Bold, crisp solid color backdrops will be used to allow the subjects to be the focus of attention. The editing will be done on Final Cut Pro to seamlessly add transitions and audio tracks that will transform the video into a compelling and attractive campaign. This presentation will include interviews with several models who will speak about how they were teased when growing up; their current battles with insecurities; how they've grown to love the skin they're in; and the women they've become.

## **Fashionable Image**

**Marquan Hunley**, Fashion Design  
Faculty Mentor: Professor Jo Yudess, Center for Studies in Creativity

Fashion is a unique way to show yourself to the world. Fashion should be unique for every size person. I wrote this research because I'm a big guy, and when I go shopping, it's

hard for me to find what I want because the stores don't have plus sizes. When I want a specific thing, it's hard to find. When I find clothes that fit, the prices are too high for me. If I don't get the clothes I want in the moment, and I decide later I wanted them, and go back, they will already be gone. The latest findings from the U.S. Department of Health, Education and Welfare indicate a sharp gain in the big and tall market in the past five years as well as continued projected growth (Balchen, 1988). This research indicates that the fashion industry has overlooked plus sizes, and that brings the plus size market down. In another study, Dannenmaier and Thumin (1964) reported there was a "tendency to overestimate heights of the high-status persons and underestimate the height of the low-status persons." This research indicates that clothes may be big enough, but not the right length. Carine, a plus size model, says designers should think about the person who is wearing the clothes instead of making clothes for smaller sizes. Designers should think about how they would feel looking at the tags, regardless of the size. (Cooper, 1998). I will design some clothing and put it on display to show fashion for plus size people. A poster will explain what I've have done. This project helps all who are trying to find a fashionable image.

## **Informal Social Media Actions Could Have Very Formal Consequences**

**Wesley Fezer**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Rebecca Gauchat, Business and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

When social media first emerged a majority of the working force feared that using it could affect their work in terms of applying for jobs, background checks, and it would serve as a distraction at work. Presently, social media has become such a central focus of people's lives, in particular generation where social media has had adverse effects on employees. Through my preliminary findings, I have determined that social media content has actually transformed the workplace since there is continuous contact between employees. Social media has weakened supervisors' authority because they become "friends" with employees on social media. Finally, there are constant issues being raised by employees using social media because it promotes interoffice relationships, makes stalking/inappropriate behavior occur more frequently, and eliminates many personal boundaries. X and Y, that we rarely think through about what we post and who sees it since "everyone does it." I propose the question: Can social media sites presently be detrimental or beneficial to careers for people entering the job market and those already in the work force? Also, can there be any beneficial factors to social media aspects where businesses would encourage their employees to use social media, or should professionals stay clear of using such sites? In order to conduct my research I have studied numerous

scholarly articles, business journals, a business book on the 21st century social media, and have reviewed several court cases.

## **Ireland's Consumer Cravings: The Historical Background**

**Genevieve Vater, Taylor Grant and Dana Rohenz,**  
HTR 318: Cultural Tourism

Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Cultural tourism is a genre of special interest tourism based on the search for and participation in new and deep cultural experiences. Ireland is home to some of the most intricate and interesting art known in human history. Attributed to the ancient Celtic people, it is mysterious and rich in meaning with sign, symbol, and metaphor. Shopping has become a main tourist activity and accounts for a considerable amount of tourism expenditure. Previous research has found that shopping tourists stay longer at a destination and spend approximately three to four times more than leisure tourists. However, only a few studies have considered the value of shopping as a primary motivation for travel. What types of purchases have meaning and create memories of the travel experience for the tourist while in Ireland? What do the Irish knots symbolize about life in the rugged west of Ireland? How did the Claddagh ring become a symbol of the true form of love? We will use the qualitative research method to gather an in-depth understanding the importance shopping as part of the cultural tourist experience. Our findings will be charted using visits to shops in Dublin, Galway and Belfast. These facts will lead to information that will support the argument that shopping is much more than an economic activity, it is also a cultural activity.

## **Ireland's Food Traditions: Eat, Drink and Be Merry**

**Reanna Lizauckas, Cohen Sulzbach, Mallory Grahner, Erin Sullivan, Steven Hummel, Bethany Cecchetti, Brenna DiSarno, Kellen Pembleton and Abby Pelonero,** HTR 318: Cultural Tourism

Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Food habits are among the oldest and most deeply entrenched aspects of many cultures. Since traditional foods and dishes may have a historic precedent in a national dish, regional cuisine or local cuisine, it is a compelling part of the international tourist experience for many people. Fáilte Ireland was formed in 2003 under the National Tourism Development Authority Act to guide and promote tourism as a significant driver of the Irish economy. Countries like Ireland are making a significant investment in culinary tourism development and are seeing results with visitor spending and overnight stays rising as a result of food tourism promotion and product development. Dublin: The City

Experience, a study abroad program provides students a unique opportunity to learn about the traditional foods in urban and rural areas across Ireland. The itinerary includes a visit to a rural farm in Navan and activities near the coastal areas in Galway. Program activities will include dining in the heart of Dublin thus experiencing cuisine in the city center and touring Guinness Storehouse. We will use an ethnographic approach to study traditional foods in Ireland based on observations and interviews. The findings will be charted on a poster with a narrative of Irish food traditions while noting differences based geographic regions. This research may become an important resource for people working in the hospitality industry, as culinary tourism continues to be an economic engine in many developed countries.

## **Project C.O.I.L.: A Global Education Project**

**Michaella Campanella** and **Anthony Respress**, BUS 389: C.O.I.L. Project

Faculty Mentor: Professor Michael Littman, Business

Project C.O.I.L. (Collaboration Online International Learning) united Buffalo State business students with Amsterdam University of Applied Sciences international business students to enhance international understanding by working as a virtual global team. This learning experience working with technologies allowed us to interact via SKYPE, Messenger, Docs and e-mail. By learning about and applying the development of intercultural communication skills in the context of comparative college education, this project taught us to work together as an international team to collaborate on an assigned task. Working with the United Nations Sustainable Development Goals, Quality Education was the focus of our research and presentation. The guiding strategy was to make recommendation for improvement and taking into consideration that both American students and Dutch students had a specific point of view. As an international and virtual team, we are able to collaborate on better ways to make sure education can be available to those who want to learn. Learning with students from another country teaches us that communication is the means to keep each other informed. Staying open minded and being responsible to diversity across the spectrum of differences were important factors that contributed to project success.

## **Rock Me: Social Media's Role in Live Music Engagement**

**Kimberly Waterstram**, HON 400: All College Honors Colloquium

Faculty Mentor: Professor Fred Bristol, Business and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Engaging with live music has been an essential activity in all societies since the dawn of time. Studies show that subjective

wellbeing is positively affected through the engagement of live music, and the roaring digital age has had a profound impact on the way that people across all continents experience this. Examining previous studies with artists such as U2 and conducting my own study with the hit music group One Direction and their fans, I will look at how live music engagement has affected people's lives; how social media and the internet has connected them to artists in new and different ways; and how this information can be seen from a marketing perspective in terms of the industry and consumer motivations. In an ever changing and technologically advancing society, new tools are being utilized and marketers, as well as everyone, must keep track in the way they shape our movements. Through a poster presentation and video interviews on the topic, I will showcase how fan culture has grown in the digital age and what this means for the music and business industries.

## **Saving Money With Loyalty Programs, One Swipe at a Time**

**Ashley Brown**, FTT 450: Issues in Fashion and Textile Industry  
Faculty Mentor: Professor Arlesa Shephard, Fashion and Textile Technology

The purpose of my research is to find out how loyalty programs effect retail brands. Loyalty programs are different depending on the brand or company. In some cases, you can enroll in the store with the staff who tell you about the program and in other cases you must go online, and enroll yourself. They all work differently and have different rewards, but the one thing that is consistent is that they are gaining new customers. While reviewing the literature, this research sought to understand what makes a good loyalty program, what relationships loyalty programs have with retail brands and if loyalty programs are effective for the brand and the customer. The findings from this study indicate that it is more effective to participate in loyalty programs than to not participate. Loyalty programs keep the customer happy, and also help the brand continue to grow from the loyal customer.

## **Senior Collection: Redemption**

**Fardja Brabham**, FTT 451: Senior Project  
Faculty Mentors: Professor Lynn Boorady, Fashion Textile and Technology, Professor David Brinson, Fashion Textile and Technology, and Professor Jozef Bajus, Design

I designed a collection for the Senior project class using both traditional and non-traditional items. My goal was to blend fabrics such as chiffon and brushed satin with non traditional items such as safety pins, wire and crystals (which I grew myself). Through this process I made multiple small-scale samples to see how I would execute my ideas. I used any resources I could find to assist in executing my designs. My inspiration for this

collection came from a break up with my long-term partner. I felt that this was due to us never truly communicating with each other. We would always patch up each difficulty rather than fully working through the issue. My collection exhibits this through the use of safety pins. They represent the idea that communication between millennials is oftentimes due to the dependence on technology that often leaves gaps in the human experience. The wire being used is to represent the stitching together the wounds of a failed relationship and the home-grown crystals are a representation of positive future goals.

### **Serving Customers With More Than a Smile**

Stacey Peterson, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Gary Berger, Business and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

What does good customer service mean and how can a business achieve it? That is the question that I have set out to answer throughout this research. I have found that the level of quality of a business's customer service is directly related to that businesses success. A consumers positive customer service experiences with a business will drive the consumer's future decisions regarding which business they will meet their needs with. Good customer service does not always mean the customer will leave happy, sometimes it just means that you are working with the customer to meet all of their expectations. This can be achieved in a variety of ways such as smiling, saying thank you, listening to the needs of the customer, and doing everything you can to meet their needs and expectations. While those are not the only ways to achieve this experience I have found that they are some of the most important. I have also found that even if a customer is unhappy with the outcome of a situation, they can still have a good customer service experience. Through thorough research online and within personal customer service experiences I have come to these conclusions and what I believe to be the answer to my question. It is important to know that while the world changes daily, so does customer service. Therefore it can be said that what is correct today may not be correct in the near future. I will be presenting my findings in poster format.

### **Structure and Flow**

**Melissa McClurg**, FITT 451: Senior Project  
Faculty Mentors: Professor Lynn Boorady, Fashion and Textile Technology and Professor David Brinson, Fashion and Textile Technology

For my senior project I worked on a four-piece fashion collection that was shown in Buffalo State's annual fashion show on April 22, 2017. The theme of the show was *Remember/Imagine*, and I used this idea as inspiration for my collection. To me, *Remember/Imagine* is about looking to the past to

inspire new ideas for the future. I researched the fashion, art and architecture of the 1920's to get inspiration for my designs. The way pleating was used in the clothing of the time was of particular interest to me. For example, I found an image of an Elsa Schiaparelli dress with an interesting sunburst pleating detail down the front that inspired me to use pleats in different ways. I have incorporated pleating into each of my garments, sometimes placing it in locations on the body where pleats would not typically used. I also took inspiration from the very linear elements of Frank Lloyd Wright's architecture and the Art Deco movement. Another feature of my designs is the contrast between the structured pleating details and the drape of the rest of the garment. I am using silk and a rayon/poly blend fabric to achieve crisp pleats and soft draping. After designing each garment, I used the techniques of draping and pattern making to create the patterns for my garments, working out solutions to the difficulty of applying pleating to the soft drapes. The garments were professionally photographed, steps documented and his work is an important part of my professional portfolio.

### **Student Support Survey**

**Asiah Abdulla, Kaitlyn Lisiecki and Samantha Houghton**, BUS 369: Organizational Change and Development  
Faculty Mentor: Professor Robert Delprino, Psychology

As part of an applied class project, members of the business course on Organizational Change and Development participated in a research study of student awareness and utilization of student support services. The purpose of this project was to provide students with experience in the Organizational Development technique of Survey Feedback. Students participated in survey development, data collection, and analysis as well as identifying the focus of the topic to examine. Class members participated in a focus group technique prior to the survey development process to identify the topics to be addressed. From the focus groups, class members voiced concerns over the parking issues, ineffective student support services, and the lack of student input in the planning process. The class chose to survey students on their opinions about the advisement process, student support services on campus, the mission statement, and the strategic plan. The survey asked participants to identify awareness of student support services, if they were used and how helpful they were. The goal was to assess if the resources given to the students by the college were successful in assisting them and improving their skills. Results of the survey provided some surprising details regarding what the students at Buffalo State College cared about. The experience also provided an applied learning experience of two organizational development techniques.

## The Walt Disney Way: Policies That Can Benefit All Businesses

**Elizabeth Piazza**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Michael Littman, Business and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The Walt Disney Company has always been very successful with their Florida based resort, Walt Disney World and although other companies have attempted to do the same, none have reached the high level of success that Walt Disney World has. This raises the question, what sets them apart? While working at Walt Disney World, I noticed that not only are guests regularly satisfied with the service, but they also begin to develop a sense of entitlement because of the reputation that Disney has. I began to observe this more closely and research the employee policies at a

deeper level to better understand what other companies could do to have the same success. There have been many books written about the company's success and having experience working there has given me a firsthand look into Disney's success. The main key to their success is the cast members. Walt Disney World has strict employee policies and trains their cast members to provide a level of service that is quite unlike anything found anywhere else. The company is not afraid to go above and beyond to make their guests happy. Overall, cast members are groomed in a way that will give the guests a complete experience where not only is courtesy a priority but making it magical for them is too.



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# Computer Information Systems and Engineering Technology

## Adopting Principles of Lean Manufacturing in High Technology Job Shops

**Ye Wang**, INT 689: Research Design and Methods  
Faculty Mentor: Professor John Earshen, Engineering Technology

The concept of lean manufacturing is about eliminating wastes, taking time out of processes, and creating better flow. Corporate survival in a globally competitive environment necessitates successful adoption of lean practices. The majority of scholarly studies focus on one or two methods of lean manufacturing, yet it is generally understood that successful implementation of lean must consider multiple elements simultaneously: Kanban, Value Stream Mapping (VSM), pull systems, production leveling, Single Minute Exchange of Dies (SMED), cellular manufacturing, and Kaizen. Following a case study method, this investigation will examine lean principles in operation at a high technology job shop (high variety, low volume) in western New York. It is anticipated that this study will identify specific elements of *Lean* that are unique to the high variety/low volume production operation.

## Adopting Robust Procedures to Implement Power Conservation Methodologies

**Alaeldin Ahmed**, INT 689: Research Design and Methods  
Faculty Mentor: Professor John Earshen, Engineering Technology

Energy efficiencies can be realized in two primary ways: 1) By the conservation electrical power and, 2) By utilization of less energy to operate electrical equipment. This investigation will depict and then compare the merits of these two approaches in light of cost effectiveness and environmental impact. Scholarly literature indicates that energy audits play a vital role in advancing energy efficiency across many industries. This is particularly important for energy-intensive industries. It is interesting that adoption of energy-efficient practices can be thwarted by a series of factors: negative attitudes, behaviors, poor values, and disorganized routines towards achieving set goals. This investigation examines established approaches and methods employed to achieve power efficiency enhancement in industry, and the factors inhibiting effective implementation. The research will result in the recommendation of a series of discrete steps, from energy audit to implementation, designed to overcome resistance of personnel to change.

## The Bait Bike: Reeling In Thieves

**Seth Pauldine, Matthew Keough, Gilan Serrant and Andre Matthews**, ENT 466: Electrical Design II

Faculty Mentors: Professor Ilya Grinberg, Engineering Technology and Professor Steven Barker, Engineering Technology

Due to a recent string of bike thefts, the Buffalo State University Police Department (UPD) has explored ways to prevent these occurrences along with identifying and apprehension of the suspects. One of the ways to catch a perpetrator is to create a bait bike system. This project will design, develop and install a GPS tracking system integrated bicycle. The project will allow UPD to identify the moment the bike is stolen, transmit information in real time and display the coordinates on a map. The system will also utilize an altitude meter; if the bike were taken to a multistory complex, this will allow UPD to approximately identify the floor the bike may reside. In addition, a camera will be installed and concealed to aid in apprehension of the suspect with sufficient evidence. Although these types of tracking systems do exist, they are prohibitively expensive. Available systems can range in price from \$1200 to \$1800 based on research conducted by the design team and the client. The proposed design is expected to cut costs by at least 60% by eliminating the need for an excessive amount of GPS receivers and transmitters. This is possible due to the project's use of the existing cellular network (3G/4G) for communication. By cooperating with UPD, the project will provide the proper resources to remediate bicycle thefts on campus.

## Calculation of Heating and Cooling Loads for an Office Building in Diego Ramirez Islands, Chile

**Antonio Ciarfella, Freddy De La Rosa and Zaid Naji**, ENT 422: Machine Design II

Faculty Mentor: Professor David Kukulka, Engineering Technology

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is a professional engineering organization that specializes on Heating, ventilation and air conditioning (HVAC) systems as well as Variable Air Volume (VAV) systems. ASHRAE currently sponsors a student design competition for project based in the Diego Ramirez Island located in Chile. The Teams made calculations to determine what the cooling loads on a one floor office building. These calculations were determined for the best design for HVAC and VAV systems. The team presented economic and energy results of their design. Design considerations included typical summer time and humidity conditions. Operations of the building were twenty four hours a day, three hundred and sixty five days a year; and included summer and winter environmental conditions and

included office space and living quarters. The specific building goals were determined in order to arrive at the required capacity of the HVAC system. With this information, the team was able to determine the best solution to advance in the competition.

## Cats vs. Dogs

**Jacob Markel, Anja Lindquist and Saeed Mohamed**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Pet lovers are very passionate about their pets. This is especially true when the pets they share their homes with are cats and dogs. Moreover, these pet owners love to share pictures and stories about their pets with anyone who would listen. These same pet lovers enjoy seeing and hearing about other owner's pets. Our final project facilitates this type of information sharing. For our final project, we developed a pet lovers web site that provides viewing and posting of pictures and stories. Besides the pictures, site users can view and post multimedia such as videos of their pets. Creating the site involved the use of HTML features consisting of hyperlinks, multi-media and the attributes that define how the pages look. Thought had to be given to the design of the site in order to assure it was user-friendly and fun to use. A visitor to our pet site can also vote on which type of pet they like: Cat or Dog. Care to vote?

## Coffee and Convenience: The Automatic French Press

**Daniel Wrigglesworth**, ENT 466: Electrical Design II  
Faculty Mentor: Professor Ilya Grinberg, Engineering Technology

In a world that enjoys convenience as much as a quality cup of coffee, a product that combines the two has the potential to become popular with consumers. An automatic French press coffee brewer could become this product. Coffee is one of the most consumed beverages in the world and the French press is regarded as one of the best ways to brew coffee. Despite this, it remains a high maintenance coffee brewing method. By observing the use a French press, data and information about the brewing process was gathered. Conclusions were made through analysis and synthesis of the findings. The critical and inconvenient factors of brewing coffee in this method were identified. Controlling the amount of time that the coffee grounds are exposed to the water is critical to producing a flavorful cup of coffee. Limiting and keeping track of that time is inconvenient. After analysis of existing products, brainstorming solutions with technical advisors, and functional testing, a cost-effective solution was designed to enhance the user experience. Automation could remove the inconvenience while still preserving the essence of this coffee brewing method. This could be done by integrating a

microcontroller-based, friction drive system into the French press lid. The microcontroller's timers and interrupts would be the basis for firmware to make this happen. Gear motors would be used to operate the mechanical filter. Additional functionality of the microcontroller such as capacitive sensing and PWM allow for a user interface as elegant as the French press itself.

## Computer Optimized Breadboard Analysis Instrumentation Network

**Jon Battison, Jonathin Rosten, Mike Aikey and Jason Keller**, ENT 466: Electrical Design II

Faculty Mentors: Professor Stephanie Goldberg, Engineering Technology and Professor Ilya Grinberg, Engineering Technology

The Computer Optimized Board Analysis Instrumentation Network (COBAIN) involves the design and construction of a software-driven set of virtual lab instruments for electronics prototyping and analysis. Instrumentation for test and verification of circuit projects is essential in an electronics class at any educational level. The COBAIN can be a valuable tool for primary educators, secondary educators, college students, and hobbyists. It is designed so that an individual on a small budget can purchase the requisite components and build their own COBAIN for around \$600. The COBAIN contains a dedicated location for prototyping user created circuits. A graphic interface on a touch screen display provides user control of a variable power supply, an oscilloscope, a waveform generator and a multimeter. These instruments are crucial for circuit designers. The COBAIN provides a virtual form of these instruments along with the prototyping area and touch screen display all in one small device, which takes up less space than traditional bench-top equipment, in addition to the cost savings. During the 122nd American Society of Engineering Education (ASEE) Conference and Exposition in Seattle, the importance of "Project-Based Learning with Single-Board Computers" was highlighted. To assure completion of the project, rapid prototyping techniques were applied and available technologies were used to more quickly construct a device that fits the design parameters.

## Daily Diet App

**Keilon La Barrie**, CIS 244: Senior Seminar  
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

One of the keys to being healthy is not just regular workout; it is also not what you eat throughout the day. By watching calories and having a set meal plan to help meet particular goals can make a difference for someone looking to take fitness seriously. It can be hard to find recipes of cost effective meals that meet particular goals. An user-friendly Daily Diet App would be created as part of the current research project. This App would help

people to target their calories and figure out the meals that are designed to fit those particular calorie choices. When the users would open the Daily Diet App they could select the meal time, for example, breakfast, lunch, dinner or snack. After making the selection they would be interfacing a screen that would show a variety of calorie levels for them to select. Based on their selection on the number of calories, the users would have the option of picking meals that are designed to fit their number of calories. In this screen, based on their meal selection the user would be sent to a website with the recipe of how to make that particular meal. The Daily Diet App program would be developed using Xcode 8.2.1, an Apple Developer with Swift 3.0, a programming language. This App would have several user-friendly features, such as easy screen navigation, view picker selections, and web views within the App. When fully developed, attempts would be made to publish the App at Apple store.

## Deterring Prescription Drug Abuse Through Mobile Apps

**Kelli Bores**, CIS 490: Senior Seminar

Faculty Mentors: Professor Sarbani Banerjee, Computer Information Systems and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

I will be making a mobile application to help combat the epidemic of opioid abuse that is prevalent throughout America. Many die every year through overdoses on medications that have been prescribed to them by their doctors. Patients will take their medications either more frequently or more in number to help alleviate their constant pain. Addictions happen quickly and without warning; anyone is susceptible to addiction and in turn abuse. I will be using JavaScript, CSS, and HTML to create this mobile application, and it will be useable on Android devices. Notepad++ will be used to write this program. This App will allow the user to set timers to remind them when to take their medications so they are not taking too many a day or taking too many each time they are scheduled to have a dose. It will have the function for the user to input a list of drugs they are taking and when they got them, so they will know when to refill them. In addition to helping manage the times and functions of the medications, this App will help identify potential dangers of abusing these drugs and the risks associated with them. It will also encourage users not to take more medications than they should. The goal of this App is to make the user feel like their pain is indeed manageable and in turn make them less likely to develop an addiction.

## Elderly Support System

**Weng Yu and Xi Chen**, ENT 466: Electrical Design II

Faculty Mentors: Professor Ilya Grinberg, Engineering Technology and Professor Stephanie Goldberg, Engineering Technology

According to research, three most prone dangers for elderly people are tumble, sudden heart failure, and fever. In order to prevent or mitigate these dangers, it is planned to use Arduino micro-controller to design a support system for solving the safety issues for elderly. With rapid developments in technology, more and more smart systems and sensors are being developed to check human health status. This project will benefit the engineering field in focusing on elderly problems, so that engineers can design more advanced and reliable systems and devices to ensure safety in elderly's life. There are three methods used to carry out proposed project. Proposed support system will send alarms if it detects safety issues of the elderly by analyzing body temperature, tumble, and heartbeat. If the system receives a dangerous signal from these sensors, the MCU (Microcontroller Unit) will call a designated family member and/or medical personnel. Proposed system can help more elderly people living alone and will prevent many tragedies.

## Electronics Project Testing Board

**Jon Battison**, Electrical Engineering Technology and Computer Information Systems

Faculty Mentor: Professor Stephanie Goldberg, Engineering Technology

When designing a new electronic device, it is essential to have signal measuring tools such as an oscilloscope and digital voltmeter at your disposal, as well as an adjustable voltage source, all of which can be expensive. My research project involved the design and functional build of a low-cost apparatus that combines these tools for electronics prototyping. I developed code to implement the tools in software and then interfaced the tools to a user prototyping board. The system is controlled by a Raspberry Pi 3 microcomputer via user commands given on a touch screen display. The Raspberry Pi 3 functions like a PC in that it will accept user data via a keyboard or the touch screen, drive the display, and store our specific application code. A BitScope module was used with the Raspberry Pi and display module to function as the virtual oscilloscope. The BitScope provides signal capture and processing so that the Raspberry Pi can display the information, functionally creating an oscilloscope. My project included the design of a variable power supply circuit board, which provides users with an adjustable voltage source for their projects. I adopted a 'Rapid Application Development' (RAD) approach during the design phase. This term is generally applied to creation of software in the computer sciences, but I also applied similar principles in the design

process of the hardware portions. Functional tests have been successfully performed on each module. Using my design, an appropriately skilled person could build the apparatus for under \$600.

## Electrostatic Characteristics of Oils

**Tyler Ford, Mitchell Gangloff, Max Jaworski and Colton Keen**, ENT 422: Machine Design II

Faculty Mentor: Professor David Kukulka, Engineering Technology

FS-Elliott Co., LLC is a world-class manufacturer of air and gas compressors. In recent years, they have become increasingly reliant on synthetic oils for the hydraulic lubrication systems of their products. Subsequently, they have experienced a number of unexpected compressor failures that appear to be correlated with the use of such oil lubricants. In evaluating the main issues observed within the failed machinery, which include oil varnishing and bearing surface deformation, engineers have formed a hypothesis that explains why these issues are taking place. They believe that these effects are due to the low electrical conductivity of the new oils being utilized, which develop a net electrostatic charge as they circulate through the compressors. This results in unintended electrical discharges continually taking place that overheat the oil and mar critical bearing surfaces, thereby causing equipment failure. The validity of this hypothesis was tested by circulating a number of oil samples through a custom-built hydraulic lubrication system and making detailed electrostatic measurements. Modification of the experimental setup permitted the testing of possible remedies. Involved in the evaluation of such remedies were a number of factors such as cost, practicality, and effectiveness. A final recommendation was made to FS-Elliott in order to eliminate future failures.

## Equipment Upgrade to Improve Throughput

**Michael Passero and Brian Klementowski**, ENT 422: Machine Design II

Faculty Mentor: Professor David Kukulka, Engineering Technology

PCB Piezotronics is a designer and manufacturer of piezoelectric quartz sensors with its global headquarters located in Depew, New York. PCB builds, tests, and calibrates a variety of sensors on-site that are used in a wide range of applications. The purpose of this project is to update calibration equipment in order to reduce the time it takes to perform one test cycle. This apparatus is made up of two sections that are fastened and unfastened during each test cycle. Each test consists of installing a burst plate between sections A and B, then fastening the sections together and pressurizing one side of Section A until it

ruptures. A resulting air shockwave progresses through Section B of the tube, resonating the sensor that is being tested. After the test is complete, the operator disconnects section A in order to remove the ruptured burst plate and install a new one. Current test cycle time is 4 minutes. With upgrades, the goal is to reduce cycle time to 1 minute. The proposed upgrade consists of three modifications to the current design include (i) a method of quicker section fastening, (ii) a method to move section A easier, (iii) a method to safely discharge the pressurized air inside the shock tube. These upgrades were designed using 3D modeling software and will have the necessary calculations for the safety factors of each application.

## Everyone Loves a Party

**Virgil Day and Sydney Littlejohn**, CIS 189: Exploring Computer Systems and Engineering

Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Who doesn't like a party? For our final project, we developed a 3D outer space fantasy world consisting of space objects such as planets, strange space creatures and people attending a disco party. The Alice programming environment offers the developer a wide variety of objects, methods, and special affects to choose from when building such a video. Exploring the many objects within the Alice object galleries we picked the most interesting for our scenes. Then, using many of the less common methods and object properties we created special affects for our Alice world. At times, we needed to combine the basic methods to build more complex methods. While Alice permits the developer to quickly create a simple video, the real challenge is to make it interesting with many special effects. This is accomplished by combining methods and adjusting them repeatedly to get the desired result. The final result is a video where the viewer witnesses an imaginary disco party unlike any they have seen before.

## GameTime:

### A Raspberry Pi Powered Goal Light

**Muhamed Catovic**, CIS 490: Senior Seminar

Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

In the modern era most of the everyday mundane tasks are becoming automated. Normal devices and appliances used to do those tasks now also have the ability to connect to the Internet. These devices are generally referred to as "The Internet of Things" (IoT) or "Smart Devices". This research project will look into the possibility of attaching a Raspberry Pi (a cheap computer the size of a wallet) onto an ordinary Goal Light to transform it into a "Smart Device" and have it become automated using real time data. The Goal Light is a battery powered light that resembles the lights seen behind the goals in hockey arenas that

lights up indicating that a goal has been scored. The Raspberry Pi and the light will be connected together by attaching wires going from the Input/Output pins on the Raspberry Pi to the wiring of the button that is used to activate the light. The Raspberry Pi will run a program written in Python (version 3.0), a general purpose programming language, that reads live JSON (JavaScript Object Notation) data to determine if a goal has been scored in order to activate the light. On a graphical interface created with a Python library called Tkinter, users will be instructed to choose their favorite team so the light will only activate for the selected team. Advanced analytics and stats about current games will also be displayed to give users a more comprehensive experience.

## Go With the Flow

**Alexandria Broskie**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Jo Yudess, Center for Studies in Creativity and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

According to a Gallup poll on the state of the U.S. workforce, 70 percent of workers do not feel fully engaged at work, and thus are not reaching their full potential. Not only does this have a serious effect on overall well-being, but it also has grave implications for the economy and performance of companies. With the majority of workers lacking engagement at work, businesses have a massive opportunity to unleash workers' flow. Flow in the workplace is essential for productivity and overall happiness of employees. Flow has been tied to performance by improving concentration and motivation. Developed countries, like Canada, have already turned their attention to employee well-being and their productivity. The United States is not far behind on this trend. Some well-known companies that have begun to use flow are Google, Netflix, and Tesla. Through gathering information on flow, and analyzing its impact on productivity, one can determine the positive effects of efficiency in the workplace. This presentation aims at evaluating the impact of flow in the workplace, and the implementation of flow in the United States.

## How Do You Create Something New?

**Ryan Unger**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Howard Payne, Engineering Technology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

How do you create something new? The process of designing and creating a new product can be difficult, but can be accomplished under the right work methods. I am exploring an issue that people face, identify a need and try to design a solution (product) to meet that need. After the initial research and identification of necessary functional and operational requirements is done, I will be able to identify the potential

solutions and use that knowledge to create the best possible product that people would be willing to purchase to solve their problem as effectively as possible. Once the concept of the product is complete, I will have to draw up computer blueprints to get a feel of how the product will look and function. An important part of the design will be the identification of appropriate materials. This will ensure that the product works correctly and can handle its assigned task(s) as desired. The consumer buying the product will want it to be of the best quality, so the right materials are important. The next step will be putting the actual product together. Assembling it will take a lot of time, because each part has to function correctly and hold up over a long period of time. Once the product is completely put together, I have to test it for potential design flaws. If it can endure the testing, and perform the functions correctly, the product will be complete. If it fails the tests, it will have to be redesigned in a different way to function as intended. The final product will include a comprehensive package associated with the design and manufacture of the item. The research and essential information could potentially be provided to a manufacturer for mass production. My final presentation will show all of the steps included in making the product, demonstration of the final product itself, and include the research and design that went into the process of creating the product.

## How Well Can You Hear Me Now? A Virtual Reality Project

**Micheal Peters**, CIS 490: Senior Seminar  
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

As Virtual Reality (VR) becomes more prevalent as a medium, its capabilities as an art form have received further exploration and development. When creating a VR experience, two main parts are essential for an immersive VR environment; the visuals, and the audio. This project will explore the audio-side of the VR experience with the goal being to develop procedurally adjusted audio within a virtual environment. This project will create a small virtual experience for a Windows 10 computer with an Oculus Rift DK1 attached to it. Using the Unity 5 development engine and Microsoft Visual Studio C# programming language, this project will attempt to blend both ray-casting and pathing methods to determine the quality changes that need to be introduced to the sound, and distance traveled from source to listener. Using that data, the volume and the equalization of the sound will be adjusted by changing settings in Unity 5's mixer feature. To test this the viewer will be able to directly trigger different audio sources regardless of the viewer's location in relation to that source. The viewer should hear a difference in the quality of the audio depending on their location even though the sound emitter itself is constantly playing the same audio file.

## Impact of Organizational Culture on the Toyota Production System

**Minyao Pan**, INT 689: Research Design and Methods  
Faculty Mentor: Professor John Earshen, Engineering Technology

The Toyota Production System (TPS) is well known and has been studied extensively, yet there are relative few papers focusing on the role of Toyota's organizational culture and how it impacts the successful operation of TPS. The guiding question is: how might organizational culture positively or negatively impact the successful adoption of TPS in other companies? The investigational methodology centers on studying the role of organizational culture in TPS implementation at Toyota. An extensive review of scholarly literature will be undertaken to identify and better characterize key factors and elements of Toyota's culture tied to successful TPS operations. A qualitative research approach will be followed to classify and evaluate the relative importance of various elements of organizational culture in achieving successful TPS implementation. It is expected that this investigation will result in the identification of practical cultural considerations useful to those seeking to increase the likelihood of successful TPS implementation.

## The Lazy Gardener: Automation of Caring for Plants

**Maleek McKenzie, Tajrian Arpon, Nathaniel Driskell** and **Jordan Tyler-Wearing**, ENT 466: Electrical Design II  
Faculty Mentors: Professor Ilya Grinberg, Engineering Technology and Professor Stephanie Goldberg, Engineering Technology

This projects aims to use the Arduino microcontroller system to automate the necessary functions to care for a plant in an ambient environment. The development of the Lazy Gardener is inspired by indoor/outdoor plants getting neglected on a normal basis based on the average person's busy schedule. Arduino microprocessor is used to act as a central control system that will read inputs from multiple sensors. Sensors will measure soil moisture, ambient temperature, and the amount of light the plant is receiving. An Arduino is a simplified computer, in the size of a pop tart. Upon reading these inputs, the Arduino will check them against preset values to decide whether to activate the support systems. All of the relays will be connected to a power source and will be wired in a manner that allows them to only receive power when needed. The project utilizes testing, functional analysis, and system integration. It is envisioned that the proposed system will be beneficial for caring for plants while people are away and unavailable to take care of them.

## Leak Test Fixture

**Eric Suckow** and **Robert Kozak**, ENT 422: Machine Design II  
Faculty Mentor: Professor David Kukulka, Engineering Technology

PCB Piezotronics is an engineering and manufacturing corporation located in Depew, New York. They specialize in manufacturing piezoelectric sensors that transmit a linear relation between vibrations and electric current. A student analysis was performed on an insulated stainless steel signal cable that transmits information from a piezoelectric sensor to a receiver. These signal cables are constructed with a hydrogen braze during the manufacturing process and then must be inspected to ensure a quality seal. The purpose of this project is to decrease the time it takes to inspect the brazed ends of the signal cable. Currently, the fixture used in this process tests only one end of the cable at a time and requires someone to hold the cable in place while helium gas is applied near the braze. Total time for the inspection process takes approximately one minute per cable (2 brazed ends inspected). As part of this study, the project team has designed, built, and tested a fixture capable of restraining and testing both ends of the cable at the same time. Through this design a 20% reduction in inspection time is achieved.

## Medieval Sci-Fi

**Daniel Mariathan, Javoni Smith, Andrew Wald** and **Najya Odunsi**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Viewers enjoy watching videos that they can interact with. The Alice programming environment offers the developer a wide variety of objects, methods, and special affects to choose from when building a video. For our final project, we developed an interactive medieval world consisting of objects such as a castle, a princess, a troll, a wizard and a friendly dragon. Leveraging the Alice basics we learned in class, we had to learn many of the less common methods and object properties in order to achieve the special affects our Alice world needed. At times, we needed to combine the basic methods to build more complex methods. While Alice permits the developer to quickly create a video, the real challenge is to make it dynamic with many special effects. This is often accomplished by combining methods and repeatedly tweaking them to get the desired result. Likewise, adjusting the properties of objects is time consuming as well. As the video is watched, the viewer will experience an enhanced visual scene of trolls battling dragons.

## Medieval Times

**Jaylah Duncan, Khaneil Campbell, Lillian Bulmon and Shyheim Rush**, CIS 189: Exploring Computer Systems and Engineering

Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Seems that everybody likes to watch videos which offer dynamic and colorful characters. The Alice programming environment offers the developer a wide variety of objects, methods, and special affects to choose from when building a video. For our final project, we developed a 3D fantasy themed world consisting of objects such as buildings, birds, characters and props. Going beyond the Alice basics we learned in class, we had to learn many of the less common methods and object properties in order to achieve the special affects our Alice world needed. At times, we needed to combine the basic methods to build more complex methods. While Alice permits the developer to quickly create a video, the real challenge is to make it dynamic with many special effects. This is often accomplished by combining methods and repeatedly tweaking them to get the desired result. Likewise, adjusting the properties of objects was time consuming. As the video is watched, the viewer will experience an enhanced visual scene of trolls and fairies battling dragons.

## The Memorizing Game: Powered by Python

**Christina DiVita**, CIS 490: Senior Seminar

Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

This research project would create a learning game for kids with cognitive disabilities. The program would fulfill the need to help special needs kids improve their vocabulary knowledge. Python (Version 2.7), a programming language, would be used to create the memorizing game. The game would include pictures and words as well as audio features where kids would try to match the pictures with the common vocabularies that they see on the screen. There would be a main menu where the kids can pick a category of their choice. The purpose of creating this game is to have a well-designed game for special needs kids with cognitive delays. The HTML (Version 5) would be used for creating the framework for the game and Java programming language would be used for the active events needed for the matching to work properly. Once the game is developed, it can be downloadable to any laptop or desktop with Windows Operating Systems. The game will be tested by kids from 5-8 years of age who have some kind of disabilities that make them unable to do things that are normal for other kids. These kids attend Cleveland Hill elementary and middle schools. The game would provide different levels of difficulties, ranging from easy to moderate, that the kids are able to do. This would be a fun and interacting game for all kids with or without disabilities to learn new words, since the game would improve their knowledge of vocabulary.

## Organizational Management in the Energy Utility Field

**David Buczek**, INT 689: Research Design and Methods  
Faculty Mentor: Professor John Earshen, Engineering Technology

The advent of automation and rapid communication technologies have had a significant impact on the labor force in domestic electric utility companies. Traditional job site management methods relied on hard copy paperwork and word-of-mouth communication between workers and foremen; decision-making often took considerable time as information made its way up the chain of command. Today, cloud computing has vastly changed the way management and workers communicate while on the job. This investigation aims to characterize key impacts of the cloud on field crew management in the electric utility industry. Through field interviews and case study methodology, this investigation focuses on identifying areas of increased efficiency as well as areas where new management challenges have emerged. It is expected that this research will characterize areas of strength and weakness in the management of field teams, with an eye toward realizing further improvements.

## Oscilloscope'd - Polishing an Asteroids Clone Game

**Arsenio Colon**, CIS 490: Senior Seminar

Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

For Global Game Jam 2017 event, a game called Oscilloscope'd was developed. It is an asteroids-based clone that uses "sound waves" to attack the enemies and stay alive until your health points reach zero. The idea for this research project was derived from someone playing with an oscilloscope, and displaying 3D images on it via oscilloscope "music". The initial goal of the project was to make the aesthetics as close to how an oscilloscope looks like in real life. The final goal and the scope of the project is to embellish the game's already existing systems, add user interface elements to the game, make a game menu, add more levels, add a "boss battle" stage, with an overarching goal of improving the "game feel". To achieve this, Unity 5 will be used. It is a popular cross platform game engine that uses C# (C-Sharp), a widely used programming language in the gaming industry that runs on the .NET framework. C# will be used to code and implement various systems needed for the game. Due to Unity 5's multi-platform engine and package builder, the game will be able to run on both PC and MAC. Although the intended audience are casual gamers of all ages, but an experienced gamer may have an easier time playing the game due to increased hand-eye coordination.

