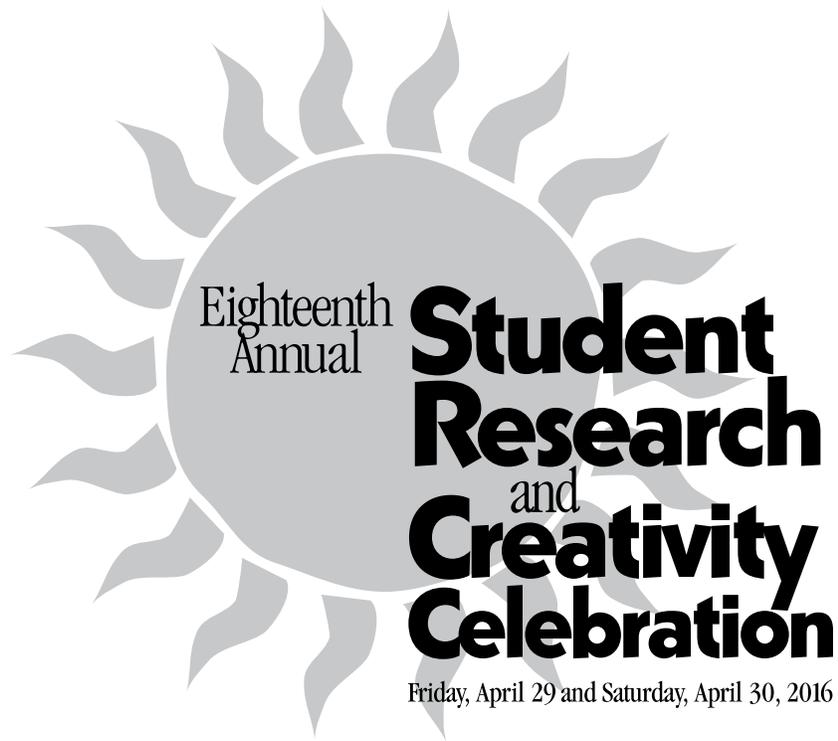




Program  
& Abstracts  
**Eighteenth  
Annual**  
**Student  
Research  
and  
Creativity  
Celebration**  
Friday, April 29 and Saturday, April 30, 2016



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



# Program & Abstracts

## **Editor**

Jill Singer, Ph.D.

Director, Office of Undergraduate Research

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I am delighted to welcome you to the 18<sup>th</sup> Annual Student Research and Creativity Celebration at Buffalo State College. We have one of the longest traditions of undergraduate and graduate research in SUNY and each year our number of student researchers grows. This year we have over 450 students participating and 150 faculty mentors. This tradition provides a unique and exciting opportunity for Buffalo State students to showcase research and creative activities from all academic disciplines. During this two-day event many of our talented students will exhibit their work in a variety of venues such as theatrical and musical performances, gallery exhibits, posters, presentations and demonstrations.

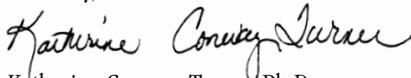
It is through research that we acquire new knowledge, solve many problems and discover new approaches and information. Studies have shown that research enhances what students learn in the classroom; engages their intellectual curiosity; satisfies their thirst for discovery and provides an outlet for their creativity. Much of the research allows students to apply their knowledge acquired in class work to concerns that impact, influence or celebrate community issues. We believe that many of our students also gain self-confidence and grow intellectually by engaging in research and creative activities. Additionally, research fosters meaningful and long-lasting relationships between a student and his or her faculty mentor. These relationships often extend beyond graduation and help to keep our alumni connected to the institution and returning to inspire current students.

At Buffalo State we 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 Annual Student Research and Creativity Celebration is certainly one of our premier learning initiatives.

I congratulate and commend the talented undergraduate and graduate students who are participating in this year's celebration. I also thank the faculty mentors and advisors 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 18<sup>th</sup> Annual Student Research and Creativity Celebration at Buffalo State College.

Sincerely,



Katherine Conway-Turner, Ph.D.

*President*

The spirit of inquiry permeates everything we do at Buffalo State College, and the 18<sup>th</sup> Annual Student Research and Creativity Celebration is an opportunity to acknowledge the dedication of students and faculty engaged in activities that demonstrate higher education at its best. Our students and their faculty mentors have put in many hours of work in laboratories, archives, studios, and out in the community to produce the projects we see today.

None of this would be possible without the tireless work of Dr. Jill Singer, who is a nationally recognized leader in undergraduate research, and the many faculty, staff, and students who have contributed their talents to this signature celebration. An event of this magnitude is an exhausting labor of love, but well worth the effort to showcase the incredible work of our students.

Congratulations to the students, faculty, and staff whose efforts are on display here today.



Melanie Perreault, Ph.D.

*Provost and Vice President of Academic Affairs*



## Welcome to the 18<sup>th</sup> annual Student Research and Creativity Celebration!

One of Buffalo State's great traditions, this celebration provides an opportunity to observe and reflect on the intellectual and creative energy that radiates across the Buffalo State campus. The students presenting today have gained an appreciation of how scholarship is conducted and what it takes to contribute new knowledge or works of art. The skills they developed and honed will serve them well as they continue their education and throughout their professional careers. From first-year students to graduating seniors to students pursuing their master's degrees, we are a community that embraces learning and delights in each new discovery. And while disciplinary discoveries are essential, it is the discoveries we make about ourselves while engaged in research, scholarly, and creative activities that over time become even more meaningful.



This year we are introducing an online schedule that includes links to each abstract or artist statement. Accessible on mobile devices, the schedule not only saves printing but also includes several features that make it easier to search using presenters' last names or keywords.

This year's celebration is the largest to date, with a program composed of 395 talks, poster presentations, and works of art. No presentation would be possible without dedicated mentors who provide guidance and encouragement to students, committed staff members across campus who help ensure that this event runs smoothly, and supportive administrators who place a premium on providing all students with high-impact learning opportunities. This is a community celebration, and I am delighted you are a part of this event.

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

*Jill Singer*

Jill Singer, Ph.D.

*Professor of Earth Sciences*

*Director, Office of Undergraduate Research*

# Welcome!



Our Research and Creativity Celebration showcases one of the engaged learning opportunities students have available to them at SUNY Buffalo State. The work we all enjoy during this two-day event highlights our faculty's commitment to mentoring and our students' commitment to learning. It vividly demonstrates the commitment to excellence characteristic of so many people on our campus. As research and scholarship are the hallmarks of a graduate education, the Graduate School is proud to support this work. I warmly congratulate all the students participating in this great weekend of intellectual and artistic expression—especially the graduate students—and sincerely thank all the faculty mentors for their contributions to student achievement. As always, we extend a special thanks to Dr. Jill Singer for her passionate leadership and for organizing the Research and Creativity Celebration, now in its 18<sup>th</sup> year!



Kevin Railey, Ph.D. Dean, The Graduate School



It is my pleasure to welcome students, faculty, and staff to the 18<sup>th</sup> Annual Student Research and Creativity Celebration. The concepts and skills learned in our classes become most meaningful when students put them into action. Buffalo State takes great pride in the ways our students offer contributions to the bodies of knowledge and art that demonstrate high levels of creativity, quality, and value. This event then brings the Buffalo State Community together to engage one another about our discoveries and innovations, showing our community of scholars at its best. All of my colleagues in the University College join me in applauding the presenters and mentors as we continue to explore new ideas and advance the conversation.

Scott L. Johnson, Ph.D., Dean, University College and Associate Vice President for Undergraduate and International Education

Scholarship through research and creativity and student engagement beyond the classroom are at the core of a Buffalo State education. We are proud today to applaud the extraordinary achievements of talented students who excel in scholarly pursuits and are sharing their knowledge and experience at the 18<sup>th</sup> Annual Student Research and Creativity Celebration. We also recognize the inspirational leadership of remarkable faculty who continually demonstrate their passion for excellence and their commitment to nurturing students. On behalf of the School of Arts and Humanities, I am honored to congratulate all participants in this 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 18<sup>th</sup> Annual Student Research and Creativity Celebration. 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

Congratulations to the students and their faculty mentors taking part in the 18<sup>th</sup> annual Student Research and Creativity Celebration! I know you will find your participation in this event, and the work leading up to it, to be the highlight of your academic career and one of your most valuable educational experiences. I am very pleased to welcome undergraduate and graduate students, their guests, and faculty to this showcase of the outstanding research and creative work of Buffalo State undergraduate and graduate students.

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 18<sup>th</sup> annual Student Research and Creativity Celebration and to congratulate the student presenters and their faculty mentors on their scholarly and creative accomplishments. This wonderful event showcases the outstanding and innovative work done across our many unique academic programs. This is a significant academic accomplishment, and your work is inspiring to us all. We extend thanks also to the faculty mentors that encouraged and supported these students. Opportunity comes to those who quit Waiting and start Looking. Success comes to those who quit Thinking and start Doing. Congratulations for Looking and Doing. Well done.

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



**Alexandra Asenjo**, English

Faculty Mentor: Professor Barish Ali, English

Abstract Title: **Modern Theory for a Modern Age: A Contemporary Approach to Navigating Social Media Storms**

Alexandra Asenjo is an English major graduating with a B.A. degree in December 2015. She plans on gaining more writing experience working at an internship and attending graduate school.

Alexandra's research investigated how language functions in social media storms by applying several prevailing contemporary theories by Michel Foucault to the storm #Gamergate. By implementing theories of authorship and discourse from Foucault, her project gained insight into how language is used online. Alexandra identified three key factors that influence language to social media storms and demonstrated the importance of utilizing contemporary theory in navigating its effects on both gaming culture and modern society.



**Molly Bader**, Theater

Faculty Mentor: Professor Alice Pennisi, Art Education

Abstract Title: **The Eyes of Others: An Arts-Based Research Project on Rape Culture**

Molly Bader is a Theater major with a minor in Painting, graduating with a B.A. in May 2016. She plans to attend a graduate program in acting.

Taking part in a theater piece on sexual violence was the catalyst for Molly's research project. Molly investigated contemporary social norms and commonplace expectations that contribute to objectification of and sexual violence against women. She utilized an arts-based research methodology in which she created visual art as a means to analyze and interpret data and present findings. Judgmental commentary and written directives, not actions, were found to be the most powerful means of shaping rape culture. Molly presented her findings in a solo art exhibit, gallery talk, and workshop at the 2015 Anne Frank Project. One of her artworks in the series was chosen for the Arts and Humanities Dean's 2016 Creative Associates Award Exhibit.



**Emily Beresford**, Fibers

Faculty Mentor: Professor Dawne Hoeg, Design

Abstract Title: **Ecological Woven Fabrics**

Emily Beresford graduated in December 2015 with a B.S. in Fibers. She is interested in working as an independent weaver/dyer developing her own line of woven textile designs.

Emily began her research by studying and learning how to use natural dyes and developing a color palette to be incorporated into the development of woven patterns. Emily has organized her findings into two sample books that document the range of colors achieved with natural dyes on many different kinds of natural fibers. Emily also wove two 5' samplers and hand painted several pieces of silk with natural dyes.



## ***Undergraduate Summer Research Fellowship Program***

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### **Matthew Burch**, Technology and Design

Faculty Mentor: Professor Richard Ross, Design

Abstract Title: **The Guzhang Project**

Matthew Burch is a dual technology/woodworking major and will graduate with B.F.A. and B.S. degrees in May 2017. He plans to attend graduate school. Matthew's future goal is to teach in higher education.

Matthew traveled to China and met with professors, distinguished master musicians, and instrument factory workers. He then successfully built, using indigenous and exotic woods, a solid-bodied, electrified traditional Chinese 21 string "guzheng." Matthew found that the solid-bodied "guzheng" dampens the vibration of the strings (unlike the acoustic "guzheng") throughout the instrument, which in turn requires pickups to amplify the sound. He presented his research at the SUNY Oswego Technology Convention in Oswego, New York in October 2015.



### **Hiruni Senarath Dassanyake**, Earth Sciences

Faculty Mentor: Professor Kevin Williams, Earth Sciences and Science Education

Abstract Title: **Geomorphic Mapping in the Southern Margaritifer Terra Region of Mars**

Hiruni Senarath Dassanayake is graduating in May 2016 with a B.S. in Earth Sciences and minors in Astronomy, Mathematics, and Physics. Hiruni plans to attend graduate school with a focus on planetary science.

Hiruni's research involved learning about the geology of Mars and using images from various spacecraft to interpret surface features. Hiruni focused her project on features within several large craters where water likely played a role in moving sediment. Her findings reveal evidence that one of the craters contained a lake that affected the shape of alluvial fans. Hiruni presented her research at the Geological Society of America meeting in Baltimore, Maryland in November 2015. Hiruni was accepted for a summer 2016 internship at the Smithsonian Institution's Air & Space Museum Center for Earth and Planetary Studies in Washington, D.C.



### **Peter Dragos**, Music and Mathematics

Faculty Mentor: Professor Tom Kostusiak, Performing Arts Center at Rockwell Hall

Abstract Title: **A Study in Low Frequency Horn-Loaded Loudspeaker Engineering**

Peter is a double major in Music (B.A.) and Mathematics (B.S.) and will graduate in May 2017. His future plans are to attend graduate school studying Acoustics and Engineering. Ultimately, Peter would like to work in the loudspeaker manufacturing industry as a design engineer.