## **PlowTracks: A Real-Time Road Conditions Reporter**

**Richard Addisah, Kevin Dao, Mustapha Barrie and Eric Bigirindavyi**, ENT 466: Electrical Design II

Faculty Mentors: Professor Ilya Grinberg, Engineering Technology and Professor Stephanie Goldberg, Engineering Technology

This project involves the research and development of a low-cost web based vehicle tracking system that will be able to provide the real-time locations of snow plow vehicles during the winter season. Service vehicles such as snow plows and salt sprinklers are the first responders during unstable wintery weather. By tracking the location of these vehicles, data can be collected and made available to the public as to which lots, roads or neighborhoods have been cleared of snow and have safe driving conditions. The development of the vehicle tracking involves research into available GPS systems on the market and other components that may be used for the project. The final product will be comprised of a physical unit that resides in a snowplow vehicle and a user-friendly website that displays the location of the vehicle. Currently, a prototype device has been developed which is able to communicate with GPS satellites and acquire its location. Research has been performed to prove the feasibility and usefulness of the project. Preliminary research shows that the proposed system will not only be beneficial to drivers but also the management team of winter service vehicles as the data collected can be used to improve the efficiency and effectiveness of maintaining roads in the winter seasons.

## **Raspberry Pi Based Smart Home Security**

**Abu Bakkar Shohag**, CIS 490: Senior Seminar

Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

Raspberry Pi Zero is a super-ultra-low-cost self-sufficient computer. It is one third the size of a regular credit card. Raspberry Pi (RPi) comes with endless possibilities with little bit of programming. In the present age, Internet of Things (IOT) has entered a golden era of rapid development. In this project, a system is being developed to connect any door with the internet, so that owner gets notified of any visitor, stranger or guest in their door. This smart doorbell system will allow visitors to leave a voice message for the owner of the house if they are not at home. The message then gets transcribed into text and sent to the owner's phone as a text message. A copy of the recording can be set up to be uploaded to the Google Drive as well. Underneath the hardware, powerful Linux (Distribution: Raspbian, Kernel Version: 4.4) and Python (Version: 3.4) scripting will be used alongside with Google's SpeechRecognition API (3.6.0). Guest will interact with the system by using the doorbell button, microphone and speaker. RPi will use a door sensor to monitor

if the door has opened or not. Upon pressing the doorbell for a certain number of times, if no one opens the door, an audio message will be played to the guest. That will inform the guest that no one is at home and if they want to leave a message to the owner's phone they can press the button to start recording.

## **Socially Simple**

**Alaa Hamzi, Betsayda Cabrera and Abeer Alhudaithi**,

CIS 189: Exploring Computer Systems and Engineering

Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

This project involved developing an app using the programming environment App Lab. The app, called *Socially Simple*, can be used as a social networking service such as Facebook or Twitter, but has a business purpose as well. Businesses can use it to gain world-wide exposure and thus increase their revenues. Using the features within the toolbox of App Lab we were able to create a user friendly app with messaging capabilities. For instance, using the user interface controls section, we were able to create the buttons, dropdowns and areas for user input for a pleasing productive user experience. Being able to design the screen layout and handle user responses involved studying the 'canvas' features of App Lab and applying them. In addition, the texting features within the user interface controls had to be learned and applied in order to facilitate user-friendly messaging capabilities within the app. See for yourself.

## **Sparking the Stock Market: Big Data Analysis for S&P 500 Index With SparkR**

**Meng Lin Ma**, CIS 490: Senior Seminar

Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

"Big Data" is one of the hottest terminologies of recent days. It is a term for large scale data sets with three common characteristics—large volume, huge variety and high velocity, often called 3Vs that define Big Data. These characteristics give rise to a problem of how to store, implement and analyze Big Data. The purpose of this research project is to do a data analysis on the daily data of S&P 500 Index using SparkR on the RStudio. It will develop suitable time series model based on over thousand daily data of the S&P 500 Index which is stored in the Spark cluster within Amazon Elastic Compute Cloud server (EC2) and eventually derive a best fitting model. Stock index has become a significant tool for the investors as well as for financial managers to describe market performance, and to compare the return on specific investments. S&P 500 index is an American stock market index based on the 500 large companies which have common stocks listed on the NYSE or NASDAQ since 1950s. As one of the open source cluster computing framework, Apache Spark not only provides high-level application programming interfaces in

Java, Python, Scala and R, but also allows other environment to access the Spark clusters. For instance, SparkR is an R statistical package that allows front-end Graphic User Interface (GUI) to use Apache Spark to work on the large datasets. In addition, RStudio will be able to import large datasets from Spark clusters.

## Spooky Skeleton Snapper 2

**ChunHong Lin**, CIS 189: Exploring Computer Systems and Engineering

Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Many people enjoy scary, yet safe, experiences such as playing a ghostly type game. My final project is an interactive computer game developed using the Alice programming language. The main character is a skeleton that reacts to user input via the keyboard as well as other objects in the game's environment. A big challenge was to develop special effects in the appearance of the objects as well as their movements. The Alice object properties, methods and functions options had to be thoroughly explored and many different options had to be tried. As a result, as the game is played, the user witnesses a tower morph into a caterpillar and move like a worm, a skeleton dodging arrows and objects mysteriously disappearing. There are other surprises as well!

## Student-Tutor Scheduling Made Easy Through an App

**Alaa Hamzi** and **TJ Adeniji**, CIS 490: Senior Seminar

Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

At Buffalo State College there is an urgent need for a system for setting up appointments with tutors without contacting the tutors by phone. Students who need help with difficult subjects like Calculus or Writing typically call the Tutoring Center to schedule an appointment. The goal of the current research project is to create an App that will help students to schedule an appointment with a tutor to receive assistance with their work without calling the Tutoring Center. This project will be using Android Studio (version 2.2.3) for the Windows operating system to develop the application. Android Studio's framework is based on Java and includes elements of XML. Java is an object-oriented development language and XML (eXtensible Markup Language), is a metalanguage that is identical to the web programming language like HTML. XML is used primarily to store and transport data. Android Studio uses these two languages (Java and XML) in its Integrated Development Environment (IDE) to develop applications. The App will be used by students for an easier way of setting up, canceling, or changing appointments with their tutors. This App will simplify things for tutors to reschedule or cancel appointments as well as sending email to the students. If for any reason the student or the tutor needs to cancel the appointment they will be able to do so, and each of them would receive an

email whenever changes take place. By creating this scheduling App, student will be able to access tutoring services more easily.

## Technical Writing: More Than A Manual For Your Coffee Maker

**Anja Lindquist**, INS 495: Independent Study

Faculty Mentor: Professor Ramona Santa Maria, Computer Information Systems

Technical Writing (TW) is a career field of which most people aren't aware. Since first deciding to pursue Technical Writing I am frequently asked: "What is Technical Writing anyway?" More concerning than the question itself is my inability to come up with any decent answer. As a part of my capstone project with Dr. Ramona Santa Maria I have, over the course of the semester, been seeking to answer this question by attending events put on by the Society for Technical Communications, interviewing working Technical Writers, and going on-site local tech companies to gain a better practical understanding of the field in which I hope to be soon employed. My presentation on Technical Writing illustrates the definition and practical applications of TW as well as how it plays a vital role in the global tech industry. The poster includes information, statistics, and practical applications of the TW profession including starting and median salary, outlook, and education/experience required. It also features a summary of and relevant highlights, quotations, and impressions from my own qualitative research and analysis over this semester. The audience can expect to walk away not only knowing that TW can do more than write procedural manuals. The audience will have gained an insight to what it really takes to be a professional Technical Writer.

## Testbed for Transactive Energy: Effects on the Grid and Protective Devices

**Kris Hammerick**, **Dean Nelipowitz**, **Thomas O'Brien**, **Bashar Ajwed**, **William Hall** and **Lacy Taylor**, ENT 466:

Electrical Design II

Faculty Mentor: Professor Ilya Grinberg, Engineering Technology

The introduction of renewable resources in society is leading to a significant variability in different energy supplies. Renewable energy at a distribution level requires a new approach to maintain a reliable and balanced system. This is a complicated system that requires sensors, monitors and protective relays. An important aspect of renewable sources is their effect on protective relay settings, especially at the distribution level. Distributed generation leads to an increase of the fault currents in the system and loss of coordination. Due to intermittency of renewable resources, protective devices settings should be adjusted to account to such intermittency. Investigation of effects of renewable distributed generation and possible solutions require testbeds. The purpose of the project is to design and implement a testbed to study the effect of the Transactive Energy concept

and to assess the impact of distributed generation (DG) on the distribution system and protective devices settings. ETAP© simulation program will simulate the proposed testbed and compare results with parameters of the testbed. The testbed will be developed using various state-of the art laboratory modules including micro grid controllers, double-fed induction generators (DFIG), photovoltaic (PV) systems with grid inverters, wind turbines, overhead/underground line modules, smart meters, and sensors. A supervisory control and data acquisition system (SCADA) will be used to monitor/control the system. Data will be collected and analyzed for both simulated and physical models of a distribution system with a variety of distributed renewable resources including DFIG's, PV's, wind turbines, and pump storage units in different combinations.

## Three-Dimensional Assembly of the Semi-Welded, Gasket Plate Type Heat Exchanger

**Tyler Hohman** and **Youssouf Kaba**, ENT 422: Machine Design II

Faculty Mentor: Professor David Kukulka, Engineering Technology

Xylem is a global water technology provider, having partnerships with several governments and businesses across the globe. Their goal: to provide and protect safe water resources for communities around the world and educate people about water issues. Xylem has provided products in beverage dispensing and chilling, water and wastewater treatment, and heat transfer. The objective of this study was to develop a visual representation that demonstrates how to assemble and disassemble a semi-welded, gasket-plate heat exchanger. Currently, their product is being delivered with no supported documentation that demonstrates how the heat exchanger is assembled or disassembled. Several solutions were prepared to illustrate how Xylem's heat exchangers are assembled and disassembled for them to have visual representation. All the components of the heat exchanger were modeled on SolidWorks and an assembly produced in order to illustrate how the heat exchanger would be assembled and disassembled. Several methods were developed, including an exploded digital animation that illustrates the assembly and disassembly for customers and maintenance workers to view. We are producing a series of illustrations of how the heat exchanger both assembled and disassembled. and using a digital method to show an opaque view of the heat exchanger. We are also creating a 3D-printed model to provide a hands-on representation of the entire assembly.

## Trouble in the Jungle

**Matthew Pinckney**, **Khalif Perser** and **Jujaun Paige**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Everybody likes to watch videos which offer dynamic scenes with colorful characters. The Alice programming environment offers the developer a wide variety of objects, methods, and special affects to choose from when creating such a video. For our final project, we developed a 3D fantasy themed world consisting of jungle objects such as tropical trees and wild animals. To achieve the special effects our Alice world needed, we had to learn many of the less common methods and object properties. At times, we needed to combine the basic methods to build more complex methods. While Alice permits the developer to quickly create a video, the real challenge is to make it dynamic and interesting with many special effects. This is often accomplished by combining methods and repeatedly tweaking them to get the desired result; essentially experimenting with the Alice programming features. As the video is watched, the viewer will have an enhanced visual experience watching explorers make their way out of an unsafe jungle to safety.

## The War Game

**Colin Duncan** and **Kloey Reid**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Many young people today enjoy playing games on their mobile devices. This project involved developing an app using the programming environment App Lab. The app, called *The War Game*, is a multiplayer army game that has two modes. To make it interesting for the user, we had to introduce action packed scenes that involved accepting user input. Using features within the toolbox component of App Lab, we were able to create such effects. For instance, by using the user interface controls section, we were able to create the buttons, dropdowns and images needed for a dynamic gaming experience where the user is able to target and shoot at the enemy. Being able to design the screen layout and handle the user responses required significant analysis and testing which was time consuming.

## We Love These Teams

**Jiaye Tan**, **Harmandeep Furma** and **Abraham Saleh**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Most everyone has a favorite professional sports team which they follow. It is not uncommon for sports fans to visit websites to learn more about their teams. Teams always like to provide online information such as team highlights and the latest news

regarding the franchise. For our final project, we developed an attractive web site to provide fans with the information about certain teams we are interested in. The information consists of team statistics, images of players or videos of spectacular plays. Creating such web sites involves the use of HTML features consisting of hyperlinks, tables and forms and all the attributes that define how the pages look. Thought was given to the design of the site in order to assure it was user-friendly and truly informative. A visitor to our sports team site will experience using such a site.

## Zippy Airlines

**Dolapomoye Oyekanmi**, CIS 189: Exploring Computer Systems and Engineering

Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Today, when someone wants to travel by air they typically go to an airline website for the relevant information. For marketing purposes, airlines create attractive and user-friendly sites. For my final project, I developed an appealing web site to provide potential airline passengers with the information they need. The information consists of passenger cabin images and amenities such as movies, Internet service and meal options. In order to develop the site, HTML features such as hyperlinks, tables and forms had to be used. Much thought had to be given to the design of the site in order to assure it was user-friendly and truly informative. In addition, adjusting properties of the screen objects was challenging and time consuming. A visitor to the site will experience an attractive, user-friendly convenient website.

## Zoom

**Epaphras Adu, Kevin Jalloh, Monet Jiles and Rayshon Brown**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Most everyone uses interactive apps today. The more useful and convenient an app is, the more popular it becomes. Our project involved developing a user friendly app using the programming environment AppLab. The purpose of our app is to provide low cost transportation options for users with varied transportation needs. Using the features within the toolbox of AppLab we were able to create a user-friendly interactive app. For instance, using the user interface controls section, we were able to create the buttons, dropdowns and images for a pleasant user experience. Being able to design the proper screen layout and handle the user responses required significant analysis and time. Ultimately, we feel we designed a useful app. Check out our app and see if you agree.



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## ***Education***

### **Approaches to Balanced Literacy in the Dominican Republic and the United States**

**Brittany Miller**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Pixita del Prado Hill, Elementary Education and Reading

As part of my teacher education preparation program I learned about the concept of balanced literacy with a related field placement. *Literacy for the 21st Century: A Balanced Approach* (Tompkins, 2013) provides a framework for teachers to use to create a balanced literacy program within their classroom. As part of the International Professional Development Schools program (IPDS), I traveled to Cabarete, Dominican Republic where I gathered information about the approaches to balanced literacy instruction in a Dominican Republic elementary classroom through observation and teacher interviews utilizing a set of questions from Tompkins' text. I will observe a classroom and interview teachers at a school in the United States to compare how the two classrooms use or do not use balanced literacy. My goal is to better understand how teachers plan for, deliver, and assess literacy and to what degree they provide balanced opportunities for students to engage in literacy practices. I hope my research will provide teacher candidates, teacher education faculty, and classroom teachers with new information to consider in their own classrooms. My findings will be presented on a poster.

### **Beyond 'Rocks for Jocks': Introductory Geoscience and Student Engagement**

**Heather McCarthy**, GES 695: Master's Thesis

Faculty Mentor: Professor Kevin Williams, Earth Sciences

Reflective learning, student-faculty interaction, and the perceived quality of those interactions are among the indicators of student engagement as identified by the National Survey of Student Engagement (NSSE). In this study, approximately 200 students enrolled in four different introductory courses in the Department of Earth Sciences and Science Education were asked to take part in an anonymous survey that asked students to reflect on different aspects of their introductory geoscience experience. Multiple survey methodologies, including multiple-choice, Likert scale, yes/no, and short answer methods, were used in order to gain insight into the students' attitude in the classroom as well as their overall experience. Students responded to questions including their reasons for taking the course, interpretations of course content, their personal impact on course outcomes, past experiences with science, and awareness of department and college offerings. The resulting data offer a snapshot of student interests, values, and resource awareness that helps to provide

insight into the characteristics of the early undergraduate geoscience education experience at Buffalo State. Faculty members from the Department of Earth Sciences and Science Education will also be invited to respond to a similar survey, offering a different perspective than the opinions of the students.

### **Bilingual Books and the Impact on English Language Development With English Language Learners**

**Ashley Gandt**, Exceptional Education

Faculty Mentor: Professor Maria Ceprano, Elementary Education and Reading

A research study was conducted in January 2016 at a rural elementary school in Torremaggiore, Italy. The study focused on the influence of bilingual books when developing English language skills with English Language Learners (ELL). Students were initially given a pre-test on English vocabulary content, followed by several bilingual book lessons on various topics. After several exposure sessions, the students were given a post-test to determine if any growth occurred with the use of the bilingual books. Student interviews were also conducted to get student commentary on the bilingual books. The outcome of the study showed some improvement in the acquisition of English vocabulary. The students stated that they loved the bilingual books, and took them home to their families to teach them English as well. The bilingual books made a profound impact on the students in their English development, as well as the entire community as the students shared the books with others.

### **Border Crossing Among Content Areas of Pre-Service Teachers at Buffalo State**

**Lilly Inglut**, English Education 7-12

Faculty Mentors: Professor Adrienne Costello, English and Professor Pixita del Prado, Elementary Education and Reading

The content areas of education at SUNY Buffalo State are similar to silos that are spread out across the campus. This disconnection caught my eye and I decided to venture out and explore the ways in which pre-service teachers can collaborate across the curriculum to carry our partnerships into the field of education with us. My research hones in on the ways in which we can innovatively bridge the gap between disciplines, using PDS cohorts as a means to collaborate for the betterment of our careers and the lives of our students. The work that PDS at SUNY Buffalo State has done and the relationships I have established between PDS at SUNY Buffalo State, John F. Kennedy Middle School in Cheektowaga, NY and in Rwanda will serve to show the progress we have already made. How do all of these pieces fit together? What does this mean for our future? How can this help us to better tend to the needs of our students in an ever-changing world?

## **Breaking the Fourth Wall: Video Projects for Creatively Learning Physics**

**Jon Battison**, Electrical Engineering Technology and Computer Information Systems and Kaitlin Cerrillo, Physics and Mathematics

Faculty Mentor: Professor Daniel MacIsaac, Physics

The objective of our project is to develop the techniques required to guide students through a creative project making YouTube-style videos on a topic covered in the introductory classroom. The intention of the student undertaking these video projects is to encourage supported out of class work, develop planning and management skills, and to allow students to expand upon and demonstrate appropriate physics knowledge through a creative project. Our project centers on the creation of a short simple video describing basic techniques for planning, animating, recording, editing, voice-over, titling and adding music to our own demonstration video. Thus, the video is both a demonstration of what a proper video project should look like and guidance on how to create one. In doing this, the theatre technique known colloquially as “breaking the fourth wall” emphasizes procedures used in the making of our project by commenting directly to the student audience on their use and utility. The finished video will be shown to and accessible to the students undertaking their own projects in order for them to be able to emulate the methodology and more easily create their own project and thusly focus more attention on demonstrating their chosen topic.

## **Classroom Management: Rules and Procedures Across the Ocean**

**Emily Libroek** and **Jenessa Sheridan**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Patricia George, Elementary Education and Reading

Throughout the process of conducting our research and gathering our data, we will be searching for the answer to this question: Is there is a difference in rules and procedures in the United States versus Germany regarding classroom management? In the United States, teacher candidates are taught one way of putting classroom management strategies into practice. One common classroom management practice in the U.S is posting a list of rules in the classroom for students to reference. Do German schools engage in similar practices? We will use different methods to gather the information and data we are examining. Some of these methods include making a survey for U.S. and German teachers, as well as observations of two local U.S. schools and two German schools. We will present this information in the form of a poster with detailed information about our findings. We hope to provide new information and ways to combine foreign and local ideas about classroom management. Our hope is to share the best possible classroom management methods that benefit students.

## **Classroom Pedagogy: From the United States to the Dominican Republic**

**Casey Garlick**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Maura Rustowicz, Elementary Education and Reading

My research conducted was on pedagogy in classrooms in Cabarete, Dominican Republic. What I did to conduct this research was I went to the Dominican Republic and viewed the teaching methods implemented in multiple classrooms and age levels. I observed what kind of teaching styles that they used. For example, if they used more teacher-centered activities or student-centered, if they did more individual work compared to working in groups, if the teachers did more hands-on activities compared to more of a lecture style of teaching, or any other methods that they implemented. I took notes on the way the teachers taught the lessons, how/how much the students interacted with the teacher and each other during a lesson, what kinds of assessments they used to check students' progress, etc. I did not need to interview anyone while I was in the Dominican Republic, I just observed in the classrooms that we visited. Then, when we returned to the United States, I compared my observations of the Dominican classrooms to those of classrooms here. I researched the most used methods of teaching here in the United States, and took from my own background knowledge of lessons in an elementary school classroom from observations during previous semesters. I believe that the significance of this research I have conducted was to obtain knowledge of the different teaching styles in countries other than the United States. By comparing them, I can see the similarities and differences in the physical teaching of the lessons, the way that students act and react during said lessons, and how they're assessed/ how they do on those assessments.

## **Connections and Consistency: Creating a Healthy and Vibrant Classroom Environment**

**Christine Garas**, Exceptional Education

Faculty Mentor: Professor Angela Patti, Exceptional Education

An important part of a teacher's daily role is to establish and maintain a healthy classroom atmosphere. In order to establish this atmosphere, a teacher must understand his/her students, give the students a voice, and encourage students to participate and engage in the classroom. Educators must also be consistent in creating and implementing routines and expectations, which can reduce potential problems. They should devote time to building relationships with students, as well as encouraging positive relationships between peers within the classroom. The presenter will discuss techniques that can guide developing teachers in the direction of a strong and positive classroom atmosphere where all children feel safe, secure, and positive in their learning. This

poster reports the results of a literature review and interviews with teachers within the SUNY Buffalo State Professional Development School (PDS) Consortium.

### **The Correlation Between Mandatory Uniform and Classroom Behavior**

**Nailah Shah-Taylor**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Bethany Delecki-Earns, Mathematics

I chose to research the correlation between wearing uniforms and good behavior. I chose this topic because as a child it was mandatory to wear uniform in school, majority of students were well behaved, and however, I was always curious if students that had the freedom to wear what they choose. I assumed that when school uniforms are enforced, they would create a sense of structure and that they would make it less possible for students to be bullied and judged because of what they wear. Uniforms cause all students to be looked at the same; no one student is better than another. However being that uniforms are costly, and everyone does not come from a family with financial stability, this can be an issue. In schools, when uniforms are not enforced, students run the risk of not being able to attend class and missing out on content, and increase in disciplinary problems. While in the Dominican Republic, I interviewed the Principals of three different schools, two private and one Montessori. The two Private schools use uniforms for identification purposes to show pride in attending a private school. However, both principals mentioned that the use of uniforms in their schools have no positive affect on behavior with students. They believe that students would behave the same whether or not there is uniform in place. The principal of the Montessori school, stated that the students that attend her school are not required to wear uniform. She also mentioned that her choice to not enforce uniform helps students to express themselves through their own clothing and the students are just as well behaved as they would had a uniform policy been in place. Overall, I believe that it is more so the classroom environment that sets the tone for student behavior, rather than what they wear. My research suggests that there is no direct correlation between what a student wears and their behavior.

### **Creativity and Common Core From the Perspective of Teachers**

**Devon Holler**, Exceptional Education

Faculty Mentor: Professor Alexander Means, Speech-Language Pathology

The adoption of the Common Core State Standards in public schools has been the subject of extensive debate. One area of contention is the relation of the new standards to creative teaching practices. Critics of the Common Core argue that teaching has become increasingly standardized with little

room for imagination and experimentation. They suggest that due to the emphasis on scripted curriculum and standardized testing, creativity is being stifled in the classroom. Advocates, on the other hand, argue that Common Core provides a set of flexible guidelines for teachers to ensure that students learn the necessary skills for their futures. They also argue that Common Core provides more opportunity for the students to understand what they are learning and to choose which learning strategy is best for them. With such conflicting viewpoints, I am interested in exploring what teachers themselves actually think about the impact of the Common Core on their teaching practices and creativity in the classroom. Through interviews with veteran teachers who have been teaching before Common Core was implemented as well as after. I also had the opportunity to visit Zambia, Africa and examine their education system and national curriculum. I hope to see how creativity is used in the classroom with a national curriculum in Zambia and compare it to creativity in our classrooms in America with our national curriculum. This research will specifically offer insight on how educators perceive creativity in relation to the Common Core as well as creativity is a possibility with a national curriculum.

### **A Day in the Life**

**Samantha Reed**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Thomas Scheira, Social and Psychological Foundations of Education

My study explores the differences in daily life of children in the Dominican Republic and the United States. The differences recorded and observed will aim to answer the question, what does childhood poverty look like in each country? How are the conditions similar and how are they different? Both schools being surveyed and observed are low-income and high needs schools. Day-to-day activities and lifestyle trends have been statistically proven to be indications of poverty. In the survey given as a part of this research project, students of elementary school age were given ten questions to reveal aspects of their daily life. Questions were asked about where students eat breakfast and lunch, where students go after school, what type of housing students live in, how many vehicles the family owns, how many people live with them and who those people are, if they enjoy school and if they have lived in the same place their entire life. One open-ended question was given for students to share anything about their life that they would like the researcher to know. The results were shocking and revealed a lot about the students' lives. Overall, it can be concluded that the lives of children in these two countries are very differently. To be living in poverty in America means something entirely different than to be living in poverty in the Dominican Republic.

## **De Facto Segregation and Inequality in Buffalo Public Schools, 1990-2010**

**Mitchell Ford**, HIS 300: Research and Writing Seminar  
Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

From 1990 to 2010 the Buffalo Public School has been on a steady decline in the quality of education it provides for its students. Since 1990, graduation rates have decreased, school attendance irregular, and the quality of education has been reduced due to lack of funding to pay educators. A large regional loss of jobs as a result of work being sent overseas was detrimental on families residing in the city. The city school districts were forced to contend with a lack of tax dollars coming from the local area. A long-term effect of the rise in unemployment was the effects it had on the children of affected families and the importance of education. The “War on Drugs” was designed to target inner city minority families above all else to help label them as criminals. This disenfranchised the ethnically diverse student population in the already segregated school district and made it easy to choose to lose motivation to pursue an education. The media has always seemed to perceive inner city students in a negative light that led to teachers not wanting to teach in the city school district as well as other issues. Race and gentrification are still a serious problem in the Buffalo public school district as development companies continue to take advantage of lower income areas which can have negative effects on the surrounding schools.

## **Early Childhood Teaching and Learning: The Importance of Exploratory Play**

**Emily Adams**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Kathy Doody, Exceptional Education

This study will compare how much time schools in the United States and Dominican Republic provide for young children to engage in exploratory play during the school day. Exploratory play is when children use all five senses (visual, auditory, tactile, gustatory, and olfactory) to explore and discover the world around them. Additionally, this study will examine teachers’ perspectives regarding the importance of exploratory play in early childhood education. Duration data were collected in two locations: Tres Mariposas Montessori in Cabarete, Dominican Republic and Bennett Park Montessori in Buffalo, New York. Interviews were conducted with early childhood educators working primarily with children between the ages of 3-5 to gain an understanding of each teacher’s perspective toward the importance of exploratory play. Classroom schedules were examined and the amount of class time devoted to play was noted in both settings for comparative purposes. Results from qualitative interviews indicated that teachers from both locations

highly valued exploratory play and felt it extremely important to engage in sensory-based learning.

## **The Effects of Diverse Financial Backgrounds on Female Adolescents and Higher Educational Opportunities**

**Tee-Ahna Gilmore**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Mary Celia Cummings, Elementary Education and Reading

My research, conducted at the Mariposa Foundation in the Dominican Republic, was to examine an organization that establishes solutions to combat the severe decline in young women’s educational, social, emotional, and economic development due to extreme poverty. The Dominican Republic suffers from generational poverty; a family having lived in poverty for at least two generations. Factors associated with generational poverty are: homelessness, educational, and parental disadvantages. My research focuses on females in a developing nation because females are the ones suffering from teen pregnancy, sexual transmitted diseases, and sex trafficking. I interviewed nine adults who work for the Mariposa Foundation and women ages 13-21 who attend the Foundation. I explored what opportunities the girls have access at the Foundation, and also proceeding their graduation. The Mariposa Foundation’s goal is remove all the financial barriers that will negatively influence the child. The Foundation provides a private school scholarship, uniform, health care, transportation, and books. The foundation believes in a holistic education: sex/health education, fitness, art, music, environmental studies, community incentives, household skills, and culture. In addition, they offer academic tutoring in all subjects and literacy instruction. The Flying Butterflies program provides girls who graduate from the with job placement, internships and assistance in finding opportunities to continue higher education or alternative paths. My presentation highlights a young girl who was once a victim of financial burdens and educational disadvantages and how she now has the opportunity to achieve her dreams.

## **Effective Implementation of Inclusion for Students with Moderate to Severe Disabilities**

**Patricia Caputy**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Lynne Sommerstein, Exceptional Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

No child should be segregated from his/her peers due to a disability. This project will explore the practice of including students with moderate to severe disabilities in the general education classroom. Previously, students with disabilities have been segregated and, therefore, excluded and isolated from their

peers in educational settings. This is still a frequent occurrence today. The goal of this project will be to define inclusion, explain evidence-based best practices of inclusion, and explain how to effectively implement said practices. The goal is also to prove that it is a right for students to learn in a general education setting with their typically-developing peers. The researcher hopes to learn more about this topic and how to effectively implement inclusive practices. The researcher would also like to further expand her pedagogical research skills. The research to complete this project has been and will be mostly through peer-reviewed scholarly articles, books, and current studies on the topic. The research will be thoroughly presented on a poster board at the Student Research and Creativity Conference. In conclusion, this project will explore the idea of inclusion, enlighten the researcher and reader about effective practices for including students in general education classrooms, document evidence-based effective practices, and expand the researcher's pedagogical skills.

### **Effective Teachers Have Great Verbal Skills: Assisting Teacher Candidates in Developing Reading, Writing and Speaking Skills**

**Lavonnie Green**, Childhood Education

Faculty Mentors: Professor Dianne McCarthy, Elementary Education and Reading and Professor Julie Henry, Elementary Education and Reading

An essential part of being a teacher is having great verbal skills, which include reading, writing and speaking. As a teacher assistant I will help students in EDU 201 develop their understanding of educational material. This poster presentation will describe the tasks that the students and I participated in to improve their reading comprehension of educational material and writing. By using techniques such as peer-teaching, reading flexibility, article reviews on education topics and quiz reviews, I hope to develop the skills needed to improve the reading comprehension and writing skills of all teacher candidates. Throughout these tasks candidates it is hoped that candidates also improved speaking skills. Research has shown that teachers with strong verbal skills have students that succeed academically.

### **Effectiveness of Teaching Strategies in Zambia**

**Tiana Wilson**, Social Studies Education

Faculty Mentor: Professor Hibajene Shandomo, Elementary Education and Reading

This projects attempts to (1) Determine the effectiveness of teaching strategies, including Direct Instruction, in Zambia. It answers the questions: How effective is Direct Instruction for children in Zambia? And (2) Does a students' cultural, background, and upbringing play a significant role in the

students' response to Direct Instruction in Zambia? To answer the research questions, the qualitative method of research was used. I observed in 2 primary classrooms, 4 secondary classrooms, and taught 2 lessons at secondary level. I also interviewed 2 social studies secondary classroom teachers and 7 secondary students. This research was conducted in 1 government school and 1 private school. The findings suggest that the challenges (overcrowded classrooms, lack of teaching resource materials, shortage of staffing, not enough schools, and lack of technology in homes/schools) in Zambia results in many teachers' use of Direct Instruction as a primary teaching strategy. Direct Instruction is not as effective as it should be in the schools I observed. However, teachers are doing their best to accommodate students' situation. These challenges are not experienced by every student in Zambia. Private schools are different and do not have the same challenges, but government schools that are free to all have issues beyond a student or teacher's control.

### **Elementary Literacy: Germany vs. United States**

**Shannon McCooley**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Wendy McLeish, Elementary Education and Reading

I have read that schools in Germany try and model their teaching after some programs used in the United States. If German elementary schools implement American literacy programs, I will research strategies they have adopted or perhaps strategies they have adapted and put their own twist on. I will be curious to observe if any of the German literacy programs at the elementary level group their students to differentiate instruction. For example, do German schools have a small reading group table where students and their teachers work on reading skills? If possible, I will sit in on reading groups and observe what strategies are used. I plan to observe whole group instruction to learn about different strategies and methods that are being used. I hope to observe in additional classrooms other than the German classroom that I am placed in. If given the opportunity I would be curious to observe any type of AIS reading programs they have for students that need extra help with reading. I will gather this data by informal observation and recording the tools, diagrams, and text German literacy teachers and students use in their reading program. I predict the elementary schools in Germany will have reading groups that are broken up by the students reading level, and there will be some similarities between literacy instruction in Germany and in the United States. I also anticipate that Germany may not have programs that pull students out of class for reading assistance.

## **English Language Learners: Effective Ways to Instruct**

**Bryanna Hill**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Dianne McCarthy, Elementary Education and Reading

English Language Learners are becoming more prominent in the world we live in today. Not only are they in the United States, but they are all over the world. It's vital that if a child is learning English, they are learning English efficiently. Therefore, it's important that teachers know how to instruct English to non-native speakers in a way that students are going to retain it. Research shows that ELL have better success at learning the English language when English is taught in their native language. If this is not possible, then nonverbal communication is necessary by the teacher. ELLs also have to be comfortable in the environment that they're in for them to even be able to retain anything. If they do not have a comfortable relationship with their teacher, they're less likely to be successful at grasping the language. Interviews were conducted in the Dominican Republic and Buffalo, NY to find different perspectives of how teachers prefer to teach ELLs and why.

## **Exploring the Use of Student White Boards to Engage Students in Chilean Classrooms**

**Catherine Welch**, Rachel Kedzierski and Bryanna Hill, EDU 389: International Professional Development Schools

Faculty Mentors: Professor Angela Patti, Exceptional Education, Professor Pixita del Prado Hill, Elementary Education and Reading and Professor Raquel Schmidt, Exceptional Education

Through the International Professional Development Schools (IPDS) exchange program between SUNY Buffalo State and Chile's Universidad Mayor, we have learned that many educators in Chile are concerned with the lack of materials they have to provide engaging instruction. This situation becomes more challenging given the large class sizes teachers face in public schools in Santiago. Professional literature indicates the use of student response boards is one method for promoting student engagement. We are interested in exploring whether the use of student response boards might be an effective approach for Chilean classrooms. This research project will focus on two research questions. First, what student engagement strategies are currently used in a Chilean classroom? Second, after being provided student response boards and a demonstration of how to use them to engage students, how do the teachers perceive the benefits, drawbacks, and potential for use in their classrooms? Feedback will be gathered through classroom observations and interviews with the teachers. For the 2017 SRCC, we will share the research study design, research questions, and related information from the professional literature as the study will not take place until our travel to Chile in May and June of 2017.

## **From Exposure to Intensive: Integrating Undergraduate Research Into the Curriculum**

**Heather McCarthy**, GES 590: Undergraduate Research: Pedagogy and Evaluation

Faculty Mentor: Professor Jill Singer, Earth Sciences

Undergraduate research is an evidence-based high-impact pedagogy that has been shown to improve retention, encourage independent learning, and enrich collaboration, communication, and problem solving skills. While independent research experiences where students are mentored by a faculty member are desirable, it is not usually practical and often limits the number of students benefiting from participation. As well, these experiences are often restricted to students in the honors program, students in STEM disciplines, and students in funded programs such as the McNair Scholars Program. There is increasing interest in integrating undergraduate research into the curriculum, as a way to afford a larger number of students a research experience. There is a continuum of such research courses from 'research-exposure' to 'research- methods' and 'research intensive'. I have been investigating effective strategies and models for exposing students to undergraduate research integrated into the curriculum, particularly how this could be done early in students' academic careers in courses that enroll both majors and non-majors. In the introductory geology lab course I have been teaching, I ask students to select a topic related to geology that is of interest to them to help them learn basic research competencies such as library skills and information literacy. Students also conduct projects designed to offer them practice in oral communication and listening, as well as help them learn to give and receive constructive feedback. These are skills that should create a foundation for future academic and research opportunities. These also are the same skills that are sought after in many professional careers.

## **The Future of Technology Education: Regional Survey With Policy Implications**

**Keith McClain**, INT 689: Research Design and Methods

Faculty Mentor: Professor John Earshen, Engineering Technology

The discipline of Technology Education (TE) aims to provide secondary students with a multi-faceted exposure to processes and practices embraced by contemporary industry. The rise of TE is coincident with the US industrial revolution, which made significant advancements beginning in the late 1800s and beyond. Surprisingly, in many contemporary US secondary schools TE is in decline, and this is negatively affecting student development of skills considered by the marketplace as prerequisite to high-wage/high-tech employment. To better understand current secondary school district attitudes

and perceptions of TE, a questionnaire will be developed and distributed to ≈50 New York City school principals. It is expected that a wide range of opinions on the current and future state of TE will be obtained. These descriptive data will be used to draw meaningful inferences regarding the formulation of future education policy at both the state and federal levels.

### **Government Assistance in the United States vs. the Dominican Republic**

**Shanelle Grant**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Mary Celia Cummings, Elementary Education and Reading

Our federal government provides a range of support from food cost aid to unemployment benefits. But what is offered to the residents of the Dominican Republic who are in need of government assistance? Does such government assistance even exist? If it does, is it as beneficial as the system we have here in the United States? These are the questions that guided me as conducted research in the Dominican Republic. I used the Internet to gather preliminary information. Once in the Dominican Republic I worked with an interpreter to conduct interviews. My findings suggest that the Dominican Republic is not lagging far behind the United States with their government assistance programs. My presentation highlights the ways in which the Dominican Republic's government assistance programs are providing support to its residents and also shows where more support is needed.

### **How Does a Squishy Circuit Work?**

**Kathleen Shaw**, Elementary Education

Faculty Mentor: Professor Christopher Shively, Elementary Education and Reading

During the 2015 - 2016 academic year, a STEM unit of instruction was developed by teacher candidates from a nearby urban college and their science & math methods professor. This STEM unit was taught to 34 fifth grade science students, from two different classrooms; one of the classrooms serviced students with special needs. During the unit, students used an idea from the Navajo Code Talkers of World War II to send an alphabetically coded message to each other using light. "Squishy circuits" (Johnson & Thomas, 2010) were constructed to send the messages. Students drew models of squishy circuits and participated in a science dramatization that explained how they worked. Students used VoiceThread software to explain how their squishy circuit worked. Seventeen students were randomly chosen for data analysis. Voice recordings were transcribed and open coding techniques (Strauss & Corbin, 1998) were used to analyze the data. Two assertions emerged from the analysis. Assertion #1: Fifteen of the 17 students used anthropomorphic language to explain how a squishy circuit worked. Their language mimicked

the language used in the science dramatization. Assertion #2: Students were also able to describe, using anthropomorphic language, the molecular and atomic attractions and repulsions that took place inside of the "squishy circuit." It was not clear from the data if students understood why particles were attracted or repulsed with other particles but it was clear that the science dramatization helped them explain how a "squishy circuit" worked.

### **How Teachers Learn: Communities of Practice In English Teacher Professional Development**

**Zachary Cook**, English Education

Faculty Mentor: Professor James Cercone, English

This research investigates the impact that participation in communities of practice (Lave & Wenger, 1991) has on the professional development and mentoring of secondary English teachers. Teacher mentoring and development is an ongoing concern in education. Most professional development and mentoring teachers receive in the workplace is ineffective (Wong, 2008; Center for Public Education, 2013). The Western New York Network of English Teachers (WNYNET) is an active, teacher-driven professional learning community that encourages and supports the meaningful teaching of English in the Buffalo-Niagara Region. WNYNET has regular meetings and conferences where English teachers are asked to share their classroom expertise alongside nationally known speakers. WNYNET also sponsors an annual student speaker series where WNYNET teachers and their students share classroom work with the community. Finally, WNYNET directs an active online forum on Facebook where teachers can ask questions and share resources with over 350 of their peers. This research explores what impact WNYNET has on the professional development and learning of participating teachers. In doing so the project asks, "How does participation in a community of practice impact teacher's professional identity development and classroom instruction?" Teachers involved in the Western New York Network of English Teachers were interviewed about how their participation has impacted their teaching and professional identity over time as well as their actual work in the classroom. Interviews were transcribed and coded. Participants' involvement in the online forum and conferences was also investigated.

### **The Impact of After-School Programs on Elementary Students**

**Melissa Olejniczak**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Sherri Weber, Elementary Education and Reading and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This research project involves discovering the correlation between elementary after-school programs, student achievement,

student social/emotional development, and community awareness. Between the hours of 3:00 p.m. and 6:00 p.m., students all around the nation are being cared for in after-school programs. This is a necessary part of our education system because every student deserves a safe environment after the school day is finished. For the project, after-school programs will be defined as a program that incorporates curriculum that involves academic, social, and physical activities. This type of after-school program has been researched extensively by a review of literature. After-school programs are known to have a reputation of being a babysitting service, but local companies such as the YMCA Buffalo Niagara and EduKids have specific curriculum-based after-school programs that are geared towards student engagement and success. The Lancaster, NY branches of these programs have been researched and they hold positive mission statements that directly correlate to the questions of this research project. Overall, curriculum-based after-school programs offer activities that differ from the routine of the school day, but allow students to make valuable learning connections, growth in their youth development, and understand the importance of community partnership. At the completion of this project, the effects of after-school programs on student achievement, student social/emotional development, and community awareness will be reported.