Peter's research focused on developing a method by which a novice could construct horn loaded loudspeakers. He simulated various horn loaded designs and developed his own simulation process used to test over 40 different possible speaker drivers. After settling on a driver he folded the horn into a shape that could be incorporated into a speaker cabinet. Peter built a prototype 667 liters in volume and an axial length of 470 cm., with a frequency response between 20 and 200 Hz.



## **Joseph Giardina**, Painting

Faculty Mentor: Professor Lin Xia Jiang, Fine Arts

Abstract Title: **Buffalo: Its Rebirth and Forgotten Corners: Painting as a Form of Documentation and Celebration**

Joseph Giardina is a B.F.A. Painting major with a minor in Printmaking graduating in May 2016. He plans to enter a graduate M.F.A. program in Painting.

Joseph's research focused on the painting tradition of Plein Air (open air) to develop a series of oil paintings to capture the evolution and many facets of the community of Buffalo as it rebuilds and reimagines itself in the 21<sup>st</sup> century. He completed nine paintings focusing on the redevelopment of the Outer Harbor, including the grain elevators, Tift Nature Preserve, and the Buffalo Ship Canal.



## **Brandi Hoffman**, Psychology

Faculty Mentor: Professor Michael MacLean, Psychology

Abstract Title: **Sex Differences in Adolescent Substance Use Motives and the Prediction of Related Problems**

Brandi Hoffman is graduating in May 2016 with a B.A. in Psychology. She plans to pursue a doctoral degree in clinical psychology.

Brandi's research examined sex differences in adolescents' reasons for using alcohol and marijuana among those referred to a local prevention program for substance-related problems. Among Brandi's findings were that girls were more likely to report using both alcohol and marijuana to cope with unpleasant emotions and that such motives were more strongly predictive of negative consequences for girls compared to boys. Such findings may have implications for tailoring prevention programs to individual needs. Brandi will present her research at the Research Society on Alcohol conference in New Orleans in June 2016.



## **Sandy Hunt**, Biology

Faculty Mentor: Professor Derek Beahm, Biology

Abstract Title: **SPR: A Novel Approach to the Study of Membrane Permeability**

Sandy Hunt is graduating in May 2016 with a B.A. in Biology. Sandy plans to pursue a career in the medical sciences by seeking admission into an M.D. or Ph.D. program after graduation.

Sandy explored the feasibility of using surface plasmon resonance (SPR) instrumentation to monitor membrane permeability of small molecules. She generated phospholipid vesicles of various lipid compositions, tethered them to a sensor surface that she fabricated, and used SPR to follow mass changes when exposing the vesicles to membrane permeable or non-permeable molecules. Sandy's results are being used to help develop a medium throughput assay for drug discovery efforts targeting membrane channels and transporters.



## ***Undergraduate Summer Research Fellowship Program***

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### **Paula Jones**, Geography

Faculty Mentor: Professor Jason Knight, Geography and Planning  
Abstract Title: **West Side Property Condition Inventory**

Paula Jones graduated in December 2015 with majors in Geography and Urban and Regional Planning. She plans to attend graduate school for geography.

Paula conducted a survey of property conditions in Buffalo's West Side neighborhood to study housing conditions and neighborhood change. A mobile data collection and mapping application was designed using GIS software and residential and non-residential properties were surveyed in the field using iPads. The findings are being shared with local community organizations to aid stakeholders in making informed, data-driven decisions regarding their community. She presented her research at the SUNY Undergraduate Research & Creative Works Poster Program in Albany in February 2016 and the American Association of Geographers Annual Meeting in San Francisco in March 2016.



### **Leanna Kalinowski**, Psychology

Faculty Mentor: Professor Stephanie Foraker, Psychology  
Abstract Title: **Speech Perception and Working Memory: More Than What Meets the Ear**

Leanna Kalinowski is graduating in May 2016 with a B.A. in Psychology. She plans to attend graduate school and pursue a career in behavioral neuroscience.

Leanna's summer research examined how we integrate visual cues when hearing spoken language, focusing on face and lip movements. Her experiment results showed that visual-spatial working memory resources helped comprehension of tongue-twister type sentences, especially in noisy conditions like a cafe. Greater verbal working memory abilities also improved comprehension in general. She presented her research at the Eastern Psychological Association conference in New York City, March 2016.



### **Kerry Keyes**, Dietetics and Nutrition

Faculty Mentor: Professor Tejaswini Rao, Health, Nutrition and Dietetics  
Abstract Title: **Are Anti-Obesity and Healthy Eating Campaigns Adding to Weight Phobia and Disordered Eating in Adolescents?**

Kerry Keyes is graduating in May 2016 with a B.S. in Dietetics and Nutrition. She plans to pursue a career in influencing the formulation of federal national nutrition policies and food production.

Kerry's research focused on determining the relationship between federal nutrition education programs and healthy eating behavior or disordered eating and weight related phobia among adolescents. The results indicated that while more than 70% of the students were aware of the federal nutrition education programs their nutrition messages did not influence their food choices. Parents had the greatest influence on food choices and weight/shape phobia was significantly less among students who reported greater parental influence while making food choices.



## **Melanie Klimjack**, Fine Arts

Faculty Mentor: Professor Beth Hinderliter, Fine Arts

Abstract Title: **Re-Model: A DIY Arts Engagement**

Melanie graduated in December 2015 with a B.A. in Fine Arts with minors in printmaking and religious studies. Her future plans are to enroll in a M.F.A. program and become a professional artist.

Melanie's project was an outdoor installation and performance artwork that investigated the nature of audience participation. The piece was first exhibited in Buffalo's Bidwell Park in July 2015. Audience members were invited to participate within a large-scale installation that featured elements of a private domestic interior set up within the public space of the park. Asking participants to engage in a DIY remodel or intervention within the installation, Melanie's work sought to challenge the division between private and public space and their impact on individual and group personas. Melanie further presented the work at the Burchfield Penney Art Center in September 2015.



## **Megan Kocher**, Biology

Faculty Mentor: Professor Amy McMillan, Biology

Abstract Title: **Analyzing Eastern Hellbender Habitat**

Megan is a Biology major in the Integrative Biology track. She is graduating in May 2016 with a B.A. in Biology and a minor in Chemistry.

Megan's research involved characterizing habitat of a rare and declining species of giant aquatic salamanders, the Eastern Hellbender. Previous work on this species located several sites in the Susquehanna watershed in New York where hellbenders might be found. Megan searched for animals using a variety of methods and characterized the invertebrate communities at these and other sites where hellbenders are not expected to be found. Megan also characterized and quantified substrate size and composition.



## **Casey Kremblas**, Painting

Faculty Mentor: Professor Candace Masters, Art Education

Abstract Title: **Visuals From Buffalo's Individuals**

Casey Kremblas is a B.F.A. student in painting graduating in May 2016. She plans to pursue a graduate degree in visual arts.

After interviewing individuals living in Buffalo, N.Y., Casey produced a series of eight artworks created using a range of materials, including: inks, gouache, acrylic paint, and collage. Her experimental body of artwork includes imagery to represent the unique stories and associated emotions of the individuals she interviewed. Her work harkens German Expressionism and Post-Impressionist styles and subjects.



## ***Undergraduate Summer Research Fellowship Program***

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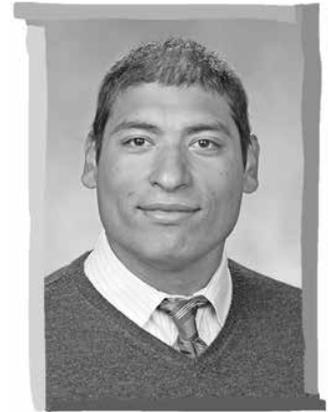
### **Kenny Leon, Painting**

Faculty Mentor: Professor Philip Ogle, Fine Arts

Abstract Title: **Consciously Killing Yourself While Underdeveloped Sapiens Evolve Slowly**

Kenny Leon is a Fine Arts major with a Painting focus and a minor in Printmaking graduating December 2015. He is currently pursuing graduate school options while actively involved in studio work for future exhibitions.

Kenny's project involved the creation of a large seven by ten foot painting expressing the inherent rift in human interaction. By utilizing cartoon and religious iconography, he seeks to connect and satirize the absurdity of man-made myths with modern society. While misanthropic in tone, Kenny's body of work is always done in good humor, tiptoeing the line between abrasive and playful. Kenny has been the recipient of several awards in printmaking and painting.



### **Elizabeth Malinowski, Elementary Education**

Faculty Mentor: Professor Christopher Shively, Elementary Education and Reading

Abstract Title: **Perceptions of Reading in Native American Students**

Elizabeth Malinowski is an Elementary Education major who will graduate with a B.S. in May 2016. Elizabeth currently is working as a Teacher's Assistant at West Buffalo Charter School.

Elizabeth conducted a self-efficacy case study with two fifth grade Native American students. She found one student possessed above average self-efficacy in reading and the other student was average. Their self-efficacy views reflected their reading actions. The above-average student read more often, read twice as many different genres and believed she was good at reading long/difficult words and reading aloud. Both students believed their parents and teachers were important to their self-efficacy in reading.



### **Layna Mattson, Ceramics**

Faculty Mentor: Professor Robert Wood, Design

Abstract Title: **Building and Firing Large Scale Ceramic Sculpture**

Layna Mattson is a Ceramics major graduating with her B.F.A. in May 2016. She plans on going to graduate school to pursue an M.F.A. degree in ceramics and then wants to continue as a professional artist.

Layna studied and developed an outdoor clay body that can survive the freeze/thaw cycle of a northern climate. She considered various construction methods for large-scale ceramic sculpture, alternate kiln construction methods, and developed a firing process for firing on-site using wood as the fuel source. Her project culminated in the building and firing of a large-scale outdoor clay sculpture at a site in Arcade, New York where it will permanently reside.



### **Catherine Morse**, English

Faculty Mentor: Professor Aimee Levesque, English

Abstract Title: **Bringing Jane Austen into the YouTube Age**

Catherine Morse is graduating in Spring 2017 with a B.A. in English. She plans to attend graduate school at the University at Buffalo in the area of Library and Information Studies.

Catherine's research explored the Jane Austen novels *Emma* and *Pride and Prejudice* alongside their contemporary webseries counterparts *Emma Approved* and *The Lizzie Bennet Diaries*. Throughout her research, Catherine learned of the academic and literary merit of the webseries. She learned the differences when Jane Austen's novels went from printed page to online webseries. Catherine plans to submit her work at regional and national literary conferences.



### **Sarah Panzica**, Arts and Letters

Faculty Mentor: Professor Joy Guarino, Theater

Abstract Title: **From Africa to Buffalo Yoga Project**

Sarah Panzica graduated in December 2015 with a B.A. in Arts and Letters. Her goal is to teach yoga full-time and continue to travel around the world offering seminars, workshops, and retreats.

Sarah's research builds upon a model learned when she was in the slums of the Mathare Valley, Kenya attending a two-week training of the Africa Yoga Project. The model empowers young people through yoga. Sarah replicated this model to produce the same transformational outcomes for children in Niagara Falls, NY. She discovered the opportunities and challenges that occur when transferring a model developed in one setting to a setting with a different demographic.



### **Katelyn Reed**, Biology

Faculty Mentor: Professor Robert Warren, Biology

Abstract Title: **Invasion of a Native Ecosystem**

Katelyn Reed is a Biology major graduating in May 2016. Katelyn is interested in aquatic ecology, possibly undertaking her studies overseas.

Katelyn measured the distribution and abundance of invasive European fire ants at the Tift Nature Preserve in Buffalo. She re-sampled plots last sampled in 1994, and created her own transects and experimental plots to determine the population trajectory and habitat limitations of the invasive ant. She also conducted experiments using native and invasive plants to determine how the ants interacted with them. She presented her results at the Rochester Academy of Sciences Fall Scientific Paper Session.



## ***Undergraduate Summer Research Fellowship Program***

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### **David Reino**, Metals/Jewelry

Faculty Mentor: Professor Stephen Saracino, Design

Abstract Title: **Mokume: Transcendence in Metal**

David Reino is a Metals/Jewelry major and will graduate in May 2017 with a B.F.A. He plans to pursue a M.F.A. in Metals allowing him to eventually teach in this field.

David's research investigated alloying nonferrous metal to create an ancient Japanese alloy called, Mokume Gane. He also investigated using various types of chemical patinas to color the surface of the alloys he created. Several combinations of metal and various chemicals were used and he was successful in producing six billets of Mokume that were alloyed with brass, silver, and copper which he is using to produce jewelry objects.



### **Amanda Schiedel**, Psychology

Faculty Mentor: Professor Robert Delprino, Psychology

Abstract Title: **Comparison of Work and Family Issues of Law Enforcement Officers and 911 Dispatchers**

Amanda graduated in December 2015 with a B.S. in Industrial/Organizational Psychology. She is currently employed in the field of Human Resources.

Amanda examined and compared work and family issues for law enforcement officers and emergency service dispatchers. Her results indicate that while the jobs are different in terms of tasks, there are similarities in terms of perceptions of the job and its impact on family life. The results have implications on the development of programs to assist employees to balance job demands with personal and family life.