### **The Impact of Outdoor Play on Preschool Children**

**Katie Froom**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

You will often hear the term “learn through play” in an early childhood classroom but where is this play taking place? The purpose of this project is to investigate through research what impact outdoor play has on preschool children and their development. Research reveals that outdoor play assists in developmental growth that would not otherwise be gained through strictly indoor play (Rivkin, 1997). The purpose of this project is to show the impact outdoor play has on preschool-aged children (ages two through four). This project would assist early childhood educators implement outdoor play into their daily curriculum with help from the lessons provided. Utilizing this project's research and lessons could have significant developmental effects on preschool children including but not limited to advances in their cognitive, social and emotional, physical, and language developmental domains. Other ways this project could be utilized in the future would be for parents and caregivers to learn of ways they may better their child's development. It could also be used as a frame of reference for an early childhood course discussing developmentally appropriate practices for preschool children. I will present upon the impact

time spent outdoors has on preschool children. I will inform educators, parents, and caregivers of the importance of outdoor play and will hopefully provide young children with more opportunities of outdoor play. Lastly, I will provide the many benefits of including or increasing outdoor time, as well as ideas for activities and ways to spend time outdoors.

### **The Impacts of Play and Autism Spectrum Disorder**

**Amanda Gunn**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

What are the impacts of play and autism spectrum disorder? In my research, I have found that children with autism often have a difficult time engaging in play with other children. Play can be the “work” of children and they have the ambition to play because it is enjoyable. My anticipated participants would be children with ASD in an elementary classroom. My anticipated results will be that students with ASD will be able to play, understand how to have a social friendship, and the adults in their lives will assist. Autism has been in my life since 2009 when my cousin was diagnosed. I have seen him struggle and become frustrated but I have also seen him the happiest I have ever seen any child over something so small. I hope to reach people who have children with ASD or know someone that does and help them overcome the difficult challenges of play. I hope to gain insight on what I can do as an educator to help children with ASD and inspire other children or adults to have the same passion about ASD as I do. I hope to be able to better myself as a teacher on the topic and be able to help the students, siblings, or parents who are struggling with the difficult diagnosis.

### **Informational Texts Are Too Hard: A 1st Grade Curriculum**

**Kelly Jasinowski**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

The research question this study will explore is what kind of impact does informational text have on student learning? Incorporating informational texts in a primary aged classroom has many benefits. Informational texts expose young students to texts that they will see more of in the intermediate levels which helps prepare students to handle real-life reading. If the Common Core's main goal is to get students “college and career ready,” then having informational texts in the classroom makes perfect sense. This type of non-fiction reading can also be very appealing to readers' preferences. When students are given the opportunity to read what they want to read, it can help improve their attitudes towards reading. I would administer an attitude survey at the end of the curriculum to see how students felt about informational

texts. Because reading and writing informational texts gives students a little bit of freedom, I anticipate that the students' attitudes and feelings towards informational text would improve. Teaching informational texts can easily address students' questions and interests; which can help motivate students to learn more. Informational texts can also boost vocabulary and other kinds of literacy knowledge for students. I have created a 1st grade curriculum that introduces informational texts and their features. During the curriculum, students will take their new knowledge on reading informational texts and turn it into their own writing of informational texts. Other educators could adapt this research project for other grade levels and other reading levels to determine if their students' attitudes improve regarding informational texts.

### **Interactive Read Alouds With Children's Literature in Santiago, Chile**

**Christine Garas, Onnika Clarey, Claire Borczuch** and **Jameelat Bakare**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Pixita del Prado Hill, Elementary Education and Reading

Through the International Professional Development Schools (IPDS) exchange program between SUNY Buffalo State and Chile's Universidad Mayor, we have learned that many educators in Chile are concerned with the lack of materials they have to provide enriched instruction. This situation becomes more challenging given the large class sizes teachers face in public schools in Santiago. Our PDS Consortium includes many examples of using interactive read alouds to engage large groups of children, including children who are English learners. We are interested in exploring whether interactive read alouds might be an effective approach for Chilean classrooms. This research project will respond to two questions, the first being: How is children's literature currently used in a Chilean classroom? Data will be obtained through observation of five classrooms in Santiago, focusing on the teachers' practices and current use of materials. The SUNY Buffalo State teacher candidates participating in this study will be trained to model the interactive read aloud process for participating teachers. Following this intervention, we will explore the second question: How do the teachers perceive the benefits, drawbacks, and potential for use of interactive read alouds in their classrooms? Feedback will be gathered through post surveys and interviews with the teachers. For the 2017 SRCC, we will share the preliminary findings of this study prior to travel to Chile in May and June of 2017.

### **Kinesthetic Learning: When Education and Movement Collide**

**Rebekah Emerling**, Undeclared

Faculty Mentor: Professor Joy Guarino, Theater

My research examines how kinesthetic methods for learning academic and social skills benefits students and why teachers should be implementing it as a teaching style. I will illustrate how kinesthetic activities relate to memory and how students may have an easier time understanding the content being taught to them when movement is involved in the teaching process. I will also consider why some teachers may be uncomfortable with and therefore reluctant to the idea of learning a new teaching technique. When students learn a new concept, most memorize facts and merely store information in the short-term memory. This learning technique allows them to recall for the test but then they forget the information as soon as the test is over. Kinesthetic learning allows for a physical connection to the curriculum. By embodying the concepts, students can store information in long-term memory that can be accessed throughout life, making the material a part of them. One way I have been observing the effects of movement on the learning process is by conducting kinesthetic activities with two-year-old children. During my time with them, we create small movements that correspond with whatever concepts they are most interested in that day. I concluded that they better retain information on all of these concepts when movement is involved because they perform dances that were created months ago. I reflected on this observation throughout my research and it influenced my studying the stages of memory and what is required at each stage for memory to function at its fullest in older students. My presentation will include a poster and examples of movements that correspond to concepts and content.

### **Make Math Meaningful**

**Ann Klass**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

Every year, during my fifth grade math class, my students ask the question, "do we really need to know this stuff?" They are uninterested in the material, frustrated, and bored. For my Master's Curriculum Research Project, I will address the research questions of "How can we gain interest in mathematics with middle school students?" and "Can real life connections make an impact on a student's learning?" According Willis (2010), when students see math skills applied to everyday life, they are able to form a connection to the material. It becomes meaningful to them. They will learn and have fun doing it. The goal of my Master's Curriculum Research Project is to create a project for teachers to use in a fifth grade math classroom that applies Common Core Mathematics Standards to real life situations.

Within the project, each student will pick a profession and family size while completing a series of activities based on banking, housing, transportation, investments, food costs, and taxes. Given all of these factors, the main goal of the project will be to live within the budget that each profession provides. I anticipate that the participants of the project will develop an interest in math while learning the strong role it plays in everyday life.

## Manufacturing in the Classroom

**Daniel Golinski**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Clark Greene, Career and Technical Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

As technology evolves over time, so does the environment of a classroom. Throughout history, schools have done their best to prepare students for the future by attempting to recreate the environment the students hope to work in in their future. In the past, this has been done through incorporating manufacturing, power tools, and computers into the classroom. The most recent of these modern technologies is called Computer Numeric Code machines or CNC machines. These machines use programs based on letter and number combinations to automatically make parts with incredible precision in a fraction of the time it takes to do the same task by hand. My research was done to determine how this CNC technology is used and determine what kind of projects students complete in classrooms. Through firsthand experience in classrooms, I have seen the impact these machines can have on the students and their education. In the past, what was once beyond the skill of the student, can now be done with the assistance of CNC machines in the manufacturing process. This research displays not only the variety of new opportunities that are now available to students, but how these opportunities vary from school district to school district as well.

## Maternity and Paternity Rights of Developed Countries

**Amber Amato**, EDU 389: International Professional Development Schools  
Faculty Mentor: Professor Sherri Weber, Elementary Education and Reading

What I intend to see come out of this project is a better understanding for the maternity and paternity leave process in America and Germany. The goal is to compare and contrast first, and to then influence others to find ways to improve our system in the US. It is said that the maternity and paternity time given to parents in our country is unfair and unrealistic. It is my suspicion that Germany may have a more reasonable and helpful system for parents. With my findings, I will be more equipped to defend parents and fight for their rights to be with their babies longer than they are allowed. This would bring great change to

the work place and greatly help women to continue on the path of equality in the work place. The United States is the only country among 41 others that does not mandate any paid leave for new parents (Livingston). This puts stress on parents and often times forces them to pay someone else to care for their baby. Children need to spend time with parents, as it is an important part of their development and health in a family unit. To improve in the area would mean to improve the lives of families across America. For my approach, I intend to interview working parents in both America and Germany. This way I can get the feedback and compare the ideas. I will also do online research on both maternity and paternity systems in these two countries. With all of the information gathered, I can create a presentation to influence others to change the way our system is ran and improve the lives of families.

## Modifying Curriculum for Students With Severe Disabilities in General Education Classrooms

**Marilyn Wang**, Exceptional Education  
Faculty Mentor: Professor Lynne Sommerstein, Exceptional Education

Communication skills are essential for students to succeed in school and in life. However, many students with severe disabilities often have trouble communicating their wants and needs, which often leads to the student exhibiting challenging behaviors. This has led to many occasions where students with severe disabilities have been deemed not ready for communication intervention in general education classrooms. In order to increase appropriate forms of communication that serve the same communicative functions as the challenging behavior, teachers need to go through functional communication and curriculum modification training (Carr & Durrand, 1985) and learn strategies for promoting generalization across settings. These strategies reflect an ecological approach to curriculum development so that the child's goals are individualized and meaningful. This approach represents a blending of the functional, academic and social needs of a child with severe disabilities. This presentation will identify strategies that teachers can use to effectively include students with severe disabilities and meet modified academic needs in general education classrooms using evidence-based practices.

### **New York City Teaching Certification vs. Teaching Certification in the Dominican Republic**

**Fernanda Saavedra**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Patricia George, Elementary Education and Reading

Some states have different requirements that need to be fulfilled before becoming a certified teacher- but what about other countries? Before going to the Dominican Republic I had many questions running through my mind, but in particular, I was eager to find out about the process of becoming a teacher. I had never been out of the country before this trip and because this was my first time traveling abroad, I had many questions: Do teachers have certification exams in the Dominican Republic? Are they free or is there a fee for taking these exams? Was it difficult applying for a teaching position? How much teaching experience was required to be considered for these jobs? When I got the chance to interview the teachers I was surprised by their responses and I was constantly comparing their answers to the requirements of becoming a teacher in New York State. Being able to speak with the teachers allowed me to learn how they felt about their examinations and if they thought they were essential to their careers. The teachers I encountered were very passionate about teaching and very proud of their accomplishments. They told me about the journey they took in order to get to where they are today. My poster presents the findings of my research about this journey of becoming a teacher in the Dominican Republic.

### **Preservice English Teacher Learning as Peripheral Participation in a Community of Practice**

**Brittany Michalek**, English Education

Faculty Mentor: Professor James Cercone, English

This study examines pre-service teachers' learning as they become involved in the English Education Student Association (EESA) at Buffalo State College. EESA is a student led professional organization that encourages and supports discussions about the meaningful teaching of English language arts in secondary schools. EESA holds regular events on campus and partners with the Western New York Network of English Teachers (WNYNET) to host conferences and related professional development events at the college. Both the New York Times and the Washington post, among other news outlets, have reported on teacher shortages across the country. Teacher attrition rates continue to be a concern as many new teachers, not equipped to face the challenges of classroom teaching, leave the profession early in the careers. Meeting these challenges and better preparing the next generation of teachers is a challenge for teacher education programs. EESA seeks to address some of the

issues by inducting new students into a professional learning community that provides access to more experiences professionals and important teaching resources throughout their careers. Through its partnership with WNYNET and the events EESA hosts, the organization seeks to support and advance English education students as they develop their professional identities. Pre-service English teachers involved in the English Education Student Association will be interviewed and their learning and professional identity development will be examined as they work alongside experienced teachers and members of the Western New York Network of English Teachers over time.

### **Programs Impacting Young Women's Health**

**Shannon McCooney**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Maura Rustowicz, Elementary Education and Reading

Providing young women with the proper education about how to stay healthy is an essential to creating a healthy life style for young women across the world. Several young women around the world are not educated and/or provided with proper tools to live a healthy life style. Fortunately, there are some programs around the world that do provide young women with a stable environment that teach them about healthy living habits. Traveling to the Dominican Republic offered me the opportunity to experience an amazing organization that provides young women with a safe place to go and learn about how to live a healthy life style for themselves but also how to bring that information out into their community to help spread this information.

### **Project Based Learning Inspires Achievement**

**Nicole Huntington**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

Does the implementation of a project-based instructional approach to Social Studies increase student engagement and achievement? Research has proven that when students are in control of their learning, their achievement and engagement levels are higher. Ultimately, the idea of making learning fun is one which plagues many teachers. Veering away from the lecture based instructional models toward project-based learning (PBL), students are given the opportunity to create their own questions, dig deeper, follow new leads, demonstrate learning in a variety of ways, and ultimately exhibit greater levels of achievement in their content area classes. This project explores the impact of PBL on Social Studies instruction in grades 7 and 8. In order to examine this question, I am using a mixed-method approach utilizing both quantitative and qualitative methods. Participants

have been split into two groups. One group is being taught with a traditional model consisting of part lecture and the use of a school-issued text book. The other is being taught with PBL as the primary instructional strategy. Assessment includes both pre-test and post-test as well as student attitude surveys before and after. I anticipate to receive results indicating that the PBL group demonstrates higher levels of achievement than the traditionally instructed group. This research project can be used to create curriculum models for middle school Social Studies teachers. My presentation will include a discussion describing the project, the significance, and proposed lesson/project ideas.

## **Promoting Undergraduate Student Engagement Through a Course-Based Learning Community**

**Madison Coburn**, Early Childhood/Childhood Education and **Jenna Reinard**, Early Childhood/Childhood Education

Faculty Mentors: Professor Julie Henry, Elementary Education and Reading and Professor Corinne Kindzierski, Elementary Education and Reading

This semester, we have been involved in a new retention initiative involving two sections of EDU 201, Introduction to Elementary Education. As Teaching Assistants, we attended class, assisted students with writing assignments, and promoted involvement in school activities through a course-based learning community. Our goal with the two sections of EDU 201 was to determine what we could do to help these teacher candidates feel as if they are where they are supposed to be and what strategies we could use to aid in that process. We surveyed the students on what learning activities they felt were most effective in promoting their success. We organized social, professional and service events for the students to attend in hopes of helping them feel a sense of community and belonging in the Department of Elementary Education and Reading at Buffalo State. We also invited students from BOCES who were completing EDU 201 through a joint-enrollment program to come participate in our learning community activities to enable these students to feel connected to the community at Buffalo State before attendance. The combination of our efforts has made an impact on these students. This presentation will share the results of the surveys and comments from participants about their experience in the learning community.

## **The Role of the Physical Classroom Environment in Student Learning**

**Carlie Mogavero**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Angela Patti, Exceptional Education

The physical environment in school classrooms is manipulated in different ways to incorporate certain aspects of instruction. The objects placed on the walls and around the

room, where they are placed, and how they look speak to what is seen as important for students learn in that culture. The goal of this research was to examine the differences between the classroom environments in various early childhood settings in the Dominican Republic versus the United States (more specifically, New York State). My research question was: what are the differences between the classroom environments in various early childhood settings in the Dominican Republic versus the United States, and how do the environments play a part in student learning? To answer this question, I interviewed early childhood teachers in different settings to understand why their classrooms were set up the way they were. I also observed these teachers' classrooms as well and collected data and records of what was around the room. In my poster presentation, I will describe the types of materials found in the various physical environments and how the teachers described the role of the environment as related to student learning. I will also draw comparisons between my findings in the U.S. versus the Dominican Republic.

## **The Side Effects of Creativity**

**Carolina Schnapp**, CRS 590: Independent Study

Faculty Mentor: Professor Cyndi Burnett, Center for Studies in Creativity

As an educator, my goal is to help my students develop their creative thinking skills. However, from my own experience of developing these skills and helping others to do the same, I have observed that there is a range of additional beneficial outcomes that people might not associate with the study of creativity. As part of the M.S. in Creative Studies, I am researching this topic and writing a blog to share my findings with the community. So far I have found evidence and resources that show there is a positive relationship between creativity and cognition, and creativity and self esteem. Other skills I am looking into are: empathy, resilience, tolerance to ambiguity, flexibility, and survival skills. I hope that exploring and publicizing this topic will encourage administrators and teachers to incorporate creativity into their curriculum and daily practices, since it is not only about developing creativity, but also forming students into more complete human beings. I will share my research findings in a talk that will showcase evidence of the relationship between creativity and other skills and suggestions for attendees to incorporate some practices to help develop more complete individuals.

### **Special Education in the Dominican Republic: Hope for the Future**

**Kassia Balus**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Awilda Ramos Zagarrigo, Exceptional Education

I traveled to the Dominican Republic this past January with the IPDS program where I conducted a qualitative study to compare special education in the Dominican Republic to that of special education in the United States. While interviewing the faculty and administrators of the Dominican Republic private and public schools, my research took a major detour as I discovered that the Dominican Republic does not have any services for students with disabilities or that the universities in the Dominican Republic do not offer any special education programs for teachers. As an advocate for students with disabilities, I then modified the focus of my investigation on discovering ways that the Dominican Republic could become informed about special education. I decided to raise awareness for the severity of this situation and to promote responsiveness to the need of the Dominican Republic educational system. My findings include suggestions about an approach that could be implemented to bring this developing country up to speed on educating all students.

### **Student Knowledge of Environmental Factors in the Dominican Republic**

**Nicole Sandretto**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

With environmental studies as a key component of Common Core curriculum in the US today, the environmental education of students is at the forefront of teachers' minds ("EE and Common Core Standards," n.d.). Spanning from science to geography to ELA classes, this subject is woven into our national curriculum. However, from a New York perspective, it is not known to what extent students in the Caribbean are focused on wide-scale environmental issues, as students in the US are required to learn. Additionally, it is not documented whether intervention programs like the Mariposa DR Foundation have an effect on Dominican student knowledge. By having students at the Mariposa DR Foundation and in a general education classroom draw a picture of their environment, I was able to track patterns of students' environmental knowledge. I surveyed 10 students, 4 boys at a private school and 6 girls at the Mariposa DR Foundation. The average student age was 8.7 years old. After collecting these images, I analyzed each drawing by the number of environmental influences evident. The number of factors ranged from 1 to 7, with an average of 4.2 factors per drawing. Despite

the statistical results which suggest the Mariposa DR Foundation did not have a positive influence, anecdotal information from Mariposa staff members indicates otherwise. By reviewing my poster, you will be able to see the student images and learn more about Mariposa DR environmental education programming. Reference EE and Common Core Standards. (n.d.). Retrieved from <https://www.neefusa.org/ee-and-common-core-standards>

### **Student Teaching: Germany vs. New York**

**Rachel Sparks**, Childhood Education

Faculty Mentor: Professor Madeline Angelo, Elementary Education and Reading

My study is to compare between Germany and New York State's teacher credential process; to evaluate how differences might influence teaching practices. To do this, I am documenting the steps by which students earn their teaching degrees in Germany and analyzing the differences and similarities with the requirements for New York State certification. My research includes a review of the literature preparation for traveling to Germany to observe classroom practice and interview teacher education students and practicing teachers. I want to see what type of behavioral management programs they use and implement them in a classroom. I am particularly interested in exploring German schools that implement Waldorf education and how this model effects the classroom environment. This is a pedagogy that emphasizes the role of imagination in learning, striving to integrate holistically the intellectual, practical, and artistic development of pupils. This affects the learning because in second grade they may grow a garden, in third grade they harvest, cook, and sell their vegetables; by doing this it introduces them to money, measurement, time, and natural sciences in a practical experience.

### **Teacher Mindset: Affect on Student Perception**

**Jackson Banas** and **Kyle Sosnowski**, HON 400: All College Honors Colloquium

Faculty Mentor: Professor Janine Viglietti, Mathematics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This research focuses on the work of Carol Dweck, the author of *Mindset: The New Psychology of Success*. Our inquiry demonstrates the importance of a teacher's mindset and how it impacts their classroom and their students. The focus of our study is on what ways a teacher's mindset impacts assessment. This research also focuses on what resources are available to students during an assessment. We surveyed teachers to determine if they showed more tendencies of a growth or a fixed mindset. We collected samples of assessments from these teachers and analyzed the types of questions the teachers ask. We

explored the hypothesis that teachers who lean towards having a growth mindset are more likely to ask questions of a higher cognitive level. We next surveyed teachers to discover what sort of accommodations was given to students during assessments. Our hypothesis is that teachers that demonstrate tendencies of a growth mindset would be more likely to allow open notes or cheat sheets on assessments. We surveyed students to determine how they feel about taking an assessment. We aim to discover if and how teachers fall on the mindset spectrum and how their mindset changes how a student perceives assessment.

### **To the Dominican and Back: Comparing the Power of Play**

**Annie Berg**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Patricia George, Elementary Education and Reading

What is the importance of play in early childhood education? As an aspiring educator, the theory of play has always been an intriguing topic of discussion. Play is one of the fundamental building blocks in a young child's development. I find that the play experience made available for students is slowly diminishing among U.S classrooms. This winter I was given the opportunity to study abroad in the Dominican Republic. With my travels, I found that it would be interesting to study closely what play looks like in a third world country compared to the United States. With my research I posed several questions to educators: What is the importance of play? Do you see students benefiting from play? How would you change their play experience? As I explored the education system in the Dominican Republic, I found that the overall perspective of the importance of play was similar to that in the United States. However, I uncovered some interesting differences in a child's play experience in the Dominican Republic that have given me an eye-opening view of just how important the "power of play" really is. Play is essential in regards to a child's developmental path. The stifling of play, I believe, will take away from the authentic learning environment that we as educators, strive to provide. My poster presents my findings in the Dominican Republic and compares them to play experiences in the U.S.

### **Using #Black&BrownLives to Enhance Learning and Teaching in Elementary Schools**

**Roseanna Spencer**, Childhood Education (Math Concentration)

Faculty Mentor: Professor Jevon Hunter, Elementary Education and Reading

The quality of many African-American and Latino students' educational experiences differs significantly from their White

peers and the curriculum used in schools does not adequately reflect the historical and current experiences of these students. When students do not see people who look like them reflected in curriculum materials, schooling as a process may contribute to adverse learning outcomes (Alston, 2004). This research was conducted to make visible the schooling experiences of African-American and Latino students by exploring the intergenerational experiences of their schooling and developing academic learning activities that speak to, enhance, and improve upon these experiences. Three African-American and/ or Latino elementary school students, their parents and grandparents were interviewed and qualitative data was collected to answer the following questions: 1) What are the elementary schooling experiences of African Americans and Latinos across three familial generations?; 2) What are the similarities and differences in these schooling experiences?; and 3) What kind of learning activities may be designed that speaks to, enhances, or improves upon the schooling experiences of African Americans and Latinos? The research findings indicated that it was uncommon for participants to have teachers and/ or administrators of their race or see themselves reflected in the curriculum. This study also found that the attitudes and behaviors of the teachers directly affected the participants' schooling experiences.

### **Using Literature to Enhance the Learning Outcomes of African-American Males**

**Delali Adutwum**, Psychology

Faculty Mentor: Professor Jevon Hunter, Elementary Education and Reading

Teaching African-American males has been a challenge for many educators as they grapple with the following questions: Is there a correct way to teach African-American males?; What strategies can be used to improve their educational outcomes?; Should we re-evaluate what and how teaching is delivered to this population of students? All of these questions fueled my research study. The results of this research study illustrate how I was able to blend new teaching methods such as forum theatre with conventional methods to educate a group of African-American adolescent males. What I found was that these young men took more pride in their education and had more motivation to succeed. They were more interested in learning their history and were also able to express themselves more effectively. My presentation includes a poster board, highlighting the literature that was used and a discussion of the impact the type of teaching we performed had on our young men.

### **Using Professional Development School Partnerships in Secondary Social Studies Education to Promote Diversity**

**Daniel Moreno**, History and Social Studies Education (5-12)  
Faculty Mentor: Professor Jill Gradwell, History and Social Studies Education

Valerie E. Middleton explains that a Professional Development School (PDS) partnership is “designed to provide... preservice teacher preparation, exemplary education for all students, inquiry into teaching and learning practices, and professional development for practicing professionals” (2007, p. 232). While much PDS research focuses on elementary education, inter-teacher relationships, and educational techniques, often secondary social studies education as a content area is overlooked. Specifically, there is a shortage of research done through PDS about how to implement secondary social studies curriculum change in PDS school networks. Vontz et al. state in their article, *Building Bridges in Social Studies Education: Professional Development School Partnerships* that “the benefits of PDS partnerships may be greater in social studies education than in any other field” (2007, p. 254). Based on my review of the extant literature, in this student poster session I will argue that not enough emphasis is placed on minority studies in current social studies curriculum. I will also offer implications for utilizing PDS partnerships to remedy the ever growing gap of minority studies in Social Studies curriculum, such as presenting information through PDS on curriculum changes to the National Council for the Social Studies, interschool curriculum renewal (opportunities for inquiry and social action projects), and finally, including the use of interdisciplinary school structures.

### **Water Quality Education: Comparing Resources**

**Yusheng Ye**, SCI 650: Curricular Research Topics in Science  
Faculty Mentor: Professor Joseph Zawicki, Science Education

Water quality education plays an important role in helping children both understand water as a vital resource and become informed citizens and future decision makers in water and environment protection. In the meantime, it is necessary to develop and select suitable instructional activities from various curricula at levels matching their cognitive competence. This study used a framework organized by student learning progressions at each level of achievement in water learning (Gunckel et al., 2012). This can be viewed as expected teaching objectives, forming a backdrop for the comparison of numerous educational water quality materials previously developed for elementary through high school classes. This study assessed and analyzed each educational program with respect to five elements: structures and systems, scale, scientific principles, representations, and dependency and human agency; each set of materials were

given a comprehensive appraisal. This study will provide an effective assessment approach for use by science teachers making decisions about either selecting or revising extant water quality resources.

### **What Does Inclusion Look Like in Germany Compared to the United States?**

**Juliane Reimer** and **Sarah Braun**, EXE 364, Educating Students with Moderate and Severe Disabilities  
Faculty Mentor: Professor Lynne Sommerstein, Exceptional Education

As exceptional education majors, inclusion is an approach we would love to see in every general education classroom. After taking courses at Buffalo State College informing us more about the benefits of inclusion, we want to look further into inclusion in Germany. Our research will look at how Germany approaches inclusion of students with special disabilities and special education in general. We will be observing many students with and without disabilities, but will be mainly focused on students with moderate to severe disabilities. We want to see the involvement of students with moderate/severe disabilities in German classrooms and see if they receive services as in the United States or how those services differ. We will each be in two different schools that will give us the opportunity to see how special education is approached in two different districts in the same country. We also want to interview our host teacher to find out what they know about Special Education and if students with disabilities are included in general education classes. Since we will not be able to start our research until June 2017, our presentation will be a poster showing our knowledge of inclusion in the United States and what we hope to find out about inclusion in Germany. We want to be able to share our knowledge of inclusion and help create a better learning environment for students with disabilities whether in the United States or Germany.

### **What Happens When They Leave? Exploring Impact of PDS Representatives**

**Daniel Klein**, Curriculum and Instruction  
Faculty Mentor: Professor Pixita del Prado Hill, Elementary Education and Reading

The SUNY Buffalo State PDS Consortium has grown and expanded over the years in order to help teacher candidates as they become educators. While all Buffalo State teacher candidates benefit from participation in the Consortium through the clinically rich practice embedded in their program, a select group is identified for leadership development as PDS student representatives. These undergraduate representatives serve the Consortium while learning more information, gaining new

experiences, and developing into the leaders and educators of tomorrow. The student representatives become mentors, voices, and seekers of knowledge for their peers while assisting with Consortium meetings and planning professional development opportunities. All of these experiences provide them with a variety of skills and knowledge to grow more into their roles as future educators. However, there is currently a lack of research into how this opportunity informs their professional lives. This poster will report the results of a survey that was given to former undergraduate representatives in the SUNY Buffalo State PDS Consortium to see how their work helped them to become actively engaged in their school community. Recommendations on how to implement undergraduate representatives into a PDS will be included.

### **The World of Class Dojo**

**Allison Gunkler**, Early Childhood and Childhood Education  
Faculty Mentor: Professor Kathy Doody, Exceptional Education

New and experienced teachers are searching for ways to implement classroom management techniques within their classrooms. In order for effective teaching to take place, teachers need to be able to manage their classroom in a supportive manner that is respectful of all students and provides them a safe environment to maximize engaged time and learning. Effective classroom management strategies allow educators to preserve a classroom environment that facilitates student achievement as well as having a classroom where individual and whole group behavior management needs are met (The Glasser Approach, 2016). This project provides an outline of effective classroom management systems, while introducing a new tool that integrates technology into the classroom: Class Dojo. Class Dojo brings together technology and evidence-based practice of behavior management to create an engaging and interactive system that relies heavily upon positive reinforcement in regard to student engagement, while allowing for “real time” tracking of behaviors and progress monitoring throughout its use. Many of the advantages and disadvantages of Class Dojo will be discussed and summaries of student, educator, parent, and administrator feedback from our PDS partner schools will be presented. The participants and vested participants using this behavior management system believe that Class Dojo is an effective tool for behavior management and that it is easily available to all educators for implementation.

### **The World is a Canvas: Importance of Art Education In U.S. vs. Dominican Republic Schools**

**Charlene Cook**, EDU 389: International Professional Development Schools

Faculty Mentor: Professor Sherri Weber, Elementary Education and Reading

If we can have a controversy over the importance of arts education in schools in the United States, I wonder how important it is in a poverty-stricken culture? How does it compare? I was opened to a completely different form of teaching style and curriculum when I traveled to a few schools in the Dominican Republic. Teaching that we see in the states is very different than what I saw down there. With very little supplies and class space, I did not see much interaction outside of the desk work that the students accomplished independently when in the schools. I did see some holistic forms of teaching at the Miraposa DR Foundation that I found very inspiring. I hoped to interview Teachers, Students, and Parents; however due to the language barrier, the need for a translator and their cultural make-up, speaking with parents proved to be impossible. However, I conducted interviews in 3 different settings with teachers and students. I expected to see little to no examples of art education in the schools compared to what we offer in the U.S but I was happy to see I was slightly mistaken. An aspect of Art Education is required by the government but what can be done depends on supplies, and whether the school is public or privately funded.



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# ***Health, Social Work, and Speech Language Pathology***

## **Acupuncture: A Therapy for Pains and Fatigue**

**Kaylyn McCall**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Acupuncture is a form of Traditional Chinese Medicine. Introduced to the US in 1971, a reporter who traveled to China with President Nixon stated how Chinese doctors were able to ease his surgery pains using needles. They used thin metal needles a few centimeters long that were often made of silver. The purpose is to stimulate specific points on the body, while penetrating the skin along the meridian where the Qi flows. It's considered as both complementary and alternative therapy. A specialist will know the points of puncture due to the symptoms of the patient. Acupuncture can be giving by a non physician but, they must be licensed. In TCM, acupuncture is needed when the Qi or Yin Yang are blocked or imbalanced, which can cause the body to become ill. Qi is the vital energy that sustains life in the body. Qi has channels throughout the body called meridians. TCM seeks to change these disruptions using variety of techniques; acupuncture, herbal remedies, exercise, and etc. As balance is restored, the person's health will be too. Yin Yang are two opposing components; the balance between two poles that attract and complement each other. Imbalance can lead to the blockage of the flow of the vital energy. In studies, it shown acupuncture has healed chronic pain in the neck, back, shoulder, as well as helped cure joint disease, and chronic headache. Women can benefit from acupuncture as well. It's known to ease menstrual cramps, and other cycle symptoms.

## **Alternative Food Sources for Thought**

**Veronica Batiz**, INS 499: Independent Study  
Faculty Mentors: Professor Jo Yudess, Center for Studies in Creativity and Mr. William Grieshaber, Small Business Development Center

Seeking alternative food sources is looking into uncommon sources of nutrition as a conduit for orthodox food sources. Many fortunate people are familiar with having fruits, vegetables, meat, poultry, dairy, processed foods, unprocessed products, and all other staple foods in between as large parts of their everyday diets. Those various foods listed provide people with the necessary nutrients to perform their everyday activities and excel with any and all undertakings. On the other hand, the not-so-fortunate people residing in underdeveloped countries don't have access to those same nutritious foods leaving them hungry, undernourished, and at a disadvantage when tackling their

endeavors. Over 800 million people are affected by this adversity around our world and suffer every day. Alternative food sources include analyzing various insects to take the place of typically consumed red meats, domesticated birds, fish and other nutrients. The benefits of nutrition from insects are greatly overlooked. Creating a concoction using various insects with added nutrients to provide these malnourished, hungry individuals a channel for nutritious foods will be life changing. Presenting my ideas for a concoction that would be tasty, yet nutritious will open the doors for creating creative alternative food sources that are extremely beneficial. I will present my findings including many statistics/facts regarding hunger in developing nations, its effects on people, and the need for alternative food sources. It will display photographs and charts representing the nutritional value of certain insects, present an insect concoction as an alternative food source, and demonstrate ways to create farming of insects as a means of being sustainable.

## **The Autonomy Assassins: Dementia and Alzheimer's Disease**

**Elizabeth Clifford**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Alzheimer's disease and dementia are both neurological illnesses that many of us know; perhaps by association as well as by name. For years, research has been done to investigate the prevention, treatment, and possible cure from these two diseases. We know well of their impacts upon the patient and their loved ones. Alzheimer's especially cuts into the very core of certain individuals; often those who have witnessed firsthand the fading of the personality and independence of someone they hold very near and dear to their heart. What is not entirely known by many is the fine line that separates Alzheimer's disease from dementia, and what is known by the medical community about these illnesses. As research continues to progress, possible preventative measures and facts regarding the diseases' advancement have surfaced. In this presentation, I will investigate the differences between dementia and the infamous Alzheimer's disease, and breakdown what knowledge on both has been investigated thus far. Using various studies and statistics regarding these neurological conditions, we will see how far research has come and has yet to go in the journey to preserve the beauty that is one's memories and character.

## **Bicicletas para la Educación**

**Tara Petty**, Social Work and **Teela Gajewski**, Social Work  
Faculty Mentor: Professor Louis Colca, Social Work

Nicaragua is the second poorest country in Latin America. El Sauce is a very rural area that is deeply impacted by poverty. Due

to lack of financial resources, most students must walk to school in order to attend, often walking long distances in temperatures over 100 degrees Fahrenheit. Education is an important component to breaking the poverty cycle, but there are numerous obstacles to regularly attend school. This leads to high rates of tardiness, poor grades, many absences, and high rates of dropout. This program aims to provide bikes to students in order to improve their attendance rates and ultimately help them gain an education. The researchers worked with a local gentleman who owns a bicycle repair shop and created the Two Wheels Project, a nonprofit providing bicycles to deserving students in rural communities surrounding El Sauce. The funds provided by the Undergraduate Research Small Grants Program donated twelve bicycles to students who were identified by two local schools based on their location, transportation available, and financial means. The school will collect data on the students' attendance, grades, and tardiness for a time period before and after receiving bicycles. Statistical analysis will be used to assess change in outcomes. This research will look to see if receiving bicycles will have an impact on school attendance, grades, and tardiness. It is expected that the data will show receiving bicycles will have a positive impact on the identified variables. This poster illustrates data collected and information regarding the Two Wheels Project.

## **Caffeine Increases Intake at Breakfast: Influences of Dose and BMI**

**Elizabeth Clifford, Jamie Valvo, Kathryn Spychalski and Jennifer Temple**, NFS 495, Dietary Analysis Project

Faculty Mentors: Professor Leah Panek-Shirley, Health, Nutrition, and Dietetics and Professor Carol DeNysschen, Health, Nutrition, and Dietetics

As obesity rates continue to climb, conflicting evidence regarding recommendations to reduce energy intake abound. Common suggestions include taking one's time while eating or consuming caffeinated products as appetite suppressants. Limited research exists on the impact of eating speed with or without caffeine on energy intake. The purpose of this study was to identify and describe interactions of caffeine, BMI, and eating speed on energy intake, appetite, and satiety. 18-50 year old adults visited the laboratory on four separate occasions to complete a double-blind, placebo controlled, randomized, cross-over study. On the first three visits, participants consumed a beverage containing 0, 1, or 3 mg/kg caffeine (order randomized). Thirty minutes later, they consumed a buffet breakfast ad libitum. After leaving the laboratory, participants completed hourly appetite assessments. We hypothesized more than ten minutes to consume a meal would result in increased fullness and satiety and decreased energy intake compared to less than ten minutes and this effect would be moderated by caffeine dose and BMI. At all caffeine doses, fewer calories were consumed <10 min compared to 10-30 min (all  $p < 0.05$ ). At low caffeine dose (1

mg/kg), overweight and obese subjects consumed significantly more energy than normal weight subjects at 10-30 min ( $p = 0.001$ ). Our findings support intake of fewer calories in a shorter period of consumption. Acute caffeine can have a small effect on meal intake, but these effects are not likely to result in significant reduction in energy intake over the long term.

## **Changing the Mind and Body Through Forest Bathing**

**Nicholas Klender**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Forest bathing or Shinrin-Yoku which translates to "taking in the forest atmosphere" is a practice that originated in Japan. The term Shinrin-Yoku was coined in 1982 by the Japanese Ministry of Agriculture, Forestry and Fisheries. I as a Dietetics and Nutrition student became interested in "Forest Bathing", conducted a literature search and review on the subject and would like to share what I found with others. The practice includes taking in the sights, sounds, and smells of the forest. The purpose of Forest Bathing is to reduce stress, lower blood sugar, increase concentration and memory as well as lower cortisol concentrations. Psychologically, its purpose is to elevate "rumination" or "negative self referential over thinking" which is correlated with depression. Psychological stress and depression has been shown to have physiological effects on the body by hampering immune function. Therefore, by reducing these stressors, forest bathing works to boost immune function that was once hindered by psychological stress. One of the lead researchers Dr. Li, suspects that positive changes in mood and increased immune function may be linked to the inhalation and general exposure to phytoncides. Phytoncides are antimicrobial volatile organic compounds derived from plants. The term phytoncides, meaning, "exterminated by the plant." was coined by Dr. Boris P. Tokin in 1928. It is believed that the role of a phytoncides is to protect plant life from bacteria, fungi and insects. Phytoncides are currently being used in holistic medicine, aromatherapy and veterinary medicine.

## **Combining Cultures: Creating Policies and Procedures for Trinidad and Tobago**

**Emily Robinson**, Social Work and **Jessica Kohl**, Social Work

Faculty Mentors: Professor Kimberly Zittel-Barr, Social Work, Professor Dian Chin Kit-Wells, UB School of Dental Medicine and Professor Kimberly Bell, Hanna Perkins and Case Western Reserve Medical School

Naomi Chin Kit Memorial School is a Montessori based preschool in Point Fortin, Trinidad. The mission of the school is to strive to provide the best early childhood education. To reach their goal, they have asked for our assistance in writing

a policy and procedure manual that reflects the pronounced Hanna Perkins Center for Child Development, which is located in Shaker Heights, Ohio. Our newly created policies and procedures preserve both cultures and values. We were able to use methods, such as puppy therapy and creative thinking skills to promote learning but also fun and creativity. While using our social work background and experience of working with children, it was possible for us to use our knowledge to create new methods for the children, teachers, and the entire Point Fortin community. The strong communication that we shared with the school administrator and owner made it possible for us to complete this task. Once the policies and procedures were written, it was important for us to visit the school in order to receive the crucial feedback from the community. We created a survey asking the teachers, parents, and other members of the community for their questions, suggestions, and feedback. The feedback we received, gave us a greater understanding of how the policies and procedures needed to be culturally adjusted. The responses to the survey have created clear themes, which has allowed us to conduct qualitative research. Our presentation will show different cultures combined but also the significance and importance of our time spent in Trinidad and Tobago.