### **Rebecca Sturniolo**, Interior Design

Faculty Mentor: Professor Bhakti Sharma, Interior Design

Abstract Title: **Modern Additions for Art Museum Architecture: An Albright Knox Case Study**

Rebecca is majoring in Interior Design and is graduating in May 2016. She plans to attend graduate school to earn a Master's degree in architecture.

Rebecca's research investigated the concept of modern additions to art museum architecture. She visited three internationally acclaimed museums in New York City, Toronto, and Washington D.C. to compare and contrast aspects such as aesthetics, wayfinding, and old architecture versus new architecture. Her results provide a framework of guidelines to be presented to the Albright Knox about the elements deemed essential in designing a successful museum addition.



## ***Undergraduate Summer Research Fellowship Program***

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### **Christina Swenson**, Geology

Faculty Mentor: Professor Gary Solar, Earth Sciences and Science Education

Abstract Title: **Laboratory Study and Analysis of Rock Unit Patterns in the Migmatite Granite Complex Surrounding the Sebago Pluton, Southern Maine**

Christina Swenson is a Geology major graduating in May 2016. She intends to pursue a Ph.D. in geology.

Her research consisted of both laboratory work on a suite of specimens collected by previous researchers on a single large exposure in southern Maine. Christina produced geological thin sections of samples for microanalyses using standard microscopy in order to further understanding of the field relations. Christina presented the results of the research at the 2015 Geological Society of America annual meeting in Baltimore, Maryland.



### **Sabrina Wolf**, Metals/Jewelry

Faculty Mentor: Professor Tara Nahabetian, Design

Abstract Title: **Honeybee Inspired Casting 3D Printed Forms**

Sabrina Wolf will be graduating with a B.F.A. in the Metals/Jewelry program in December 2016. She plans to work for a commercial jewelry design firm and eventually start her own business designing and creating jewelry.

Sabrina's research focused on utilizing the lost wax casting method to transform 3D printed plastic models into metal jewelry designs. Her initial inspiration stemmed from a connection between the bee's method of building their hives and its similarity to the process of 3D printing. Sabrina visited local beekeepers to gather design resources for her project. Her experimentation with 3D printed designs and lost wax casting resulted in a series of jewelry pieces.





## Arts

### **American Traditional Tattoo Flash: Rich in History and Evolution**

**Evan Wachowski**, Communication Design

Faculty Mentors: Professor Stanley Friesen, Design and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

In my project, I will be discussing the history of American traditional tattoo flash, as well as its evolution and injection into mainstream culture. I'll present a collection of flash paintings, ranging in size but hovering around 8.5"x11", that I've done that span influence from the artform's inception, as well as artists that I look up to today. By doing this, I hope to show off my distinct style, and how subtleties in one particular artist's work can differentiate them from other artists who paint the same imagery and motifs and take influence from the same old-school artists. My primary goal in this artistic statement is to show the great history and tradition of American tattoo flash, and detach common negative stigmas from it to solidify it as a serious art form and explain its increased popularity in pop culture. In addition to the paintings, I will be presenting a selection of t-shirts and poster designs that I've done for bands that use this same traditional tattoo style. By doing this, I aim to show how diverse and versatile the style can be, especially when adapted into a more modern style and aesthetic. These shirts are adapted from original paintings I've done, and adapted to vector designs that possess the same traditional style and aesthetic but with a modern, vectorized, and graphic design inspired flair.

### **The Art of Stage Makeup: A Journey**

**Allyssa Pellino**, Theater

Faculty Mentor: Professor Ann Emo, Theater

Make-up can define a person's personality. In translating this to "Stage", make-up is a way to help the audience better understand a character in a play, musical and even dance production. Through the art of make-up we are able to transform the everyday person into something spectacular. Throughout my educational journey I have devoted countless hours to the research and practice of this art. My design and application skills, both on myself and on another, have improved dramatically over the course of two years. I dove into books, articles and photographs to focus in on what each of my projects would consist of. This presentation shows the arc of my research and my creative process. It also illustrates the improvements I have made throughout the two years of studies and showcases my advanced creativity.

### **Buffalo: Its Rebirth and Forgotten Corners: Painting as a Form of Documentation and Celebration**

**Joseph Giardina**, Painting

Faculty Mentor: Professor Lin Jiang, Fine Arts

My research led to a series of paintings that captures the evolution and many facets of the city of Buffalo as it rebuilds and re-imagines its self in the 21<sup>st</sup> century. I chose to focus on the developing outer harbor area of Buffalo, which holds countless possible painting sites. Nine paintings were completed around the area in the plein air painting style, which requires painter start, and complete a painting onsite to capture the authenticity of being both site and time specific. This approach serves me the best to accomplish my goal of documenting the rebirth of the city of Buffalo in painting. Each of my paintings is site specific and time specific especially in terms of the light. All paintings are done with painterly approach to capture the immediacy with commitment and confidence. In my research project, Buffalo's rebirth is documented in a landscape of relics that tower over a new and active park system; one that lines the once desolate waterfront. These massive structures cast no shadows on Buffalo's future. They quietly stand as a reminder of our industrial heritage, and have become a new monument to the future of Buffalo, a city of no illusions. As a painter my deepest desire is to observe and interpret without losing sight of my subject. I tried to look for moments when colors interfaced with each other and used that as means to enhance the interpretation of my subject. Direct observation allows me to look deeply into what defines my subject both physically and metaphysically. With this project, I feel I have evolved into a painter who paints with more authority, confidence and (most importantly) intuition.

### **Building and Firing Large Scale Ceramic Sculpture**

**Layna Mattson**, Ceramics

Faculty Mentor: Professor Robert Wood, Design

My research involved developing the building methods for making large scale outdoor clay sculptures. I tested small clay samples that I formulated to determine their resistance to the freeze-thaw cycle of winter in upstate New York, and from these developed a clay body that is suitable for sculptural work outdoors. I also learned how to fire my sculptures outdoors by constructing a temporary wood burning kiln around it. This venture culminated in a final project in which I built a 7.5' clay sculpture on a site in Arcade, NY. My sculpture was inspired by ancient monuments and megaliths; a four sided tower with carved reliefs on each side and a large orb on top. The form is

reminiscent of a gravestone. My ceramic work aims to provoke a feeling of ritual, and of participation in ancient rites within the viewer. The relationship between the sculpture and the site it dwells is cosmic, as this piece was constructed in accordance with the arch of the summer moons path from the eastern sky to the western sky. After I built the kiln around it, and with the blood moon rising in the background I fired the piece, with flames leaping into the night sky.

### **Cajun with a Side of Zydeco**

**Mayané Barnes**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My research explores the musical genre known as Zydeco, and the differences between its Cajun and Creole styles. Zydeco, a regional accordion-based music often associated with dance, originated in rural southwestern Louisiana from traditional Afro-French Creole music. The term Zydeco derives from the French phrase “Les haricots ne sont pas salés,” which means “the snap beans aren’t salty”. Clifton Chenier was the first zydeco recording musician and the first person to popularize this style of music. My project examines the significance of its cultural and social influences, such as in the celebration of Mardi Gras. I will travel through the roots of the Cajun culture, including the background history of the Acadien people’s arrival in America from France and how they made their way into modern Nova Scotia. The Cajun and Creole genres are fundamentally different in their use of rhythm. Further musical elements that differentiate the two styles involve instrumentation, melody, and harmony. Finally, I will describe the main instruments used in both genres of music: the accordion, a core instrument for dance music and vocal accompaniment; and the vest frottoir, a percussion instrument made of pressed stainless steel and worn over the shoulders like a vest. I hope to add some spice to your knowledge of Zydeco!

### **Consciously Killing Yourself While Underdeveloped Sapiens Evolve Slowly**

**Kenny Leon**, Painting  
Faculty Mentor: Professor Philip Ogle, Fine Arts

This project plays on misanthropy as a prevalent topic in my paintings and drawings. My research involved the practice, exploration, and command of cartooning as a visual tool to express difficult ideas in my art. This has led to the creation of one large scale seven by ten foot painting detailing an inherent rift I feel is part and parcel of the human experience by utilizing the biblical story of Adam and Eve. Within the painting, Eve, whose green skin is tied to both Earth and a perceived pestilence, is violently torn apart by a psychotic machine gun wielding Adam. Adam’s penis is transformed into the fabled serpent, connecting man to the subjugation of women through violence dictated by tradition. Adam’s black skin is painted to

appear more Caucasian by a trinity of men, a white washing of humanity’s origins felt in the established racism of today. The men’s indifference to the chaos sees a mankind absorbed by its own hubris, as marked by their red clothing, as they are intellectually and emotionally divorced from the consequences of their imploding constructs. By depicting Adam and Eve in such a violently comical manner, I ask how can a civilization be taken seriously if its foundation is based on fundamentally flawed man-made myths?

### **Cross-Cultural Gender Roles in Traditional African Music**

**Emily Leminger**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My project investigates the traditional roles of gender in West African music. I examine the relationship between traditional African music in indigenous areas and African music in Western civilizations, and my presentation will differentiate among traditional West African practices and the adaptation of West African music in Western culture. Musicianship in West Africa traditionally revolves around storytelling and familial relationships. Djeli are the main artistic practitioners, contributing as storytellers, historians, and musicians in authentic West African music. Each Djeli has a specific role, as well as titles and duties, within the culture into which they are born. I will also describe West African traditional music in the American classroom setting, focusing primarily on collegiate education with music programs as opposed to the cultural learning process of indigenous African peoples. I have found that cross-cultural music styles, although employing similar techniques, often delineate other facets of traditional West African culture. Western musicians often do not observe traditional gender roles in performance, whereas in West African cultures a certain restrictive practices are followed. My conclusions describe American musical practices, performance, and accessibility versus the cultural appropriation of West African culture.

### **The Cultural Symbolism of the Irish Harp**

**Kacy Harrison**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

The early Irish Harp, also known as the Celtic or Gaelic Harp, has long been a signature of Irish culture. My research investigates the symbolic relationship between the Irish Harp and cultural tradition. In general, Irish music is one of the main identifiers of Irish national character. But what is it that specifically makes the Irish Harp one the most recognizable trademarks of Celtic culture? Throughout Ireland’s history, Celtic folk music has proved to be a valuable tradition that inspired the Irish people’s national identity at times of social and cultural change, particularly political oppression and unrest. As an oral

tradition, many of the early practices of the Irish Harp have been lost. However, my examination of the construction, playing technique, and modern repertoire of the Irish Harp will shed light on its recognizable symbolism of traditional Irish culture.

## The Culture of Tango

**Jennifer Vasquez**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My project develops an understanding of the culture inherent in the tango style of dance. Tango originated in Argentina and was choreographed to music with a habanera rhythm. The habanera style is used to create the syncopated dance pulse. Tango music has become globalized over time. Europeans and Americans refashioned the genre into a slow ballroom social dance. In response, the Argentinean people moved to reclaim the tango in order to preserve their dance culture. True Argentinean tango is very expressive, with an emphasis on drama and melancholy emotion. The tango dance is very expressive as well, and is dominated by dialogue between the partners. Both the male and the female have dynamic roles in this expressive dance. The dance can be embellished in order to accentuate a variety of moods. My presentation will describe the history of tango music and dance, as well as the significance of the tango culture as it has evolved into a global phenomenon.

## Don't Think, Just Do: Drama-Based Education Training

**Molly Bader**, THA 470: Ensemble Theater  
Faculty Mentor: Professor Drew Kahn, Theater

Every year the Anne Frank Project brings a group of students to Rwanda. While there, the students visit genocide memorials, a refugee camp, and more. They meet genocide survivors and learn from the ways this remarkable country has made government-mandated forgiveness a human reality. Once back in Buffalo the students create a play based on what high school students need that will be shared with the community. This January I traveled to Rwanda with the Anne Frank Project. We had the opportunity to present about and train teachers in drama-based education methods. Drama-based education comes from the theory that students learn better when they can incorporate the lessons into their bodies and build stories about the topic matter. The Rwandan school system is starting a new curriculum for 2016 focused on competency-based learning. This curriculum focuses on what students can do with what they learn, instead of just testing fact retention. Drama-based education fits in with this methodology perfectly. We trained over 50 teachers and worked with a team of teacher trainers who could potentially affect thousands of students across Rwanda. My presentation will include a brief overview of what we do in Rwanda and perhaps a short focus/breathing exercise to help the audience understand

the mind/body connection that is so integral to drama based education. I will then discuss the work that we did with the teachers and some of the responses we have received.

## Ecological Woven Fabrics

**Emily Beresford**, Fibers  
Faculty Mentor: Professor Dawne Hoeg, Design

I studied and gained knowledge of; 1. different natural fibers such as cotton, silk, wool, rayon, and bamboo. 2. Different natural dyes that are readily available such as cochineal, madder, turmeric, weld, osage, indigo, lac, and logwood. 3. woven structures and the ability to create new designs. Over thousands of years, nature has transformed the minerals of the earth into dyes. These natural dyes are organic and create a beautiful and harmonious color spectrum. These natural dyes are found in mud, trees, minerals, and plants. The ability to gather what is around you and transform it into beautiful dye material is a lost art. I am reviving this art through my research, and I am delighted to be at the forefront of this process. I find it inspiring for me to be able to reach back to our ancestors and to use the information that they did. To begin the natural dye process I first had to mordant the material so that the natural dye would be absorbed into the fiber and remain permanent. After mordanting the materials, I had to prepare the natural dyes to be used. While dyeing I discovered many different shades of one color that I could produce. It all was depending on the type of fiber I used. I found that weaving with natural dyes created unique textiles, especially where there was a variation of dye in the skein of yarn due to being tied. They make a beautiful color palette all together. I am especially attracted to the minimal impact on the environment from the extraction and use of the dyes is a huge benefit of natural dyes. These dyes are environmentally friendly and cause no harm upon myself, unlike chemical dyes that are hazardous if one breathes in the powder.