## **Consumer Acceptance of GMO'S? Is the Arctic Apple the Answer?**

**Mary McCabe**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

A genetically modified organism is defined as an organism whose genetic makeup has been changed, by genetic engineering, whereas the DNA contains one or more genes that are not normally found as in nature. From the literature that I reviewed the Arctic Apple is the only GMO that benefits the consumer. The purpose of my research is to determine if the Arctic Apple provides the solution for a genetically modified food. To answer the question, I examined the methodology and conducted an extensive literature search, which I used to assess how GMO's adequately feed the increasing population, especially in North America". Currently apples are at a standstill thereby creating the problem of "millions of pounds of perfectly good apples get dumped every year, because they look a little to bruised or brown". The other problem that will be solved with the institution of the Arctic Apple is that currently conventional apples are often rejected if they don't appear perfect. There is no evidence that the Arctic Apple is unsafe for consumption, but there were numerous studies that have concluded that GMO'S are as safe as conventional bred foods. It is difficult to convince the consumer that the general population consumes GMO'S on a daily basis. If consumers accept the Arctic Apple, it will be the key to open the door to other GMO's. According to a study in the Journal

of Consumer Affairs estimated that \$15 billion in fresh and processed fruit was lost from the US food supply in 2008.

## **The Effect of Interests on the Conversational Quality of Individuals with Aphasia**

**Marcelina DeCarolis**, Speech-Language Pathology  
Faculty Mentor: Professor Deborah Insalaco, Speech-Language Pathology

The purpose of the study is to investigate whether discussing a preferred topic improves the quality of conversation in individuals with aphasia. Aphasia is the inability to understand and/or express language due to brain damage, most commonly because of a stroke. Two persons with aphasia and two healthy elders will be interviewed to find out their interests. Conversational language samples on the topics that are interesting to them will be compared to the quality of conversational language samples on less interesting topics. We anticipate that the conversation samples on topics of interest will be of greater quality for persons with aphasia than less interesting topics and that healthy elders' conversations will be equally good with interesting and less interesting topics because of their preserved ability to compensate for lesser interest with their unimpaired language skills.

## **Environmental Medicine: Chelation Therapy**

**Kristen Kuminski**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

The earth's environment has been increasingly polluted by toxic chemicals including heavy metals. As a result, the human race is suffering more from chronic illnesses such as cancer, lung and heart diseases, reproduction, autoimmune diseases, allergies, etc. Environmental medicine emerged in an attempt to deal with the increasing threats from various toxic chemicals that cause these life-threatening diseases. As a dietetics and nutrition student, I am interested in these problems and have conducted research on several literature reviews, to find what remedies are used in integrative medicine. Chelation therapy involves the use of specific drugs (known as chelators) to remove toxic metals, such as lead, mercury, cadmium, and aluminum, from the human body. Chelating agents are capable of binding to toxic metal ions to form complex structures that are easily excreted from body. Emerging evidence is shown to link heavy metal toxicity to certain ailments such as cardiovascular disease, chronic kidney disease, and diabetes. Currently the US FDA approves chelation therapy only for the treatment of heavy metal poisoning and toxicity. Chelation has taken root in modern Complementary and alternative medicine, where practitioners

utilize it for a wide spectrum of clinical conditions. This poster presentation will provide an explanation of the method of chelation therapy, and explore its potential benefits in modern day medicine.

## Functional Foods and Sports Performance

**Melody Marcantonio** and **Charissa Szpaicher**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Functional Foods are foods that claim to improve health, well-being and exercise performance by providing benefits beyond the basic nutrition. As Dietetics students, we were intrigued to find out what functional foods can enhance athletic and physical performance and how they do? To answer the question, we conducted literature search on the subjects and reviewed them. Adequate nutrition is essential for the proper performance of exercise as well as maintenance of good health. Functional foods used in sports performance include replacement water with electrolytes, protein powders, bars, and carbohydrate drinks. These functional foods contain additional substances to improve athletic performance and help regulate homeostasis of water, minerals which are often disrupted by the effects of strenuous activity. Carbohydrates, protein, and water are essential elements needed to carry out exercise but can also be abused by active individuals who are looking for alternative fuel sources to boost their sports performance. Our goal is to provide evidence-based facts discussing the ways water, carbohydrates, and protein can be used correctly amongst sports performers to improve health and well-being. In addition, we hope to enable safe use of these functional foods and minimize reliance on unnecessary dietary supplements.

## A Glass of Wine a Day the Heart Healthy Way

**Sarah Crawley** and **Maria-Elena Damasiewicz**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Red wine has been found to possess a variety of benefits that may lead to a decreased risk of cardiovascular disease, lower cholesterol, increased HDL, a reduced risk of diabetes, and inhibition of cancer cell growth according to the National Institute of Health. One of the polyphenols present in red wine, resveratrol, is thought to be primarily responsible for these properties. Resveratrol acts as an antioxidant, slowing down the progression of atherosclerosis that can be caused by high blood cholesterol and oxidative processes in the body. This compound also has anti-inflammatory properties and protects against blood

clot formation, two significant contributors to cardiovascular disease. Our research looks closer into the properties of resveratrol and its mechanism for such actions in the human body.

Resveratrol functions to act as a potent vasodilator as well as an antiatherosclerotic, antiarrhythmic, and vasorelaxer. Resveratrol, found in the skin of grapes, may be required to be consumed chronically, at moderate amounts for the above benefits to be seen. Individuals who are not interested in drinking such an amount of alcohol may experience some similar heart-healthy benefits by eating grapes or drinking red and purple grape juice. More research is needed on this topic but resveratrol in red wine may be the most beneficial when it comes to the heart. With cardiovascular disease being a primary cause of mortality, a glass of wine at dinner every night may provide more benefits than harm so enjoy the heart-healthy way.

## Health Behavior in College Athletes and Greeks: Implementation and Evaluation

**Jenna Smolinski**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Jonathan Lindner, Health and Wellness and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The purpose of this research is to examine the need for an increased focus on mental health in collegiate athletics and students in Greek Life at the State University of New York College at Buffalo. This target population is found to be of high-risk for demonstrating risky health behaviors on college campuses. Through a mixed methods approach using focus groups and surveys, information will be obtained to select the most relevant mental health topics for this target population. All subsequent information will be used to develop and implement an intervention program for this population titled "The College Survival Guide". This interactive workshop will be administered to the target population by Student Health Ambassadors, providing the necessary knowledge and skills to improve students' self-awareness and health behaviors. This intervention effort will be a collaborative approach between HON 400 and the Student Health Ambassador Program. Effectiveness of the intervention will be measured and evaluated using a pretest and post-test format and will be administered through the students. The goal of this research project is to investigate and intentionally improve the mental health of the target population, including self-love, self-awareness, and self-management. Ultimately, I hope to report a decline in risky behaviors among targeted students, while demonstrating improvements in mental health and well-being.

## Herbal Remedies: A Viable Role in Cancer Prevention

**Kellyanne Hearn**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

In the US, 1 in 2 men and 1 in 3 women will develop cancer in their lifetime. Carcinogens derived from pollutions, at-risk lifestyles, and genetic predisposition may all contribute to the development of cancer. However, healthy diets and lifestyles can stimulate the immune system by providing essential nutrients and phytochemicals that can help with DNA repair, metabolism of carcinogens, and apoptosis. For my research, I conducted a literature search that aims at finding sources of phytochemicals such as flavonoids and polyphenols from botanical sources that can reduce the risk of cancer. Garlic is common household plant that is widely used as a flavoring in cooking. Garlic contains many phytochemicals including allicin, research shows that the high levels of garlic intake or allicin intake can reduce the risk of stomach, colon, esophagus, and pancreas and breast cancer. Soy intake is rapidly growing in popularity each year and provides an excellent source of protein, fiber, vitamins, minerals and phytochemicals such as soy flavones that may help the body to reduce the risk of breast and prostate cancer. Green tea has been used medically for centuries around the world. It is rich in phytochemicals such as EGCG, ECG. These chemicals have been shown to protect against the cells from DNA damage from free radicals. Botanical medicine has been a way to treat illness and disease for centuries. I hereby present my findings from reviewing the selected scientific research articles on herbal products for cancer prevention and treatment through my poster.

## How Food Choices Can Fight Against Cancer

**Geoff Stallman**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

One in three Americans will develop some variation of cancer in their lifetime. The purpose of my research is to determine whether or not one can fight cancer with food choices. Cancers result from lifestyle, environmental problems, genetic predisposition, and exposure to toxic substances (carcinogens). Cells in the body get damaged, multiply, and even spread to other parts of the body if they are not recognized and stopped by the immune system. Is it possible to fight back and prevent these actions from ever occurring? To answer that question I conducted a literature search on the subject and reviewed the results. I found that food choices can have an impact on the body's ability to recognize and destroy the mutated cells before they become cancer. Healthy foods rich in vitamins, minerals, fibers, and

phytochemicals can help the body with DNA repair, removal and/or deactivation of carcinogens, and apoptosis. Phytochemicals refer to chemicals found in plants, and there are thousands of them but many of their effects are yet to be explored. There are many however that have been proven to naturally improve the body's response to damaged cells and help cancers from developing. My poster presentation will highlight the beneficial effects and food sources of phytochemicals.

## The Impact of Transracial Adoption: A Qualitative Study

**Jillian Stenzel**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Tonya Myles-Day, Social Work and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This project will evaluate the willingness of those who are adopting to choose a child of a race differing from their own, with a focus on the implications of doing so. Despite increasing amounts of transracial adoptions by celebrities, it remains a curiosity how open the average American is to the process. In particular, my research will focus on the significance of transracial adoption for the parents, and their feelings about how society views their decision. In order to assess the impact transracial adoption has on families, I plan to do a case study of several women and men who are currently, or have already adopted a child of a different race. I will use an informative, open-ended survey to gather data, to receive useful feedback. My project will primarily have an ethnographic lens; this means the research will be designed specifically to show the perspective of the people being surveyed. However, it will also include statistical data obtained. In my preliminary research, I have already found data that indicates that 40% of adoptions are transracial. It is my hope that my research will enlighten people and create a larger sense of awareness and acceptance for this practice.

## The Impact of Helmets in Youth Sports

**Brianna Carroll**, HON 400: All College Honors Colloquium

Faculty Mentors: Ms. Liz Aiello, Athletics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

A concussion is a traumatic brain injury (TBI) that can be caused by a big blow to the head that causes the brain to move rapidly back and forth in the skull; but, they do not always cause a concussion. The severity of a concussion can range from mild to severe. Per the Centers for Disease Control and Prevention (CDC), in 2009 there was an estimated 248,418 children of the ages 19 or younger that had visited the emergency room with a diagnosis of a mild or severe concussion caused by sports or recreational activities. It is important that young athletes wear helmets to protect their head and brain, although a helmet does not protect the athlete 100%. Many coaches and parents

of young athletes do not know when to spot a child with a concussion, and most of the time a child will not tell anyone when symptoms appear (out of fear or not enough knowledge about head injuries). The CDC provides an information database called "HEADS UP" to educate parents, coaches, and health care providers the warning signs and importance of removing a concussed athlete from play. Some signs of concussions that could be seen by others are clumsiness, mood or personality changes, slow responses, dizziness, and dazed or confused. If an athlete reports that they are feeling pressure in their head, nausea or vomiting, light or noise sensitivity, problems with vision or balance, or even "not feeling right," then it is important to get a professional to evaluate the athlete for a possible concussion or TBI. Few symptoms might take several hours or days after the injury to the head to appear. In this research, an evaluation on primary research of the correlation between youth sports concussions and wearing helmets will be made.

## Is Laughter the World's Best Medicine?

**Alegha Hawkins**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

"Laughter is the best medicine." This popular phrase is often used as a shred of encouragement towards oneself, or others, when overcoming an illness. But, does this statement have any empirical evidence? I reviewed the literature on this subject and investigated the use of laughter as a medicine by researching the uses and outcomes of laughter therapy. I included a variety of scientific experiments in my investigation. Each cohort was divided into two; half was exposed to laughter inducing stimuli, while the rest was used as a control. These groups included elderly people in community living, chronic obstructive pulmonary disease patients, patients with late-life depression or Alzheimer's disease, and women receiving in vitro fertilization. In result of each study, laughter showed psychological, and social benefits. No evidence showed an effect on certain disease states, including Alzheimer's disease and chronic obstructive pulmonary disease. However, using laughter therapy as a complimentary medicine, showed improvements on the mental and emotional status of those patients.

## The Many Health Benefits of Dehydroepiandrosterone

**Joe McFarland**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Dehydroepiandrosterone, better known as DHEA, is a hormone produced by the adrenal glands and is a precursor to testosterone and estrogen, the male and female sex hormones,

respectively. DHEA levels in the body peak around your mid-twenties and then decline in the later years of life. By the time you reach your 70's your DHEA levels have declined to 10-20% of what they were in your 20's. There are many suggested health benefits of DHEA such as: anti-aging (skin), sexual health, muscular strength, help with menopause in women, slowing Alzheimer's disease and bone density. After my literature review I found that some studies have claimed the efficacy of DHEA in some of these categories. Whether DHEA is beneficial or not for each category will be displayed on my poster. DHEA has been deemed safe to take, however like anything it must be taken after seeing a doctor and by taking the correct dose, taking a higher than prescribed dose could result in negative side effects. Due to the popularity of DHEA there are safe and unsafe supplements on the market, it is up to the consumer to verify the product they are buying has been tested and is safe to take. Research on DHEA is continuing and the proven health benefits of DHEA may continue to grow.

## Naturopathy: Gift of Health from Mother Nature

**Sheak Li Chung**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Naturopathy, defined by NCCIH as a holistic medical system that is evolved from a combination of traditional practices and health care approaches that was popular during the 19th century in Europe. It put a lot of emphasis on the body's self-healing process and various disease prevention through natural therapies. The American School of Naturopathy was founded in 1902, by a German immigrant, Benjamin Lust. It was believed that the principles and philosophies of naturopathy was introduced in the United States by American School of Naturopathy. However, the popularity of naturopathy did not regained until the 1960s after it dropped in the mid-1920. My objective is to research what is naturopathy and introduce my topic to my peers. This includes its' philosophies, history, principles, treatment products and methods, and the effectiveness of the treatments that might be used. In order to fulfill my objective, my research methods are mostly literature review which include searching various databases through the school's library for peer-reviewed articles, books, and journals. Other than that, I also searched the internet through Google Scholar and Google for more reliable sources of information regarding my topic. My next mission is to source a possible interview with a naturopathic medicine practitioner to understand about the subject in an objective point of view.

## **Nutraceuticals: Their Significance and Treatment of Chronic Diseases**

**Katherine Woltz**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Nutraceuticals is a term that is defined as “any product derived from food sources with extra health benefits in addition to the basic nutritional value found in food”. They are used to enhance well-being and quality of life by preventing chronic diseases, health promotion, and as an adjunct to disease treatment. My research purpose is to review the current literature on the subject and find the evidence-based benefits and limitations of nutraceuticals. The word Nutraceuticals can be broken down into two distinct words, “nutra” meaning nutrient, and “ceuticals” as pharmaceuticals, essentially referring to both nutrient and medicine. Now monitored by the FDA, the nutraceutical market has been very profitable, estimating around 117 billion US dollars. My main focus on nutraceuticals is to hone in on prevention rather than treatment. Health and medical benefits of nutraceuticals from various food sources include probiotics, prebiotics, polyunsaturated fatty acids, polyphenols, antioxidants, spices, etc. I will present my research findings on selected nutraceuticals and discuss them including the chemical make ups of certain nutraceuticals and their significance and relevance in health and wellbeing. Although nutraceuticals hold significant promise in alleviating the suffering from disease, or this potential to be fulfilled, much more research is needed to document safety and disease risks in humans.

## **Nutrition for the Athlete: Achieving Optimal Performance**

**Ezgi Dilek**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

A formula one race car is the greatest representation of speed and handling. Every input and every detail matters in order for it to run optimally. The same goes for the world’s most complex living machine; the human body. It is important to fuel your body with the appropriate “gas” or “fuel” so that it can operate at its best. In order to prevent coming up short from one’s fitness goals and performance, the correct food, supplements and training are crucial to maximizing strength, muscle mass, speed, agility and stamina. The body needs different amounts of food and training depending on an individual’s goals. However, for an athlete, it is safe to say they require more input regarding caloric needs because they output more energy. Many factors influence an athlete’s ability to perform efficiently. This includes but is not limited to, the food eaten and the time they are eaten at and the amount of grams of each macronutrient consumed. The macronutrients consist of carbohydrates, protein and fat. Other

factors include the anabolic window, recovery methods, nutrient dense foods, pre and post training food recommendations, hydration, rest days and so on. By understanding the factors that have a role in performance, all individuals whether an athlete or not, can be aware of how they can care for and fuel their body properly to achieve goals and optimize their own performance.

## **Polyphenols: The Possibilities are Endless**

**Michelle Myers**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Polyphenols, a category of antioxidants, are what generate the bright colors found in fruits and vegetables. They also influence taste, smell and oxidative stability in food. When contained in a plant, polyphenols protect the organisms from adverse threats like pathogens, harsh climates and oxidative damage. Polyphenols are also considered to contain some of the most powerful antioxidants and therapeutic effects. In the human body, polyphenols have been shown to have anti-cancer properties, prevention of inflammation, contribution to heart health, and influence many beneficial effects on the body. Interest in the numerous beneficial effects of polyphenols lead to the investigation of the health effects of green tea due to its immense popularity and large quantity of extensive research available. A library search was conducted on peer reviewed research articles on green tea polyphenolic flavonoids and found multiple pharmacological health effects of green tea on cancer, diabetes, cardiovascular health, neurodegenerative disease, muscular disease, inflammation, etc. These studies emphasize that polyphenols rarely interact with a single protein, but actually engage with multiple targets. These findings will be presented on my poster. I will also discuss the health benefits of green tea on selected polyphenols.

## **Probiotics and Prebiotics: Gut Health and Beyond**

**Courtney Nicholson**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

The purpose of this study is to identify the relationship between probiotics, prebiotics and the treatment of irritable bowel syndrome. The goal is to examine whether or not there are health benefits beyond gut health. The topic of interest regarding probiotics and prebiotics is an answer to the question of are they an effective way to treat irritable bowel syndrome. Studies show that a reason for irritable bowel syndrome is a lack of diversity in the bacteria and gene count which effects the bacteria’s richness (Staudacher, Whelan 1). There have been eight systemic reviews and meta-analyses of the use of probiotics in the past seven

years and the most recent trials have shown a good benefit to taking the probiotic for IBS. The most recent review analyzed the effect of individual probiotic products reporting benefit for *L. plantarum* DSM 9843, *Escherichia* and *Streptococcus faecium*, other reviews cite evidence for probiotics improving overall symptoms and abdominal pain and bloating in IBS patients, but a lack of evidence for flatulence (Staudacher, Whelan 1). Studies were also conducted on the use of prebiotics and two trials reported no effect and some worsened symptoms four weeks after the study. Recent tests for prebiotics have shown improvement of symptoms, but still complained of bloating and gas production. Overall it seems that taking probiotics and prebiotics can improve gut health and the symptoms of irritable bowel syndrome, no tests have proven them to be cure as of yet.

## The Purpose of Sport Specificity with College Athletes

**Patrick Eadie**, HON 400: All College Honors Colloquium  
Faculty Mentor: Mr. Nathan Young, Intercollegiate Athletics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Understanding the purpose of sport specificity is a vital key when training with an athlete trying to advance in his or her given sport. Trainers have to design programs to help the athlete progress in areas which they lack in when it comes to their role in the sport. It could be related to muscular strength, muscular endurance, or aerobic capacity. This process needs to go through periodization when the trainers design a program that would focus on improving these areas. The project will show a mock training schedule designed for a male soccer player. In the research I have found that in sport specificity there are two types of training styles energy based, and movement based. Energy based trainings will aid them in preventing from injuries, and building their bodies up from weight training. Movement based training is those train specifically to that to allow the body to move more cohesively. Sport Specificity can focus on the sport, body type, fitness level, competition level, and nutrition of the athlete. Long-term periodization shows how it progressed since the start of the year, tracking the athletes gains made over time since the training program. This is also done to prevent problems from training improperly.

## RELAX: Natural Remedies to Reduce Anxiety

**Lauren Maynard** and **Lindsay Banaszak**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

After scholarly review of “Natural Remedies to Reduce Anxiety”, and their effectiveness on treating anxiety-related conditions, we found strong evidence that supports the use of herbal supplements containing extracts of passionflower (kava), and combinations of L-lysine and L-arginine, as treatments for anxiety disorders. Kava- or kava kava- is a root found on the South Pacific islands that has been used as medicine for centuries. Kava has a calming effect by producing brain wave changes similar to the changes that occur with calming medicines such as Diazepam (Valium). Kava also can assist in preventing convulsions and help to relax muscles. Other herbal supplements that have been shown to reduce anxiety include Ginkgo biloba (Ginkgo), *Scutellaria lateriflora* (Scullcap), and *Passiflora incarnata* (Passion flower). Besides herbal remedies, there are also other non-medicinal ways to help treat anxiety disorders, such as physical activity, meditation techniques such as yoga and tai chi, massage therapy, acupuncture, aromatherapy, and dietary alterations. According to the Alternative Medicine Review, physical activity has been found to be as effective as psychotherapy for treating anxiety disorders. Meditation techniques such as Mindfulness Meditation, yoga and tai chi have been found to reduce anxiety and mental stress. These fascinating non-medicinal approaches will be discussed further in our poster for treating anxiety and mental stress. Faculty Mentors: Suk Oh, Nutrition and Dietetics Presentation Type: Poster

## The Relevance of Yoga and Meditation in American Healthcare

**April Ersing**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

In the Western world, yoga is considered a holistic approach to health which is classified as a form of Complementary and Alternative Medicine (CAM) by the National Institutes of Health, and has recently been integrated into many healthcare facilities. The purpose here is to discuss the relevance of certain components of yoga and meditation in American healthcare, with a literature search conducted for scholarly peer-reviewed journals. While over 10 million American practice yoga, there is a distinction between yoga typically taught in a studio and yoga therapy. Yoga therapy is the application of postures and practices to relieve symptoms or help treat specific health conditions. Incorporating yoga into healthcare facilities simultaneously provides patients with therapeutic benefits, demonstrates yoga's

effectiveness to healthcare providers and presents evidence of effectiveness that could potentially lead to healthcare coverage reimbursement. Mental health issues such as depression, anxiety, insomnia and stress, along with musculoskeletal issues, are among the most common reasons individuals seek complementary therapies such as yoga. Evidence had shown that stress contributes to major chronic health conditions, which are among the top causes of death in the U.S. Yoga is a form of mind-body medicine that includes physical and mental and components to improve health, specifically stress related illness. Yoga and meditation creates a physiological state that counters the stress response, and this inhibition can lower heart rate and respiratory rate, blood pressure, cardiac output and anxiety. Continued practice also increases serotonin levels reducing depression, loosens muscles and connective tissues, lessening joint pain.

## The Significance of Taurine and Cognitive Brain Function

**Jamie Valvo** and **Molly Gorski**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Taurine is one of the most abundant amino acids in the brain, retina, muscle tissue, and organs. It is widespread in the body in high concentration. We were intrigued by the presence of taurine in brain and nerve system in high concentration and conducted literature search and reviewed them to find what roles it plays in the body, especially brain. Taurine exerts a variety of effects on the body. For example, it involves in a wide range of nerve functions in the central nervous system and satisfies many of the criteria considered essential for neurotransmitters. Taurine is a potent activator of extra synaptic GABA(A) receptors in the thalamus. Taurine is considered as one of pseudo-vitamins. Listed as a dietary supplement, research has demonstrated that taurine is often associated with improving cognitive function and memory. Taurine is an ingredient of Red Bull along with caffeine. Studies showed that taurine is extraordinarily active on gamma amino butyric acid (GABA) receptors in the thalamus. This correlation between taurine and GABA receptors sheds light on the mechanism that is involved in behavioral state control and regulates transitions between sleep and wakefulness. In this presentation, we present findings from an overview of the functional properties of taurine, the impact taurine has on the brain: starting from early development stages, some of the consequences of taurine deficiency and prevention of neurodegenerative disease. Also, we will highlight the several brain-protective properties that taurine exhibits. Our findings from various studies regarding the effect of taurine on cognitive function will be discussed as displayed on our poster.

## Spirulina: Superfood or Super Overrated

**Andrea Bowman-DeFino**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Spirulina is a prokaryotic, non-toxic, cyanobacteria that gained popularity as a “superfood” after it was successfully used as a dietary supplement for astronauts on space missions. As a dietetics student I was interested in Spirulina and conducted literature review to find its benefits and limitations. Spirulina has recently been touted for treating depression, boosting energy levels, promoting weight loss, and improving memory; unfortunately, scientific evidence does not support any of these claims. However, preliminary animal studies have found evidence supporting its antioxidant and anti-inflammatory properties, cancer preventive properties, and cardiovascular benefits-including its ability to lower LDL cholesterol and triglyceride levels. Spirulina is also an excellent source of complete protein, comparable to egg protein. It contains all of the essential amino acids and provides a good source of thiamin, riboflavin, beta-carotene, omega-3 fatty acids, both soluble and insoluble fibers and iron. The nutrition facts for 100g of Spirulina are quite impressive, although it is important to keep in mind that Spirulina is used in small doses, typically one teaspoon (3-5 grams) at a time. Nevertheless, the nutritional implications are notable. A concern on microcytic toxicity has been raised, spirulina unlike blue algae is considered a safe food supplement by the US Food and Drug Administration. Spirulina is densely-packed nutrient composition and phytochemicals may make it a good dietary supplement; however, further research is warranted to determine its full health benefits.

## Super Grain: Quinoa, the Healthier Grain

**Katie Orsino**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Based on my literary research from Food Chemistry and the Journal of Food Science, quinoa is considered the worlds “super grain” for its high protein content and amino acid profile. This pseudocereal is indigenous to the Andean region of South America with history of human consumption that dates back over 5,000 years ago. The sacred crop to the Incas, the mother of all crops, was used as a staple food for most meals. In 2013, the United Nations Educational, Scientific and Cultural Organization (UNESCO) declared quinoa as the perfect food for all humanity. Reasons include; high protein content, balanced amino acid profile, high fiber/mineral content, rich in antioxidants and other health promoting compounds. I was interested in quinoa for its potential health benefits for its rich source of polyphenols and flavonoids in especially concentrated

amounts. Iron bioavailability and proteins digestibility is higher in quinoa compared to wheat products. Digestibility of quinoa in the human stomach allows increased tolerance for human consumption. The increase tolerance of quinoa, improves the likely-hood for food security among the population. Decreased palatability of quinoa is often due to the bitter taste of the plant glycosides, saponins. Processing quinoa involves dehulling/polishing and washing to remove any unwanted saponins. The higher the saponin concentration, the bitter the taste. Saponins are classified as an antinutrient and are said to be toxic, but recent studies show saponins may have anticarcinogenic, cholesterol lowering and anti-inflammatory properties. My goal is to provide evidence supporting how quinoa has the potential to prevent malnutrition.

## Traditional Herbs and the Aging Brain

**Kate Kane** and **Rael Brown**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

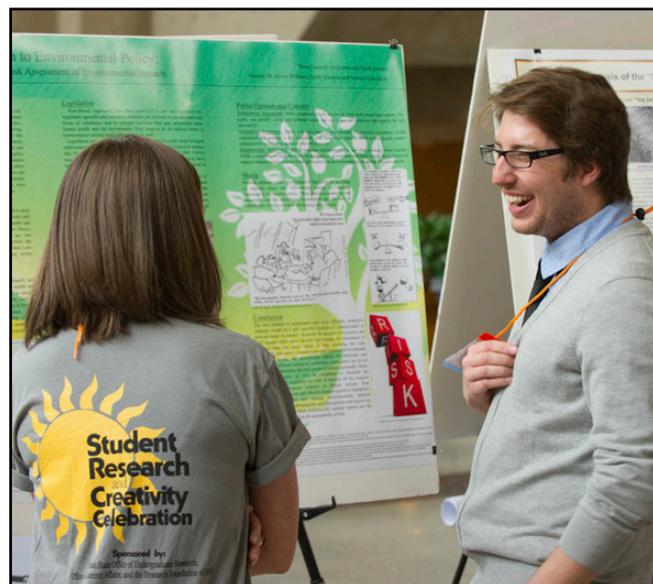
The role of herbs in anti-aging has long been acknowledged by various complementary and alternative medicine (CAM) groups and their practitioners, but is there any science to support that these herbs can delay cognitive aging? To find out, we conducted a literature and research search in hopes of answering this potentially groundbreaking question. Scholars and laypeople have long been intrigued by the idea that certain herbs may have the ability to prolong youth, but scientific evidence is needed. The aging process involves the progressive decline in cellular and mitochondrial function, and the increase in reactive oxygen species and inflammatory responses. Decline in the aging brain is associated with neuroinflammation, increased occurrences of memory loss and dementia, and the decreasing ability of the brain to scavenge free radicals responsible for damage to DNA and cellular function. Various studies have targeted specific herbs and their powerful abilities to combat these processes. *Bacopa monnieri*, *Ginkgo biloba*, and turmeric have been used in Ayurveda, Traditional Chinese Medicine, Naturopathy, and as common supplements in American homes to promote intellectual function and longevity. Also known for their anti-inflammatory properties, the aforementioned herbs have been shown to contain compounds that may be neuroprotective and may aid in the prevention of neurodegeneration, associated diseases, and cognitive decline. Continued study of the use of herbs in CAM systems from other areas of the world may play a key role in the delay or prevention of cognitive decline in the aging brain.

## What the Plants Have But I Don't: Phytochemicals

**Carly Hansen** and **Amanda Howland**, NFS 330: Integrative and Functional Nutrition

Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Plants contain thousands of chemicals that have the power to both promote and suppress disease when ingested by humans. These naturally occurring compounds, which are found only in plants, are labeled as phytochemicals and they exist throughout various foods including fruits, vegetables, whole grains, legumes, beans, herbs, spices, nuts, and seeds. They provide a protective effect to plants and are responsible for some of the tastes, colors, and aromas found in plant-based foods. In the body, these compounds are biologically active and behave as antioxidants, resemble hormones, stimulate enzymes, interfere with DNA replication, suppress inflammation, and inhibit bacteria from binding to cell walls. All of these physiological actions may prevent the development and progression of chronic disease. Since ancient times, people have been using foods that contain these substances to treat or prevent illness. However, research has yet to find the best combination of phytochemicals and nutrients that can support perfect health. Phytochemicals also have negative effects if they are consumed in excessive amounts. This explains why variety and moderation are key to diet planning. Although phytochemicals are not essential to our diet, meaning they are not required to sustain life, their properties support good health and contribute to overall well-being. Some important phytochemicals that are well known to be beneficial include carotenoids, flavonoids and polyphenols. Our presentation will identify the names of several of these compounds, their health effects, common food sources, and further explain how these substances protect humans against disease.



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## *Humanities*

### **Angry Black Woman Tropes in Movies**

**Cyndi Sanville**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

Black women in TV, film and the media overall suffer the same group of stereotypes. My research focuses on one main stereotype in particular, that being the angry Black woman, which appears in our culture around the time of the civil rights movement and political era of the 1960's. Docile images that existed from slavery times through the 1950's morphed into the angry Black woman of the 1960's and beyond. While there were many angry Black women during this time, they were angry for a reason. Still many woman did not emit an aura of anger, with dignified civil rights activist personifying this group of women. My work focuses on the new contemporary images of the angry Black woman, which plays an increasing role in the construction of the Black stereotype. I chose this topic because I am a Black woman in America and have suffered this stereotype with colleagues and employers. Movies have a huge impact on maintaining this stereotype and its impact on black culture. My research documents some of the reasons why Black women are angry. However, it also documents how movies shape images of women as angry when they don't show any perceivable emotion.

### **Anti-Intellectualism: My Ignorance is Just as Good as Your Knowledge**

**Keionda Queeley**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

Anti-intellectualism is based in the hostility and mistrust of intellectuals and their pursuits. The anti-intellectual deems subjects such as literature, art, science and philosophy as frivolous, since they have no "practical" uses for the common person. They refer to intellectuals as "elitists," who they often accuse of spreading an agenda that typically challenges traditional or conservative notions of religion and social norms. In a populist society, anti-intellectuals claim the mantle as champions of the common folk while intellectuals are in a separate social class that is detached from the bulk of society, often championing different issues such as social justice. Anti-intellectualism in the United States can be traced back to colonial times and is still present in our society, particularly in our political arena. It is used by politicians as one of their most effective tools for manipulating the masses, usually to act against their own self interest. We are currently living in a time where facts don't matter and scientific research and critical thinking is disregarded. The media preys on the information gap that exists in society, which makes it easy to manipulate, distract, and instill fear into the public. Our television and news media has

profited off of anti-intellectualism by creating content directed at the uninformed and keeping people in the dark. The integrity of journalism is currently under fire, which leaves the public with their backs against the wall and nowhere to turn to turn to for accurate information.

### **Behind the Scenes: Misperceiving the Paranormal**

**Brianna Shaffer**, Media Production  
Faculty Mentor: Professor Aaron Daniel Annas, Communication

According to a national 2013 Harris Poll, 42% of Americans say that they believe in the existence of ghosts and spirits. Even more people state that they trust friends who tell them stories of a paranormal experience. Are people convincing themselves that misperceived everyday occurrences prove paranormal existence? While following a documentary team across New York and Pennsylvania, some interesting characters have been encountered from mediums to ghost hunters; all with different ideas on paranormal existence. These characters use instruments such as K2 meters, Geoboxes and pendulums to make their cases convincing. Is actual data from these instruments proving paranormal existence, or is the manner in which the data is presented doing the convincing. Through a camera lens, one can uncover blunders and mistakes in these "experts'" interviews and experiments. This video presentation will uncover the misinterpretations employed by paranormal experts to convince themselves and others of paranormal existence.

### **Botched: Mass Media Influence on Beauty Standards and Cosmetic Surgery**

**Alicia Bell**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

Botox, double eye-lid surgery, skin bleaching and Brazilian buttock lifts. These are some of the few cosmetic procedures many women will personally pay for in order to meet the societal standards of beauty. My paper focuses on the ideal standard of beauty created and reinforced by American mass media and how this standard influences women to undergo costly sometimes dangerous and detrimental cosmetic procedures. By reviewing current literature, interviewing several women and referencing "reality television" programs such as Botched, my research documents that American media portrays beauty as skinny with European features and offers a quick costly solution to achieve this ideal of beauty. Manipulating women to feel bad about their bodies.

## The Business Impacts of LGBTQIA-Friendly Advertising on Advertisers

**Timothy Schmidt**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

With a purchasing power of nearly \$1 trillion, the LGBTQIA community's market growth expansion is increasing every year (Chesney, 2016). Not only has there been legal, social, and political advancements for the community since the 1970's, but the advertising industry is now targeting LGBTQIA people in a push to grab the "gay dollar," referring to a term used by many market researchers. A higher disposable income (Oakenfull, 2013) has made the community a larger target for marketers. However, in 2001, 57% of adults in the United States opposed same-sex marriage (Mitchell, 2016). While that number has drastically shifted to 37% in 2016, stigmas concerning the LGBTQIA community still very much exist today. Does a mixed public opinion on issues such as gay marriage pose any difficulties to advertisers? By analyzing current research and popular press articles about the topic, this project examines how both straight and gay publics perceive LGBTQIA-focused advertisements. Using this information, it examines the market power and brand loyalty of the LGBTQIA community and supporters, ultimately determining if this LGBTQIA-friendly consumer behavior outweighs possible negative repercussions to market position and brand perception by those opposed to LGBTQIA rights.

## Controlling the Black Box: Corporate Domination of Hip Hop

**Tara Sebastian**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

The mainstream corporate Hip Hop culture is dominated by white-run American entertainment corporations who, with their bastardized Hip Hop product, cause social barricades impeding accurate knowledge of legitimate black identities. The Hip Hop culture was once something that was only recognized in African-American communities. With the rise of this culture, white Americans began to take notice and started to profit from the popularity of African-American Hip Hop artists. As the culture became more attractive to profit-driven media corporations, it started to portray a white American vision of the once African American culture. The product became a vehicle for propagating white American stereotypes of African-American culture. This white American vision of the culture became a dominant representation in both white and black communities. This vision causes African American youth to struggle with their identity and what it means to be Black in America. In my research, I show how images and messages within the mainstream corporate Hip Hop culture impact the Black community. I break down my findings into music, television, print magazines and popular

social media platforms. A convenience surveys conducted within the college community samples how the current youth feel about Black identity and the effects of corporate Hip Hop. My research shows that the African-American community is deeply impacted by the portrayals of their community in corporate Hip Hop, leading to constraints placed upon the development and understanding of their identity.

## Dog-Eat-Dog World: The Ethics of Dogs as Companions

**Carissa Anthony**, Exceptional Education  
Faculty Mentor: Professor Jason Grinnell, Philosophy

In this project, I will be researching the ethics of pet ownership and companionship, particularly as it pertains to dogs. People have kept domesticated dogs as pets for thousands of years, for a number of reasons, and until recently there has been little analysis of ethical pet ownership. I plan to investigate the morals and laws of pet ownership and companionship and how they affect pet owners. In order to do this, I will locate, thoroughly research, and critically evaluate articles, literature, and legal writings regarding this issue. Thus far, I have found significant research through Jean Harvey's *Companion and Assistance Animals: Benefits, Welfare Safeguards, and Relationships* and Cynthia Townley's *Friendship with Companion Animals*. These articles illustrate some of the pet ownership-based ethics that I hope to further articulate on in my own research. My presentation will include a poster and discussion with the audience about the specifics of ethics of pet ownership and companionship, along with answering any questions that may arise.

## Don't Ask Me Why

**Katherine Lipczynski**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Aaron Daniel Annas, Communication and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Mental illness is something we do not talk about. It is a taboo topic that often gets brushed under the rug. Because of society's unspoken gag rule, people have learned to associate mental illness with shame and embarrassment. Things like depression, bipolar disorder, and anxiety are treated as if they are contagious diseases. However, according to the National Alliance on Mental Illness (NAMI), approximately one in five adults experiences a mental illness in a given year - about 43.8 million Americans (18.5% of the population). It is certainly a shame that in 2017, society still struggles with its decided prejudice against psychiatric illness. I believe film has the power to change society's perspective. I intend to capture what it is like to live with mental illness. I want to be able to show that we should not feel embarrassed or ashamed of our minds and what goes on inside

them. I plan to follow several subjects; interviewing them and documenting their daily lives in order to explore how they cope with their individual diagnosis. I want to encourage my audience to see and experience what it is truly like to live with a mental disorder. I believe that film has the power to change society's cruel tendency to label and shun. What I want to do, essentially, is to help eradicate social stigma and spread compassion, awareness, and acceptance of those living with mental illness.

### **The Effects of Early Foreign Language Exposure**

**Casey Peglowski**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Raúl Neira, Modern and Classical Languages, Professor Jason Grinnell, Philosophy and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Foreign language education begins at different stages throughout the world, within the United States, there are several thoughts and philosophies around the issue of foreign language education and early exposure to a foreign language. This research aims to show that the earlier a foreign language is introduced in children's education will effect lasting benefits, both within their abilities in the target language and also within the accompanying benefits of foreign language learning. In the United States, the typical starting point of foreign language learning is around 7th or 8th grade. Many studies in the past have shown that a critical time in the acquisition of language has been lost by this delay in learning a foreign language so late in life. Other countries, primarily in Europe, have taken a different approach to foreign exposure at a much younger age, thus promoting early bilingualism. This approach tends to enhance many other aspects of a young learner's life such as enhanced reading and grammar skills in both languages, increased social skills, as well as critical thinking skills, etc. This research aims to find the correlation and benefits of early exposure to a foreign language on young children and their abilities both in and outside the classroom and their ability to achieve native fluency bilingualism. These results will be found by researching a variety of former studies and presenting the information in a comprehensible form and by interviewing individuals whom have experienced other countries' approaches to foreign language exposure.