## Enka: Crossroads of Japanese Music

**Sam Speciale**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

Enka is a popular form of Japanese music that imitates the styles of traditional Japanese music. My research will focus on the history of this relatively young genre of music and its bridging of traditional Japanese music styles with modern global music and culture. Though it uses several instruments common to traditional Asian music, such as the three-stringed Japanese lute known as the shamisen, it also uses instruments that are more mainstream in popular music, like the guitar and piano. Even though Enka itself is nowhere near as old as the traditional styles of music it imitates, it has grown into multiple genres and expanded outward from its original origins of political protest. Enka is a good symbol of what could be described as a crossroads

of music. It takes multiple genres of influence, such as the blues and kabuki, and a diverse organology and serves as the genre where they cross paths and possibly create something new entirely. Being a fan of Japanese culture and a fan of music in general, Enka music has naturally piqued my interest. By the end of my research, I hope to discover the ways Enka has impacted music in Japan as well as any influence that it may have on my personal everyday life.

### **The Evolution of Irish Music Through the Willis Clan**

**Francisco Quebral**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My research traces the roots of traditional Irish music to show its evolution and influence on modern Irish music acts like the Willis Clan, a family band of twelve siblings based in Nashville. The distinctive timbre these musicians present resonates even to listeners who are just beginning to appreciate it. I will also discuss the use of distinctive rhythmic and melodic gestures and ornaments by musicians working in this style. Musical evolution is cumulative in that many styles reshape new ones. This evolution may also depend on a particular region, country, or particular musicians who left their mark on a style's development. Nowhere is this evolution more evident than in the Willis Clan's first three albums. The sound of their first album, *Roots*, is characterized by the use of traditional instruments such as Irish whistle, button accordion, and the bodhran (an Irish frame drum), as well as by the distinctive vocal style of lead singer Jessica Willis. I will also describe how the Willis Clan later branched out into bluegrass in their second album, *Boots*, then fused pop and rock with traditional Irish music in their third album, *Heaven*, by adding instruments like electric guitar, bass, and drums to traditional instrumentation.

### **The Eyes of Others: An Arts-Based Research Project on Rape Culture**

**Molly Bader**, Theater  
Faculty Mentor: Professor Alice Pennisi, Art Education

Rape culture is comprised of a series of social norms and expectations that contribute to the objectification and dehumanization of and sexual violence against women and girls. My project involved a combination of traditional research methods and those related to the art-making process. I reviewed historical and recent research on rape culture, analyzed popular and social media on the subject, and interviewed a sample of college-age students on their social and relational interactions, experiences, and expectations. I reflected on and represented what I learned by using an art journal to develop visual imagery about the data. I consistently found that verbal and written language, in the form of judgmental descriptive commentary, expectations,

and commands create the foundation of rape culture and help shape an environment that normalizes later actions. To represent my findings, I created seven large mixed media artworks (up to 30" x 40" in size) and a series of fifteen smaller (8" x 8") works that interweave quotes and descriptions of experiences with imagery. The artwork focuses on three different aspects of my research—the Virgin/Whore Dichotomy, Body Objectification, and Social Expectations. It is my hope that viewers can consider their own experiences and reflect on the steps we all must take to create a safer world. My works presented here were also exhibited in Buffalo State's Bacon Gallery during the 2015 Anne Frank Project.

### **Fado: Propaganda, Censorship, and the Portuguese Soul**

**Amanda Paruta**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My project investigates fado, the musical embodiment of Portugal's national spirit in song. Soulful, nostalgic, and reflective, fado has been the medium for the people's messages, both romantic and nationalistic in nature. Under the regime of the Estado Novo, a dictatorship which controlled Portugal from 1926 to 1974, however, the romance of fado faded, dimmed by heavy censorship and political unrest. The Estado Novo transformed fado into a genre that was nearly unrecognizable to its people. Shaped by the regime, fado betrayed the former ideals of the audience for whom it was created, the common Portuguese citizen. My presentation analyzes the transformations of fado through the shaping influences of the Portuguese political system. Artistic elements most affected were the fado poetry—the sung text of fado music—and the presentation of fado concerts. Dulled by brazen propaganda and heavy censoring, fado poetry lost the passion that was originally responsible for the genre's public appeal. The intimacy of fado concerts also dwindled and became more of a propagandist spectacle than the humble sharing of music. The fado heard in the streets was the gilded and pre-approved sound of a less beautiful era in Portuguese history. No longer a vessel of romantic nationalism and whim, the fado genre was eventually abandoned in Portugal until the demise of the Estado Novo in 1974. Scathed by the betrayal of their music, the Portuguese slowly rebuilt their fado identity to include contemporary poets and composers, encompassing the sociocultural concerns of today's society.

### **From Africa to Buffalo Yoga Project**

**Sarah Panzica**, Arts and Letters  
Faculty Mentor: Professor Joy Guarino, Theater

I traveled to the slums of Mathare Valley in Kenya in April 2015 to attend a two-week training of the Africa Yoga Project (AYP), a replicable model that empowers young people through

yoga. I found the AYP model to be extremely effective for the youth that lived in poverty. I conducted the From Africa to Buffalo Yoga Project to investigate the possibility of the AYP model producing the same transformational outcomes of empowerment, self-advocacy, and self worth on children of The Boys and Girls Club summer camp in Niagara Falls, NY. The children aged from 3-15 years old and were bi-gender organized. The methodology involved administering pre- and post-surveys to assess the children's responses on safety, self-worth, individuality, and positivism and note any changes. The intervention consisted of teaching yoga twice each week for an hour. The children were at a different maturity levels than expected. After much trial and error with delivery, I began to identify consistent behaviors and reactions to the material. Throughout the training, I witnessed a progressive transformation within the children that included growth in confidence, self-worth, stillness, self-knowledge, and openness. I was hoping for more significant results but recognized that their daily life situations were an uncontrollable adverse factor. The post survey data indicated that the children showed progress in all four blocks of meta-perceptions. The yoga project was indeed successful in changing their reactions and knowledge of self-help and I am encouraged to continue implementing the AYP model.

### From the Page to the Screen

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

The first step to creating a film is the script, but how are those words adapted to images? This is the role of the Director of Photography, also known as the cinematographer, who is responsible for capturing the shots of a film. I am exploring this process that requires turning words into moving images as I perform my duties as the cinematographer of a short film entitled Tuna, which I also wrote. I am influenced by professional Hollywood cinematographers such as Phedon Papamichael and Robert Yeoman. Papamichael shot the film Nebraska by Alexander Payne. Yeoman shot the film Grand Budapest by Wes Anderson. Both cinematographers use a multitude of long shots that capture all the subjects of a scene. Their style compliments dry and 'awkward situation' comedy, which is the comedy-style of the short film. The difficulties with this is that there is a fine line between the success of this style where it is received as funny and where it is viewed as dull and unengaging. The goal is obviously to engage the audience with the visuals as much as from the content. The presentation will consist of the process, from shot list and storyboard (list of shots and drawn cartoons of shots) to the finished edit. What shots were kept, added, modified, or removed and why the decision was made. My work

will be compared to that of my professional influences as well as compared with the work of my fellow student cinematographers.

### Get Your Pierogi on and Let's Dance

**Casey Jo Wojcik**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

The Krakowiak is the national dance of Poland. My research explores the history, current function, and Western adaptations of Poland's Krakowiak. This duple-meter, fast-paced dance dates back to the 16<sup>th</sup> century, when Poland was trying to regain its independence from Austria. The Krakowiak served as a symbol of unity among the people, as it was danced in salons to resist national oppression. Over time, the dance shifted from its functional nature to more of a performance exhibition. Its folk music has a three-part form that uses repetition and harmonic modulations to extend the outer sections surrounding a contrasting middle section. This musical accompaniment also has a specific syncopated rhythm characterized by short-long-short pattern, which makes the dance easily recognized. The unique alternating syncopated rhythms influenced many classical composers, including Frederick Chopin. Modern dancers in this style wear Poland's most extravagant, colorful, and decorative folk costumes. Today's couples also perform on concert-type stages much larger than the previous salons. Among the dance's key features that I will describe are steps such as the gallop (fast running forward), the holubiec (jumping with clicking heels and stamping) and the krzesany (sliding motion of the feet with stamping).

### The Guzheng Project

**Matthew Burch**, Technology and Design  
Faculty Mentor: Professor Richard Ross, Design

The Guzheng is an acoustic Chinese instrument that dates back nearly 2500 years to the Qin Dynasty (897-221 BC). My research goal was to build a solid-body electric Guzheng. I have played electric instruments (mainly guitars) for over 15 years and understand how the possibilities of sound can be expanded when an acoustic instrument is electrified. In order to gain a deeper understanding of the instrument, I traveled to China. I was able to speak with professors, Guzheng master musicians, as well as workers at a Guzheng manufacturer about building processes and materials. This gave me the necessary background for building my own Guzheng as a prototype for mass production. The design process evolved throughout the summer. I was able to complete the electronic circuitry utilizing "Piezo" transducers with guidance from Professors Steve Macho, Engineering Technology. The circuitry boosts the signal from the Piezo transducer when the Guzheng is played, allowing sound to be amplified through speakers.

## Harmony: Producing a Guitar-Driven Instrumental Composition

**John DeJac IV**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Tom Kostusiak, Performing Arts Center at Rockwell Hall and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This project summarizes the inspiration and creative process behind producing a guitar-driven instrumental song that I wrote and produced in my bedroom studio. I have spent many hours working on this song to achieve the specific sound I strived for, and this is showcased in the final mastered composition. The song is 7:06 in length and was recorded using the guitar equipment and pro audio gear that I own. As a musician of about 15 years, I was driven to explore something I have never done before and push myself to write a completely instrumental song for this project. Although I studied many aspects of the music production process throughout my work, this project focuses mainly on the creative process. Most of my inspiration comes from spending a lot of time listening to the pop/punk, hardcore, post-rock and contemporary Christian music that I love. The finished song is a mix of the many different genres of music that have influenced me as a musician and is a product of my growing musical style. The track is entitled “Restoration,” and my goal is that it will evoke a sense of creativity, peace, and new hope in the audience through its musical composition. It will be featured and explained in an artist talk.

## He Who Sings, Prays Twice: An Overview of Ethiopian Christian Chant

**Sarah Rice**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My research explores the unique characteristics of Ethiopian Christian chant, including its practice and role in the Ethiopian musical liturgy. I determine the origins of its intricate musical language and investigate the ways in which sacred musical traditions have survived for generations despite religious persecution. My project distinguishes between Western and Ethiopian musical systems, and examines the level of expertise required to become an Ethiopian church musician. My goal is to uncover the ways in which music, dance, and worship interact to create a sacred experience for the Ethiopian people. I also examine the relationship between Jewish and Christian architecture in Ethiopia, musical style, sound and celebration. Today’s Ethiopian Christian chant remains true to its Jewish roots while evolving into its own unique style. I hope to inform my audience of a perhaps less familiar musical world, and to expose the ways in which musical practice, tradition, and worship unite to form a community.

## A Heavy Dose of Atmosphere

**Maryrose Fridey**, FAR 343: Advanced Sculpture  
Faculty Mentor: Professor Kenneth Payne, Fine Arts

Despite the amazing wonders we are able to observe on Earth, it is important to realize there is a much bigger picture going on around us. My goal is to shift the viewers focus to a cosmic, outer-galactic state-of-mind. It’s easy in everyday life to become focused on our own little world, on just what is at our fingertips. But we humans were designed to be amazed and to be filled with the wonder of all creation. As we shift our focus from ourselves, we begin to see how fragile life is, to realize that it’s not just about us and that we are privileged to be a part of a grander whole. Just as we are made of stardust, we can find ourselves as a reflection of what is bigger, better and more powerful. I will be working with many different types of medium to create sculptures that convey this feeling to the viewer. In doing so, the main goal is to trigger those cosmic recognitions in the viewers mind. Scale, lighting and composition as well as materials are all important elements that I will be working with. I plan to share many of the statements previously made above in a poster with pictures of my final product.

## History of the Shawm

**Kristen Stadelmaier**, MUS 440: Ethnomusicology  
Faculty Mentors: Professor Carolyn Guzski, Music and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

I am investigating the shawm, an ancient double-reed instrument that was used throughout Europe and in the Middle East. It was also used extensively in European music from the late 13<sup>th</sup> to 17<sup>th</sup> centuries, when it gave way to the modern oboe. The geographical history of the shawm is extremely interesting, as it was introduced to Europe through the Crusades. The instrument was originally used in Turko-Arab courtly and civic music, as well as in the military. After 1500, the shawm was modified and called “hautbois,” meaning “loud woodwind.” In the late 17<sup>th</sup> century, the hautbois was modified again and called the oboe. My project will include an in-depth analysis of the technology and mechanics of the instrument. The original shawm was usually made of a hard wood such as boxwood, with its body carved out of a single piece of wood. The top has three detachable parts: the pirouette (a cylindrical tube), the staple (a short stick placed inside the pirouette), and the reed. I will also explore the shawm’s musical characteristics. Its tone was frequently described as loud or shrill, yet not necessarily unpleasant. The lower register of the instrument sounded like a trumpet, but the upper registers were shriller. My poster will show the geographic history of the shawm, explore its anatomy and tonal characteristics, and provide an overview of its modern counterpart, the oboe.

## Honeybee Inspired Casting 3D Printed Forms

**Sabrina Wolf**, Metals/Jewelry

Faculty Mentor: Professor Tara Nahabetian, Design

My research combined the exploration of the world of bee farming, 3D printed forms inspired by bees and modern methods of lost wax casting. Using CAD software, 3D printing processes and lost wax casting methods, I explored methods for designing, modeling and casting small objects. Within a short period of time I could go from designing an object, making a model of it using a Dimension 1200 3D printer, and casting it into a metal object. I used the Rhinoceros 3D software program for designing my models. Through my research, I became familiar with the processes of designing in CAD and 3D printing. I combined the 3D printing process with my interest in honeybees as a theme and created my body of work. It became apparent to me that honeybees build their hives in a similar way to the 3D printing process; both occur in an orderly manner with each successive layer being made. I researched different mold making materials and any adjustments that needed to take place in the burnout process. During the burnout process a traditional wax model is melted out of the mold and the cavity is replaced with metal. However, plastics melt at a variety of different temperatures and can break the mold if it is heated too fast. By altering the mold making material, experimenting with temperature and the amount of time the mold was heated in the kiln, I was able to successfully cast the 3D printed plastic. After completing the casting process, I found that even the linear marks created by the printing process appeared in the bronze cast pieces. Using computer-aided design software, I created digital drawings of chains, neck pieces and pendants influenced by bees and their environment. These were 3D printed, then cast in bronze, and completed using traditional jewelry techniques.

## I'm Shipping Up to Boston: The Irish Ballad in America

**Eric Carvill**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Carolyn Guzski, Music

In the aftermath of Ireland's Great Potato Famine of 1845-1850, nearly a million Irish emigrated to the United States. During this period, many Irish moved between New York and Boston, developing important émigré communities in each city. Drafted to fight in the American Civil War, many Irish-Americans were used as filler for the Union Army in an inhumane way. Music played an important role in the life of the Irish people, principally in the form of the ballad. Beyond "O Danny Boy" and "Too ra loo ra loo ra", it was the story of the land left behind that helped many endure hard lives dominated by work. Like many forms of music, the Irish ballad eventually began to take political shape. As personal stories turned into song, the genre became a

form of social protest. My research will highlight several typical songs of the ballad genre, and analyze their musical, social, and political impact on the Irish-American community.

## I'm Trying to Figure This Out

**Marshall Cancilla**, FAR 343: Advanced Sculpture

Faculty Mentor: Professor Kenneth Payne, Fine Arts

This semester I am continuing my study of the human figure, human anatomy and the figure as a form in space. I am also studying and practicing portraiture. I find the different features of each individuals face and head and their relationship to one another to be incredibly interesting. There are many problems that arise from doing figurative work as opposed to abstract or non-representational sculpture. For example if the proportions are not accurate, no matter how exact the detail, it will look wrong. That is one thing I am trying to understand better this semester. I am also casting metal as part of this process. I am casting many figures in both bronze and Iron. I am researching different mold materials that can withstand the heat of the molten metal such as resin bonded sand and ceramic shell. I have discovered many new technical things in regard to both casting metal and working with water based clay Things such as hot tears in the metal as it cools and how to properly fire a clay sculpture. I will share images of my work as I explain my project.

## Illustrations: Contemporary Animal Issues

**Sarah Costello**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Carol Townsend, Design and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

According to the ASPCA, there are thirteen-thousand six hundred independent animal shelters in the United States alone, not including those affiliated with the ASPCA or the Humane Society of the United States. In the United States, approximately seven-point-six million animals enter shelters each year, and of these, about two-point-seven million are euthanized for being "unadoptable" or not being adopted within a certain time frame. This is partially the result of overpopulation because there are more animals than responsible homes. Another issue that exists is animal hoarding, situations in which an individual attempts to house more animals than is possible. In order to elucidate these issues, I created several illustrations and an illustrated book. I used charcoal and colored pencil for the illustrations which are 14"x17" in size, addressing the above issues. For the book, I created a series of images that reflect a major contribution to overpopulation: animals not being spayed or neutered. Images were created in pen and ink before they were scanned into Adobe Photoshop/Illustrator to add color. The resulting project is 5"x7" when closed and will open into an accordion-folded structure. Selected work will be displayed on the Mezzanine Wall in E.H. Butler Library.

### **Israeli Gonna Blow Your Mind: A Look at Israeli Hip-Hop**

**Jacob Sandler**, MUS 440: Ethnomusicology

Faculty Mentors: Professor Carolyn Guzski, Music and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

I will be exploring contemporary Israeli hip-hop, with a primary focus on the groups Hadag Nahash (Fish Serpent) and Subliminal. I will explore the sound, setting, and significance of their music and lyrics. In terms of sound, I describe each group's organology (instrumentation), tonality, texture, and meter. I will also explore the textual significance with regard to political influences. These two groups happen to fall on opposing ends of the Israeli political spectrum. In regard to the setting, the music is presentational; like any good popular music concert, though, many in the crowd—myself included—sing along. Much of my research was conducted while I was in Israel last spring, during which I was able to attend a live performance of Hadag Nahash—the second time I've seen them perform. Songs such as “Shirat HaSticker [The Sticker Song]” (Hadag Nahash) and “Tikva [Hope]” (Subliminal) exhibit the regional and cultural influences of the two groups. Finally, I intend to present a snapshot of Israeli culture and society through the lens of its intricate hip-hop scene. Drawing on the traditional music of the region, combined with modern themes such as Zionism and the Israeli-Palestinian conflict, a complex and uniquely Israeli music has formed.

### **Little Feet, Big Steps**

**Elyssa Harper**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Brent Patterson, Design and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

It is immensely important for children to never stop creating. Too often, children reach an age where their self-criticism halts their artistic development. They become frustrated that their skill level is not where they would like it to be and stop creating for fear of making art that “isn't good enough.” After studying the artwork of my own childhood, I was able to compare my work to the 6 stages of artistic development studied by art educators. It was not surprising to find my artistic development clearly followed these stages. I progressed from the “Scribble Stage”, to the “Preschematic Stage,” the “Schematic Stage,” the “Realism Stage,” the “Pseudo-Naturalistic Stage,” and finally, the “Decision Stage.” Using references from my own work, I was able to create a series of paintings reminiscent of my childhood. Each painting corresponds to a stage of my development and contains the tiny shoes I wore along with some artwork I made at each stage. The paintings should serve as a reminder of a simpler time filled with unrestricted creative curiosity and wonder. I was fortunate enough to have family members and teachers that

pushed me to grow and never stop creating. Many people went through the same exact stages of development that I did, but stopped making art because they did not receive the support to continue. I hope they view my paintings and begin to question why.

### **The Mathematical Music of Conlon Nancarrow**

**Joel Decker**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Carolyn Guzski, Music

The global influence present in the Studies for Player Piano by the Mexican-American composer Conlon Nancarrow is incredibly vast. This work continues to have lasting effects spanning multiple genres, including boogie-woogie, blues, jazz, classical, and serialism. Nancarrow's music employs unique mathematics of a complex nature previously unheard of in the classical music world. The combined difficulties of comprehension and the virtual impossibility of performing Nancarrow's scores—even for the most educated of musicians—made the use of a player piano a necessity. The player piano thus became a tool Nancarrow used to employ his own complex and innovative compositional techniques. Within the Studies for Player Piano, Nancarrow proved to be a pioneer in his unusual uses of tempo; for example, he frequently experimented with acceleration and deceleration, even composing multiple melodies with varying tempos to be played simultaneously. These tempo changes often involved ratios and common denominators, resulting in complex meters. Superimposing these meters did not always require a clean fraction or common denominator, but allowed the juxtaposed melodies to start and end together. Nancarrow often used irrational numbers in his music as well. He explores the use of pi, the mathematical constant of e and the square root of two divided by two in his music. My research describes the relation of music and mathematics in the Studies for the Player Piano, as well as the lasting global influence this work has had in the musical world.

### **Modern Additions for Art Museum Architecture: An Albright Knox Case Study**

**Rebecca Sturniolo**, Interior Design

Faculty Mentor: Professor Bhakti Sharma, Interior Design

Art museum additions are deemed controversial in the architecture community. This argument stems from the level of respect the addition should have for not only the existing architecture, but also the contents it holds, as well as the architect's desire to create an original design. The Albright Knox Art Gallery is currently undergoing the early stages of expansion. The goal of the research is to explore the successes and failures of three museum expansions, from the perspective of

the user, in order to provide a foundation for the Albright Knox's redesign. The research is supported by three subcategories of study; aesthetics, way finding, and old versus new architecture. Through primarily qualitative methods, including those such as visitor surveys, location mapping, and participant observation, an analysis of the interior spaces of each museum has been completed which can then be compared to the current state of the Albright Knox. Surveys were given out at each museum in order to gauge the visitors' experience within the space and how they personally view the architecture. Location mapping, circulation plans, sketching, photographs, and participant observation lend in understanding how particular spaces within each museum are laid out and how these compare throughout the three museums. The results of the research contribute in understanding how interior spaces of museums function and relate, as well as the user's experience within these spaces. Based on research findings, the elements that are crucial in creating a successful museum addition are apparent.

### **Mokume: Transcendence in Metal**

**David Reino**, Metals/Jewelry

Faculty Mentor: Professor Stephen Saracino, Design

The primary inspiration for my metal and jewelry design is the iconography of Eastern Religion and Philosophy. I rely heavily on the tenets of Buddhism to support me in my profession, which requires me to empathize with the pain and fear of my patients, the better to assist them in dealing with their illnesses and death. To do so is a rare and unique privilege, but as a consequence of repeatedly experiencing firsthand the suffering and loss of others, I have come to keenly appreciate those moments of beauty and transcendence which life has to offer. I understand the implication inherent in a monk's painstaking efforts to create a mandala of sand, grain by grain, only to have it brushed away in a moment. My efforts in design derive from the desire to create similar beauty for my own, as well as others appreciation, albeit in a more permanent form. During this Fellowship I have learned the process known as Pattern Welding or Mokume, which was developed in feudal Japan. This is a highly technical process, requiring the precise performance of multiple steps, beginning with meticulous preparation of the metal to be fused, followed by firing in a high temperature furnace and subsequent hand-forging to produce a desired pattern in the layers of metal. I have developed a series of six billets of twelve layers, using copper, brass and silver. These range from 8 to 160 square centimeters. Experimenting with several different methods of pattern development and patina application I have produced flowing organic forms of red on black, suggestive of Greek pottery, patterns evocative of leopard skin as well as a geometric design based on the cover of a 14<sup>th</sup> Century Egyptian Koran. I have only begun to explore this technique, and look forward to incorporating it into my body of work.

### **Music You Can Drink To**

**Susan McDonald**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Carolyn Guzski, Music

A large number of American traditional songs can be traced to Ireland, as Irish immigration created strong roots in the United States for this musical heritage. In Ireland, pubs and bars are the center of musical life—you can easily walk down any street and pass numerous venues featuring of live entertainment. As I am of Irish descent, I am interested in growing musically by exploring my cultural heritage. My research suggests that analysis of this genre of music falls into three principal categories: history, instrumentation, and dance. Among the subcategories I will explore are sung poem, group and solo dances such as the jig, tin whistles, fiddles, and concertinas. I was able to experience Irish music and culture throughout southern Ireland in the summer of 2015. During my time abroad, my group was able to “pub hop” and experience many styles of music and dancing, and participate in dance, vocal and instrumental workshops during the Feakle Music Festival in County Clare, which culminated in a series of performances. I found the musical world of Ireland's pub life to be very popular, with young musicians creating new music. My project will report on my experiences with this strong sense of tradition that stems from a rich historic past.

### **The Nature of Hawaiian Music**

**Jessica Cain**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Carolyn Guzski, Music

My research explores the relationship between music and tradition in Hawaiian culture. Historically, music and dance were used to recall spiritual mythology of Gods and to respect the actions of powerful rulers of the past. Today, Pacific Islanders continue to use traditional music to express their love for their ancestral homeland. The song “A Kona Hema ‘O Ka Lani” (The King at South Kona), composed by Haunani Kahalewai, was created from a traditional chant to worship King Kalākaua (1863–1891) and the Islands he inhabited. This song also praises the beauties of nature: its mountaintops, the cloud banks, and the spiritual connection when the sea is at mid-tide. The Hawaiian chain of islands are the site of magnificent beaches, large rainforests, active volcanoes and breathtaking high-altitude scenery—inspiration for a variety of musical genres in traditional styles. Most of its folk songs feature Hawaii's national instrument, the slack-key guitar. This special instrument is a guitar whose six strings are attached very loosely to its body, creating an “open chord” type sound when played. What makes playing this instrument so special is that Hawaiian children typically learn to play it not by formal musical instruction, but through oral tradition. This practice is common to the transmission of this region's musical culture.