### **Ethics of Animal-Human Hybrids**

**Marisa Marinelli**, English  
Faculty Mentor: Professor Jason Grinnell, Philosophy

Recent breakthroughs in technology and research have triggered discussions of the human-animal hybrid or "chimera" in both popular and scientific literature. There is great controversy associated with the idea of animal-human hybrids. Supporters are influenced by glorified portrayals in the media

that promise limitless potential for scientific discovery. Those who support this research often do so in the hope that scientists will find cures for deadly diseases. Opponents are equally passionate. Some accuse scientists of "playing God", or of demeaning humanity by making these Frankenstein-like creatures. Others warn of catastrophe if such research is pursued. On both sides is a need for serious ethical reflection and deliberation. This project will survey this history of public attitudes toward such research, exploring themes such as those developed in Mary Shelley's novel *Frankenstein* and their relevance to current popular conceptions of science and scientists. In addition, it will consider the ethical implications of animal-human hybrid creation and research, investigating the foundations of moral standing and questioning if the products of such research will be worthy of our moral consideration. It will analyze conceptions of personhood and attempt to determine if a chimera might meet the criteria for personhood. Finally, it will explore the nature and limitation of moral rights and criteria for holding them, and whether a cost-benefit analysis is the morally appropriate tool for resolving the controversy.

### **How Social Media Degrades Friendships and Intimate Relationships**

**Sharae Smith**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

Author, Andrena Sawyer writes, "The problem with social media is that it's great for your ego, but terrible for your sanity." It's possible to create your own identity on social media. However, you will put your mind through a great deal of stress trying to keep up with your pretend life and you will give yourself an even bigger headache trying to understand or figure out what is real and what is make-believe in everyone else's profiles. Today we meet on social media through instant messaging, we consider video chat as face-to-face encounters and we show affection by typing sweet words to each other in these public forums. Then we often rely on hope and faith that these relationships can transition into something more real and concrete. Relationships built through social media and relationships built outside of social media, but brought to social media, are easily damaged. My work advocates for us to rekindle the times where relationships were authentic, where we fell in love with people we met in real life, people we engaged in phone conversation with, people we interacted with in order to get to know. By doing this we are taking back control over our relationships. We are remembering times where they were filled with emotion, when arguments involved spoken words and opening our eyes to see that social media degrades relationships. Research that I've gathered from class, online, and book/journal entries demonstrate how social media negatively affects relationships. Whether it's from misinterpreting a post, posing as someone

imaginary, or digging into someone's personal life to reveal one's secrets, it all comes back to social media, something degrading, something disastrous.

### **Instant Online Shopping and its Instant Consequences**

**Mariah Haddad**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

Obtaining “wants” versus just our “needs” has become a common trend in our consumer culture, since the first TV commercial in 1941 to now, thanks to our fast-paced media society. Our culture tells us consume and consume irresponsibly without thought for others, without much thought about contributing to society. There is no time to shop, but a need for material fulfillment. Physical stores have had to redesign their customers experience to take less time, encouraging the customer to come in, act fast, and obtain more. Online shopping at sites such as Amazon and eBay advertise “one-click buying”, so even shopping from your living room is instant. The desire to want more to and to be feel fulfilled by materiel goods in our culture has us not even leaving our houses to interact with each other. With instant online shopping comes instant consequence. The Internet is showing us anomalies such as “hauls” on the internet, which highlights frivolous purchases ease but without much thought. I am conducting research about how online shopping is shaping our culture into consumer-centered lifestyle.

### **It's Not Like the Movies: Exploring Black and Latino Masculinity**

**Ethan Peguero**, COM 450: Communication and Society  
Faculty Mentor: Professor Michael Niman, Communication

Hollywood has a long standing history of representing Black and Latino men as aggressive, volatile, and hyper-masculine figures. These representations are harmful because they are promoting false imagery, further perpetuating stereotypes of an already marginalized group. These images became so common, that they are interpreted to be a reflection of reality for those who have never encountered a Black or Latino individual, while also becoming a self fulfilling prophecy for Black and Latino youth that indulged in this cinematic experience. My research demonstrates that media influence plays an important role in the reproduction of hyper masculinity in men, while contributing to systematic racism. My research is grounded in various scholarly articles that explore toxic representation of these men, an analysis of these characters in recent contemporary cinema, and studies on media cultivation theory.

### **Learning to Wait: Reading, Writing, and Individuation**

**Clayton Pitcher**, Philosophy and English  
Faculty Mentor: Professor Aimable Twagilimana, English

Individuation as a process is most often excited by metaphors likening it to reading and writing. Haruki Murakami, in *Hear the Wind Sing* and *Kafka on the Shore*, exploits this likeness but in a way that allows for new conceptions of reading, writing, and individuation. Through Gilles Deleuze's experimental approach to criticism, I explore failings in Murakami interpretations relying too heavily on conceptions of individuation and writing as strict input/output processes. Deleuze does not build a system or theory of literature wherein one inputs a novel or piece of writing and then outputs a criticism in-line with the criteria of that system. Deleuze's experimental approach is a question of functionality within a text, whether a certain concept works, not what a concept means. To accomplish this, I invoke his work Nietzsche and Philosophy for active, reactive, creative, and expansive forces in interpretation. Difference and Repetition as well as The Logic of Sense are used for the concepts of “problematic” and “event” to show how Murakami problematizes and makes an event out of individuation. Far from solving the problem of individuation once and for all, I develop my own concept that is found in *Hear the Wind Sing* and *Kafka on the Shore* —“waiting”— to address what makes individuation, writing, and reading reactive as opposed to active, and how we can learn to wait actively. This research is an attempt at what Deleuze calls a “becoming,” or an asymmetrical evolution, between literature and philosophy. This research is a study in how to extract available and working concepts in a text without relying on models of interpretation.

### **Portrait: The Buffalo State Student Literary Magazine**

**Nathanael Stolte**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor James Cercone, English and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

There is a rich history of a student publication at Buffalo State College dating back to at least 1931. From 1981-2003 One of these publications, *Portrait* magazine, served as the Buffalo State student literary arts magazine from 1981 -2003. Since it ceased publication the campus has not had an ongoing student-published literary magazine. This research project seeks to investigate the history of student-publishing on campus, with a specific focus on student generated literary magazine. From this research I will work to begin publication of *Portrait* magazine once again. Submissions will be open to all students and members of the Buffalo State community. *Portrait* will feature both visual arts and literary works. I will gather a staff of five editors. We will meet weekly to review submissions. The last week

of April there will be a book launch where students will read the work that was published and/or speak about the visual art that was published.

### **The Postcolonial Feminine: Power and Periphery in *Wide Sargasso Sea***

**Jillian Custodi**, English

Faculty Mentor: Professor Lorna Perez, English

Charlotte Brontë's *Jane Eyre* was first published in 1847 and soon became part of the literary canon as an example of early feminist literature. In recent years, contemporary literary theories have scrutinized colonial texts such as *Jane Eyre*, particularly postcolonial theories. These theories attempt to elucidate the complexities derived from the violence of the British Empire's colonization and its sociohistorical effects on discourse. Caribbean writer Jean Rhys scrutinizes *Jane Eyre* in her postcolonial novel *Wide Sargasso Sea*. With similar and accurate historical settings, both novels display available discourse and the individual internalization of such. In analyzing available discourse and its importance in literature, it becomes easier to understand that power relationships depend on exclusivity, and exclusivity depends on the very powerful and pervasive Western notion of "self" and "other." In my project I created an argument through both a postcolonial and feminist lens by illustrating the social constructions of reality through categorizations of race, class, and gender that were largely established and reinforced during the British Empire's colonial period. By reading subject matter concerning British colonialism, the Victorian novel, postcolonial theories, feminist theories, and relevant literary criticisms, I was able to establish a solid argument via a scholarly paper.

### **Revitalizing *Portrait* Literary Arts Magazine**

**Julio Valentin**, HON 400: All College Honors Colloquium

Faculty Mentor: Professor Barish Ali, English and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

My research project focuses on revitalizing a legacy that was created decades ago called *Portrait*. Even though it has been several years since the last issue, *Portrait* stands to be Buffalo State's oldest Literary Magazine. Because of this, several students and I are focusing on the aspect that appealed to us the most, the concentration on student work. While there are many outlets for student publication, not many concentrate on student submissions. *Portrait* is not only a great legacy to bring back, but a platform that will not only be a voice of the times but will also bring control of this voice back to the students. I also aim to keep its integrity and continue it as a multimedia magazine. This publication will not be the voice of just one department, but many. Another aspect of the research project is also building the network, image, and the foundation for what we hope will

last for another 40 years from now. Thus far, the group has put out a formal notification email and corresponded with all of the departments where students may submit their creative work. Included in the email was our group email, proposal, and intentions for the revival with a submission flyer attached. Currently, I am going through blind submissions and organizing content for the literary magazine. As it stands, we have fulfilled most of the necessary steps to achieve our goal. This project matters because it will bring back value to student printing.

### **Rewriting the Canon: Women in Early Modern Philosophy**

**Bianca Gonzalez**, Philosophy

Faculty Mentor: Professor Kimberly Blessing, Philosophy

In recent decades, philosophers are paying increasing attention to the underrepresentation of women in philosophy. In response to this recent movement in philosophy, students in Professor Kimberly Blessing's Modern Philosophy class (spring 2017) are engaged in a project entitled "Rewriting the Canon," in which students research women in the history of the early modern period. I am a student in this class, as well as working as Blessing's Research Assistant for this project. My research position is being funded by a new program for freshmen and sophomores, that is, Educational Undergraduate Research Opportunity (EURO) out of the office of Undergraduate Research at Buffalo State. My job is to coordinate this entire project, as well as compile students' research onto a Wikipedia-style website (WIKI), which I have built using a platform. My own WIKI on Damaris Cudworth, Lady Masham (1659 - 1708) is included in the class WIKI. My poster will provide a timeline for the women being studied as well as a snapshot of the class WIKI. I will also provide a summary of my conclusions based on my analysis of the project, which seeks to answer the following question: What is the purpose and value, if any, to rewriting the canon?

### **Rhetorical Analysis of Kendrick Lamar's *Blacker the Berry Sweeter the Juice***

**Jasmine Cole**, SPC 321: Rhetorical Criticism

Faculty Mentor: Professor Ann Liao, Communication

Kendrick Lamar is a present day American rapper and social activist. In this presentation, I will analyze a song entitled *Blacker the Berry Sweeter the Juice* on the album *To Pimp a Butterfly*, which was released in 2015. Lamar has been widely misunderstood by the content in his songs because of his controversial lyrics describing his growing up in poverty, race, and racism. Moreover, African American history and current day social issues have paved the way for constant criticism and attack on Lamar's character as an artist. His strong and aggressive delivery sends red flags to many that oppose him and his music. From deconstructing Lamar's work, this study aims to

bring to light different symbols and messages hidden within his poetic pieces and to create a better understanding of the artist's intentions. With the assistance of previous academic work on the genre of hip hop music and various tools of rhetorical criticism, I plan to elaborate on a deeper level the meaning in Lamar's lyrics.

### **Rights vs. Responsibilities: Should the Mentally Ill be Parents?**

**E. Elise Cloutier**, Philosophy

Faculty Mentor: Professor John Draeger, Philosophy

Effective parents share a common goal of promoting developing agency, autonomy, and moral character of their children. Unfortunately, some parents fail to meet this goal when they misinterpret the weight of parental responsibility; when they mistreat or abuse their children; or when both occur. Furthermore, it can be difficult for a parent to determine the unique needs of her child, especially when parents are affected by mental illness. This project explores the nature and extent of parental obligations toward their children (e.g. what parents owe their children, how much, and why). I introduce James Griffin's "substantive account" of human rights as a mechanism to outline the difference between rights and duties, which aids in drawing a distinction between what children are owed and what they deserve with regards to human agency. Authors such as Lisa Cassidy and Hugh LaFollette offer additional perspectives on parenting which assist in building a foundation for my own normative claims on what parents ought to do for their children. Through the process of a literature review and subsequent reflection, my perspective on parenting evolved to focus on what, specifically, parents owe to their children, rather than how to protect children from preconceived parental failure. I conclude that while the mentally ill can respect the rights of their children, they are less able to fulfill a duty to develop agency in their children.

### **The Role of Food and Agriculture at the 1901 Pan-American Exposition**

**Marlin Santana**, HIS 400: Research Seminar in History

Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

The Pan-American Exposition of 1901 took place in Buffalo, New York. The Exposition was held to encourage the progression of Americans by exposing them to various cultural practices and global social advancements. Historians have researched aspects of the Exposition that have showed progression in society such as the use of electricity in The Electric Tower, one of the focal points of the Pan-American Exposition. However, the food and agriculture throughout the Exposition is often overlooked. Food was made accessible to the visitors of the Exposition every day through various options. Consumers had the option of dining in at the restaurant of their choosing, purchasing fast food

items, receiving free samples, or bringing in their own lunches. Restaurants allowed for exposure to new foods and attracted the attention of many visitors despite their high costs. Popular restaurants included Alt Numberg, the Streets of Mexico, the Indian Congress, Beautiful Orient, and the Philippine Village. My paper will focus on the food and agriculture displayed, served and consumed during the Pan-American Exposition of 1901, the role it played and its effects during the time period in which the Exposition was open I plan to use a poster to showcase pictures, the food, and restaurants that made an impact throughout the Pan American Exposition.

### **Should We Fear Death? The Symmetry Argument in Epicurus**

**Bianca Gonzalez**, Philosophy

Faculty Mentor: Professor Kimberly Blessing, Philosophy

Ancient Greek philosopher Epicurus argues that death is nothing to fear. According to Epicurus, happiness, or the goal of life, is to achieve *ataraxia*, which is a state of tranquility and freedom from all pain. One way the Epicureans try to achieve *ataraxia* is to eliminate our anxiety related to our fear of death. The Symmetry Argument says that death is nothing to fear because postmortem nonexistence is similar to prenatal nonexistence. Since we don't fear prenatal nonexistence, we should adopt the same attitude towards postmortem nonexistence. It could be argued, however, that there is an asymmetry between these two kinds of nonexistence, for there is a sense of loss, or deprivation of goods, in postmortem nonexistence that is not as present in prenatal nonexistence. I will examine these arguments to determine whether or not death is we should fear.

### **The Story of Ksenija Atanasijevi: A Young Lady Entering Hell**

**Milica Petrovic**, Francophone Studies and Philosophy

Faculty Mentor: Professor Kimberly Blessing, Philosophy

I will be presenting the story 20th century Serbian philosopher, Ksenija Atanasijevi (KsEH - n ih ah, A-tanasiyevich) (1894-1981). Atanasijevic's story is both fascinating and inspiring, yet little has been written about this philosopher. Educated in Paris, Atanasijevic was the first woman philosopher to get her Ph.D. from Belgrade University. Being one of the first women philosophers in Serbia, Atanasijevi faced many challenges throughout her career. The phrase "Congratulations, young lady, you have entered into Hell" refers to the greeting from one of her colleagues when she got her first teaching position. Atanasijevi wrote her dissertation on the metaphysical and geometrical doctrine of Giordano Bruno. Her other philosophical interests include ancient philosophy, in particular Epicurean Atomism and Plato's view of women in the *Republic*. Only some of Atanasijevi's works have been translated into English, hence my research

includes reading from primary texts in French and Serbian languages. Atanasijevi was an extraordinary woman who helped pave the way for other women philosophers. Hers is story that needs to be told.

### **Tobacco Advertising vs. the Black Community**

**Allison Wallen**, COM 450: Communication and Society  
Faculty Mentor: Professor Micheal Niman, Communication

My research examines tobacco marketing in Black communities. Tobacco corporations willfully target Black communities with acts that are specifically created to resonate with Black people and Black culture. By doing this they effectively and knowingly market toxic and addictive products that are killing Black people. My research examines the very methods that they use to market these products and documents the effectiveness of this market and its toxic legacy in Black communities. Through my research, I document how decisions regarding advertising and product placement in Black communities are made. I also discuss how target marketing on different media platforms such as television programs, streaming sites, social media, as well as on the ground, in the form of billboards and store posters, also plays a major role in promoting consumption of this toxic product in Black communities. I also explore the history of Black poverty and the intergenerational economic forces that perpetuate this poverty, ultimately using this information to contextualize the how and why behind this targeted advertising.

### **The Unlikely Ascent of Queen Elizabeth I**

**Sage Cerbone**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Andrew Nicholls, History and Social Studies Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Ranking amongst the most prominent figures in English history, Queen Elizabeth I was a popular and successful monarch whose name is synonymous with England's golden age. Despite this immense legacy, Elizabeth was not expected to be queen in her own right. The daughter of King Henry VIII by his second wife, Anne Boleyn, Elizabeth's birth was a great blow to her parents, who were anticipating the arrival of a boy. Having broken with the Roman Catholic Church to divorce his first queen, Katherine of Aragon, and marry Anne, Henry was especially disappointed. Three years later, when she failed to produce a male heir, Anne was beheaded on charges of treason; her young daughter was declared a bastard and removed from the line of succession. After her father's third wife delivered the coveted son, Elizabeth seemed permanently barred from the throne. Over the next twenty years, however, she experienced a fraught rise to power amidst a backdrop of lineage disputes

and religious turmoil, eventually finding herself heiress. The two precedents of female sovereignty in England did little to aid Elizabeth's ascent—there was the unsuccessful civil war waged by her ancestor, Empress Matilda, in the twelfth century; and the disastrous short reign of Elizabeth's predecessor and half-sister, Mary I. Nevertheless, Elizabeth defied these low expectations and went on to reign nearly forty-five years, cementing her place in history and setting a new precedent for all queens to come.

### **Web Television: Maintaining Narrative Consistency in Literary Adaptation**

**Robert Carnevale**, Television and Film Arts  
Faculty Mentor: Professor Meg Knowles, Communication and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This research explores John Desmond and Peter Joseph Hawkes' theory of narrative adaptation consistency, by testing whether a cinematic adaptation can be considered closely faithful to the source material. Sir Arthur Conan Doyle's short story, *Sherlock Holmes and the Adventure of Charles Augustus Milverton* served as the basis of a script for a web-television pilot adapted from literature. This project's significance is derived from the newness of the web-television medium, hence the relevance of exploring its capacity for literary adaptation. Narrative adaptation consistency is achieved if camerawork, multitrack design and overarching narrative achieve the same thematic and tonal resonance as the source literature. Major themes included 1) justice achieved outside the law; 2) deception as an acceptable means when lives are at stake; and 3) the differences between doing what is necessary and what is legal. I wrote a script updating the period and altering some characters and situations in the story, but maintaining these themes as well as a darkly humorous tone. The script was developed, produced, and edited over a three month period, and the completed short film was presented publicly alongside a performed reading of the original short story. An audience survey gathered data on audience impressions of the success of the adaptation's consistency in tone and theme to the source material and found more than 50% correlated values found between the story and the film. I will present the results of this research illustrated by excerpts from the short story and clips from the pilot film.

### **Writers Get Digital: Discovering New Tools for Writers in the Digital Age**

**Jude Lester**, Arts and Letters  
Faculty Mentor: Professor Aimee Levesque, English

Digital media has created many new channels that authors can use to distribute their work. This study looks into the advent of E-books and self-publishing as well as how authors can use these channels to sell their work. Currently, there are several

easily accessible platforms, such as Kindles and Nooks, where authors can sell their e-books via retailers (e.g. Amazon and Barnes and Noble) to the public and see real profits from their efforts. It is this process of sale that has created publicity for authors and has led to monetary returns of books that they've published, without the need to rely on a large publishing company. In this poster, I show the research that I have conducted based on various written sources and these resources' ideas regarding digital media. I will also explore the findings that indicate that publishing companies have lost money due to the rise of e-book readers, and self-publishing is not as difficult as it used to be. Writers no longer have to hold onto their work until it is perfect. Digital media has allowed them to produce professional work, while maintaining control of the rights so they can better develop the stories they want to tell. The advent of Digital media has allowed the ability to change from producing there work behind closed doors, to a producer who can get there work out to the public, and grow while they produce their work.

### **Writing Across the Spectrum: Finding Your Voice and Mastering the Writing Process**

**Nicholas Fox**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Andrea Guiati, Director, Muriel A.  
Howard Honors Program

Through a showcase of my written works, ranging from creative short stories to more concrete academic writing, I will

share my experience in writing and my personal approach to the writing process. The presentation will focus primarily on the importance of the "written voice," which refers to the individualized differences in style, tone, and written craft that makes writing such a uniquely personal outlet of expression. The showcase will feature a reading of a central work of creative writing, as well as readings of other select passages that thematically pertain to the steps of the writing process or use of writing techniques, and, finally, a presentation highlighting the steps of the writing process, how to find inspiration, and the importance of word choice, among other important factors that make for better writing of any style. The featured works will vary thematically and stylistically in order to highlight a spectrum of writing styles, perspectives, and differences in craft in regards to vocabulary, phrasing, and sentence structure, as well as notable ways to utilize a writer's personal voice. The featured works will include several creative fictional writings, creative nonfiction, as well as academic essays on topics such as the music industry, and critical analysis essays. Most importantly, the presentation will serve to show how a writer can adapt their writing to suit different purposes or styles, while still maintaining, adapting, or improving upon their unique written voice in a way that greatly strengthens their writing.



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# Physical Geography, Sciences, and Mathematics

## **Aphaenogaster Thermal Tolerance and Distribution**

**Sonya Bayba**, BIO 495: Special Project

Faculty Mentor: Professor Robert Warren, Biology

Species distribution is often determined by thermal tolerance. At a continental scale, a species dispersal is limited by their thermal tolerances due to thermoclines caused by latitude and landform barriers. However, thermoclines also exist at smaller scales as large water bodies can affect temperature. As such, research indicates that two closely related ant species, *Aphaenogaster picea* and *A. rudis*, sort out by elevation thermal gradients. In this study, I examined their thermal tolerances in relation to temperature gradients that occur with distance from the Great Lakes (Western New York). Individuals from sample sites were collected from locations that varied in proximity to Lake Erie, Lake Ontario and Buffalo city center. Ants were subjected to thermal tolerance testing to determine their maximum and minimum temperature tolerances. Given the temperature moderating effects of large water bodies and urban areas, it was expected that *Aphaenogaster* spp. located closer to these areas would have higher minimum and lower maximum thermal tolerances. The data failed to support this hypothesis. Ultimately, I found that minimum temperature tolerance was lowest with greater proximity to the Great Lakes.

## **Background Radiation and the Age of the Earth**

**Sara Deer** and **Brittany Willard**, PHY 495: Nuclear Spectroscopy

Faculty Mentors: Professor Michael DeMarco, Physics and Professor Ram Rai, Physics

We are continuously being irradiated from radioactive isotopes present in the environment like Potassium, Radon and Thorium and other radioactive isotopes that are present in the decay of Uranium. Although radiation can be in the form of,  $\alpha$ ,  $\beta$  and  $\gamma$  rays we looked only at gamma rays. We measured with a Germanium detector (and also a NaI detector) the background radiation from the walls and air. The age of the earth can be found by the Uranium radioactive decay chain isotopes found in the background radiation. But it can also be found using the decay of  $^{40}\text{K}$  to  $^{40}\text{Ar}$  in geologic rocks. When  $^{40}\text{K}$  dies it produces  $^{40}\text{Ar}$  in rocks. The decay equation is:

$$\ln (1 + \frac{^{40}\text{Ar}}{0.11 \ ^{40}\text{K}}) = \lambda t$$

Where  $\ln$  is the natural log,  $\lambda = 0.7/1.25 \times 10^9$  years and the 0.11 is how much  $^{40}\text{Ar}$  is made from  $^{40}\text{K}$ . Potassium also decays

to  $^{40}\text{Ca}$ . In order to determine the lifetime of the rock,  $t$ , we must use atomic absorption or other methods to measure the amounts of  $^{40}\text{Ar}$  and  $^{40}\text{K}$  in a suitable rock or clay. This study is a prelude to the study of iron Mossbauer spectroscopy which is a gamma ray based spectroscopy.

## **Biochemical Analysis of Protein Structure of the TAS2R38 Gene**

**Emily Parra**, BIO 303: Genetics

Faculty Mentor: Professor Amy McMillan, Biology

Proteins play a critical role in our bodies. Proteins facilitate chemical reactions including movement of materials into and out of the cell and signaling pathways. Despite their importance, proteins are also prone to dysfunction. A small error in the nucleotide sequence of a gene that encodes the protein will make the protein non-functional. For example the TAS2R38 bitter taste receptor gene is a G-coupled protein receptor. Its purpose is to bind a signal molecule and relay that signal through the cell membrane. Phenylthiocarbamide (PTC), an organic bitter compound, binds to the TAS2R38 receptor protein and relays a bitter taste to the brain. However, some individuals, non-tasters, are not able to taste the bitterness in PTC. We are interested in TAS2R38 protein function and its ability to bind PTC because variation in protein function depend on nucleotide sequences. My project uses bioinformatics to explore primary DNA sequences, amino acid sequences, 3D protein modeling and our understanding of signal transduction to determine why PTC is not recognized by the non-taster receptor. My results illustrate that tasters and non-tasters have three single nucleotide changes, changing the structure of the amino acid sequence, and therefore the protein. The change in the amino acid sequence may be the reason why the protein structure becomes dysfunctional for the non-taster TAS2R38 receptor.

## **Broken Palaces: What is Under the Wildwood Acres Community?**

**Richard Siriphanthong**, Earth Science and **Katharine Leopold-Schiller**, Geology

Faculty Mentor: Professor Kevin Williams, Earth Sciences

Wildwood Acres is a residential area sandwiched between an operational quarry, large factories, and the Niagara Falls Air Base. Some residents among this community experience damage such as garages that have sunk 4-5 inches, cracking within their homes in the ceilings, doors that won't close, and some that will not stay open. Also, residents report sounds of audible humming from the ground at night. With our research we seek to answer the question as to why some homes in Wildwood Acres are experiencing greater seismic damage, and therefore are more structurally compromised than others. By using ground penetrating radar (GPR) we will explore possible

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electrical transmission lines buried under some of the homes in the community. We hypothesize that these substructures could become a conduit allowing shock waves from blasting at the quarry directly west of the community to travel under the homes, ultimately causing the damage. By collecting parallel tracks using the GPR, we will be able to assemble a 3-dimensional data block of the shallow subsurface. This will allow us to understand how the orientations of the buried transmission lines relate to the homes and how they might direct shock waves toward certain homes.

## **BSCenery Herbicide Trials**

**Molly Taylor**, GEG 430: Senior Thesis

Faculty Mentor: Professor Kelly Frothingham, Geography and Planning

Potential human and environmental health risks of chemical herbicides makes their use a controversial issue on the Buffalo State College campus. In an effort toward transparency and ethical accountability while managing campus weeds, the BSCenery Department developed their Improved Pesticide Approach plan to re-evaluate current herbicide practices and use on the Buffalo State campus. The goal of the study was to find the method or methods that best manage(s) campus weeds, while addressing ethical concerns and cost-effectiveness. Fourteen uniform test plots were created to test six different weed-control methods including five chemical applications, hand weeding, and controls. Environmentally friendly alternative herbicides were included in the study to gauge their effectiveness when compared to the conventional herbicides currently in use on campus. The plots were treated four times throughout the growing season of 2016. Percentage weed cover for each plot was recorded throughout the growing season, and was statistically analyzed to find any significant differences in the effectiveness of the treatments. Ethical concerns of each treatment were reviewed, and cost effectiveness of each treatment was considered. The treatment that best met all three criteria of high effectiveness, cost effectiveness, and ethical consideration, was recommended for use by the BSCenery Department on the Buffalo State Campus.

## **The Buffalo River Oscillation: Has Dredging Changed This Unexplained Behavior?**

**Alexandra Pappas**, Physics

Faculty Mentor: Professor Jill Singer, Earth Sciences

The lower 9.2 km of the Buffalo River is identified as a Great Lakes Area of Concern. Environmental impairments to this urban river include contaminated sediment, loss of habitat, and reduced water quality. The low gradient of the Buffalo River contributes to periodic flow reversals when strong winds blowing across Lake Erie raise water elevation at the east end of

the lake. To better understand these flow reversals, the Buffalo River was instrumented in 2008. One of the findings from this work included the identification of a periodic oscillation in the Buffalo River that persists year round and involves both a flow reversal and change in water elevation. While no mechanism for the oscillation has been identified to date, continuous monitoring of the river since 2009 has permitted the oscillation to be documented. This study builds upon prior efforts and focuses on water elevation data collected in 2015 and 2016. These data represent the period of time immediately after the conclusion of the Buffalo River Restoration Project that spanned 2011 - 2015 and involved major dredging within and outside of the navigation channel to remove some of the most contaminated bottom sediment. Data collected from water level recorders before and during the dredging show similar patterns. My analysis of elevation data collected during the past two years are being used to determine if the changes in channel geometry resulting from sediment removal have affected either the behavior of the river oscillation or the upriver propagation of Lake Erie wind-driven seiches.

## **Can Native and Non-Native Ants Coexist?**

**Abby Mathew**, Biology

Faculty Mentor: Professor Robert Warren, Biology

Niche theory assumes that species coexist because each has unique niche requirements, which lessens competition between species. My objective was to investigate species invasion from a niche theory perspective. First, I conducted field studies of two ant species, the native *Aphaenogaster rudis* and the invasive 'fire ant' *Myrmica rubra*, as both species occupy similar habitats in eastern deciduous forests. *Aphaenogaster rudis* generally dominates forest habitat, but it appears displaced by the invasive European ant at Tiff. I measured the density of foraging ants and collected food they retrieved at Tiff Nature Preserve (Buffalo, NY). To determine whether the ants occupy similar trophic levels (i.e., eat the same things), I collected and processed workers for stable isotope analysis. I then surveyed bellow dead logs and stones to determine the invasive ant impact on arthropod communities. Finally, I collected workers from the native *A. rudis* colonies and the invasive *M. rubra* colonies and conducted ant aggression assays to observe levels of competition. The food retrieval and log/stone surveys showed that the invasive *A. rudis* ants are both scavengers and predators. The stable isotope analysis indicated that *M. rubra* and the native *A. rudis* eat similar foods, and the aggression assays showed that the two species of ant vigorously fight with one another. Surprisingly, the native ant is more aggressive, and sometimes kills, the invasive ant. I observed very little aggression among ants from different *M. rubra* colonies whereas ants from different *A. rudis* colonies fought vigorously. These results suggest that the overwhelming success of the

invasive ant is not because it occupied a unique niche in the invaded habitat, but because it was not hindered by intraspecific competition whereas the native ant fights with itself as much as it fights with the invader. As a result, the thousands of *M. rubra* colonies at Tifft may act as one supercolony that monopolizes food resources.

### **Characterizing the Stress Induced Grp170b Promoter in *Caenorhabditis elegans* Using Reporter Constructs**

**Rhudwan Nihlawi**, Biology

Faculty Mentor: Professor Gregory Wadsworth, Biology

Protein function is dependent on successful folding of the protein's polypeptide chain. If normal protein folding is disrupted, molecular chaperones work to either refold misfolded proteins or escort them for degradation. GRP170, an endoplasmic chaperone, participates in protein folding in two ways. First, it functions by supplying ATP to other chaperones thus providing these secondary chaperones with energy to refold proteins. Second, GRP170 also binds directly to misfolded proteins to prevent their cytotoxic aggregation and to allow other chaperones to refold them.

*Caenorhabditis elegans*, a soil dwelling nematode, possesses two isoforms of GRP170: GRP170a and GRP170b. Previous research has shown that ER stress induces expression of GRP170b mRNA, but that loss of the GRP170b gene has no discernible effect on *C. elegans* under non-stress conditions. Taken together, these data suggest a role for GRP170b as an induced chaperone responding to cellular stress. I am investigating the activity of the GRP170 promoter, the DNA sequence that controls expression of this gene, using a transgenic reporter gene. A transgene was constructed that fuses the GRP170 promoter to the gene for the green fluorescent protein. I will generate a transgenic nematode by injecting this transgene into nematodes. The activity of the promoter can be characterized by monitoring production of the green fluorescent protein. This will allow me to characterize when and where this promoter is active in the tissue of the nematode and if it is activated by ER stress.

### **Chemical and Bacterial Analysis of Lower Cayuga Creek**

**Matthew Kostek** and **Jacob Trzepakowski**, GES 460:

Environmental Field Methods

Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

This combined project will focus on Cayuga Creek, a class C tributary to the Buffalo River. Two specific areas of interest that will be studied are the section of stream that runs through Lancaster Country Club and Como Lake Park, and the section of stream near the Depew Public Works and the associated historic Village Landfill, in order to assess their impacts on water quality.

The only anticipated impact around the Lancaster Country Club is that there will be an increase in the level of nutrients in the stream, more specifically nitrogen, phosphorus, and potassium, due to the use of fertilizers to maintain the golf course. Downstream, between 1940 and 1961, the Village of Depew operated a landfill just south of the Public Works Department. The area is listed as a Class 2 Superfund site and is a known source of lead contamination. In 2014, as a flood prevention measure, there was a project that included the dredging of Cayuga Creek and resulted in the removal of approximately 600,000 cubic yards of sand, silt and gravel. This project will examine whether the dredging had an impact on containment of lead, which may have been released from the Village Landfill, as well as the release of any other heavy metals from the Depew Public Works land. Soil and water will be sampled upstream and downstream of each location. Increased levels of lead, *E. coli* and algae, as well as possible pesticides from the Lancaster Country Club upstream, are expected in this area.

### **Congenital Anomalies Caused by Pollution**

**Kaitlin Browning**, ANT 499: Independent Study

Faculty Mentor: Professor Julie Wieczkowski, Anthropology

Pollution has had a significant impact on not only the environment, but also the health of the people living in it. Although birth defects have decreased since 1990, they still account for 3 million deaths worldwide. Pollution can be a major factor causing these. In this research paper, three types of pollution were investigated. Air pollution cannot be pinpointed to one cause because it is throughout the atmosphere. A study in Tel Aviv, Israel was chosen because it is a large metropolis with high concentrations of dangerous chemicals. There was a high prevalence of heart defects in children born to mothers who were exposed to air pollution. Groundwater pollution affects the safety of people living on top of the contaminated soil. Love Canal in Niagara Falls, NY was a tragedy that happened in 1978 where chemicals were dumped in an area without any containment. Of the 239 children born in the Love Canal area during 1980, 12.1% had evidence of a birth defect. Lastly, radioactive pollution spreads quickly and far. The nuclear accident in Chernobyl, Ukraine is a well-known disaster that happened in 1986, but still has repercussions today. Trisomy 21 increased during the first 6 months after the disaster from exposure to the radioactive clouds that spread all the way to Berlin, Germany. All of these places had an increase of one or more congenital anomalies when exposed to some sort of pollutant.

## Creating 360 Degree Images and Videos for Immersive Field Trips

**Brenton Heath**, Geology

Faculty Mentor: Professor Kevin Williams, Earth Sciences and Science Education

In this project I am exploring using various video recording and editing tools to create interactive virtual field trips that can be experienced in immersive environments. The first step is learning how to collect 360 degree images and video using equipment including an iPod mounted on a rotational platform for images and a Kodak 360 PIXPRO camera for video. At the same time, I am deciding on 2-3 locations around Western New York with interesting geology where a virtual field trip can be developed. By creating this series of field trips, students who are not able to go to these particular sites will still get the experience of seeing features in a more interactive way than just seeing pictures. Although the 360 degree images and videos can be viewed on a regular computer, the experience can be made more immersive by viewing them in a planetarium or through virtual reality (VR) glasses. Formatting the images to view in VR and at the Whitworth Ferguson Planetarium will allow me to determine how well the images and videos look using the existing equipment. Although these tools give a medium resolution result, this project might provide the motivation to purchase a higher resolution 360 video system. Also, as this project moves ahead, there will be opportunities to use the high-resolution Gigapan camera system and to collect aerial views using a drone.

## Creation of Artificial Nesting Sites and Translocation as Tools to Enhance the Map Turtle Population in the Upper Niagara River

**Jesse Karcher**, Biology and **Chelsea Moore**, Biology

Faculty Mentors: Professor Ed Standora, Biology and Professor Peter Lindeman, Professor, Biology and Health Services, Edinboro University of Pennsylvania

The Northern Map turtle (*Graptemys geographica*) is an aquatic species located in the Upper Niagara River of Western New York that continues to decline as a result of subsistence fishing and inadequate access points to terrestrial nesting sites. In other studies, translocations have been used to reestablish diminishing populations of freshwater turtles, while the creation of artificial nesting sites has been successful at increasing recruitment in populations. We translocated ten turtles from Presque Isle State Park into the Upper Niagara, and created floating, artificial basking/nesting platforms that provide structure for aerial basking and proper substrate for nesting. Turtles' general locations were determined using radio telemetry and then a directional hydrophone was used to pinpoint an exact location using sonic telemetry. GPS locations were taken nearly

every day to analyze home ranges and movements, and will allow for comparison between resident and translocated turtles. Surveillance cameras and submersible underwater receivers (SUR) were used to record basking and nesting activity on and near the platforms, while a drone was used for a habitat survey. HOBO data loggers were mounted on each of the platforms to record light intensity, air temperature, and water temperature. These data will be used to analyze basking behavior relative to abiotic factors. Although there was no nesting activity due to late deployment, substrate temperature was recorded using iButton data loggers at three depths for comparison to natural sites. Water current data are being mapped in Geographic Information Systems (GIS ArcMap 10.4) to create the lowest energetically expensive swimming route. GIS will also be used to analyze the impact of water temperature on movement.

## The Data Analysis on the Treasury Securities of the United States

**Jayson Cumbo**, AMT 495: Applied Mathematics Project

Faculty Mentor: Professor Bruce Sun, Mathematics

The Treasuries issued by the United States are accepted as part of the least risky ways for investment. However, they are fluctuating according to the changes in the financial markets, and sometime they are volatile. This project will do the investigation on what market factors determine the return rates of the treasuries. The time series data has been collected on Treasuries of different maturities, as well as on several different market factors among which include: the United states GDP, unemployment rates, and the Vix indexes. Regression analyses are done for treasuries of each maturity as a dependent variable. The results will then be analyzed to see whether the same market factors correlate with all of the different treasuries.

## Does the Large Chaperone GRP170 Have an Essential Role in Adult *Caenorhabditis elegans*?

**Alex Fox**, Biology

Faculty Mentor: Professor Gregory Wadsworth, Biology

The large protein folding chaperone GRP170 is found in all animals. Although cellular roles for GRP170 have been identified, its physiological role in multicellular organisms is poorly understood. The nematode *Caenorhabditis elegans* has two genes encoding GRP170. Analysis of mutant alleles shows that loss of an individual GRP170 gene has only a minor effect but loss of both GRP170 genes is lethal at the embryonic stage. Since mutations in both genes kills the nematodes as embryos, it is not known if GRP170 is necessary for adult physiology. To investigate this, I will use an RNAi strategy to reduce GRP170 at the adult stage. RNAi is a technique that allows for targeted reductions in gene expression by feeding the nematode dsRNA corresponding

to the targeted gene. My experimental strategy will be to use RNAi to target reduced expression of one GRP170 gene in a nematode that has a genetic mutation in the second gene. This strategy should allow me to reduce expression of both genes during larval and adults stages development. If GRP170 is essential to adult physiology, I would expect reduced expression would be lethal or negatively affect the nematode. I will discuss my preliminary results and their significance.

### **Drought Effects on Water Quality of Freshwater Streams**

**Natalie Neilsen**, GEG 430: Senior Thesis

Faculty Mentor: Professor Kelly Frothingham, Geography and Planning

Droughts can cause major impacts on an ecosystem and the water system that supports it. In 2016, Western New York faced drought conditions, which could have impacts on water quality. Focusing on reaches of freshwater streams in Grand Island, NY when collecting data allows us to examine certain parameters. Using a YSI 6920 water quality sonde and a Hach digital pH probe, the parameters tested included pH, turbidity, conductivity, dissolved oxygen, and temperature. Water quality data was originally collected in 2013 and GPS coordinates were used to locate reaches to re-sample in 2016. In 2013, a total of 16 reaches were sampled in four streams located in Grand Island, NY. In 2016, data was collected in nine reaches of three Grand Island streams. Precipitation and water quality data were graphed using Excel and water quality data was compared to New York State's water quality standards.

### **Dye Transfer Between Osmotically Challenged Cells**

**Stephen Thompson**, Biology and **Jessica Bork**, Biology

Faculty Mentor: Professor Derek Beahm, Biology

I am investigating the effects of osmotic challenges on gap junction communication in mammalian cell cultures. The Chinese Hamster Ovary (CHO) cell line is a widely used model cell system in biology. These cells are known to communicate with each other through gap junctions that allow the direct transfer of ions and small molecules between cells. Gap junctions play important roles in synchronizing electrical, metabolic and signaling activities of cells within a tissue. Our lab focuses on understanding the role of gap junctions in modulating volume dynamics of cell populations. We use CHO cells that have been engineered to express a water channel (AQP4) or a generic membrane protein (CD81). It remains unclear whether the expression of these membrane proteins interfere with normal gap junction formation between cells. I will present data using a classic technique known as scrape-loading to quantify intercellular communication in cultured CHO cells expressing

AQP4 and CD81. The scrape-loading technique involves wounding a monolayer of cells to allow access to membrane impermeable fluorescent dyes which then can travel through gap junctions to cells distant from the wound site. Along with demonstrating intact gap junction communication in the AQP4 and CD81 CHO cell lines, I will also present experimental results showing how osmotic challenges that swell or shrink cells affect gap junction communication. These experiments enhance our understanding of the interplay between cell volume and gap junction communication, and helps characterize cell behavior in pathological conditions that generate non-isotonic environments.

### **Evaluating Riparian Forest Ecosystem Services Along an Urban-Rural Gradient**

**Katharine Ersing**, BIO 495: Special Project

Faculty Mentor: Professor Daniel Potts, Biology

Urban streams and rivers possess important ecological, recreational, and aesthetic values. Riparian forests that establish along waterways create corridor-like habitats that may serve to connect fragments of remaining wildlife habitat. These liminal green spaces provide ecosystem services that include carbon sequestration, reducing runoff and erosion, and improving air quality. However, I predict that the ecological importance of riparian forests may be relative to their broader landscape context. For example, riparian corridors within industrialized urban areas may provide proportionately greater ecosystem services than otherwise similar riparian corridors in a rural setting. To address my prediction, I used web-based aerial photo analysis software (i-Tree Canopy v.6.1) to measure tree canopy cover in riparian forests and the surrounding landscape along an urban-rural gradient that is spanned by the Buffalo River near Buffalo, New York. In addition to quantifying the relative ecological value of riparian forests, I will also examine the relationship between riparian forests and the socioeconomics of their surrounding neighborhoods using census data. A better understanding of the contribution of riparian forests will inform riparian conservation and restoration, enhance effective land-use planning, and inform efforts to improve air quality.

### **Eyes on the Street, Not on your Tweet**

**Nick Swallow**, PLN 410: Sustainable Transportation Planning

Faculty Mentor: Professor Wende Mix, Geography and Planning

It seems that whenever one is in a hurry they observe any nuances which may be contributing to the problem. When one observes a person using a smartphone, the user appears to be distracted and traveling slower. Pedestrian injuries have been increasing as a result of increased smartphone users and this impaired behavior. Researchers have previously worked on this type of behavior, however, most of the research has occurred in a Virtual Environment (VE). This study shall be conducted in

real-time observing one's natural behavior in the physical world. The hope is to quantify the phone-user's reduced travel time and cognitive impairment. To determine this, undergraduate students and adult professionals will be observed as they walk while taking note of active smartphone or device use. Comparison of pedestrian's speed and awareness will be measured in two different settings; intersection and mid-block. This will be achieved by recording the time the subject takes to walk a predetermined distance. Further, it will be noted if the pedestrian looked up, or both ways before crossing an intersection. The observations will occur on campus for undergraduate students, and in a dense urban setting for adult professionals. It is expected that undergraduates will be more distracted by their smartphones or devices and, therefore, be less aware of their surroundings and move more slowly. The adult professionals, on the other hand, are expected to be found more vigilant and move more quickly and safely.

### Factors Effecting Relapse in Drug Addiction

**Taylor Grupp**, AMT 495: Special Project

Faculty Mentor: Professor Chaitali Ghosh, Mathematics

Drug addiction is a compulsive disorder, which adversely interferes with daily life and responsibilities of a person, causing a burden to family and society. In 2008, there were 1.8 million admissions at treatment facilities related to alcohol and drug abuse, and twenty percent received treatment for heroin and other opiates, which accounted for the largest amount of drug-related admissions. Drug addicts are at an increased risk for heart, lung, liver and kidney disease, stroke, cancer, and HIV/AIDS. Like any other addiction, relapse is common. As a result, treatment plays an important role in an addict's recovery, which may include detoxification, medications, behavioral counseling and mental health evaluation. According to the Substance Abuse and Mental Health Services Administrations (SAMHSA's) National Survey on Drug Use and Health, only 11.2% of the 23.5 million people who needed treatment for substance abuse problems in 2009 ended up receiving treatment at a special facility. This project compares the effectiveness of two residential treatment programs of planned duration in therapeutic communities, one traditional and another modified to include a relapse prevention and health education program. In particular, the likelihood of a relapse to drug use is predicted among 628 eligible participants who are randomly assigned to one of the two treatments. Other potential predictors such as age, Beck Depression Score, prior drug treatments, heroin/cocaine and IV drug use prior to admission, race and length of treatment are considered using standard statistical analysis.

### Freezing-induced Gold Nanoparticle Aggregation and Its Effect on Surface Enhanced Raman Scattering

**Kristopher Hoyt**, Chemistry

Faculty Mentor: Professor Jinseok Heo, Chemistry

Here, we present that gold nanoparticle (AuNP) aggregates induced by freezing can be potentially used as Surface Enhanced Raman Scattering (SERS) substrates for near-IR laser source. Near-IR excitation is useful to obtain SERS signals of an analyte in biological matrices that often show strong fluorescence background. After a vial of solution that contained citrate-capped AuNPs with an average diameter of 70 nm was placed in liquid nitrogen for quick freezing, the frozen AuNP solution was slowly thawed at room temperature. Rhodamine 6G (R6G) exhibited ~2 x stronger SERS signals in this thawed AuNP solution than in the unfrozen AuNP solution. This observation must be ascribed to the aggregation of AuNP induced by freezing. The plasmon band of the AuNPs was red-shifted after the freezing and thawing process, which suggests the aggregation of the AuNPs. Freezing-induced AuNP aggregates were stable and dispersed well in a solution. The SERS signals of R6G measured with the same AuNP aggregate solution did not vary much over a week period, suggesting that this simple freezing process could be useful in producing SERS substrates for the near-IR range.

### Generalized Autoregressive Conditional Heteroskedasticity Test on Gold Fixing Price

**Terry Benites**, AMT 495: Applied Mathematics Project

Faculty Mentor: Professor Bruce Sun, Mathematics

In this project, three families of time series models are applied and compared to investigate the trends and volatility of Gold Fixing price since 1968 up to June 30th of 2016, in order to forecast future prices of this commodity. Various numbers of autoregressive lags (ARCH terms) are considered and several moving average lags were specified. The Autoregressive Integrated Moving Average (ARIMA) model is used as well. In addition, The models of Generalized Autoregressive Conditional Heteroskedasticity (GARCH) is used to take into account the dynamic volatility. The three models mentioned above are of the most important modern time series models to predict the future stochastic processes. And comparisons are made between the output and the real data of gold from the Federal Reserve Economic Data over the period of July 1st to December 21st of 2016.

## GIS Analysis of Northern Map Turtles in the Upper Niagara River

**Chelsea Moore** and **Jesse Karcher**, GEG 590: GIS  
Faculty Mentors: Professor Wende Mix, Geography and Planning and Professor Ed Standora, Biology

The Northern Map turtle (*Graptemys geographica*) is an aquatic species located in the Upper Niagara River of Western New York, and exists as a small population that continues to decline. We translocated ten turtles from Presque Isle State Park into the Upper Niagara River to enhance the population. Radio and sonic transmitters were attached to resident and translocated turtles to actively monitor behavior and determine exact locations using biotelemetry. GPS locations were taken nearly every day to analyze home ranges and movements, and will allow for comparison between resident and translocated turtles. Several spatial analysis models in Geographic Information Systems (GIS ArcMap 10.4) were taken advantage of to create kernel densities (number of locations/square meter), least costly swimming paths using water current data (meters/second), and analyze habitat selection in response to water temperature. The Kernel Density tool used turtle locations to calculate the number of features per area. The Cost Path tool was used to map turtle movements through the slowest currents of the Niagara creating the least energetically costly swimming route. This unique approach determined linear home range using a raster based solution as opposed to a vector network model. GPS locations were layered on temperature maps and interpolated using the IDW (Inverse Distance Weighted) tool to determine the influence of water temperature on habitat selection and movement distances. Being an aquatic species, Northern Map turtles exhibit minimal terrestrial movements and therefore, we created a Barrier feature class to confine home ranges and movements to the river.

## GIS-Based Environmental Impact Assessment of Mountaintop Removal Reclamation Project

**Yusheng Ye**, GEG 528: Environmental Assessment and Planning Applications  
Faculty Mentor: Professor Tao Tang, Geography and Planning

Since reclamation efforts after mountaintop removal (MTR) coal mining are required by federal law, nearly 2000 special reclaimed MTR sites have been constructed covering hundreds of mountains in southern West Virginia by 2017. Companies claim that their reclaimed mining project and Forest Reclamation Approach (FRA) can be very successful in restoring of habitat and reestablishing of biodiversity by various conservation plans. However, most of previous researches that aim to testify these issues selected ecological quantified or/and qualified approaches in discontinuous regions, like watershed investigations. In that case, this study tried to assess several environmental impacts

of those reclamation projects in state scale using Geographic Information System (GIS)-based spatial interpolation methods. It collected some of hydrological, biological and pedological data in the same study area, process them into GIS interpolation models to lay out maps which can reflect continuously spatial changing of environmental factors, and compared them with the distribution of reclaimed MTR sites to find the correlation between reclamation and environmental recovery.

## Growth and Crystalline Structure of Rare-Earth-Metal Iron Oxide Thin Films

**Caitlin Horvatits** and **Julianna Du Hart**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Ram Rai, Physics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The purpose of this research was to examine the development and crystalline structure of rare-earth-metal iron oxide ( $\text{YFe}_2\text{O}_4$ ,  $\text{YbFe}_2\text{O}_4$ , and  $\text{DyFe}_2\text{O}_4$ ) thin films. This family of rare-earth ferrites exhibit interesting physical properties, including the magnetic and electronic properties. Stoichiometric proportions of a rare-earth-metal oxide ( $\text{Y}_2\text{O}_3$ ,  $\text{Yb}_2\text{O}_3$ ,  $\text{Dy}_2\text{O}_3$ ), iron oxide ( $\text{Fe}_2\text{O}_3$  and  $\text{FeO}$ ) powders were mixed and ball milled to insure the mixture was homogeneous. Powder samples were then pressed into 0.5 inch and 1 inch diameter pellets using a hydraulic press. Next, the pellets were sintered in a furnace at temperatures between  $1000^\circ\text{C}$  and  $1500^\circ\text{C}$  for up to 18 hours. After sintering, pellets were ground into powders and pressed once more to be sintered for a second and sometimes third time. Using an X-ray Powder Diffraction (XRD), the phase identification of the crystalline powders before and after sintering, as well as at varying temperatures of sintering were studied. An electron beam deposition method was used to fabricate the thin films onto clean substrates of (111) Yttrium-Stabilized Zirconia and (0001) sapphire. Thin films were then annealed at temperatures between  $600^\circ\text{C}$  and  $800^\circ\text{C}$  in a tube furnace. The crystalline structures of the thin films were studied using the XRD machine once again. Additionally, an Atomic Force Microscope was used to image the surface morphology of the thin films, before and after annealing, at high resolutions, on the order of 10 nanometers. Our results will be presented in this poster.

## Heavy Metal Bike Path: Soil Contamination in Restored Railway Trails

**Stephanie Hanson** and **Kelly Young**, GES 460: Environmental Field Methods

Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

The restoration of disused railways into hiking and cycling trails has been a boon to many urban outdoor enthusiasts in the Western New York area; however, this effort has been focused more on urban aesthetic improvement than on environmental

remediation. Given the potential for contamination from both transported industrial materials and decay of the tracks themselves, this study aims to identify the condition of soil along the restored railway within the North Buffalo and Tonawanda Rails-to-Trails sites connecting Main St. at the LaSalle Metro Station in Buffalo, NY and the Sheridan Dr. at Gettysburg Ave. in Tonawanda, NY. Samples will be taken every 100 meters along the trail both at the edge of the pavement and at the periphery of the trail where the tracks used to be. The samples will be analyzed to determine the concentration of heavy metal contamination along the path of the former tracks compared to the soil at a ten-meter distance from them. Additional samples will be collected from local parks to establish background levels. It is anticipated that there will be elevated levels of heavy metals such as arsenic and lead in the soil samples taken from mid-trail compared to those from the periphery, and that soils from the park areas should have the lowest levels.

### How External Factors Influence Academic Performance

**Alcides Alcoba Inciarte** and **Frallelin Martinez**, AMT 495: Applied Mathematics Project

Faculty Mentor: Professor Valentin Brimkov, Mathematics

In this work we present the results and conclusions of a quantitative study aimed at finding patterns that are related to the net school proficiency in the subjects of Mathematics and English Language Arts. To this end, students between the third and the eighth grade from over 4500 schools from 733 school districts of New York State are broken into several subgroups relating to ethnicity, gender, school demographics and resource capacity. Our investigation is based on the hypothesis that there exists a significant contrast between several items under these categories and as how grades are themselves separated relating to these subgroups. Furthermore, we demonstrate how these categories relate to one-another, in order to better understand where flaws are most present. The thesis was tested by the means of statistical and data-analytical techniques and the implementation of SAS software.

### The Impact of Environmental Dredging in the Buffalo River: Secrets Revealed from Side-Scan Sonar

**Skyler Paternostro**, Earth Sciences

Faculty Mentor: Professor Jill Singer, Earth Sciences

The Buffalo River is identified as a Great Lakes Area of Concern (AoC) because of a number of environmental impairments including contaminated sediments. The bottom sediments of the Buffalo River contain organic compounds and heavy minerals reflecting the legacy of past industrial activities and although the distribution of contamination in the sediments is variable, generally there is a layer of lower contamination

deposited on top of a more contaminated layer that reflects the peak period of industrial activity. As the river undergoes remediation in order to be delisted as an AoC, a management decision was made to remove the most contaminated sediment in a multi-year environmental dredging project. This project took place between 2011 and 2015. As part of the project, annual bathymetric surveys were conducted by the U.S. Army Corps of Engineers (USACE) to determine the locations and volume of bottom sediment to be dredged from within and outside the navigational channel. In addition to the USACE surveys, side-scan sonar surveys were taken before, during, and after the dredging took place. Side scan sonar uses the strength of returning sound to map the bottom, with digital maps showing areas of light (weak return) and dark (strong return). The side scan sonar records show both natural (e.g., tree limbs, bedforms) and anthropogenic (e.g., tires pilings, and concrete walls) features. The records also show the disturbances from dredging. With the use of these records, I am delineating the bottom morphology of the Buffalo River to better document the effects of the environmental dredging project and how the removal of sediment disturbed the bottom. To do this, I am comparing the morphology in both dredged and non-dredged areas and documenting how slowly or quickly these features change.

### Implication of Fractures in Determining Areas of Potential Life on Mars

**Hadarou Sare**, Geology

Faculty Mentors: Professor Kevin Williams, Earth Sciences and Professor Don Boonstra, sySTEMec, Chandler, AZ

One of the most important goals of Mars exploration is to obtain data that will help determine whether life ever existed there. In this project, I have looked at the mineralogy near fissures (fractures) in the Nili Fossae region to determine if and how water-related mineralogy can be related to the fissures. By understanding a relationship like this, I might be able to apply it to other areas on Mars with fissures to learn whether the fissures might be good targets to search for life on Mars. Areas with fissures are of interest because we could potentially find evidence of past water in rocks or minerals such as mafic minerals, hydrated minerals, phyllosilicates, and hydroxylated minerals. Nili Fossae is an area with fractured, basaltic bedrock and mineralogy that points to at least some alteration by water. It also contains the largest amount of carbonate material on Mars, maybe related to the alteration. It is therefore essential to determine characteristics of different rocks and minerals in Nili Fossae in order to justify the hypothesis that we could find rocks and/or minerals containing organic chemicals, which would suggest that life existed in areas with fissures. I used images from the THEMIS (Thermal Emission Imaging System) instrument and GeoInformatics software such as ERDAS IMAGINE to study mineralogy in Nili Fossae by computing band ratio images.

Conclusions about the locations of water-related minerals using these images agree with other studies using data from other instruments.

### Investigating a Conjecture About Integrals From Probability Theory

**Bridget Torsey**, Mathematics and Physics  
Faculty Mentor: Professor Peter Mercer, Mathematics

In 2009 a conjecture, pertaining to the lower bound for the mean value of a function, was proposed in a paper by D. Quadling. The conjecture was then proved in 2015 by P.T. Krasopoulos. His proof seemed to be very narrow to this specific situation. The main goal of this research project was to find a broader and hopefully simpler proof of the conjecture, that could perhaps be more applicable within the field of Probability Theory. I was able to do this. Moreover, other discoveries surrounding the conjecture were made. For example, Krasopoulos's proof turns out to be very similar to D. Mitrinovic's 1969 proof of Steffensen's Inequality - a famous inequality discovered in 1918 by J. Steffensen while he was studying problems from Actuarial Science. Also, I obtained a second theorem about the upper bound for the mean value of a function; this came as a consequence of seeing the connection with Steffensen's Inequality. Overall this research project was extremely successful and the findings were more plentiful than expected.

### Iron Mossbauer Study of Irradiated Hemoglobin

**James Pawlak**, Physics  
Faculty Mentor: Professor Michael DeMarco, Physics

Humans are under constant exposure to cosmic radiation. A contributor to this cosmic radiation is high energy neutrons. We studied the effect of these high-energy neutrons on blood, more specifically hemoglobin. In 2011 Katarzyna Niemiec et al. obtained results that these neutrons effect the bonding iron in hemoglobin using a PuBe (Plutonium Beryllium) neutron source on whole red blood cells suspended in phosphate buffer using iron Mossbauer spectroscopy. They theorized that two possible results could cause the change in spectroscopy, the neutrons denaturing the hemoglobin and changing the binding state of the iron or the neutrons interacting with the sample and forming carbon monoxide that binds to the hemoglobin. We attempted to further study these effects using heat dried whole blood cells ground into a powder and on lyophilized hemoglobin. We used a low neutron flux PuBe neutron source and measured the spectrum of the sample at both room temperature and liquid nitrogen temperature using the iron Mossbauer spectrum technique. We developed spectra for aged powdered beef blood, fresh heat dried beef blood, fresh heat dried sheep blood, and lyophilized horse hemoglobin. We irradiated selected samples

for evaluation of neutron effects. Thus far, we have not seen any effect on these samples from radiation.

### Laboratory Analysis of Rock Unit Patterns in Rowe-Ratlum Mountain Schist

**Michael Bartkowiak**, Geology  
Faculty Mentor: Professor Gary Solar, Earth Sciences

Documentation of compositional and mineral pattern variations were conducted on a collected specimen suite from the Rowe-Ratlum Mountain Formations, Western Connecticut, Northern Appalachians. This work is the next step in the sequence where field relations are known, but comparative analysis is not. The location of the 16 samples selected relate to a special rock unit called the Log-Jam Schist (LJS). The LJS is distinctive due to very large kyanite crystals (up to 55 cm). In contrast, the surrounding rocks are very different. Porphyroblast grain sizes range from a few millimeters to 2 centimeters in diameter (e.g., garnet), significantly larger than the surrounding matrix minerals, dominated by micas. The LJS kyanite ranges from 1-2 cm in length to several 10s of cm and the matrix mineral content is granitic (feldspars and quartz) rather than pelitic (micas and quartz). The surrounding rocks are pelitic (metashales), and with large garnet and staurolite, but no kyanite. Preliminary work had shown size variations and abundance across the specimens. For this study, methods included standard laboratory and microscopy analytical tools to document mineral compositions, textures, and spatial relations within each specimen, but also between specimens. The variations are geo-located using the existing maps. Results include the categorizing of the specimens into five petrographic groups with distinctive porphyroblast concentrations. The map pattern of these groups is evident, yet there does not appear to be a relation to the LJS rocks.

### Making Genetically Modified Worms: Microinjecting Transgenes

**Robert White**, Biology  
Faculty Mentor: Professor Gregory Wadsworth, Biology

Genetic engineering depends on transgenic technology, the ability to introduce modified genes into organisms and study how those modified genes affect the host organism. Transgenic roundworms (nematodes) are routinely produced by injecting modified genes into the ovary of the nematode, where it is incorporated into oocytes. When these oocytes are fertilized, the resulting progeny carry the transgene. The Biology Department at Buffalo State recently acquired a Tritech Research Model A67 Microinjector. My project is to adapt standard microinjection protocols to the equipment and facilities at the College, with the goal of generating a transgenic worm. To monitor the success of my microinjection I am using DNA constructs previously shown to express the green fluorescent protein of jelly fish when incorporated as a transgene. I will be microinjecting

these DNA constructs into the N2 strain of the round worm *Caenorhabditis elegans*. Initial experiments will be conducted using dyes to monitor successful targeting of the ovary. Variables will also be monitored to determine what factors are most critical to successful microinjection without killing the nematodes. Injection of the DNA constructs will be monitored using fluorescence imaging to verify the incorporation of transgenes producing the fluorescence jellyfish protein. Stability of incorporation of transgenes will be monitored by observing fluorescence in several generations of *C. elegans*. I will present my preliminary results on microinjection.

## Mapping the Climate Classification for the Western New York Region

**Andrew Block**, GEG 430: Senior Thesis

Faculty Mentor: Professor Stephen Vermette, Geography and Planning

The official weather station for Western New York (WNY) is located at the Buffalo Greater International Airport in Northern Erie County. Most people realize that this weather record does not accurately depict the climate of WNY's eight counties (Erie, Niagara, Chautauqua, Cattaraugus, Wyoming, Genesee, Allegany and Orleans). This poster will show the boundaries of 5 unique climate zones within WNY. The zones are the Erie Coastal, Niagara Frontier, Niagara Coastal, Southern Tier as well as Buffalo Urban. Using ArcGIS allowed me to build a series of maps to establish where the climate zones are in WNY. Draft climate zones were established by using information about climate controls - Digital Elevation Model (DEM), consideration of proximity to lakes Erie and Ontario, and urban population density. The final map will use historic weather data from weather stations to overlay on top of the first map. The result will be a map for the different types of climate for each of the five zones.

## Mathematical Modeling of Drug Addiction

**Allison Torsey** and **James Richardson**, AMT 495: Special Project

Faculty Mentor: Professor Saziye Bayram, Mathematics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

A heroin epidemic has overtaken the country in recent years. According to the National Institute on Drug Abuse (NIDA) the total number of U.S. heroin overdose deaths has seen an over 6-fold increase between 2002 and 2015. The standard epidemiological SIR model has been adapted to describe heroin usage. The SIR model is a compartmental model that is based on contact between groups. We examined previous theoretical models for new parameters that could be added. The White-Comiskey Model uses an Ordinary Differential Equations (ODE) framework,

which assumes that each individual in the population has an equal susceptibility to becoming a drug user, and it is only time dependent. Expanding upon this, Partial Differential Equations (PDE) are applied to account for spatial as well as temporal factors in a heterogeneous population to improve accuracy. The new model will determine an individual's probability of becoming a drug user based on the median income in the area where they reside. We performed a sensitivity analysis to test robustness. This allows us to determine what parameters will most effectively the model. It is meant to be used in a local setting and will hopefully be used to predict the usage and spread of multiple illegal drugs in any given area. With the application of this model, it can affect legislative decisions and possibly prevent an epidemic.

## Mathematical Modeling of Heroin Epidemic

**James Richardson** and **Allison Torsey**, MAT 495: Applied Mathematics Project

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A heroin epidemic has overtaken the country in recent years. According to the National Institute on Drug Abuse (NIDA) the total number of U.S. heroin overdose deaths has seen an over 6 fold increase between 2002 and 2015. The standard epidemiological SIR model has been adapted to describe heroin usage. SIR models are used to model how diseases spread between groups of people. We examined previous applications of these models in order to modify a simplistic model for heroin usage developed by White and Comiskey in 2007. The White-Comiskey framework employed Ordinary Differential Equations (ODE's). We used Partial Differential Equations (PDE's) in order to account for spatial and temporal effects and then examined equilibrium points in order to understand the behavior of the model. How likely people are to start using drugs in a given area can be estimated using readily available overdose death and local demographic statistics. Using the newly developed equations and localized data one can look at the potential spread of heroin use in an area. With appropriate data this new model could be used to model the spread of illicit drugs in any area and allow for better drug abuse prevention and policy making.

## My Experiences as an Early Undergraduate Researcher in Geology: Learning Fundamental Petrographic Techniques

**Mark Wullner**, Earth Sciences

Faculty Mentor: Professor Gary Solar, Earth Sciences

I have taken advantage of the new Buffalo State-sponsored opportunity to learn the methods of research by hands-on experience in geology as an "early" undergraduate student. For my project, I started as a laboratory assistant to two senior-level undergraduate researchers in the Laboratory for Orogenic Studies within the Department of Earth Sciences. I worked alongside

the students as they prepared their collected rock specimens for microscopic analysis. Their project is focused on their field work in southern Maine within a 400-million-year-old tectonic structure known as the Norumbega Shear Zone System. The specimens are migmatites, partially melted rocks, that have been deformed. I was responsible for some initial sample cutting, and thin-section production for microscopy, and I learned how to use research equipment including the trim saw, lapidary polisher, and thin section machine. I also learned how epoxy polished rock billets onto microscope slides, and basic petrography, and then collected “point count” data that added to the research project. The results have been presented at a geology conference, for which learned scientific poster creation. At the same time that this experience helps me understand material in my courses, it is clear that I will be in a better position to learn in courses I will take through the geology curriculum. Getting such an early start with undergraduate research has motivated me to continue doing research and to learn as much as I can about Geology during my time at Buffalo State.

### **Neither GRP170 Chaperone is Essential for Protein Folding in *Caenorhabditis elegans***

**Sara Dannebrock**, Individualized Studies

Faculty Mentor: Professor Gregory Wadsworth, Biology

Animal growth and development requires folding of cellular proteins into functional active conformations. Protein folding is facilitated by cellular machinery called chaperones. The function of the largest ER chaperone in animal cells, GRP170, is not fully understood. The round worm *Caenorhabditis elegans* has two genes encoding GRP170, the *grp170a* and the *grp170b* genes. The loss of *grp170a* is known to slow larval development of the worm while the loss of *grp170b* does not affect the rate of development. To further characterize the function of these genes, worms lacking *grp170a* or *grp170b* were analyzed for defects in protein folding during development. Protein folding was assayed by monitoring the expression of an Unfolded Protein Response inducible transgene, *zCIs4*. This transgene expresses the green fluorescent protein (GFP) when unfolded proteins accumulate in the ER. The transgene was introduced into worm strains lacking functional *grp170a* or functional *grp170b*. When these strains were examined by fluorescence microscopy, induction of GFP due to unfolded proteins was not detected any of the tissues in embryos, larva and adult worms. This demonstrates that neither *grp170* gene was by itself critical to general protein folding. Further, it suggests the slow rate of development observed in *grp170a* deficient worms was not caused by a general defect in protein folding.

### **Next Generation Sequencing in Assessing Bacterial Populations in Beach Sands**

**Viivi Vaattovaara**, Biology

Faculty Mentors: Professor Gary Pettibone, Biology and Professor Amy McMillan, Biology

Establishing bacterial water quality standards is central to assessing health risks to public beach users. Ideally, testing would be conducted for the presence of all enteric pathogens. However, due to the multitude of tests that would need to be performed, only certain bacteria that indicate fecal pollution (especially *Escherichia coli* and *Enterococcus* spp.) are tested for in order to indicate the possible presence of pathogenic bacteria. Moreover, tests are normally conducted on water samples but not on sand samples from the adjacent beach. The goal of this research was to identify relationships between the fecal indicator bacterium *E. coli* and enteric pathogens in beach sand where high incidence of human contact with sand microorganisms may pose a health risk. More specifically, the goal was to collect both water and sand samples from a popular beach (Bennett Beach, Angola, NY), filter these samples, extract the DNA from bacteria collected on the filter, and ultimately identify the species present in each beach sand/water sample by sequencing the 16S rDNA gene using next generation sequencing (NGS). Preliminary results showed higher levels of *E. coli* and fecal coliforms in the beach sand than in the lake water samples, especially after rainfall. In addition, the highest levels of *E. coli* were found in sand 20 feet from the shoreline suggesting a resident population not influenced directly by lake water intrusion. Polymerase Chain Reaction analyses revealed that the 16S rDNA could be recovered from the filtered samples and provide the foundation for using NGS to determine if enteric pathogens exhibit population dynamics in beach sand that are similar to that of *E. coli*.

### **Optimizing Graph-Theory Based Ranking Model for NCAA Basketball Teams**

**Ryan Vlack**, MAT 495: Applied Mathematics Project

Faculty Mentor: Professor Hongliang Xu, Mathematics

In NCAA Division I basketball, teams from all over the country play each other in order to enter the NCAA tournament and compete for the national championship. The tournament selection committee only selects the best 68 teams from 351 Division-I teams for the tournament. With each team only playing about 25 games in a regular season, it is an arduous task to rank teams based on such a limited number of games. Recently the author's research mentor has developed a ranking model, which combines sport data (win-loss record, score differential, home-court advantage, quality of opponent, etc.) with graph theory and linear algebra to rank sports teams. This project is focused on optimizing several parameters used in the model in order to increase the accuracy of the rating. The

comparison of the ranking model with the BCS ranking will be discussed, and the top 68 teams selected from the model will be presented alongside the committee's selections.

### Possible Roles for Gap Junction Proteins in Water-Induced Apoptosis

**Malysa Chanthasoto**, Biology and **Margaret Van Wagner**, Biology

Faculty Mentor: Professor Derek Beahm, Biology

Interestingly, cultured mammalian cells exposed to pure water for short durations do not lyse. However, even though cells survive the initial swelling episode, they initiate a program of cell death (apoptosis) which kills them within 24 hours. One proposed mechanism of water-induced apoptosis is that cell swelling induces the release of ATP which then binds to cell surface receptors to trigger apoptosis. Preliminary results in our lab suggest that gap junction and hemichannel blockers decrease the number of cells undergoing apoptosis after exposure to water. Gap junctions are intercellular channels that connect the cytoplasmic compartments of two cells, allowing various small molecules, ions and electrical impulses to directly pass between the cells. These channels form when hemichannels in two cells come close together and bind. The gap junctional hemichannels are known to open and close in the plasma membrane, which allows for transfer of small molecules between the inside and outside of the cell. We hypothesize that water induced ATP release is mediated through open hemichannels. I will present experimental findings on the effects of hypotonic shock on cell survival in the presence and absence of drugs or conditions known to block gap junction hemichannels. Trypan Blue is used as a vital stain to distinguish between living and dead cells. This project is a part of ongoing studies that examine the role of gap junction communication and hemichannel activity in cell volume dynamics and cell survival.

### Quartzofeldspathic Gneiss Fabrics in the Piseco Lake Shear Zone, Southern Adirondacks

**Natalie Brown**, Earth Sciences

Faculty Mentor: Professor Gary Solar, Earth Sciences

Quartzofeldspathic Gneiss in the Southern Adirondacks is the dominant rock type found in the Piseco Lake Shear Zone, a major tectonic structure that is part of the 40-km-wide, east-west oriented deformation zone of the southern Adirondacks. It is the mineral patterns in these gneisses that define the plate tectonic deformation zone that formed around 900 million years ago. In these rocks the mineral patterns (fabrics) are defined by the preferred orientations of platy minerals like biotite and chlorite, but dominated by the dominant ribbons of quartz and feldspar aggregates. All three samples used for this study were

collected within 2 kilometers of each other. This work is focused on the documentation of these fabrics as they appear in cut hand specimen, and in thin section (microscopic). The analyses were performed on sections cut both parallel and perpendicular to the fabrics in order to get three dimensions of the fabric represented in the data. I document mineral composition (through point counting), and corresponding matrix patterns (using thin sections and textural documentation techniques, the Inverse SURFOR Wheel, in particular). Six thin sections and surfaces were studied. Results show broad similarities in both orientation of fabrics and fabric intensities (strength, or flatness/elongation), but vary with different mineral compositions.

### Role of the ER Chaperone GRP170 in Heat Tolerance in *Caenorhabditis elegans*

**Andirah Nesbitt**, Biology

Faculty Mentor: Professor Gregory Wadsworth, Biology

All organellar compartments within animal cells have proteins which allow cells to respond to stressful conditions, maintain homeostasis and survive the stress. The ER GRP170 protein is evolutionarily related to some of these stress proteins, but it is not known if GRP170 has a roll in responding to cellular stress. My study will investigate whether strains of the nematode *Caenorhabditis elegans* that are genetically deficient for isoforms of GRP170 have enhanced sensitivity to heat stress. This nematode lives in the soil of temperate ecosystems. In the laboratory, it is usually reared between 15° and 25°C. Exposure to 37°C will kill the nematode within a few hours. My experimental design is to expose worms genetically deficient for GRP170 to this lethal temperature. If the worms lacking GRP170 die faster than control worms, this would support the hypothesis that GRP170 is a stress response gene that plays a role in temperature tolerance. I will present and discuss my initial results.

### Shimmy in the Sands: Why are Some Homes Sinking While Others are Not?

**Katharine Leopold-Schiller**, **Sara Clark** and **Andrew Balcomb**, GES 460: Environmental Field Methods

Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

Wildwood Acres, formerly known as Falcon Manor, is a residential area built in the late 1960's as base housing for the Niagara Falls Air Force Base. It is sandwiched between a quarry operational since the 1940's due west, large factories due east and the Niagara Falls Air Base due south. There is an electrical substation directly to the east, supplying power to the companies located there, and another substation to the south, but no visible signs of overhead power lines supplying the power. It is assumed by the members of the community that there are subsurface electrical transmission lines buried under some of the homes in

the area. Some residents in the area have experienced significant foundation damage to their homes, such as garages that have sunk 4-5 inches, cracking within their homes in the ceilings, doors that won't close and some that will not stay open. The goal of this research is to discover why the homes in the Wildwood Acres community are experiencing damage. The three known options are soil density changes or liquefaction caused by the long history of blasting in the quarry, the presence of hydric soils, or settling due to the presence of subsurface utilities. To this end, several soil core samples will be collected to determine bulk density, soil texture, and clay content. Remote sensing data will be collected to test for potential soil density changes or evidence of liquefaction, as well as the presence of subsurface voids.

### **Spatial Analysis of Air Particulate Pollution and Its Relations to Distribution of Real Property Values in Beijing, China**

**Yingyu Zhang**, Great Lakes Ecosystem Science

Faculty Mentor: Professor Tao Tang, Geography and Planning

Air pollution particles contribute one of the major air pollution in Beijing, China. In this research, counts and concentrations of air particulate pollutants at a total of twenty three points in the urban districts of the city were measured applying the laser particle counters. Geographic Information System (GIS) was used to study the 2D and 3D spatial distributions and spatial patterns of air particulate pollution (PM<sub>0.5</sub>  $\mu\text{m}$ , PM<sub>1.0</sub>  $\mu\text{m}$ , PM<sub>2.5</sub>  $\mu\text{m}$ , PM<sub>5.0</sub>  $\mu\text{m}$ , PM<sub>10.0</sub>  $\mu\text{m}$ ) in June and December of 2015. A geostatistic and spatial statistic models were applied to interpolate the spatial distributions of particle pollutions. Geographically Weighted Regression (GWR) were applied to analyze the spatial relationships of air particle pollution and distribution of real estate values in 2D. The 3D analysis of ArcGIS conducted vertical spatial distributions of particle pollution and real estate values for the each twenty three points. The results shows the concentrations of different sizes of air particulate pollutants in urban areas in the Beijing City distribute differently on spatial scales. The distribution of real estate value is very clear that the highest value occurred in Xicheng District and Fengtai District had the lowest value in our study area in the June and December. There is no significant relationships of real estate value and the intensity of air particle pollution distributions.

### **Spatial Interpolation of Soil Contamination Using Geographic Information Systems**

**Timothy German**, GEG 428: Environmental and Planning Applications in GIS

Faculty Mentor: Professor Tao Tang, Geography and Planning

This project applies GIS-based spatial interpolation methods to assess soil contamination at a former industrial site near the Village of Luckey, Ohio. The U.S. Army Corps of Engineers (US-ACE) has determined that the site is contaminated with beryllium, lead, and radioactivity. US-ACE is currently engaged in a remediation effort that will involve excavating contaminated soil and transporting it to a licensed disposal facility. It is important to accurately gauge the distributions of various contaminants on the site because the remediation process is expensive, and a concise cost estimate is desired. Previous work by Buffalo State students has addressed beryllium contamination. This study takes advantage of the dataset provided previously by US-ACE, and will focus on lead and radioactivity. The intent of this study is to produce a continuous representation of contaminant levels at the site. I will need to determine the most appropriate method for this application. Two of the most common methods are called Kriging and Inverse Distance Weighted (IDW) interpolation. I will need to weigh the strengths and weaknesses of each before proceeding, as each method produces slightly different results. The end product will be a graphic depiction of areas or hot spots containing high and low levels of contamination. This project provides a platform to practice and demonstrate both two dimensional (2D) and three dimensional (3D) spatial interpolation capabilities. Similar methods can be applied to analyze many different datasets with diverse applications.

### **Surviving Lethal Cold at the Cellular Level: The Role of the ER Protein Folding Machine GRP170**

**Lily Adu** Boahen, Biology

Faculty Mentor: Professor Gregory Wadsworth, Biology

Cold temperatures kill animal cells by disrupting functions of cellular membranes. Most cellular membranes are assembled on the Endoplasmic Reticulum (ER) and many studies have shown that normal ER function is critical for animal cells to survive cold temperatures. I am investigating one component of the ER, the large protein folding chaperone, GRP170 to see if it is critical for cold tolerance in animal cells. The animal system I am using is the small round worm *Caenorhabditis elegans*. This round worm has two genes that encode GRP170, the *grp170a* and the *grp170b* gene. Mutant strains of *C. elegans* are available that carry deletions in either of these two genes. My experimental plan is to rear young adults of three strains, the N2 strain that produces both GRP170a and GRP170b, the BSC06 strain that only produces GRP170a and the BSC07 strain that only produces

GRP170b. I will expose these strains to a lethal temperature (4°C) for varying lengths of time to determine the amount of time it takes to kill 50% of the worms, the T50. If either GRP170 genes is critical to cold tolerance, then I would predict that strains BSC 06, which lacks GRP170a, or BSC 07, which lacks GRP170b, will have a lower T50 than the N2 strain. If neither GRP170 gene is critical to cold tolerance than I would predict BSC 06 and BSC07 would have similar T50's. Initial results of the study will be presented.

## Swimming In Gallagher Beach: How Do Rainfall Events Increase Health Hazards?

**Shafeeqah Ahmed**, GES 460: Environmental Field Methods  
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

This project will determine the difference in levels of bacteria and pollutants found in Gallagher Beach in Buffalo, NY, before and after rainfall events. Periodic spikes in bacteria make the beach unsafe for public swimming during the majority of the season. Gallagher Beach is located within break wall boundaries in a highly polluted coastal environment. To learn whether unsafe levels of bacteria and heavy metals are reached at the beach after rainfall, samples need to be collected and analyzed before and after precipitation occurs. Three harmful bacteria that are found in the lake's waters are *E. coli*, fecal coliform and enterococci. Chlordane and other pesticides, as well as heavy metals are also known to exist along the shore. How much are these bacteria and pollutants present on a normal day compared to after a rainfall event, and do these levels exceed regulations and standards making the beach unsafe for swimming? Does wastewater outfall affect the levels of *E. coli* and heavy metals found in the sediment along the beach? To test this hypothesis, ten samples of lake water and eight samples of onshore sediment will be collected at 60 m intervals during clear weather, and again after a rainfall event. These samples will be taken back to the lab and tested for levels of *E. coli*, fecal coliform, enterococci and heavy metals. Due to the storm outfall located roughly 600 ft. away (where the first water and sediment samples will be collected), levels of contaminants, especially *E. coli*, are expected to noticeably increase beyond safe levels after precipitation occurs.

## Synthesis of Monodisperse Gold Nanoparticles With an Average Diameter of 70 nm

**Anthony Marino**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Jinseok Heo, Chemistry and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

My research explores the use of the Turkevich method to synthesize monodisperse gold nanoparticles (AuNP) with an average diameter of 70 nm. The AuNPs with this size can be used

as a substrate for Surface Enhanced Raman Scattering (SERS) in a near-IR region if they are aggregated by a quick freezing method. A near-IR SERS is particularly useful for detecting a weak Raman signal of a low concentration of analyte in a biological matrix that exhibits strong background fluorescence. In this study, AuNPs were synthesized using the Turkevich method and the size of the AuNPs were characterized using their plasmon band spectrum acquired with a UV-VIS absorption spectrophotometer. In addition, several experimental factors that could affect the size of the AuNPs were examined. These were mixing rate, temperature, method of citrate addition, and, most importantly, the ratio of the amount of gold chloride to citrate. Preliminary findings suggest that the synthesis of monodisperse AuNPs with diameters larger than 40 nm cannot be achieved with a conventional Turkevich method. This is due to the insufficient amount of citrate that should have been available to fully cap all of the AuNPs at the initial growth stage, resulting in a uncontrollable growth of AuNPs. Future study will be focused on decreasing the size distribution of AuNPs by modifying the Turkevich method.