### **Oil Makes the Sound of the Caribbean**

**Stephen Deck**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My research explores the history of steel drums and steel drumming traditions of the Caribbean and their global influence. The steel drum has not existed for a very long time. The drum was first created from leftover 55 gallon steel oil drums. They were left in Trinidad and Tobago during the World War II era, more specifically beginning in 1930 when the island and surrounding area began widespread oil production and refining. These drums came from Venezuela for the refining of oil. These left over drums were then used by the people of Trinidad to form them into their pitched drums. These “drums” are not considered membranophones, but instead an idiophone. It is classified as an idiophone because it resonates through itself to make its pitched noise. The drum is played with a stick in each hand. The sticks were made of whatever wood they could find, but over time people have made mallets with woods of their preference that have thin rubber wrapped around tip of the stick. There are over ten steel drum classes or sizes that make up the steel drum pan family. The history of steel drumming stretches far and has taken over the Caribbean. The first use of a steel drum and steel band came in 1954 with the Broadway musical *The House of Flowers* by Harold Arlen. An international steel pan festival is held intermittently in Trinidad dating back to 1964. It features a competition that draws steel bands from around the world, thus showing how far the art of steel pan drumming has reached since its beginning, and how popular this style of music has become.

### **The Organology of Music in Panama**

**Marcus Roper**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

Panama is a country that is sometimes forgotten because of its size and its geographical location in Central America. My project uncovers the rich instrumentation that is traditional to Panamanian folk music. I investigate chief instruments that were utilized by the musicians of this genre. This music was created by a mixture of African, Spanish and Amerindian cultures and styles. This cultural diffusion resulted in a music rich in rhythmic and melodic variety. Much of the music can be recreated with modern instruments. For example, the traditional meyoranera can be substituted with the guitar if it is tuned in a characteristic way. Other instruments like the guachara, however, cannot be replaced because of their distinct timbres, or sound colors. I will discuss the instruments of Panamanian folk music in terms of their musical function in various genres. Finally, I explore the dances that this music typically accompanies. Like its music, dance in Panama has tripartite cultural origins. These art forms still maintain their relevance in Panama today.

### **Peek-A-Buki**

**Joshua Vacanti**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

The word Kabuki, or its derivative Kabuku, was originally translated to mean “to incline.” In Japan of 1596, this phrase invoked thoughts of immorality and erotic excess. This wordplay on sensual desires is quite a departure for a musical and theatrical art form that can find its historical roots in the sacred Buddhist Morality plays of the same time period. A Shinto priestess named Okuni Izumo initiated the musical art form on the banks of the river Kamo by combining music, dance, acting, and theatrical spectacle seamlessly. Okuni’s contributions to the theatrical world have transformed the translation of the word Kabuki to its present meaning, “the art of song and dance.” To this day, Kabuki continues to hold a distinguished and prominent place among the performing arts in modern Japan, and still respects its original forms. My presentation further delves into the forms and unique characteristics that make Kabuki an art like none other. Although there are many aspects as to what Kabuki can be defined as, I will look upon this art form through a lens of musicality. Music plays the chief role in Kabuki, and I plan to focus on typical instrumentation, and styles of vocal expression.

### **The Polish Mazurka**

**Jessica Donovan**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

There is much more to Polish folk music than the Polka. My research explores the Mazurka, a folk style of music and dance that spread throughout Poland, Eastern Europe, and Russia during the 17<sup>th</sup> century. I explore where the Mazurka originated and how it got its name. I discuss the musical styling that signifies this particular kind of Polish music as Mazurka, and how the Mazurka dance form is interwoven with the music as these two sister arts have shaped and molded each other throughout history. My research also investigates composers, such as Chopin, who used Mazurka in their larger works by applying characteristic tempos, accents, or entire excerpts of music in the style of Mazurka to their original scores. Mazurka music is still commonly heard throughout Poland, and the country’s national anthem, “Dąbrowski Mazurka,” is composed in that style. Mazurka dance style is in triple meter and has a certain flow, like the waltz, but the steps are more complex and fast-paced. The tempo is usually moderate as well, unlike the slow Kujawiak and the lively Oberek. I hope my research will be illuminating to those who enjoy folk music, and captivating to those new to the genre.

## Political Influence in Irish Folk Music

**Ryan Darnell**, MUS 440: Ethnomusicology

Faculty Mentor: Professor Carolyn Guzski, Music

Throughout history, people have used music as a way to voice their political ideals. Irish folk music is no exception. My research explores the political events that have inspired Irish musicians in the fight for independence from British rule. Traditional Irish folk music, as it has come down to us, was identified as such in 1601 after the Battle of Kinsale, in which the Gaelic aristocracy was defeated. This is when the distinction between “traditional” and “art” music in Celtic culture became clear. From its very beginnings, traditional Irish music has gone hand-in-hand with the nation’s political landscape. In my study, I show that many popular folk songs throughout Ireland’s history embody a story of its people’s constant fight for independence. I will also discuss the modern revival of traditional Irish folk music in the 20<sup>th</sup> and 21<sup>st</sup> centuries, through roots artists such as The Clancy Brothers, as well as Celtic rock fusion groups like Flogging Molly and Dropkick Murphys. In addition to the history of the music, I will describe the instrumentation and compositional techniques that give this music its distinctive and easily recognizable sound.

## Polkaholics Anonymous?

**Rachel Birkman**, MUS 440: Ethnomusicology

Faculty Mentors: Professor Carolyn Guzski, Music and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The polka, which originated during the 19<sup>th</sup> century, has seen waves of popularity throughout American history. How did this popular music and dance make its way to the United States? My presentation delves into the history of polka music and identifies its prominence in contemporary ethnic musical culture. I am conducting this research because of my Polish heritage and enjoyment of polka music. My preliminary findings indicate that the polka was first recognized as a type of music in Bohemia in 1835. The word “polka” comes from the Czech word “pulka,” meaning “half-step.” While the reason behind the origination of the polka can be debated, it is known that it was a significant part of Bohemian social life. Ballrooms were commonly used for social gatherings, where couples would enjoy dancing the polka together. Today, the polka is still popular in parts of the United States—primarily those areas with a large Central European community. Having a significant Polish population, Buffalo falls among these areas and is part of the “polka belt.” The sound, setting, and significance of the polka are what have kept it alive to the present day.

## Re-Model: A DIY Arts Engagement

**Melanie Klimjack**, Fine Arts

Faculty Mentor: Professor Beth Hinderliter, Fine Arts

Increasingly, contemporary artists are using audience participation as a medium itself and their works closely resemble social or anthropological projects rather than a traditional painting on a wall or sculpture on a pedestal. This trend, identified by French curator Nicholas Bourriaud as relational aesthetics, solicits audience reaction to and participation with a work of art as well as fellow participants. As a fine art student at SUNY Buffalo State, I set out to research both the history leading up to relational aesthetics and to test its parameters in an installation-based project that relied on audience participation. Operating within the context of relational aesthetics, my project examined participation via a lens of DIY home decorating consumerist culture and a confusing of private and public space. My installation consisted of a model living room, resembling a stage set, situated first in a public park in Buffalo and later, in front of the Burchfield Penney Art Center. Participants were encouraged to enter the space and alter it in some fashion before leaving. The installation acted as a social laboratory in which I documented the participant’s interactions via photographs and notetaking. From my observations, I attempted to discern from the willingness or resistance of the audience to participate the allure of DIY culture and the boundaries of public/private life.

## Theater and the Special Needs Community

**Diane Almeter Jones**, THA 499: Independent Study

Faculty Mentor: Professor Ann Emo, Theater

I am conducting a research project to explore the impact of theater within the special needs community. After watching the documentary *Autism the Musical*, I was inspired to contact ActionPlay in NYC, a nonprofit theater company who works with students on the autism scale. I have subsequently volunteered with ActionPlay for two years, taking the train to the city once a month, volunteering and delivering props and set pieces for their annual performance. This has sparked my interest and drive to see more theatrical inclusion in Western New York. I have collected data through an informal interview process at Mousetrap in London, a group that provides students with needs opportunities to travel to London to experience theater as well as ActionPlay. I’m also interviewing a community theater in Indiana that has developed a barrier free theatrical performance. In Buffalo, Unique Productions, an inclusive theater company along with Buffalo State’s college based transition program for students with disabilities, that utilizes the theater department is also scheduled. The sessions are audio recorded with pre-determined questions including how the company is structured

and how the experience may have impacted not only the students but the staff as well. Utilizing theatrical experiences is a wonderful, empowering way to unite populations. I have found that the companies are responsive and adapt to the needs of the communities they serve. I look forward to sharing the multitude of solutions that different regions have embraced and enriched experiences for students with special needs within the theatrical world.

### **Tracing the Roots of Afro-Caribbean Music**

**Taneisha Facey**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

Growing up in a Guyanese household, I was constantly surrounded by my culture's music. Among the styles I heard frequently were Soca, Calypso, Reggae, and Dancehall music. Guyana is filled with different ethnic groups, such as East Indians, Portuguese, Amerindian and African. I always wondered where our music came from and why it was so symbolic. My research will discuss Afro-Caribbean music and trace its roots back to Africa, with a focus on African rhythms and tonality. Most drumming rhythms combine two or more drums of different tones accompanied by other percussion instruments. These rhythms are often tied to religious rituals and relate to specific deities and ceremonies. The most common type of African drums in Guyana and most Caribbean countries are the Congo, Bongo, Funde, Batta, and the Bass. Two of these drums are typically used in a Guyanese celebration called "Kwe Kwe," which generally takes place on the eve of a marriage ceremony. Along with the different rhythmic patterns, the drummers pound their feet against the ground to keep the tempo, based on the types of songs or dances taking place. With a country so diverse, it is important to know the background and significance of its music, and the effect it has had on its people.

### **The Traditional Music of Russia**

**Jacob Thurston**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

My research project explores selected aspects of traditional Russian folk music. Among the components I will discuss is its historical significance, musical forms and structures, and its eventual infusion by nationalist composers into contemporary music, beginning in the nineteenth century. In the tenth century Russia adopted Christianity, and music began to truly flourish in both sacred and secular styles, creating a unique sound. After the Medieval period, during the Renaissance and Baroque eras, Russia began to blend with Western culture under Ivan the Terrible (1530-1584). Soon after, Russian opera began to develop and Russia continued to gain ground in the musical world. During the twentieth century, the Soviet government made an effort to eliminate all Western musical influences and

restore Russia to its traditional musical roots. In addition to its examination of artistic traditions, my project will also look briefly into the Soviet Russian musical revival.

### **Trapped: Racism, Prison, Poverty and Love**

**April McMillion**, Fine Arts

Faculty Mentor: Professor Alexander Means, Social and Psychological Foundations of Education

W.E.B Du Bois once observed that the "color line" was the defining issue of American society. As we move further into the 21<sup>st</sup> century, Du Bois' observation is unfortunately as timely as ever. We have yet to find a way to completely overcome the shameful legacies of slavery, Jim Crow, and white supremacy. These forms of discrimination have been so brutal, unfair, and engrained within society that our country is still trying to piece together a way to fix the problem of racism. My work represents an effort to grapple with the ongoing and complicated dynamics of white supremacy and institutionalized inequality and injustice in America. Inspired by my own efforts to come to grips with these issues through research and reflection, I hope to raise awareness on the persistence of racism in American life. With my work, I hope to capture how racism dehumanizes and diminishes our society and perhaps how it can be challenged and overcome.

### **The United States of Klezmerica**

**Evan Courtin**, MUS 440: Ethnomusicology  
Faculty Mentor: Professor Carolyn Guzski, Music

Klezmer music is often described as the Yiddish musical tradition capable of expressing the entire spectrum of human emotions. This distinct quality is what makes Klezmer music culturally accessible to Jews and non-Jews alike. It's often overlooked that a major reason for the survival of the Klezmer tradition is the emigration of Jews to America from Eastern Europe prior to World War II. Since Klezmer's revival in the 1970s, the style of Klezmer violin playing has become more popular, along with the urge to incorporate the unique qualities of the Klezmer technique into a more modern style of playing. However, it has been argued that the tradition of the Klezmer performance style can sometimes get lost amidst the sea of effects and processing that often enhances modern sound production, and that the performance of Klezmer music by non-Jews detracts from the overall authenticity of the tradition. Theoretically, the United States is known as a bastion of free cultural expression, but can the style of Klezmer violin playing in America adapt to modern times while still holding true to tradition?

## Unity RPG

**Sean Edwards**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Ann Emo, Theater and Professor  
Andrea Guiati, Director, Muriel A. Howard Honors Program

“Unity,” is a video game for personal computers that acts as an interactive art form. The game tells a story of a young hero who must work with unlikely allies to defeat a power-hungry sorcerer, in order to restore peace and balance between humanity and nature. Video games have the ability to immerse players into new “worlds.” The inspiration for this project was not only to entertain an audience, but also to reference the important, real-life issue of the corruption of natural environments. The primary influences for this game include the Final Fantasy game series, and the hit television series Game of Thrones. My part in this project was to create the characters, story, and dialogue. Additionally, I came up with ideas for the design of the environments, gameplay, and sounds that would be used. There have been many instances throughout history when corruption has led to negative impacts on the environment. This is something that I wanted to address within the story of this game, with the intention of promoting awareness of this issue. Unity is meant to be something that is fun and entertaining to its players, but also informative and clever. With the help of a talented group of game designers and programmers, it became possible to transfer my ideas into the digital world and make my ideas a reality.