## Taking Calculus? Good Luck! Better Preparing Students for Calculus

**Paul Giammarco**, MAT 491: Applied Mathematics  
Faculty Mentor: Professor Robin Sanders, Mathematics

Calculus I is typically a challenging course for many college students. Some reasons include but are not limited to: poor algebra skills, improper study skills, and the inability to effectively utilize text resources. This research project involves the distribution of a survey instrument consisting of a series of free response questions to practitioners who have taught at least one college or Advanced Placement Calculus class within the past five years. This instrument will probe for, and identify areas of commonality of perceived student strength and weakness, patterns in classroom management, and student success measures. A subset of these survey participants will be given a uniform problem set, simulating a calculus exam, to grade and critique. Analysis will be done to identify similarities and differences to approaches in grading, leading to a tentative measure of inter-rater reliability, if any. This presentation will examine topics selected by the individuals surveyed, from each of the four core high school mathematics courses (Algebra I, Geometry, Algebra II, and Precalculus). This will suggest ways educators can help strengthen students' skills so that they can achieve better success in their Calculus coursework. We will analyze actual exam questions from Calculus I courses at Buffalo State College and problems from past AP examinations to illustrate the different types of questioning seen in a Calculus course.

## Testing for Metals Within the Soil and Water Along the Buffalo River

**Caitlin Drennan**, Earth Science

Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

With a 1,160 square kilometer drainage basin, the Buffalo River flows through both residential and industrial areas before it empties into Lake Erie. The river was designated an EPA Area of Concern in 1987. From 2011 through 2014, as part of the Buffalo River Restoration Project to restore habitats along the river, contaminated sediment was removed by dredging. The goal of this research project is to investigate the progress made by the restoration projects and to identify areas where additional work is still required. Nine sampling stations were identified along the Buffalo River and two of its tributaries, Cazenovia Creek and Buffalo Creek, based on accessibility. At each of these stations two rounds of field water quality tests, including temperature, pH and dissolved oxygen level, were performed using an YSI meter, and water samples were collected for laboratory testing. Hanna Checker colorimeters were used to determine phosphate, iron, chromium, nickel, and nitrate levels. In addition, field tests were performed on the pH of the soil using a digital pH tester, and soil cores were collected for laboratory testing. The soil cores were air dried for a minimum of 48 hours, sectioned, disaggregated and sieved. The prepared soil samples were then analyzed using a Niton XL3t handheld x-ray fluorescence spectrometer (XRF) to determine elemental heavy metal load. Thus far, it has been determined that soil in neighborhoods contained relatively lower levels of heavy metal contamination as compared to soil collected from along the industrial stretches of the waterway. Lower levels of nickel and chromium in comparable water samples reinforce these findings.

## That Was Then, This is Now: How the Buffalo River's Shoreline Has Changed in the Past Quarter Century

**Tony Kruzel**, Geology

Faculty Mentors: Professor Jill Singer, Earth Sciences and Professor Jorge Bajo, Earth Sciences

The lower ~9 km of the Buffalo River is designated as a Great Lakes Area of Concern (AOC) due to its contaminated bottom sediments, degraded and lost habitat, and poor water quality. Much of the shoreline is lined with concrete walls and steel bulkheading. These structures result in vertical shorelines that typically do not provide suitable habitat for fish and wildlife. This project documents changes of the shoreline of the Buffalo River in the past quarter-century. This will be accomplished by comparing sets of maps, original documents, and videos. James Broska, a Buffalo State undergraduate geology major in the late 1980's, created the maps and several members of the

Buffalo River Remedial Advisory Committee took the videos in the early 1990's. I am reviewing these materials in preparation to repeat the mapping survey in summer 2017. To facilitate the comparison of physical characteristics over the 25-year time span, I am using ArcGIS to digitize the shoreline information from U.S. Army Corps of Engineer survey maps for the Buffalo River. To this layer of information, I am adding the characteristics mapped by Broska and the characteristics I map in 2017. I also plan to add another layer showing the current and planned habitat improvement projects being coordinated by the Buffalo Niagara RIVERKEEPER. My ultimate goal is to generate a base map and layers that would be available online and allow the public to interact with the map and explore how the river looked ~30 years ago and how it looks now. This should also allow the community to document future changes as the Buffalo River continues to benefit from habitat restoration projects.

## Three-Dimensional Structure of Deformed Migmatites and Granites, Southwestern Maine

**Steven Caldwell**, Geology and **Victor Morales II**, Geology  
Faculty Mentor: Professor Gary Solar, Earth Sciences

New roadcuts along a ramp for I-495 north in Yarmouth Maine provides a 3-D opportunity to examine structures in a single large exposure within what was at the time a major collisional tectonic structure associated with the building of the North American continent (ca. 400 million years ago). These new roadcuts permitted structural analysis of a complexly deformed migmatite outcrop, the most in-depth done thus far at this location. The inside roadcut (north) is a semicircular arc, extending 150m in an arc from the roadcut along I-495 at due north and around 180 degrees along the off-ramp clockwise ending at the due south position near the end of the ramp. The outside roadcut (east and south) curves around the on-ramp for about 90 degrees, extending approximately 250m along its arc from due east to due south. Rocks here are at the southeastern contact of a paleo zone of melted rock known as the Migmatite-Granite Complex of southern Maine. With the goal of documenting structures, what defines them, and how they relate to both the structural zone and the Migmatite-Granite Complex, we performed detailed mapping and thin section petrography of rock types and structures, and the contacts between rock types. Our results show migmatites (partially melted rock, now solid) dominate with mm-scale in-structure granites (leucosomes) with biotite borders (melanosomes). The flat mineral pattern (foliation) and migmatite structure are sub-parallel, and shallowly- to moderately-SE-dipping consistently. Larger granite bodies are foliated and cm- to m-scale pulled apart (boudinage) with E-W-trending long axes, flat and concordant to the main structure. Two larger granitic dikes are irregularly-shaped and

steeply E-dipping. The larger (2m wide) is continuous with a 10-30 cm-thick sill at the top of the outside roadcut. Once field work was complete, we organized, prepared and analyzed our collected specimens in the lab. Microscopy reveals that deformation is recorded at the microscale with similar structural aspects to those found in outcrop.

## Titan and the Possibility of Alien Life in Our Solar System

**Alex Hasselberg**, HON 400: All College Honors Colloquium  
Faculty Mentor: Professor Kevin Williams, Earth Sciences and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Life on Earth is extraordinarily abundant and diverse, having evolved a variety of morphological and behavioral traits which have allowed organisms to exploit nearly every conceivable niche our world has to offer. Considering the sheer variety of life on Earth alone, as well as the ever-increasing list of documented exoplanets, it may only be a matter of time before mankind will have to face the profound cultural and political implications of discovering extraterrestrial life. For this reason, scientists have given serious consideration to the possibility of life having developed elsewhere within our own solar system, where observation and exploration can be conducted on a far more reasonable timescale and budget. Titan, the largest moon of Saturn, possesses certain surface characteristics (such as complex organic chemistry and stable surface liquids) that make it a promising candidate in the search for alien life. I have analyzed the likelihood and possible characteristics of Titanian life given what physical, chemical, and biological constraints may exist there. Focus was primarily placed on analyzing the specific possibility of extant methanogenic life which would use liquid hydrocarbons as a biological solvent, analogous to the function liquid water serves for terrestrial life. Information concerning Titan's surface was primarily based on data obtained from the Voyager program and Cassini-Huygens spacecraft.

## Topological Insulators

**AC Williams**, Physics  
Faculty Mentor: Professor Dermot Coffey, Physics

The existence of topological insulators was predicted based on research on the Quantum Hall Effect (QHE) in 1980. Evidence for this form of matter is the presence of conducting edge states at the interface between a "normal" insulator and a topological insulator. Mercury telluride, HgTe is a topological insulator whereas cadmium telluride, CdTe, is a "normal" insulator. Transport properties through HgTe quantum wells in CdTe showed the presence of edge states similar to those in the QHE. A HgTe quantum well is formed by growing a layer of HgTe on top of bulk CdTe and then growing bulk CdTe on the HgTe layer. In

insulating materials the allowed energy levels are described in terms of band structure. The smallest energy difference between the highest energy band (conduction band), occupied states, and the lowest energy band (valence band), unoccupied states, is called the energy gap. Transport properties of these materials are dominated by the energy states close to these energies. In "normal" insulators the valence band has p symmetry while the conduction band has s symmetry. In HgTe the symmetries of the states forming the conduction and valence bands are switched due to the strength of the spin-orbit interaction. I will first discuss the edge states in the QHE and then explain the band structure of HgTe quantum wells by solving the differential equation which determines the allowed energy levels and by diagonalizing the k-p Hamiltonian, which is a phenomenological treatment for finding band structure.

## What's in Your Friday Night? Local Vodka Impurity Analysis

**Kevin Huss**, Biology  
Faculty Mentor: Professor M. Scott Goodman, Chemistry

Distilled vodka is typically 40% ethanol and 60% water (80 proof). However, during the distillation process the maximum percentage of ethanol is about 95.5%, with 4.5% water and impurities comprising the remainder (rectified spirit). This material is then diluted with water to achieve the desired percentages mentioned above. While the distilled ethanol is 95% pure, what could the impurities other than water in the initial distillation be? In order to address this question, samples of different "cuts" (heads, hearts and tails) were collected from local distilleries and analyzed using gas chromatography and mass spectrometry. Calibration curves were constructed for a few identified compounds to determine their percentages. It was found that diethylacetal was sometimes identified in the hearts samples. Diethylacetal could be an indicator for aging in spirit alcohols, through the reaction of ethanol with acetaldehyde, another impurity sometimes present in distilled spirits. In addition, ethyl acetate was sometimes present in the head cuts, while various fusel oils were present in the tails cuts.

## You Are What You Eat: Using Fatty Acids As Trophic Biomarkers In Crayfish

**Calan Deuso**, BIO 498: Honors Research  
Faculty Mentor: Professor Randal Snyder, Biology

A key to understanding a trophic system lies in understanding the various predator-prey interactions that occur at all levels of that system. Crayfish are an integral part of many aquatic communities because they feed on a wide variety of items including plant material, invertebrates, and fish, and they also serve as food for larger predatory species. In many studies, analysis of stomach contents is of limited value because it only

gives a snapshot of what the organism has eaten recently. Also, crayfish tend to shred their food, making it difficult to accurately identify their stomach contents. In this experiment, dietary fatty acids were utilized as trophic markers, a method that is increasingly common in studies of food webs because it reflects diet composition over a longer period of time than stomach content analysis. Under controlled conditions in the laboratory, I fed crayfish either plant material or frozen fish for six weeks, and then analyzed the muscle fatty acids of the crayfish to determine how accurately their tissues reflected the fatty acids in the two different diets. The results of this study will help us assess the usefulness of fatty acid biomarkers as an improved method of analyzing the diet of crayfish.



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## ***Psychology and Social Sciences***

### **An Analysis of How to Determine Gunshot Wounds on Bone**

**Thomas DePasquale**, ANT 498: Honors Research  
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

There are many types of gunshot wounds that could be inflicted upon a person based on the type of gun and the type of ammunition used. Gunshot wounds are not always fatal and are solved by many forensic techniques, like projectile analysis or classic detective work. But if there are no projectiles to be found or living witnesses to be questioned then the bones will reveal a great deal of information. In this study, I will compare 15 different animal specimens with bullet wounds, 12 of which are from the collection at SUNY Buffalo State titled *The 2009 Wilson Anthropological Projectile Trauma Collection* (Wilson Collection). For the other three specimens, I will be recreating two of the wounds from the previous collection on pig skulls and the last wound will be using another pig skull to recreate a wound from a bovine skull from the Wilson Collection. From all of these specimens, I will compare the wounds to the caliber bullet to see if there is an accurate way of predicting the bullet caliber from the size of the wound on the bone. The measurements will be taken from the closest edges of both the entrance and exit wounds. This research is in an effort to aid in determining the weapon used during a crime and potentially help to solve murders. Past research has shown that predicting bullet caliber from gunshot wounds is a very difficult thing to do, but it is still worth further research.

### **The Association Between Prenatal Substance Exposure and Social Competence During Middle Childhood**

**Dylan Vlaovich**, Psychology  
Faculty Mentor: Professor Pamela Schuetze, Psychology

A large body of literature has shown that prenatal substance exposure (PSE) is associated with deficits in regulatory processes from infancy into childhood. Since emotion regulation predicts social competence in low-risk populations, it is important to examine developmental pathways from prenatal substance exposure to social competence during childhood. Specifically, this study examined the indirect association between prenatal substance exposure (cocaine, alcohol, cigarettes) and social competence in middle childhood through physiological regulation during infancy, family risk and the quality of the home environment. Participants consisted of 216 mother-child dyads participating in an ongoing longitudinal study of prenatal cocaine exposure (see Table 1). The majority of the sample was

African-American (72%), single-parent families who received TANF (76%) and who used cocaine and/or other drugs in pregnancy (54%). Data were collected from mothers and children at multiple time points including laboratory assessments when the child was 1 and 7 months old, 1, 2, 3, and 4 years old, upon entry to kindergarten and in third grade. Structural Equation Modeling used to test the model indicated that the model fit the data well,  $\chi^2(11) = 9.21, p = .60, CFI = 1.0, RMSEA = .00 (.00, .085)$ . Results indicated indirect associations between prenatal substance exposure and social competence during third grade through both family risk and physiological regulation. Exposed children had higher family risk and less optimal physiological regulation both of which were associated with lower social competence.

### **The Association of Sex Drive and Sex Satisfaction With Personality Traits**

**Grissel Henriquez**, Psychology, **Dylan Vlaovich**, Psychology, **Jill Meyer**, Psychology and **Faith Balento**, Psychology

Faculty Mentors: Professor Howard Reid, Psychology and Professor Naomi McKay, Psychology

The sexual behavior of men and women has been actively researched for over 50 years. Among the topics that have been examined are links to the big five personality traits, as well as reactions to sex, and the effects of using drugs such as Marijuana on sexual activity. The present study examines whether the additional personality traits of Relationship Insecurity, Capacity for Love, Emotional Detachment, Trust, and, finally, Modesty and Self Control are associated with sex drive and sex satisfaction. It is hypothesized that individuals high in sex drive and sex satisfaction will also score high for love and trust. In contrast, we predict that individuals who are low in sex drive and satisfaction will score high on emotional detachment and relationship insecurity. Data are currently being collected from a number of classes at BSC.

### **Asylums as Transformative Spaces: H.H. Richardson and the Buffalo State Asylum for the Insane, 1870-1880**

**Elizabeth Battaglia**, HIS 400: Tales of the City  
Faculty Mentor: Professor Christienna Fryar, History and Social Studies Education

The construction of the Buffalo State Asylum for the Insane in Buffalo, NY in the 1870s transformed the architectural, social, and political landscape of the city. H.H. Richardson, who is considered by many to be one of the premier American architects, was commissioned by the State of New York to design the Buffalo State Asylum for the Insane. Aside from its political, social, and moral impact, the structure also provided an opportunity for Richardson to showcase his new architectural style, the



Richardsonian Romanesque. Main sources for this paper include biographies on H.H. Richardson, Richardson's architectural plans for the structure, correspondences between Richardson and Frederick Law Olmsted, annual reports of several New York State agencies, a historical structures report, and newspaper articles. During the nineteenth century, asylums served as transformative spaces that promoted the rehabilitation of patients in order to make them contributive members of society.

### **Back to the Future: Path Dependency in Venezuela**

**Russell Luke**, Political Science

Faculty Mentor: Professor Patrick McGovern, Political Science

This past decade Venezuela has experienced wide political and economic fluctuations, swinging from a "Bolivarian Renaissance" under Hugo Chavez to the near collapse of its economy in 2016. The research presented here, an explanatory case-study utilizing Acemoğlu and Robinson's "path dependency" theory, explores the connection between Venezuela's history and its current political dynamics. According to Acemoğlu and Robinson, a nation's well-being is dependent upon its political institutions, rather than its geography, environment, or culture. Healthy nations have "inclusive" political institutions that ensure power is broadly diffused; these in turn produce inclusive economic institutions that guarantee property rights and encourage investment and innovation, thereby providing shared national prosperity. "Extractive" political institutions, however, favor leadership by elites that excludes the citizenry and generates economic institutions that channel wealth into the hands of a select few, creating great disparities in wealth and little interest in investment or innovation. A nation's political institutions are in turn set on their path toward inclusiveness or extractiveness through major historical events, or "critical junctures," in the nation's past. In looking at Venezuela's historical critical junctures of Spanish colonial rule and its extractive ethos, the development of the petro-economy in the early 20th century, post-WWII consociational politics, and the rise of Hugo Chavez in the early 21st century, the research here supports Acemoğlu and Robinson's path dependency theory, suggesting that many of the set-backs recently seen in Venezuela have deep historical roots in extractive politics and that these may be difficult overcome in the future.

### **The Big Five Traits and Individual Attitudes**

**Sarah Holenstein**, Psychology

Faculty Mentor: Professor Dwight Hennessy, Psychology

Using a questionnaire battery, I investigated individual attitudes about personality trait descriptors, which are commonly used to measure personality, and how these attitudes may relate to self-esteem when present in an individual's own personality.

An individual's personality is believed to be comprised of five basic traits, which are purported to be stable across time and situation. These Personality traits are measured using the common language individuals tend to use to describe each other. Research suggests that cultural norms exist about the desirability of some personality characteristics over others. Many in the general public, believe personality can be described in "either-or" terms, however in truth, personality is intended to be measured on a continuum and most individuals possess characteristics of both perceived "good" characteristics and perceived "bad" characteristics. This misunderstanding of personality traits may affect self-esteem, when an individual is made aware that they possess characteristics that are perceived as undesirable. Results showed strong consensus as to which adjectives are generally viewed as good and bad and that these attitudes were not necessarily reflected in how an individual responded to personality measures. Results also found some relationships between the traits themselves, but due to lack of variability in attitudes about the traits (i.e. they were either almost all positive or all negative depending on the trait), significant predictors of self-esteem were not directly identified. Using relevant social psychology research and theories, some conclusions can be made about the findings from the present study.

### **Buffalo Victory Gardens: How Gardening in WWII Affected Morale and Prices**

**Alexander Morehouse**, HIS 400: Research Seminar in History  
Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

This project will consider how victory gardens shaped the daily lives of Buffalonians. The project looks to understand the social and economic effects of the victory gardens were. In regard to economic considerations the project evaluates how victory gardens affected food pricing. In order to understand the social impact the project considers how victory gardens affect morale and wartime enthusiasm here in Buffalo. Fortunately, other historians have written about victory gardens shaped the war effort. However, it is currently unknown how the gardens affected prices. Moreover the project will consider how the gardens may have given Buffalonians a sense of control over their lives during a tumultuous era. Despite the overwhelming positive nature of the mythology and historiography of victory gardens, there does within Buffalo, there does seem to be a counter-garden movement as vandals destroyed public gardens. As a result, the Buffalonian reaction to the gardens was mixed. As a result this project will add depth to our limited, and one sided understanding, of victory gardens in the United States For my presentation, I plan on using a poster, since I can potentially use ads and propaganda that shows the effects of the gardens.

## **Buffalo's International Grocers: A Reflection of the City's Immigrant Groups, 1919-1941**

**Michael Giambra**, HIS 400: Research Seminar in History  
Faculty Mentor: Professor Bridget Chesterton, History and  
Social Studies Education

Along the streets of Buffalo in the early decades of the twentieth century, there were grocers and food purveyors that represented distinct immigrant communities. During this period there were high levels of immigration to the city. As a result, there was a predictable growth in immigrant owned grocery and food stores. The goal of this project is to look into how and how well these international grocers negotiated their integration into the local community, and to what degree their successes and/or failures reflect on their community as a whole. There is a rich historiography of immigrant histories about Buffalo. These texts provide excellent background for any aspiring student of this local field. This study will add to our considerable body of knowledge of local history by considering how purchasing ethnic food shaped the ethnic landscape of Buffalo. For example, this study will consider what defines local Buffalonian communities such as Germans or Italians and their shopping habits. Moreover, the study considers that there is strong evidence proving that ethnic specific grocers were a staple shopping option to their surrounding immigrant community. This project contributes new insight into the growing body of local historiography by proving a new ways of thinking about immigration through food and shopping options.

## **Crime Reporting and Perceptions of Police Legitimacy: An Analysis of College Student Attitudes Towards UPD**

**Jeremiah Perez-Torres**, HON 400: All College Honors  
Colloquium  
Faculty Mentor: Professor James Sobol, Criminal Justice and  
Professor Andrea Guiati, Director, Muriel A. Howard Honors  
Program

SUNY Buffalo State Police are tasked with maintaining a community policing philosophy that incorporates a joint force between the police and students to deal with a variety of issues. The relationship between university police and students is essential in order to ensure the safety of the campus community, especially when dealing with the issues of crime on campus. There is limited research on college students' attitudes towards university police and the affect these attitudes have on reporting crime. Research has identified a number of factors that affect attitudes towards policing. Two variables in particular will form the core of the current analysis: 1.) perceived legitimacy of university police and 2.) student race. It is hypothesized that students who perceive UPD as less legitimate will be less likely to report crime or cooperate with the police. A self-

administered questionnaire will be administered to college students at SUNY Buffalo State to examine the extent to which student demographic characteristics influence their attitudes towards university police, and more specifically, the likelihood of reporting crime and cooperating with university police. The results from this study will provide insight on determinants of students' attitudes towards university police and its impact on crime.

## **The Cultural Reaction to the Novelty of Chopsticks in Nineteenth Century United States**

**Brianna Durante**, HIS 400: Research Seminar in History  
Faculty Mentor: Professor Bridget Chesterton, History and  
Social Studies Education

This project considers the social reaction to the novelty of chopsticks in the United States during the late nineteenth century. My focus is to acknowledge the acceptance or non-acceptance of cultural differences in the western world. There is limited information on the history of chopsticks in general in the United States. This project ties the use of chopsticks and the cultural integration into the United States together. What was the initial reaction of chopsticks when they were introduced to the melting pot of the United States? Was the reaction accepting, amusing, arrogant and ignorant, or simply dismissive? In order to understand this process, the project will look at sources such as the news articles from the New York Tribune, New York Times, Boston Daily Globe, for opinions and interactions with chopsticks.

## **Depression, Suicide Ideation and Their Risk Factors on College Students**

**India Rittenburg**, Psychology  
Faculty Mentor: Professor Jie Zhang, Sociology

Depression is a major concern in American society, particularly on college campuses. The issue of depression is disheartening especially on college campuses although it is salient and underrepresented in exposure. Although suicide ideation may be most prominent in students with severe depression, this should not suggest that only students with severe depression experience significant risk factors for suicide. Depression is associated with suicidal ideation that compromises the safety and amount of comfort of students, but it is seen to impact everyone in a given area. The overall purpose of this study is twofold: (1) identify the risk factors associated with suicide ideation, depression and hopelessness, and 2) examine the psychological well-being of college students.

### **The Early Contact Period Fur Trade: Who Capitalized More, Indigenous Peoples or European Colonists?**

**Robert Flores**, ANT 498: Independent Study  
Faculty Mentor: Professor Lisa Marie Anselmi, Anthropology

During the Early Contact period, Indigenous Peoples of North America and European explorers and colonists engaged in a series of trading interactions. There was an exchange of objects, as well as an exchange of ideas. Archaeological excavations from the 16th and 17th centuries illustrate that Indigenous North Americans did not only rely on trade, but also incorporated new technologies into their existing lifeways. We can also see European colonists doing some cultural borrowing of their own. Warfare also played a major part in the relationship of these two groups. This project is based on a review of ethnographic research and archaeological evidence that has been collected and analyzed over the years. The links between European revenue and Native American trade definitely complicated the understandings amongst both groups during the period of colonization.

### **The Eden Corn Festival: From Small Town to Big League in the Late Twentieth Century**

**Vincent Coty**, HIS 400: Research Seminar in History  
Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

The Eden Corn Festival has been bringing smiles, and money, to Western New York since 1964. Eden, New York blossomed from a small town to a large agricultural region and much of this success can be attributed to the annual festival. This project considers questions such as who started the festival and why? How much has the town grown since the festival's inception? How has the festival changed over the years? With records obtained from the town as well as various newspaper articles, the growth of the festival, and the town, becomes evident. Detailed records from the town show how the town and festival have grown economically since 1964. Brochures throughout the years show how the festival changed over the years causing it to become one of the biggest annual attractions in Western New York. Interviews conducted with Eden locals such as Kevin Dugan and Thomas Dugan demonstrate how raising families on a home located on the street that the parade passes shaped their lives. Testimonies such as Kevin Dugan's will also demonstrate growth from members of the local community. In the end, the Eden Corn festival's growth has immensely impacted the town's growth and that the various changes to the festival over the years have been implemented in order to adapt to bigger crowds.

### **The Effects of Raising a Virtual Child on the Knowledge of Child Development of Undergraduate College Students**

**Samantha Stanford**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Pamela Schuetze, Psychology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The MyVirtualChild (MVC) program is a web-based simulation of parenting that allows one to raise a virtual child. MVC has been found to increase student performance in child development courses, however it is not clear if MVC enhances knowledge of child development when not fully integrated into a course on developmental psychology. I hypothesize that there will be a statistically significant increase in participants' knowledge of child development after completing the MVC program. 40-50 students at Buffalo State College who are not parents and have never taken a course on child or lifespan development will be randomly selected to complete a portion of MVC or to watch a video on child development. Immediately after this task, participants will be given the Knowledge of Child Development Inventory. Group differences in knowledge of child development will be assessed using SPSS while controlling for previous experiences with children and relevant demographics. If effective, MVC can be used in high school classes as an engaging introduction to child development and parenting skills.

### **The Effects of International Cooperation on Comoros' Approach to Sustainable Development**

**Michelle Campanella**, PSC 308: International Organizations and Law

Faculty Mentor: Professor Mehwish Sarwari, Political Science

What impact does multilateral diplomacy have on Comoros' adoption and implementation of policies on sustainable development? As a delegate for the Union of Comoros at the National Model United Nations (UN) Conference, I will investigate the policies adopted by the Comorian government on the following three issues: Leadership and Education for Sustainable Development; Ensuring Decent Work for All; and Role of Science, Technology, and Innovation in Implementing the Sustainable Development Guide. Specifically, I will examine the impact that international cooperation has had on the policy approaches taken by Comoros and its ability to execute them. It is expected that the more integrated that Comoros is in the international community, the more successful Comoros will be in promoting sustainable development. The reason for this is twofold. Firstly, other member states of the global community, particularly developing countries with similar domestic characteristics, are able to convey to Comoros which policies they find effective. Secondly, international actors are able to provide financial resources to Comoros to implement its own sustainable

development policies. Participation at the Model UN conference will help to further demonstrate the relationship between multilateral diplomacy and Comoros' policies on sustainable development as international actors engage in diplomatic negotiations and provide assistance to states in need.

## **The Effects of Siblings on the Knowledge of Child Development in Undergraduate College Students**

**Brianna Bailey**, Psychology

Faculty Mentor: Professor Pamela Schuetze, Psychology

The purpose of this study is to examine the role that siblings have on college students' knowledge of child development. As part of a large study on the impact of a web-based parenting simulation on knowledge of child development, approximately 40 Buffalo State students will be asked about the number, age(s), and gender(s) of their sibling(s). Additionally, they will be asked to complete the Knowledge of Child Development Inventory. Group differences in knowledge of child development will be assessed using SPSS. I hypothesize that Buffalo State students who grew up with younger siblings will have more knowledge of child development than those who did not.

## **The Effects of Perceived Behavioral Variability on Juror Decision Making**

**Lydia Sigurdson**, Psychology

Faculty Mentor: Professor Jennifer Hunt, Psychology

This study considered the role of perceived behavioral variability and defendant race on juror decision-making. Behavioral variability refers to the consistency and predictability of a person's behavior over time and across situations. Although behavioral variability in legal situations remains largely unexplored, past research suggests high behavioral variability has negative effects on judgments (Levy, 1967), and a preliminary study by Hunt (2016) found that jurors' perceptions of high behavioral variability were correlated with negative impressions of a defendant and more guilty verdicts. This study also investigated whether the influence of perceived behavioral variability differs by defendant race. 239 American jury-eligible citizens read a summary of a hit-and-run trial in which defendant race (Black, Middle Eastern, White) and behavioral variability (low, high) were manipulated. A two-way ANOVA showed guilt ratings were strongly affected by perceived variability, such that participants made higher guilt ratings when they inferred high variability in the defendant. Notably, the effects of perceived variability remained significant even after controlling for other factors, such as ratings of evidence strength and general impressions of the defendant. Contrary to our hypothesis, the White defendant had the highest conviction and guilt ratings, whereas the Black defendant had the lowest. Thus, jurors' beliefs about

a defendant's behavioral variability may have an important effect on trial outcomes. The presentation will discuss possible explanations for the unexpected race effects.

## **The Effect of Food on Psychological and Physiological Stress**

**Jessica Rodino** and **Amy Cavanaugh**, PSY499: Independent Study

Faculty Mentor: Professor Naomi McKay, Psychology

The goal of this research is to explore the effect consumption of foods high in fat and carbohydrates have on activating the stress response. The hypothesis is that eating foods high in fats and carbohydrates will significantly lower physiological stress. The physiological effect of eating unhealthy foods during stress is not well understood because previous studies focus exclusively on how food affects mood. The current study is focusing on how foods affect us physically. There will be 120 participants in this study recruited from the Buffalo State's Psychology Department's subject pool. Participants will be assigned to one of four different conditions; they will be presented with a 57 g portion of Twix candy bar, 57 g portion of carrots, a magazine article to read, or nothing to eat or read. The current study will measure activation of the stress response by assessing salivary cortisol and will measure activation of the sympathetic nervous system through heart rate and blood pressure. Furthermore perceived stress and anxiety will be assessed with questionnaires. Preliminary data show that eating either Twix or carrots decreases anxiety.

## **The Effects of Linguistic Discourse on Group Relations**

**Samantha Rossignol**, Sociology

Faculty Mentor: Professor Lindsey Freeman, Sociology

The exchange of cultural information includes both physical and linguistic practice. Both are significant in this exchange, however there is a particular importance placed on linguistic practice. My research focuses on the relationship between racial groups, and its equal exchange in linguistic discourse between its members. Being an active participant in the process of linguistic discourse does have an effect on one's knowledge of another group's cultural practices; the source of their pride, their perils, etc. My research adopted Harry Collins's Imitation Game. The Imitation Game was fashioned after the renowned Turing Test. The Black and White communities were the two groups I chose to focus on during my Imitation Game. During my Imitation game, I gained insight into whether or not members of a dominant group were able to successfully imitate being a member of the minority group. I found that the level of linguistic discourse between groups depended on one's willingness to participate in the process. I will present a board that explains the process I went through. I will map out my different theories, and briefly

explain the scholars included in my research. I will also discuss limitations, and the results from my Imitation game.

## The Effects of Budget Deficits on Economic Growth

**Ferdousi Khan**, Economics

Faculty Mentor: Professor Joelle Leclaire, Economics and Finance

Budget deficits have always been a contentious issue between policymakers. The orthodox view attempts to reduce the federal debt and balance the budget. The alternative view supports budget deficits as an expansionary tool to support the development of new goods, services and jobs. The purpose of this paper is to examine the effects of budget deficits on interest rates, economic growth, and private sector wealth. The proposed research uses econometric analysis (quantitative data analytics and linear regression) to examine the relationship between macroeconomic variables: budget deficits, interest rates, productivity, profits, and economic growth. The results showed budget deficits to be statistically significant at the 5 percent level. The empirical data was gathered for the time period 1980 to 2015. The interaction between the Federal Reserve and Treasury impacts the money supply, interest rates, and finances the public debt. A simulation model using data from the integrated macro accounts was used to examine what the impact of budget deficits would be if deficits were kept constant at their large levels from 2007 to 2015. In conclusion, federal government deficits have shown to contribute to private sector surpluses and promote economic prosperity.

## The Effects of Exercise on Happiness

**Jessica Bell, Katherine Marte and Kristen Lewandowski**, PSY 450: Research Methods

Faculty Mentor: Professor Pamela Schuetze, Psychology

The purpose of this study is to examine if regular physical activity will have a positive effect on an individual's life satisfaction and well being. Our participants will be randomly assigned to either a no exercise condition or an exercise group, participants will watch 30 minutes of television at their leisure, every day for 7 days. Our dependent variable is life satisfaction and well-being. Each participant will complete a daily diary entry and complete a 5-item Satisfaction with Life Scale (Diener, Emmons, Larson, & Griffin, 1985). You need a sentence or two indicating who your participants are (college students?) and how many you propose to study.

## Embodiment of Love and Lust

**Carissa Braun**, Psychology, **Marc Braun**, Psychology, **Sarah Holenstein**, Psychology, **Alexis Mongold**, Psychology and **Carly Pershyn**, Psychology and Philosophy

Faculty Mentor: Professor Stephani Foraker, Psychology

Previous research indicates that eye gaze measures reveal differences in perceiving romantic love compared to sexual desire (Bolmont, Cacioppo, & Cacioppo, 2014). Our experiment expanded on this finding by using images of homosexual as well as heterosexual couples. We predicted that sexual orientation should not modulate the automatic gaze patterns. Additionally, we investigated whether higher empathy, capacity to love, or sexual desire would affect gaze patterns (more automatic processing) and behavioral judgments (more controlled processing). One explanation for the love-desire difference comes from embodiment theory, in which we link our own previous actions and experiences with the perceived experiences of others. Using an eyetracker, participants viewed 64 images for 4 seconds each, and then made a judgment of how much romantic love or sexual desire they perceived. They then completed the individual differences questionnaires. We found that heterosexual and homosexual couples were perceived and judged similarly in our experiment. This main finding is important because our sample likely represents a newer generation that appears to not distinguish between sexual orientations, either automatically or consciously. We also found higher empathy scores predicted less time examining faces for love pictures, although empathy did not affect eye gaze for desire pictures. Higher Capacity to Love scores were associated with higher romantic love judgments for both kinds of images, while higher Sexual Desire scores predicted higher sexual desire judgments, but only for the sexual desire images. These findings reflect the ease of simulating what one perceives, and are generally consistent with embodiment theory.

## An Examination of Factors Influencing Students' Perception of In-Group Segregation at an Urban Institution of Higher Education

**Semaj Campbell**, Sociology

Faculty Mentor: Professor Ron Stewart, Sociology

Institutions of higher education have always been a focal point for examining race relations in America. In the 20th century race relations on college and university campuses mainly consisted of issues of segregation and desegregation. Now, we see this same issue of segregation resurging on campuses across the nation but taken in a slightly different direction. This research presents results from a study that seeks to examine the factors that influence students' perception of in-group segregation at an urban institution of higher education. Specifically, the investigation examines the impact of three

objective and three subjective variables on students' attitudes towards in-group segregation at Buffalo State. The study employs a secondary analysis research design. A non-probability quota sampling technique was used in which the data was gathered by distributing a self-administered questionnaire to 341 students in the fall of 2009. While there is an issue with generalizability the results indicate that the six hypotheses tested show no relationship between the six factors and students' views toward in-group segregation at Buffalo State. Suggestions for future research are presented.

### **An Eye Opening Experience: Working With the Eyetracker**

**Joseph Vallone**, Psychology

Faculty Mentor: Professor Stephani Foraker, Psychology

I assisted Dr. Foraker and other students with an experiment they were already working on, the Embodiment of Love and Lust, using the Eyalink 1000 eyetracker to track where one's eyes look while observing pictures of couples and making judgements as to how much romantic love or sexual desire they perceive. Learning about the Belmont Report and how to properly conduct research, real life interaction with the scientific method, scheduling and running participants, learning how to use the Eyalink 1000 eye tracker, learning the procedure for the experiment, and collecting and analyzing data are all new to me, being necessary for the experiment. I have learned a large amount of valuable information. Working on this project has improved my time management skills significantly and working with Dr. Foraker and senior students, majoring in psychology like me, improved my teamwork skills and taught me a lot about the psychology world. I used to think of psychology as solely being about mental health and therapists, but after being introduced to this experiment and the people working on it, I've discovered the research side and I'm fascinated by it. Being able to create and run an experiment based on what one is passionate about and discovering brand new information to better understand behavior is captivating.

### **Failure of Integration of the Musicians Clubs in Buffalo, New York**

**Tiana Wilson**, HIS 300: Research and Writing Seminar

Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

This paper focuses on the failure of integration of the musicians unions in Buffalo, New York. Prior to 1969, The Colored Musicians Club of Buffalo, New York was internationally known as Local 533, a union for Black musicians. Once the Civil Rights Act of 1964 was passed, Local 533, was forced to merge with Local 43, a whites only musicians union. This paper analyzes the effects of integration after both unions merged

in which Local 533 members experienced unemployment, a decrease in popularity of Jazz music being performed, and their members feeling disconnected with the Black community. My main sources are financial records from both musicians unions before and after the merger, meeting minutes during the establishment of integration, interviews from Local 43 and 533 members, and advertisement pamphlets that were used to promote integration. I concluded in my paper that Local 533 gave up their international recognized union to become strictly a community club in order to preserve labor, Black jazz, and Black culture in Buffalo.

### **Feast of the Dead**

**Kelly Minton**, ANT 499: Wendat Bio-Archaeology

Faculty Mentor: Professor Lisa Marie Anselmi, Anthropology

This study was to investigate the spiritual process of how the Wendat prepared their dead. Every ten to twelve years, the Wendat of Southcentral Ontario would relocate due to the deterioration of their agricultural fields. Prior to this relocation, they would complete a 'Feast of the Dead' ceremony. The 'Feast of the Dead' was a gathering of the living to pay tribute to and celebrate their deceased loved ones. This ceremony enabled the Wendat to restore friendships, strengthen existing kinship relations and create new alliances. A review of books, online websites, and journal articles drew a colorful picture of what went on during the 'Feast of the Dead' and the ideologies of the Wendat people as a whole. This research explored the reasons as to why the Wendat completed this sacred ceremony. It was a way to send the spirits off into the spirit world and also a tool to re-ignite kinship and form alliances.

### **Feminist Paradigm Through Gender Courses**

**Giannina Callejas**, Sociology

Faculty Mentor: Professor Staci Newmahr, Sociology

For many cisgender women gender identity is taken for granted and unexamined. This is a problem for feminism and feminist activists, for if women do not understand "woman" as a salient identity than they cannot see the constraints of gender. College courses seek to illuminate the gender regime, but it is unclear whether this has an impact on students' gender politics. Based on interviews with fifteen female undergraduates, conducted both before and after a gender course, I explore themes of gender politics, gender identity and gender awareness. I expect students to experience subtle changes in different capacities of their lives, such as physical, behavior or mental, after taking a gender course. These changes should be reflected in pre and post answers to questions such as "Walk me through your morning routine." and "How does your gender effect your life?"

## **Gruesome Photographic Evidence and Race: Effects on Jurors' Verdict Decisions**

**Nicholas Michalski**, Psychology

Faculty Mentor: Professor Jennifer Hunt, Psychology

This research will examine the effects of gruesome photographic evidence and defendant and victim race on jurors' emotional reactions and verdict decisions. Past research has shown that presenting gruesome photographic evidence to jurors can significantly increase guilty verdicts and elicit negative emotions such as anger and disgust. Racial bias can have similar effects on juror decision making. It often is contingent on the race of both the defendant and the victim, such that Black defendants who are accused of harming White victims are most likely to be convicted. This research will test whether gruesome evidence enhances racial bias against the defendant and whether the effects of gruesome evidence can be diminished due to the race of the victim. It is hypothesized that the effects of gruesome photographic evidence will be stronger when the defendant is Black because jurors will use it to justify racially biased judgments. Conversely, the effects of gruesome photographic evidence will be weaker when the victim is Black because jurors may dehumanize the victim or minimize her suffering. To test these hypotheses, I am conducting an online experiment in which defendant race, victim race, and the presence or absence of a gruesome crime scene photograph are manipulated in a criminal trial. After reading the trial, participants will render verdicts, make judgments about the defendant and trial judgments, and provide ratings of their emotional reactions.