## Urban Funism: An Exploration of Street Art in Buffalo

**Joseph Babcock**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Brent Patterson, Design and  
Professor Andrea Guiati, Director, Muriel A. Howard Honors  
Program

The Funism Movement is steadily gaining recognition. It developed in the early nineteen-nineties with the onset of Norm Magnusson’s work. An artist and political activist, he argued that art should aim to be as fun to look at as it is intellectually engaging and to inspire a sense of joy in others and/or within a community. Street art provides a way for a message to be communicated to an entire population without an admission fee. Whether or not we notice or appreciate it, street art has the power to inform our culture and broadcast a wide variety of messages and attitudes within a neighborhood. In Buffalo, New York, street art can shed light on overcast and inspire an appreciation and resurgence of culture. This series of photographs exposes street art in our city and includes examples from mixed venues in and out of Buffalo’s most vibrant areas. Instead of making a particular statement on the topic of commissioned art versus graffiti, it simply wishes to get us thinking about the way various natures of street art affect culture, urban vitality and our daily lives while encouraging a sense of joy in the art around us.

## Vajra Yajna: A Story of Renewal Rebirth and Resurrection

**Cynthia Vogel**, Sculpture

Faculty Mentor: Professor Kenneth Payne, Fine Arts

In Vajrayana Buddhism, the Vajra, is an ancient relic representing peace and tranquility that carries a much deeper value throughout all of ancient Indian mythology. The Vajra dates back to deep antiquity, where it was the primary weapon of the Vedic sky-God Indra, King of Devas. According to the Hindu Puranas, the evil Asuras; Namuchi and Vritra removed all the light and moisture from the Earth. It made the land inhospitable to living beings. Indra battled the demon Gods unsuccessfully and as a last resort called upon the supreme God Vishnu for help. Vishnu informed him that only a weapon that was neither solid nor liquid could kill Namuchi and Vritra. Vishnu had the divine carpenter Tvashta fashion Indra a marvelous weapon he could use to vanquish the dreadful Asuras. This new weapon, the Vajra, emitted thunderbolts, and with it Indra annihilated Namuchi and Vritra, and returned the much needed light and moisture back to the Earth. Vajra is a Sanskrit word meaning both diamond and thunderbolt. The diamond represents indestructibility, and the thunderbolt represents irresistible force. Yajnas being the Sanskrit word for fire ritual. This contemporary representation of this story is intended to preserve ancient tradition, as well as serve as a weather ritual to ask forgiveness for all the environmental damage humans continue to inflict on the Earth. In my final work I will use the essential components of this story to as metaphors to build sculptural narratives. The final work will be a fire based ritual using traditional elements of fire dancers set to the back drop of a cast iron pour. This work will be photographically documented for my poster presentation

## Visuals From Buffalo’s Individuals

**Casey Kremblas**, Painting

Faculty Mentor: Professor Candace Masters, Art Education

The City of Buffalo is stirring with creative potential. While it has charming coffee shops and boutiques on one end, you can also find abandoned homes and businesses on the other. This type of contrast causes for a very unique and character rich city. I asked myself how the various types of people in this city perceive the world around them, and how the city in which they live plays a role in their view. I spoke to people from different backgrounds as inspiration for my work. Throughout each conversation I carefully listened to the stories, while observing their body language, facial expressions and overall physical character. While in the studio I considered specific information that came out of each particular interview. I used my own associations, perceptions, and an interests to produce a body of work in which each painting is representing a unique character. In order to best portray these ideas; I experimented with unfamiliar mediums

and techniques. The experimentation is what allowed me to create a connection between the content and the application of the materials. Many of the artworks resulted in mixed media. By applying more than one method and/or material, I came to discover the positives and negatives of each material used. I recorded these discoveries in my journal, and plan to use the ideas for future artwork beyond this series. Going through the creative process of this project has helped me learn specifics on how to create powerful visual effects and better represent human emotions in my imagery. I believe universality is important for artists who want to create their work for a broad audience. A great deal of universality comes from artwork with emotionally evocative imagery. Exploring the characters of Buffalo, and then openly experimenting with a variety of new materials, has allowed me to reach closer to my goal of creating artwork that can connect to and allow for reactions from individuals from all different backgrounds and disciplines of study.

### **What Makes You Move? A Look at Dance in Buffalo**

**Jessica Hoehn**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Janet Reed, Theater and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

There is no doubt that Buffalo is currently in a state of rebirth. New buildings are springing up and more jobs are being created every day. One area that has not been impervious to such change is the art scene. New galleries and venues are opening all over town. I wanted to take a look into how the dance community is responding to this growth. The goal of my project is to see what roles people involved in dance play in the resurgence in Buffalo. These various people include professional dancers, studio owners and directors of different local companies. My method is to interview people and ask them about what has drawn them to work in this city. I will also ask them to discuss how they are working to establish dance as a fixture in the varied fabric of life in Buffalo. After talking with them I will compile my work into cohesive presentation that provides a thorough examination of the role the dance community plays in the renaissance of Buffalo.

### **Zen and Now: Shakuhachi Musical Traditions and Contemporary Asian Culture**

**Timothy Schmidt**, MUS 440: Ethnomusicology  
Faculty Mentors: Professor Carolyn Guzski, Music and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This project investigates the influence of traditional Japanese music in contemporary Asian culture. I locate the origins and history of the Shakuhachi, a traditional bamboo flute, throughout the Edo Period (1600-1800). While the instrument originated in China, its development is quite specific to Japan. As an island nation, Japan was historically isolated—the

Shakuhachi therefore holds a unique place in its cultural life. Originally, Buddhist monks played a prominent role in its development in a meditational setting. Subsequently, in the 19<sup>th</sup> century, the instrument became a vehicle for elite expression through instructional academies. Throughout the 20<sup>th</sup> century, the political ramifications of the Shakuhachi's connection to Japanese national identity created new perceptions of the instrument and its music that I explore through the active musical practice of this art. Through actual engagement in playing traditional melodies on the instrument and musical analysis of their use in contemporary settings (e.g. film, anime, j-rock), I seek to interpret and critique the historical role of the Shakuhachi and its music as a living art form in 21<sup>st</sup>-century cultural expression.

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# ***Business and Fashion and Textile Technology***

## **All Lives Matter: Lack of Diversity on Fashion Runways**

**Annateresa Morales**, FTT 450: Issues in Fashion and Textile Industry

Faculty Mentor: Professor Arlesa Shephard, Fashion and Textile Technology

In today's society, everything is about being diverse. All lives matter is a popular hash tag that we see almost everyday on our social media feeds. Why don't all lives matter when on the runway? While conducting my research, I hope to shine light on the issues in the fashion industry that are still not being taken care of. Tall, slender, Caucasian models are still the hot commodities at majority of runway shows. Natural haired, dark tone, and plus sized models should have been on the runway at least five years ago. Going through journal articles, magazine articles and fashion blogs, I am trying to shed light onto a worldwide problem. In an interview with Declan Eytan, a writer for Forbes, he stated that Milan's Fashion Week is not diverse enough when it comes to fashion. "Fashion should speak to the world without any discrimination" (Eytan, 2016). Not only does the industry lack diversity when it comes to race and size but the problem also comes from a bigger issue: the lack of diversity is in the process of choosing models. Diversity is lacking in the model agencies, and the demand for something different than a usual type of model. One day, hopefully young girls from all different backgrounds dream about being fashion models and actually feel as though one day it can become a reality.

## **Can Tourists Still Make Cents for the Eurozone?**

**William McDermott, Anna Bellush, Michael Davison, Kristin Dowsey, Brianna Durante, Kayla King, Cathyliz Lopez, Nicole Muscato, Emily Naum, Danielle Szablewski** and **Kyle Wood**, HTR 318: Cultural Tourism

Faculty Mentors: Professor Kathleen O'Brien, Hospitality and Tourism and Professor Rebecca Dowsey, Hospitality and Tourism

The modern tourism industry of today shines a light on the coin of the most dynamically developing branch of tourism in today's global traveling market, Cultural Tourism. This may be both from the theoretical and the practical point of view. But what, if any, world events have the potential to disrupt or put at risk the positive impacts of cultural tourism world-wide? This is the central question we posed in our ten day faculty-led Study Abroad Program to Rome and Greece. Cultural Tourism is the subset of tourism concerned with a country or region's culture, specifically the lifestyle of the people in those geographical areas,

the history of those people, their art, architecture, religion(s), and other elements that helped shape their way of life. Furthermore, an understanding of lodging, infrastructure, transportation, and supporting businesses which make up the economy of leading tourist destinations world-wide must be understood in the context of this phenomenon. How can graduates be prepared to overcome problems the tourism industry faces due to challenging world events? Our study provides a comparison of economic contributions of travel and tourism to the economy of Italy and Greece. A log of our experiences shines light on the "coins" or revenue generated by visits to heritage sites and attractions and supporting industries in both countries. A list of world events plaguing those who work in the travel and tourism industries leads us to a discussion about the economic risks and other challenges we face now and in the future.

## **A Closer Look at the Role of Gender in Internet Marketing**

**Alison Kalata**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Christine Lai, Business and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Interactions with online advertisements are often studied based on the demographics of the consumers that are influenced by these advertisements. The five most significant determinants of online shopping are occupation, age, income, education and gender. This study takes a closer look at internet marketing and how receptive the consumer is based solely on gender. Web use in the United States is split evenly among genders; however, research has shown that both genders use the web differently and for different reasons. It has been found that males use the Web for functional and entertainment reasons. Females use the Web more for shopping reasons; however, males are more likely to make online purchases than females. In order to test these theories and obtain data on this topic, a questionnaire was developed and distributed using the snowball sampling technique. Overall, survey results indicate that males exhibit more positive beliefs and attitudes towards Web advertising than females.

## **Clothing and Apparel Sustainability: What Does it Mean and What Can We Do?**

**Erin Johnson**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Arlesa Shephard, Fashion and Textile Technology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

What is sustainability? How can we as consumers live in a more sustainable way? Do people donate their used clothing, reuse it, and/or throw it out? What happens to clothing after it is donated? Does sustainable apparel cost more? I plan to answer these questions that many consumers may have, while educating them on other things that have to do with sustainability. For example, the Sustainable Apparel Coalition tries to regulate

sustainable activities and devotes their time to create “an apparel industry that produces no unnecessary environmental harm and has a positive impact on the people and communities associated with its activities”. Some of my preliminary findings include the fact that Americans purchase five times more clothing than they did in 1980, and because of things such as fast fashion, Americans on average recycle/donate only 15% of their used clothing, and some of the other 10.5 million tons of discarded items end up in a landfill. Not all companies that accept clothing donations recycle all of them, like companies such as H&M, who sell all of their clothing to I:CO, who recycles clothing, and supplies clothing to vintage and second-hand markets. Every consumer plays a role in creating sustainable activities to keep the Earth a livable place for longer. I am referencing several online resources, as well as the books “Clothing Poverty” and “Going Global”, to find my information and the answers to the questions I have proposed.

### **Cloudy with a Chance of Sales**

**Sasa Vann, Jenna Schoch, Emily Christman, Latisia Turner, Peter DiFrancesco and Jordan Thomas,**

HTR 480: Practicum in Hospitality Operations

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

In the hospitality industry, invention is key to success. This study examines the correlation between weather during the months of January through April and the sales of food and beverage in restaurants in the same period. Correlations are useful because they can indicate a predictive relationship that can be exploited in practice. For example, an electrical utility may produce less power on a mild day based on the correlation between electricity demand and weather. In this example there is a causal relationship, because extreme weather causes people to use more electricity for heating or cooling. So, is there a correlation between restaurant sales and the weather? We believe that collecting data on weather and restaurant sales will aid in the creation of new approaches to selling products on days that have lower sales and return less of a profit for restaurants. Our second aim of the research study is to identify the mood and sentiment of customers and understand how that influences buying behavior and spending. The case study method will be used as sales from Campus House and weather information in Buffalo will be recorded and charted during the specified time period. A poster presentation will illustrate the findings and convey how the Buffalo climate can affect the sale of food and beverage purchased by members and guests at Campus House. We expect that this data can be used as a predictors of buyer behavior at other same size local restaurants. This information will add to the body of knowledge in the industry and give Buffalo State a greater understanding of what their target market segment desires during certain seasons.

### **Demographics and Advertisement Reaction**

**Kara Catanzaro,** HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Christine Lai, Business and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Demographics and Advertisement Reaction Social marketing campaigns often utilize compelling advertisements to alter the behavior of the public by promoting positive behaviors or diminishing negative behaviors to benefit the general society. These advertisements often evoke an emotional reaction from their viewers. The purpose of my study is to investigate the emotional responses resulting from viewing advertisements created by the Juvenile Protective Association that discourage verbal child abuse, and encourage people to speak out about ongoing abuse. Using a snowball sampling technique, I will test the emotional reaction of participants to examine if demographic characteristics such as age and gender play a role in how these subjects perceive the messages in the advertisements. My findings will be represented in my presentation.