## **H<sub>2</sub>O My Gosh I'm Hungry: The Reality of Using Water as a Dietary Technique**

**John Przybysz**, Psychology, **Hayley Loschiavo**, Psychology, **Melissa Kagan**, Psychology, **Addie Longmire**, Psychology and **Jessica Bell**, Psychology

Faculty Mentor: Professor Naomi McKay, Psychology

It is commonly assumed that drinking more water will decrease food intake. There have been, however, data that have shown that there is minimal effect of water on ingestion. Our study explored whether water intake may be having a longer term effect on food intake than has previously been thought. In a repeated measure design participants were asked to drink three different amounts of water throughout the morning. In the control condition participants drank 0.5 liters 3 h before a buffet lunch that was provided in the lab. In the hydrated water condition, participants drank 0.5 liters 3 h, 2 h, and 30 min before lunch. In the over-hydrated condition participants drank 0.5 liters 3 h, 2 h, 1 h, and 30 min before lunch. Food intake was monitored during lunch and for the following 36 hours. There was no effect of water condition on food intake during lunch in either males or females ( $p=0.88$ ;  $p=0.54$  respectively).

There was, however, an effect in males on food intake during the rest of the day, after participants left the laboratory. When in the over-hydrated condition, males ingested significantly more food than when in the control condition ( $p=0.04$ ). Females, however, decreased their food intake the day after their laboratory visit ( $p=0.047$ ). These findings suggest that increased water intake may have a longer term effect on energy intake than has previously been thought. This may be important for people who are trying to use water as a dietary technique.

## **Hear Us All Soon: The Generational Differences in Remembering 9/11**

**Kalie Pfohl**, HIS 300: Research and Writing Seminar

Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

September 11, 2001 terror attacks was one of the most heart-wrenching moments in recent American history. During this time, multiple generations witnessed and survived the attacks and each have their own perspective of that day. Four major generations, the Silent, Baby Boomers, Generation X and Generation Y, lived through the attacks and formed the national security changes that would take place over the next decade and a half. However, living through and remembering such a major historic moment is entirely different based on the age of each generation at that time. Based on oral histories taken through personal interviews, this research project investigates the differences in the reactions of each generation to the attacks. Older generations have a propensity to tell exact locations and feelings they were experiencing at the time of the attacks and tended to remain calm while calming others, although the youngest generation can only recall reactions of those significant to them that allowed them to determine how to react themselves. The presentation will include a talk with a PowerPoint to explore the research findings, including a summary of each generations' reaction.

## **Hey Cat, Your Scent Drives Me Crazy! Rat PTSD Model**

**Carissa Braun**, **Elizabeth Kulik**, **Justin LaMonto** and **Alexis Mongold**, PSY 499: Independent Study

Faculty Mentor: Professor Jean DiPirro, Psychology

This research is designed to gain insight into the effect of predator-stimulus exposure on defensive responding and anxiety-like behavior in rats: our rat model of post-traumatic stress disorder (PTSD). Previous studies in our laboratory, among others, have shown that a cat-scented cloth (i.e., a cloth exposed to the dander of a live cat for 7 days) reliably induces defensive responding and "anxiety" in rats. The current study will determine if rat defensive responding and anxiety-like behavior vary as a function of the potency level of the cat-scented cloth (independent variable), which will be determined by the

number of days that the cloth is exposed to cat dander (0, 3, 7, or 10 days). Defensive responding (dependent variable 1) will be measured while the rat is in the presence of the stimulus cloth in a closed open field chamber. Directly after, “anxiety” (dependent variable 2) will be assessed in an elevated zero maze, an apparatus for studying “anxiety” that is an improved version of the traditionally used elevated plus maze. The subjects will be 44 3-month-old female Long-Evans (hooded) rats. We hypothesize that rats exposed to greater potency levels of cat dander will show more defensive responding and more pronounced “anxiogenic” effects than will rats exposed to lower potency levels. Data from this study will be used to improve our existing rat model of PTSD.

## The “Hitman” Perception Project

**Aishwarya Patwardhan**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Carol Wannemacher, Psychology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Consciousness involves two fundamental aspects of the human system: sensation and perception. These psychobiological systems can be exploited to create a work of art. The project uses previous collective research on perceptual processes to produce a theoretical representation of what a short film capable of eliciting predetermined psychobiological responses from its audience should look like. Research so far has yielded two specific pieces of data. The first deals with manufacturing a “jump-scare”, a sudden introduction of notable and unexpected audiovisual stimuli. A long shot is used to induce flatness in the eye lens for far focus, allowing for a momentary pause for the fovea to focus, and then suddenly introducing new information to the frame; an approach designed to generate terror in the audience. The second was the use of tracking shots. Changing sights on the viewing screen become the attended stimulus, impart a sense of movement with the camera and produce an engaging sense of voyeurism in the viewer. Once the film moves into post-production, concepts of color perception, lighting, and music will be used to further enhance the work’s potential to produce the hypothesized psychological and neurobiological processes.

## How Play Might Change the World

**Isabella Gomati**, CRS 690: Master’s Project

Faculty Mentor: Professor Cyndi Burnett, Center for Studies in Creativity

The world is constantly facing significant social changes. Often, the severity of the change means that people are reluctant to adopt a playful approach to solving these challenges. Through my Master’s Project research, I have reviewed a series of scholarly articles and books that point to importance of play in helping to help solve the most challenging problems of our times. This

raised the question of: How might we solve social challenges through the use of play? In order to address this question, I have adopted an experimental approach in my Master’s Project. I adopted the challenge of building a board game that is solved through empathy. It is a collaborative game, which means the team players work together in order to win. A lot of the development of the game and the insights that I’ve gained through the process show that games can be mirrors of real life situations. They are also helpful when teams are in need of finding new solutions to old challenges. This presentation is not only to create awareness of how we might solve some of our current problems as society but to share how something so fun and simple as how play can have a huge impact in our world.

## How Weather Affects Property and Violent Crimes Throughout the Country

**Aaron Farley**, HON 400: All College Honors Colloquium

Faculty Mentor: Professor Jawjeong Wu, Criminal Justice and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Although seasons may change, crime always exists in a society. The issue of crime occurring all year round may seem simple at first, but it is very complex because the crime rate or the number of crimes may vary at different times of the year. To effectively control crime, it is important to understand the relationship between weather and crime trends. This project examines the effects weather has on crime from warm summer months to cold winter months in different cities. Specific crimes, such as crimes against property and violent crimes, will be analyzed. The expected result is that crime will decrease as the weather gets colder. In addition, the effect of weather on crime, if any, may differ based on the region of the country. The data for this project will be gathered from the website Crimereports. This is a public access database that police organizations from all around the country use to plot incidents in their jurisdiction. Cities to be used for analysis will vary from different parts of the country, including those in the central region, the southern region, and the northern region that experiences all the four seasons.

## The Impact of State Frustration and Personality Factors on Car Following Distance

**Nicholas Gray**, Psychology

Faculty Mentor: Professor Dwight Hennessy, Psychology

The purpose of this research is to understand the potential impact of state mood, personality, and typical driving habits on people’s perception of spacing in the traffic environment. The psychological interpretation and preference for distance between vehicles while driving has been found to depend on

a number of personal and situational factors. The intent here is to determine if negative mood states, created by frustrating tasks, can subsequently alter front and rear driver space preference. Participants initially complete questionnaires to measure personality and driving tendencies. Then they are given a visual spatial task (randomly assigned as either easy or unsolvable in order to vary task frustration) to complete within a two minute time limit, followed by a measure of state mood. Previous research has shown that the unsolvable puzzle task tends to create short term frustration and negative mood. Finally, participants view two videos filmed in real traffic conditions as one vehicle approached a second vehicle from behind on a four lane divided highway. One was filmed from the viewpoint of the trailing car and the other from the perspective of the lead car. They are asked to stop each video at the shortest distance where they would no longer feel comfortable if they were the driver of the vehicle in each video. These distances identify front and rear space preferences. Data collection for this study is currently ongoing.

### **The Impact on INGOs on Human Rights Promotion in Comoros**

**Taylor Schultz**, PSC 308: International Organizations and Law  
Faculty Mentor: Professor Mehwish Sarwari, Political Science

Do international nongovernmental organizations (INGOs) influence human rights promotion in Comoros? Serving as a delegate for the Union of Comoros at the National Model United Nations (UN) Conference, I plan to investigate the effects of INGO activity on policies adopted by the Comorian government on the following issues being considered at the General Assembly 3 (GA 3) committee: Improving Coordination in Humanitarian Response to Natural Disasters and Other Emergencies; Preventing Violence and Discrimination Based on Sexual Orientation and Gender Identity; and Promoting Rights and Strengthening Protections for Older Persons. I expect that the more INGO activity there is in Comoros, the more likely Comoros will adopt policies compatible with international human rights standards. Specifically, I anticipate that international pressure from INGOs influence the human rights policies adopted by Comoros due to financial interests and socialization efforts. Along with these topics, I intend to further my understanding of INGOs in how they operate, as well as how they can be improved in order to better serve their purpose. In addition to doing research on the human rights policies adopted by the government of Comoros and INGO efforts before the Model UN conference, I will assess whether or not my expectations hold through multilateral talks made at the conference with delegates from other countries and representatives of INGOs.

### **An Interdisciplinary Approach to Applied Research**

**Meegan Petrucci**, Criminal Justice

Faculty Mentor: Professor Robert Delprino, Psychology

This project will summarize my experiences in pursuing and gaining applied research experience across disciplines. As a criminal justice major with minors in both psychology and deviance, my career goal is to become a police psychologist. This applied research will involve law enforcement officers and their perceptions as well as utilization of mental health and support services available for them and their families. In addition to survey development, a key component for this study was gaining access and permission to work with a law enforcement agency. Unlike research that often involves students as subjects, there are unique challenges associated with conducting research in an applied setting, especially with law enforcement. Such an approach requires being respectful of other viewpoints and skepticism of the field of psychology. This poster will discuss the process I went through as well as the goal of the research study that is to take place. The value of pursuing applied research across disciplines can enhance understanding and knowledge of a topic. The value of examining the interdisciplinary process is to provide insight as how to successfully navigate working between different fields of the criminal justice systems to answer complex social questions.

### **Law & Order: Real Version**

**Jessa Hartman**, Criminal Justice

Faculty Mentor: Professor Peter Yacobucci, Political Science

A lot of people have a certain vision of a lawyer and how things play out in court based on what they have seen on television. This research will expose the misconceptions and what real attorneys do on a day to day through qualitative encounters alongside attorneys in Buffalo. The research focuses on interesting family court cases. It includes experiences with the clients, judges, secretaries, attorneys, and other people in the courtroom regarding the cases. The research will show that humor can be shown in the courtroom. It will touch upon how judges react to things and what they say when they are off the record. It highlights the important people in the background such as the secretary, who is the backbone of a law firm. Notes on all of these encounters, paperwork regarding the cases, and court dates involving the clients expose what the legal system really includes. Too many people have warped views of law because of shows like Law & Order. This research project is significant because it will give a realistic perspective to people who are thinking about law school.

## **The Lines That Divide Us**

**James Sinner**, HIS 400: Tales of the City

Faculty Mentor: Professor Christienna Fryar, History and Social Studies Education

My project is a study of red-lining in the urban housing market in Buffalo, N.Y. and the immediate surrounding area. I approach this by studying the inequity conveyed through the use of analyzing government housing locations and conditions, along with loan opportunities based on race, and the highly unequal rate of renters to home owners based on race as well, and their lasting effects. The significance of this is to find the stem of the housing inequality in Buffalo N.Y. specifically from the time of 1935-1965, a period in which big government grew and enabled through the channeling of policy an ability for the Buffalo region to become highly segmented. Using census data, housing conditions data, Buffalo NAACP housing statements, firsthand accounts from African-Americans and Whites in that era, and most importantly a program for equal opportunities in property ownership, H.O.M.E., or Housing Opportunities Made Equal, I can further investigate this complicated subject. Additionally with historical maps and diagrams ranging from Amherst to Buffalo notated with several wealth and demographic indicators, I aim to tell more on how these lines existed and why so often it was based in fear of competition and the ignorance of an old establishment within a changing country.

## **The Loss of Steel Manufacturing and the Repercussion on Buffalo**

**Hannah Polichette**, HIS 300: Research and Writing Seminar

Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

This project considers how the loss of the steel industry effect the working class of Buffalo. Buffalo is a city that had strong connections to the steel industry in the early 20th century, but lost many manufacturers of steel in the 1970s and 1980s. As such, Buffalo provides a specific example of the detrimental effects that the loss of a major industry had on the working class of that city. I used primary sources like editorials to discover worker opinions toward the loss of steel in the 1980s. Secondary sources like newspaper articles and interviews recorded during the 1980s by Michael Frisch provided further insight to the lives of steelworkers and the laboring class after the loss of Bethlehem Steel. Through the use of primary and secondary sources I found that the loss of steel affected businesses outside of the steel industry, that more social services were required to help former steelworkers, and that there were fundamental changes to the beliefs held by the working class. This research will be presented to the audience in the form of a talk. The information will be presented as the beliefs of steelworkers before the loss of steel manufacturing and the changes to their beliefs after the loss of steel manufacturing.

This will demonstrate the changes caused to the working class by the loss of steel manufacturing.

## **Mesmerizing Movies: Are Film Portrayals of Hypnosis Framing Public Opinion?**

**Melissa Burrowes**, COM 450: Communication and Society

Faculty Mentor: Professor Ann Liao, Communication

Hypnotism, as depicted in motion pictures, is looked upon as a mysterious, sinister form of mind control. Nowhere in film are seen the many positive applications of this scientific phenomenon, of how hypnosis can be used to help rather than harm; instead the hypnotist is always the villain whose dastardly plot must be stopped. Many psychologists have stated a belief that the promotion of this stereotype in film has biased the general public against hypnotherapy and even prevented hypnotism from being taken seriously in scientific circles. As most people never experience or induce hypnosis themselves, often their only exposure to the science is through mass media and in the nonexistence or scarcity of serious magazine articles or documentary films on hypnotism, it is reasonable to assume that framing might occur purely as a result of movies and television programs. The following study surveyed 115 undergraduate students of varying majors in an attempt to determine if the way hypnosis is portrayed in cinema is to blame for general public misinformation and distrust by creating a negative frame in the way hypnosis and its practitioners are viewed. The results showed that while hypnosis itself does not appear to suffer greatly from negative mass media depictions, hypnotists are generally looked upon with wariness and not viewed as scientists. These findings indicate that while neutral or even positive frames appear to have developed regarding the hypnotic state, the common depiction of hypnotists as villainous characters has negatively framed public opinion against these professionals.

## **Mortuary Practices of North American Indigenous Groups**

**Emily Hurley**, ANT 499: Independent Study

Faculty Mentor: Professor Lisa Marie Anselmi, Anthropology

The goal of this study is to examine Indigenous Peoples burial sites from several culture areas including the American Southwest, California, the Northeast, Southeast, and the Plains. Each of these regions provides excellent examples of the varied methods used to mourn and venerate their dead. I analyze representative sites from each of these regions with the goal of highlighting the vulnerability of these sacred sites and offering suggestions of how they may be protected. Even today, 27 years after the passage of federal legislation to protect these sites (NAGPRA), graves have been desecrated and looted and some artifacts as well as human remains are regularly sold on the 'black' antiquities market.

## **Mother Russia Meets Uncle Sam: A Fated Rivalry**

**Jonah Garland**, History

Faculty Mentor: Professor David Carson, History and Social Studies Education

Why does there exist such a fierce competition between Russia and the United States? Were the two powers fated to grapple from the very beginning? This project seeks to solve that great mystery. It compares and contrasts the respective colonial, cultural, and domestic histories of Russia and America, positing that both nations were indeed destined from their earliest days to rival one another on a global scale. In examining said histories, this project defines the fundamental origins of the great Russo-American enmity, furthering overall comprehension of both the United States and its mighty Eastern challenger.

## **The Need for Faculty Diversity on College Campuses: What Factors Matter?**

**Symone Campbell**, Sociology

Faculty Mentor: Professor Ron Stewart, Sociology

Throughout the nation colleges and universities are embracing diversity on their campuses in all aspects, especially a diverse faculty. What factors matter when dealing with diversity? What attributes deem a faculty member diverse? This research seeks to establish a list of factors that matter to students when determining if faculty at Buffalo State are diverse. This is a secondary analysis research study that uses data from a self-administered questionnaire completed by 341 students during the fall semester of 2009. The analyses involved both uni-variate and bi-variate statistical techniques to study the relationship between the variables. The findings indicate that non-white students are more likely than white students to agree that there is a need for faculty diversity at Buffalo State. Additionally, it was also indicated that students who agree that the college should examine perceived levels of prejudice and discrimination are more likely to agree that there is a need for faculty diversity at Buffalo State. The implications of these findings are discussed along with future research suggestions for examining factors that matter when determining if a college has a diverse faculty.

## **Overlooked and Under the Rug: Why Criminalizing Sex Work Doesn't Work**

**Bethany Kehrer**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Allen Shelton, Sociology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Sex work is as ancient as it is abundant, but the consensual exchange of sex for goods between adults is illegal in the vast majority of the United States. Societal and lawful de-legitimization of prostitution has dangerous micro and macro

consequences. Modern laws regarding sex work fail to protect consensual sex work as it is unrightfully associated human trafficking. Sex work has a tendency to be unsafe for suppliers, mainly because of its illegality. This study aims to focus on the delicate boundary between helpful and impeding sex work regulation(s), and aims to examine macro and micro impacts on public health and safety regarding the (de)criminalization of sex workers in the United States.

## **Perception and Contributing Factors for Statistics Grades**

**Jessica Bell, Gabrielle Burke and Jill Meyer**, HON 400: All College Honors Colloquium

Faculty Mentor: Professor Howard Reid, Psychology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The study is seeking to provide an answer for students who ask, "I studied so much, so why did I get a bad grade?" Within the Psychology department, students often complain about the difficulties encountered when they must take the required Psychological Statistics course. In order to continue on in the department and graduate, students must pass Statistics with a C or better. Many variables play a role in how students perform on an exam, and students are often poor at predicting how well they performed on it. The research will look at their everyday habits, such as sleep amount, study habits, and time spent at jobs. To provide an answer for students, we will need to understand their study habits, and then compare their previous grade to the perception of how well they do on their next exam. Anonymous questionnaires will be given to students taking the class to gather the data. A comparison of the two test grades will help determine what the students are doing right or wrong with the intention of preparing them for future tests. We anticipate the correlations will be of value for students when they take this or a similar course.

## **The Policy Preferences of the Union of Comoros on Nuclear Disarmament and the Explanations for Them**

**Tyler Minnick**, PSC 308: International Organizations and Law

Faculty Mentor: Professor Mehwish Sarwari, Political Science

What factors shape the international security policy decisions of the Union of Comoros, particularly those related to nuclear proliferation and disarmament? As a delegate representing the Union of Comoros at the National Model United Nations (UN) Conference, I will conduct qualitative research to assess the factors that determine the policies adopted by the Comorian government on the following issues being considered at the General Assembly 1 (GA 1) committee: the role of science and technology in international security and disarmament, global nuclear disarmament, and increasing women's role in

disarmament and nonproliferation. Findings show that on these issues, ideological and economic factors strongly influence the policy preferences of the Comorian government. In other words, low levels of economic development and religious ideological affiliations shapes the decisions of the Comorian government to prefer nuclear disarmament. Using this information, I will collaborate with delegates from other countries at the Model UN Conference to convey the policy preferences of Comoros regarding nuclear disarmament and why Comoros has adopted its policy positions. Furthermore, I will argue the importance of the international community to take into consideration the preferences of Comoros in order to improve multilateral diplomatic efforts on the three issues listed above.

### **The Provisioning of Grain From the Danubian Basin to Istanbul**

**Hannah Polichette**, Art History and History

Faculty Mentors: Professor York Norman, History and Social Studies Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This research examines the provisioning of grain to Istanbul from the Danubian Basin. The people of Istanbul depended on grain to meet their dietary needs. In order to fulfill this requirement the provinces provided foodstuffs because there were not enough producers of grain in the vicinity of the city to support the large population. This situation required organization on the part of the Ottoman administration to acquire and provide grain from far afield to prevent famine in the capitol city. To explain the process of provisioning grain this project examines the manner in which grain moved, secured, and delivered grain to the populace of Istanbul. Secondly production, methods of taxation, and how peasants and merchants were encouraged to sell their grain are considered as essential steps in the larger process. To some extent this work studies the social structure of the Ottoman Empire and Balkan provinces to explain the impetus of securing foodstuffs for Istanbul and why distant peasants could be relied upon to provide grain for such a distant place. Although this work places a particular focus on grain there are some comparisons to meat provisioning and the trade of furs to illustrate the commonalities and differences in provisioning various goods for Istanbul. This project will be presented in a talk to the public as an example of how a specific government met the dietary needs of their people.

### **Pushing the Protestant Culinary Agenda in Depression Era America**

**Brittany Millidge**, HIS 400: Research Seminar in History  
Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

Dramatically ending a decade known as the Roaring Twenties, a period defined by American wealth and prosperity, the stock market crash of 1929 served a devastating blow to the lives of Americans around the nation. Plagued by unemployment that put over a quarter of the workforce out of jobs, Americans struggled to feed their families over the course of a catastrophic decades known as the Great Depression. Immigrants were often the first to lose their jobs, and the notion of “take care of our our own before we take care of others” was the consensus among Anglo Saxon Protestants, who belonged to the upper class. As the shadow of starvation grew across the nation, the US government took on a conscious role in deciding what Americans were going to eat. Dietary recommendations centered around the consumption of bland foods and avoidance of finding pleasure in eating, a diet that seemingly fell in line with the theology of Protestantism, a religion followed by America’s most powerful elite. By analyzing primary sources, I argue that the dietary recommendations created by the US government favored Protestant ideology, and rejected the diversity of flavors that made up the immigrant diet, as indulgence in food was seen by Protestants as a gateway sin that would eventually lead to things like infidelity and alcoholism. I also argue that the Federal Emergency Relief Act of 1933, which provided funds to local agencies to distribute to those in need allowed for prejudice against immigrants on a religious basis, specifically those from Christian and Jewish backgrounds, who were criticized by Protestant figures for their low brow, flavor centric diets long before the Great Depression.

### **The Relationship Between Masculine and Feminine Traits and Political Views**

**Saskya Molina**, Psychology, **Samiyah Jones**, Psychology and **Aveary Menze**, Psychology

Faculty Mentor: Professor Howard Reid, Psychology

Previous studies have demonstrated that supporters of Donald Trump differed from the supporters of Hillary Clinton in a variety of ways. For instance, Clinton’s supporters tended to be more educated than Trump’s, and they were more likely to live in cities. The current study was designed to determine whether a number of additional traits, such as masculinity and femininity, were also associated with the political preferences of BSC students. A questionnaire comprised of demographic characteristics, the Bem Sex Role Inventory (BSRI, short form), and a number of questions examining political knowledge and beliefs was distributed during the Fall, 2016 semester. Demographic items

such as age, gender, and ethnicity were included. Additional personality measurements that were included examined compassion, sympathy, independence, and dominance to determine if specific masculine or feminine factors had an effect. Short empathy and anxiety scales were also included. Data were collected from 122 subjects who attended a variety of BSC courses and will be analyzed shortly. A multiple regression will be used to determine which variables predict political beliefs. It is anticipated that there will be a relationship between masculine and feminine traits, as well as a number of personality characteristics, and preference for political candidate.

### Religious Immunity From Antidiscrimination Laws

**Matthew Medina**, PSC 421: Discrimination and the U.S. Constitution

Faculty Mentor: Professor Peter Yacobucci, Political Science

The Lesbian, Gay, Bisexual and Transgender community, also known as the LGBT community, wants the Supreme Court to recognize their sexual orientation and identity as a protected classification. Doing so would qualify these individuals for a heightened level of constitutional protection against employment discrimination. Many avid religious followers feel that their obligations to the Church cannot allow for the facilitation of homosexual conduct. While sexual orientation continues to be denied as a protected classification, it makes it very difficult for gay rights advocates to win a same-sex discrimination claim standing alone without infringing upon one of the court-ruled protected classes. Although many local and some state legislatures have implemented antidiscrimination laws to protect the LGBT community from discrimination, a Supreme Court ruling including sexual orientation as a protected classification would make it easier for current antidiscrimination laws to be adopted federally. Although scholars disagree on how broad or narrow these exemptions should be, they fail to discuss the magnitude that the application of religion as a protected class and not sexual orientation has on successfully granting these religious claims for immunity, which only the Supreme Court has the authority to do. This work provides an equal protection analysis of court precedent from *Bowers v. Hardwick* (1986) until *Obergefell v. Hodges* (2015) in an attempt to depict what decisions we can expect from the Supreme Court in relation to the protection of sexual orientation versus religion. The findings of this research suggests that religious entities will be able to deny employment based on sexual orientation because the Supreme Court has yet to include sexual orientation as a protected classification. The Supreme Court has only reviewed gay rights under a heightened level of scrutiny when a protected classification was infringed upon such as religion in *Burwell v. Hobby Lobby* and marriage in *Obergefell v. Hodges*. Without such protected status for sexual

orientation, the courts will almost always exempt private religious entities from anti-discrimination laws when those laws impede on their religious beliefs.

### Road Design Impact on Cyclists' Level of Comfort

**Samantha Gardner**, GEG 499: Bicycle Infrastructure and Use  
Faculty Mentors: Professor Wende Mix, Geography and Planning and Professor Mary Perrelli, Geography and Planning

Current research on cyclists' comfort is mainly focused on how vibrations from a road surface impacts riders. Elements of road design and prevailing traffic characteristics have a noticeable impact on comfort level. But, what we do not understand is how a cyclist's experience level effects their comfort level. Design guidelines imply that separate bicycle facilities are the ideal. However, cost is often too prohibitive for this approach and may not be the ideal for bicycle commuters who do not want to take round about paths with pedestrians and slower riders to get to their destination. During the 1900s alternative modes of transportation were overlooked while roads were built to accommodate the ever increasing use of motorized vehicles. However, with concern about global warming caused by CO<sub>2</sub> emissions, more emphasis is placed on facilities that encourage non-motorized modes of transportation. This research uses a novel online survey method that uses video clips that show different infrastructure and traffic conditions around the city. Survey participants indicate their cycling experience level and then rate their level of comfort for each video clip as well as identify what elements of the road define their level of comfort. Traffic speed, congestion, land use, bike infrastructure, interaction with intersections, and sign pollution are a few of the elements that are the subject of the identification process. Analysis of the results should provide suggestions on less costly ways to improve bike infrastructure based on a rider's experience level.

### Self-Handicapping as a Drinking Motive

**Leah Waldman**, Psychology

Faculty Mentor: Professor Michael MacLean, Psychology

There are currently four main drinking motives which are primarily used to predict different sets of drinking behaviors and outcomes; however, they do not necessarily capture the full range of reasons that an individual may drink. An additional drinking motive among college students in particular is self-handicapping, which is the act of creating impediments to your own performance in order to protect self-esteem. A newly developed measure of self-handicapping as a drinking motive was evaluated to determine whether it was a valid and worthwhile motive to be examined in the future; this study also evaluated whether certain personality measures were related differentially to high scores on

the self-handicapping scale in comparison to self-handicapping as a drinking motive. Secondary data analyses were performed on data from a previous study conducted at Buffalo State College. The internal reliability, convergent validity, and concurrent validity of the scale were analyzed, then correlations between the self-handicapping as a drinking motive scale, the self-handicapping scale and other personality traits were examined. The results indicate that the new self-handicapping drinking motive scale is a valid, internally reliable scale. A small portion of the sample indicated self-handicapping motives, and the scale scores predicted alcohol-related problems even after controlling for traditional drinking motives. We also found several personality traits that were negatively correlated to self-handicapping as a personality construct, but not self-handicapping as a drinking motive. This furthers our knowledge regarding those individuals who tend to chronically engage in self-handicapping, and suggests key differences between that group and those who drink as a means of self-handicapping.

### **State Testing and Attitudes Towards School in Elementary School Students**

**Katrina Legendyk**, Psychology

Faculty Mentor: Professor Jill Norvilitis, Psychology

It is important to understand the effects that state testing may be having on students' overall attitudes toward school, especially as academic standards continue to rise. By understanding any potential effects state testing may have on students' views of school, steps can be taken to help limit any negative effects experienced by students. The current study looked at the relationship between attitudes toward school and toward state testing in elementary students. We hypothesized that students primed to think about state testing would have less positive attitudes toward school. We also expected attitudes toward school and testing to be positively related. A total of 21 4th ( $n = 5$ ) and 5th ( $n = 16$ ) grade students participated in this study. Frequencies indicated that although many students report anxiety about state tests, most students reported positive attitudes toward school. Results show that there was not a significant difference in scores between students primed to think about testing and those that were not. Attitudes toward school and testing were positively related.

### **Statistics Anxiety, "Grit" and Final Grade in Psychological Statistics**

**Mike Palaguachi**, PSY 499: Statistics-Related Anxiety

Faculty Mentors: Professor Howard Reid, Psychology and Professor Karen O'Quin, Psychology

The research literature shows that statistics anxiety and calculation anxiety are each significant predictors of performance in introductory statistics courses. The current study was designed to examine how statistics-related anxiety, as well as attitudes

and personality traits, are related with performance in the BSC Psychology statistics course (PSY 306). More specifically, following informed consent, a questionnaire was handed out to the students in both sections of the fall 2016 and spring 2017 psychological statistics courses. Data were collected from 58 participants (50 females and 8 males). Only data from fall 2016 are included. For those who gave permission, their responses were subsequently correlated with their final grades in the course. As expected, there was a negative correlation between grade in the course and statistics anxiety ( $r(40) = -.51, p = .001$ ). In addition, it was found that there were positive correlations between math resilience and grade in the statistics course ( $r(41) = .37, p = .016$ ) and between 'grit' and grade in the statistics course ( $r(41) = .37, p = .019$ ). Math resilience was not found to be correlated with conscientiousness, self-efficacy, or grit. Additional data are being collected this semester.

### **A Study of Taphonomic Influences in Northern Broome County, New York**

**Meaghan Champney**, ANT498: Honors Thesis

Faculty Mentor: Professor Julie Wieczkowski, Anthropology

This study was done on animal predation on un-fleshed remains to determine if there is a correlation between bone size and predator size. Chicken bones were used to represent small decomposing remains and beef or lamb bones were used to represent larger remains. I hypothesized that larger animals would prey on larger bones and smaller animals would prey on smaller bones. There were five site locations, spread over approximately three acres of land, in upstate New York in northern Broome County. One small bone and one large bone were placed at each site for at least six days. This was done four times with new bones being set out every six days. The movement of bones and any marks left on them by predators were measured each day around 4pm. Maps were made for each bone that was moved in order to compare movement patterns between the smaller and larger bones. Of the forty bones, nineteen were moved. Large bones were moved an average two times (after being out an average 2.5 days), while small bones were moved an average 1.4 times (after being out an average 3.1 days). Distances moved will be compared between small and large bones. One of the small bones has extensive marks on it; these were measured and compared to known predation marks to determine what animal species caused them. This research will aid forensic anthropologists when human remains are found and bones of varying sizes have been scattered.

### **To Recycle or Refuse: New York Bottle Return Opinion 1980-1985**

**Adam Pomietlarz**, HIS 400: Research Seminar in History  
Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

On June 6, 1982, Governor Hugh Carey signed the New York Returnable Container Act, placing a five cent deposit on all beer and soda containers. People today take the law for granted, but there were debates for and against the law in the early 1980s. Historians have considered legal consideration, mathematical evaluations, and environmental studies to validate or invalidate arguments about the law. Many historians have also considered lobbying efforts by various industries opposed to the bill but little has been written about the general public's opinion. I plan to share the opinion of the general public. In order to understand the public's position, this project will consider political cartoons, letters to the editor, and through the changes to the bill itself as it moved through the state legislature. I have found that there was a mix of opinions for this law. My research focuses on the constituents that the law affected. While I have found that there were a variety of opinions in general the population of New York supported for the passing of the bottle bill. I plan to share these opinions and present the general public awareness of the New York Bottle Bill.

### **Tolerance of Racism and Voting Decisions in the 2016 Presidential Election**

**Monashia Johnson**, Psychology  
Faculty Mentor: Professor Jennifer Hunt, Psychology

This psychological research study investigated whether tolerance of racism (i.e., willingness to excuse or ignore racist statements or behavior) affected voting decisions in the 2016 presidential election. We hypothesized that tolerance of racism would be associated with voting for Donald Trump, who made several racist statements during the election process. We conducted two online studies, one with Buffalo State students and one with a national sample of adults (total N = 530). Participants answered questions about tolerance of racism, other predictors of voting, and demographics, and they answered two open-ended questions about their opinions on the candidates. During this research, I primarily assisted in developing a coding scheme to identify patterns in the open-ended responses by the participants. I then coded all of the responses and entered the data into SPSS. We are analyzing the data to see how tolerance of racism relates to opinions about the candidates and how responses vary by participant demographics. We expect to find a connection between views on race and election decisions. These findings may help researchers understand why people vote for candidates who make racist statements, even when they may not agree with them. Moreover, this study can further our understanding of the concept of tolerance of racism and people's rationalization of racist behavior.

### **Turn Off The Gas: Environmental Legislation and Political Representation**

**Diamond Howard**, PSC 470: Senior Seminar  
Faculty Mentor: Professor Patrick McGovern, Political Science

While the science of climate change has for the past decade or so noted the important impact of carbon emissions upon the earth's atmosphere, the rising average temperature of the planet, and the potential disastrous effects of those temperatures, US carbon emissions have increased along with US crude oil production (Congregado et al., 2016). In recent polls, most Americans favor limiting carbon emissions even if this might mean higher energy costs (Pew Research, 2016). The research presented here is interested in how these facts play out amongst U.S. elected officials in the US House of Representatives and Senate, hypothesizing that representatives from either house, if from an energy producing state, will regardless of party or ideological stance, generally favor energy production over environmental protection. Data collected for this longitudinal study will include such variables as the size of the energy production sector of the state, the political party id and ideology of Congressional members, support they receive from the energy and environmental concerns, as well as their support for environmental rules, policies and legislation. It is expected that representatives from energy producing states vote consistently for energy over environment a majority of the time in spite of constituent support for environmental protection.

### **Undergraduate Learning Assistants in a Hybrid Economics Course**

**Rachel Dennis, Jennifer Snyder, Brianna Spenny, Kristina Frausto and Katelyn Ayler**, ECO 101: The Economic System

Faculty Mentors: Professor William Ganley, Economics and Finance and Ms. Meghan Pereira, Senior Instructional Designer, RITE Services

In a world with economic issues and increasing uncertainty The Economic System is a course that gives students a basic understanding of economics and modern capitalism while fulfilling an intellectual foundation course. The Economic System focuses on engaging students in the material and to stimulate learning core principals of economics and how modern day capitalism operates. This course focuses on two critical elements to manage the learning process for the students: (1) a greater focus with on-line learning; (2) the utilization of undergraduate learning assistants. The Economic System is designed as a hybrid course format. The hybrid model course combines classroom lectures, on-line learning, and the mentoring role of undergraduate learning assistants. This presentation will describe and analyze the role of Undergraduate Learning Assistants in a hybrid course. The unique role of the undergraduate learning assistants (ULAs) provides guidance

to groups of 25 to 30 students. The ULAs monitor the on-line learning process on weekly basis. The goal is to enhance student engagement in the learning process through peer mentoring.

### **Urban Renewal and Historic Preservation: Differing Perspectives and Actions toward Building and Maintaining a Community**

**Lucille Rawls**, HIS 400: Tales of the City

Faculty Mentor: Professor Christienna Fryar, History and Social Studies Education

During the 20th century, Buffalo was like many cities in the Rust Belt in that leaders saw a dire need to rebuild crumbling infrastructure and blighted neighborhoods. The federal government was giving out funds to help cities tear down areas that needed to be rebuilt; this was seen as an opportunity to bring people back into the cities, as much of the population was leaving for the suburbs. Cities that took advantage of the federal program were not required to have a final action plan of what was going to be done with the land before they got the money and clearance to demolish old, yet cared for, neighborhoods like the Italian Lower West Side. Neighborhoods like Allentown grew fearful that they would soon be targeted as a site to be demolished and rebuilt, which sparked the historic preservation movement in the 1960s. The historic preservation movement's ultimate goal was to preserve the sense of community there. The Urban Development Corporation, a major player in Buffalo's urban renewal, tried creating a community environment within the large apartment complexes they built on the waterfront after the Lower West Side neighborhood was bulldozed, but it did not ever have that strong sense of community that was once there. Urban renewal in the city began just before the historic preservation movement. Historic preservation of neighborhoods was a response to the movement of urban renewal, which many people saw as damaging to communities.

### **Using Vocabulary Words Grouped by Color to Build Vocabulary**

**Grissel Henriquez**, Psychology

Faculty Mentor: Professor Stephani Foraker, Psychology

Having knowledge of more difficult or low frequency vocabulary words has become an important factor in education and society, more generally. Based on previous literature, individuals are able to make connections between a color and a word when tested on recall (Weiss & Margolius, 1954), and that organization by grouping can help one to remember information (Poirier & Saint-Aubin, 1995; Terry, 2008). In addition, color is said to activate, and therefore provide an extra pathway during encoding (Allen, 1983). For my experiment, I hypothesized that the use of color to group vocabulary words and their definitions

when studying will aid the individual's recall performance on both an immediate test and delayed test that will be administered two days after the study period. The experiment also included grouping words by meaning (synonyms vs. non-synonyms) to see how strong of a cue color is compared to meaning relations. It will also look at the participant's ability to recognize the color that each word was first learned in to find out if participants encode the color explicitly or implicitly. Results could indicate that color-coding helps improve studying for classes, at least for learning vocabulary words.

### **The Walls are Talking: M.H. Birge & Sons Company's Fashionable Wallpaper**

**Benjamin Rosiek**, Art History

Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

During the Victorian and Edwardian eras, interest in visual design and patterns grew and as a direct result, the wallpaper industry had its heyday. However with the long elegant history of the industry in England and France, few American found success. Only a golden few were to be able to rise to the competitive level of Europe of quality and design and the M.H. Birge, a company located in Buffalo, NY, was one of them. At the height of wallpaper fashion the M.H. Birge was well-known by designer and homeowners alike. Using the remaining few samples that survive, along with photographs of homes decorated with M.H. Birge wallpaper, this study sheds new light how the wallpaper trend shaped American ideas about home and design placing emphasis on masculine and feminine ideas about space and use in the home. Moreover, this study considers how wallpaper industry impacted local commerce and homeowners in the City of Buffalo.

### **A Whole New World: Immigration Then and Now**

**Alyn Avila**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Albert Michaels, History and Social Studies Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

My project will be an interview, conducted as a documentary, of a man, his brother, and his son who all decided to immigrate from Mexico to America at different points in their lives. The questions I will be asking the interviewees will deal with their reasons for immigrating, the process they went through, and the hardships they experienced together and individually. Using this interview, I hope to shed light on the challenges Mexican immigrants face when they first arrive to America and the trials they will continue to face. Tensions between the United States and Mexico are currently high due to the president's policies he promised to enforce regarding Mexican immigration, trade, and drug violence. President Trump's ideologies instill and

encourage xenophobia and racism, causing serious problems for current and future immigrants. Because of this prevailing issue, a part of the interview will be spent questioning the men on their opinions, fears, and hopes of President Trump's time in office. Stemming from my Mexican nationality and concern for the present and future Mexican-American population, I hope this documentary interview will enlighten the public on the daily battles immigrants face because of the outdated and racist immigration system.

### **Women as Producers and Consumers of Popular Culture in the Theaters of Nineteenth Century Buffalo, NY**

**Elizabeth Battaglia**, HIS 300: Research and Writing Seminar  
Faculty Mentor: Professor Bridget Chesterton, History and Social Studies Education

During the nineteenth century women gained more power as consumers in Buffalo, and producers of popular culture responded to this new reality. This paper will analyze how Buffalo theater and business owners advertised their goods to a female audience by looking at playbill advertisements from the Academy of Music. This paper also explores some of the performers and the plays featured by establishments to further demonstrate the power of women as consumers in the American theater during the nineteenth century. Main sources for this paper include playbills from the Academy of Music, articles from the Buffalo Daily Courier, and Ardis and Kathryn Smith's *Adventures in Western New York: Theater in Early Buffalo*. As Buffalo's theater business flourished, theater owners developed new marketing techniques specifically to attract and maintain their female audiences.