### **Dreadful and Lengthy Orientations Are a Concern of the Past**

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

So commonly, each of us hears about an atrocious orientation experience that involves lecturers communicating immense amounts of information in a limited time slot. More often than not, the new employees who have completed this orientation leave having minimal knowledge about their role in the company. I have looked into ways we can make this process more informational and appealing. When attending a job orientation, you are starting a new chapter in your life that should be exciting and intriguing. Creating a stimulating and captivating orientation presentation will not only make your employees more knowledgeable, but also more acclimated in their new surroundings. Through reading Human Resource textbooks, examining scholarly books, and talking to current business professionals, I have compiled information on how to organize an orientation for optimal employee productivity and engagement in the workplace. On a poster, I will be presenting the do's and don'ts of a successful new hire orientation while stressing the importance of adequate socialization.

### **Express Yourself: Societal Factors That Influence Dress in Vietnam**

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

Faculty Mentor: Professor Lynn Boorady, Fashion and Textile Technology

All women may be alike under the skin, but they are all different with what they choose to cover their bodies. Dress is one of the most important factors in determining not only our own individual preferences concerning style and fashion, but also in how we view ourselves, and others, in society. Vietnam is growing to become a leading apparel manufacturing country and the style of Vietnamese women may be heavily impacted by this new economic status. A clear snapshot of Vietnamese women and their interactions within society will be done in order to determine the clothing choices caused by changes in the apparel and textile industry in the country. By analyzing key societal elements such as national demographics, economic status and social structure, we may better inform ourselves why Vietnamese women dress in certain ways. The social and psychological impact of their dress will also be focused on and examined by contributing societal and environmental factors. Vietnam is still a third-world country, and may be impacted less by economics and capitalism, and more by traditional values and culture. Through this poster, the audience will be able to better understand the social and psychological background pertaining to dress in Vietnam. The apparel and textile industry will have to critically understand the issues persistent with Vietnamese women in order to keep up with the possible changes in dress and style.

### **The Fabulous Life of an Áo Dài**

**Monifa Payne**, FTT 495: Special Project

Faculty Mentor: Professor Lynn Boorady, Fashion and Textile Technology

Tradition and history are essential for the fashion industry and many great collections were inspired from history. The topic that I researched is traditional clothing in the Vietnamese culture. The history of Vietnamese national clothing goes back over 2000 years. During the Nguyen Dynasty (1802-1945), the traditional garment for aristocratic Vietnamese woman was developed, the Áo Dài which is a long dress or tunic style garment worn over pants. This style is the most popular and widely-recognized garment for the Vietnamese. Style features of the Áo Dài are raglan sleeves and slits on both sides of the dress that begin at waist level which is why they must be worn with pants. Classical Áo Dài usually have high collars, snaps along with one to two hook and eyes that close the garment at the waist. Styles of this garment changed over the decades and in the 1950s, the woman's dresses were modified to have a fitted bodice and a flared bottom that would complement the woman's curves, and the buttons were relocated

from the front of the garment onto the side. I will present the history of the garment and how the garment was brought to life. My presentation will also include the significance of the Áo Dài to the Vietnamese culture.

### **The Future of Organics in the Hospitality Industry**

**Sean Grotke, Karlee Cichocki, Kayla Pyc, Emma Schooley, Marlena Hernandez, Frank De Jesus and Kendall Capers**, HTR 480: Practicum in Hospitality Operations

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

This research seeks to explain the phenomenon of organic foods and understand their place in the restaurant industry. A review of literature will provide a starting point for the research and look at and compare the past and present costs and demands for selected organic food items. A chart will offer an analysis of data related to the popularity of organic foods. Data collected will indicate the percent of consumers that want healthier options at restaurants. The major producers and distributors of organic foods will also be identified in the study. This research is designed to answer several questions. What impacts do organic foods have on the environment and the food industry in general? What restaurants have a full organic menu and how does this affect their business? Finally, what predictions can we make regarding organic food costs and demands for these specialized foods in the future? We will plot our data on a timeline and explain the exploding phenomena of organic foods.

### **Honey Bees**

**Anne Dusza**, FTT 451: Senior Project

Faculty Mentor: Professor David Brinson, Fashion and Textile Technology

Buffalo State Runway is an annual fashion show to give student designers the opportunity to show their own designs. My goal for Senior Project is to create a four piece collection for BSC Runway 2016 based on the given theme eco-lution. Eco-lution is the combination of the words ecology and evolution. My collection is inspired by honey bees and the way they continue to evolve in their own society. A honey bee colony is a superorganism which means the colony operates as a single unit even though it is a multitude of bees. Bees continue to evolve through the use of their caste system. Each bee has their own role in the hive which keeps the colony thriving. I have taken inspiration from the individual roles of the bees when creating my designs: the drone, the worker bees, and the queen. Through this process, I will grow as a designer and eventually end up with four garments using my own creativity and expertise to be showcased at Runway. I will use my skills in illustration, draping, pattern-making, and sewing to represent fashion and nature as one.

### **Hotel Innovation Analysis**

**Kenneth Merin**, Hospitality Administration

Faculty Mentor: Professor Stephen Burgeson, Hospitality and Tourism

I am conducting research about innovation and unique hotel concepts. My study includes the benefits and shortcomings of innovation and past innovations that changed the hotel industry. I also am examining the impact innovation has on the hotel industry and why there is a need for unique and interesting hotels. My research provides examples of new and interesting hotels that are doing well and contrasts them to some failed hotels that tried to be innovative to assess where they might have gone wrong. I also am considering the future of hotels and in what new directions the industry is moving.

### **Hyper-Local Farming**

**Daniel Moscato**, Hospitality Administration

Faculty Mentor: Professor Stephen Burgeson, Hospitality and Tourism

Often in the hospitality industry we talk about knowing where your food product is coming from. We want to know how they handle the product, to their sanitation standards, and even what kind of soil/chemicals are used in their growing process. Also one of the keys to success in any industry is to have as much control of the production of raw materials and goods as you can, and even producing the goods yourself! This is why in more cities across our country, you see restaurants working much harder to get their food locally. If its either from farmers, that sell to a food supplier, if the restaurant goes directly to the farmer, or the restaurant buys from various farmers markets. The only thing better than getting your produce and meat from local farmers, is to grow the product on-site! In the restaurant industry this would be called a Hyper local restaurant. A hyper local restaurant is a restaurant that grows or raises any of the following: meats, cheeses, vegetables/spices (most commonly), and even fish! I will present the process of creating and sustaining hyper-local farms in backyards of restaurants and even on many rooftops in urban areas. I will address questions such as: How do they fund these farms (government funding, privately funded by the restaurant owner/stockholders); How do they sustain the farms; Who tends to the crops and/or animals regularly; How can start our own in our county; and How many restaurants have benefited from this?

### **The Impact of Food and Beverage Trends on the Restaurant Industry**

**Jamison Powell, Cara Crowder, Zachary Dornsife, Benjamin Glisman, Aliya Jones and Meghan Redden**, HTR 480: Practicum in Hospitality Operations

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

The purpose of this project is to identify the ever changing food and beverage trends in the restaurant industry. It will analyze how these trends have impacted restaurants as a result of consumer behavior, and how restaurants have had to adapt as a result. This project will examine trends based on data collected by national associations as well as first hand accounts. We predict that this project will show that food and beverage trends in the restaurant industry have led to a direct change in operation costs, business plans, operating procedures, and consumer demands. We also predict that the leading force behind these food and beverage trends is an increased focus on consumer health, as well as a demand for more natural, holistic food ingredients.

### **The Influence of Service-Learning on Students' Perspective Toward Future Career Choice**

**Eunjin Yang**, FTT 495: Special Project

Faculty Mentor: Professor Keunyoung Oh, Fashion and Textile Technology

Service-learning has become one of the spotlighted education methods in these days in higher education with deeper learning. It is a form of experimental learning that combines community service with academic instruction as it focuses on critical, reflective thinking, and civic responsibility (Deely2010). I regard service-learning as an active learning way where students learn social engagement and communication skills. As a student with service-learning experience through classes, I believe service-learning can change students' perspective toward choosing their future career. There are a lot of discovered good outcomes associated with participating in service-learning as a part of class: critical thinking, academic achievement and educational interest, social skills, attitude toward self, and civic engagement (Celio, Durlak, and Dymnicki 2011). There benefits bring positive aspects to host institutions, students, and the recipients of the service in the community. Prentice and Robinson (2010) reported that participation in service-learning can help student develop future academic and career goal. According to Deeley's qualitative study (2010), Students also claimed "the program changes you think", "think about things more in greater depth" and "Service-learning had changed them". Despite the increasing presence of service-learning with enough positive outcomes, it still gives me a question mark whether students' learning outcomes are associated with their future career choice especially in the fashion

industry. My research is to study whether students' service-learning experiences affect their future career choices especially in the fashion industry using a qualitative research method.

### **Italian Forces and Greek Crisis**

**Jonathan Barnhard** and **Morgan Carleo**,

HTR 495: Cultural Perspectives

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

Italy and Greece are two very different countries, and each have their own macro-environmental issues. Greece has survived economic turmoil since 2010, and Italy, like other European countries, has been a target for terrorism. From security concerns and terrorist threats to economic crisis, the question to be asked is how is the tourist's experience affected by these problems? A 10-day faculty-led study abroad program will provide opportunities to observe the various measures being taken in each country that pertain to the issues tourists are facing. Prior to departure, qualitative research will be conducted on the issues looming in the macro-environment of Greece and Rome. Since this type of research presents a non-quantitative type of analysis, we will collect, analyze and interpret data by observing what tourists do and say while on tour. We will seek meanings, definitions, characteristics, and descriptions of how the issues impact traveler's experiences. Observations will be supported through images and information received from our tour guide who lives in Greece. Our poster will offer a conceptual model for how the six macro-environmental forces pertain to each country that we visit. We will answer questions about the tourist's approaches to dealing with their security and economic concerns while traveling in Rome and Greece.

### **Jörð**

**Toni Digati**, FTT 451: Senior Project

Faculty Mentor: Professor David Brinson, Fashion and Textile Technology

Jörð takes a primitive dyeing technique to create something new and implement this technique into environmentally responsible modern apparel. Four garments are to be constructed displaying the beauty and uniqueness of plant dyes. The name of the project comes from the Old Norse word for "Earth". Being heavily inspired by the ancient historical practices and traditions of the Northern European area, an interest was taken in ancient clothing and the significance of color. Plant material was extracted to create vibrant, unique dyes that displayed wealth and social status. Creating colors with plant dyes is a unique experience that brings the elements of nature into these four designs as the colors came directly from nature. Like nature itself, these colors are rather unpredictable and it is difficult to control every outcome of dyeing. This lack of precision results in unique variations of shades and colors that cannot be easily replicated by

anything synthetic. Plant materials will include madder, woad, red onion skin, indigo, and rhubarb. Despite being inspired by European culture, I have included the use of the Eastern plants such as Himalayan rhubarb and indigo because the concept of creating something new with something old is universal. The colors will include vibrant golds, pinks and reds, brown, and blues. Fabric will be natural as well, consisting of linen and silk to give a historical undertone to the line. Garment silhouettes will illustrate a progression from primitive linen tunics to a modern silk evening gown. Each dye has been tested on a sample of each fabric and various techniques and color mixtures with their required mordants. Because this project focuses on sustainability and minimizing toxins used in fashion, plants that do not require toxic mordants were chosen. Once finished, the garments will be displayed during Buffalo Runway 2016.

### **Roots**

**Veronica Michalek**, FTT 451: Senior Project

Faculty Mentor: Professor David Brinson, Fashion and Textile Technology

I am creating a four piece collection for Buffalo State's spring fashion show, Runway, that reflects the time before the phenomenon of fast fashion. Fast-fashion has taken over the fashion industry and is also the least socially responsible. Companies such as forever21 release new collections in as little as two weeks that are trendy, incredibly cheap, and of the lowest quality. Due to fast-fashion and our constant need to have new things, more and more clothing goes into our landfills every year, with most of the cheap man-made material releasing toxins into our air and taking up space on the Earth's land making it unusable. My collection caters to the conscious consumer that looks for unique finds that will have a special place in their closet. This collection will be made with natural fabrics such as linen and cotton and will also have appliqued flowers and roots created from the scrap fabric of my collection from my 2015 collection for Runway. These appliques will also be dyed naturally using coffee to give my designs an antique look. My collection is titled "Roots" because I would like to see the return of the origins of fashion and cherishing original designs without harming the Earth and also because I am using the roots of my previous collection through upcycling so that I do not create any more waste. I believe it is my duty as a young designer to be socially responsible and conscious of my actions in the fashion industry.

### **Simon Clothing Line: The Power of Faux Skins and Prints**

**Gabrielle Bourcier**, FTT 499: Independent Study  
Faculty Mentor: Professor David Brinson, Fashion and Textile Technology

What new appeal can we use to promote the consumption of fake animal skins? The use of graphic prints are becoming more and more popular in fashion. With the use of CAD software, there is no limit to the types of prints we can put on fabric surfaces. So why not fur? In this project, I explored the idea of taking a picture of an animal's coat and manipulating it on the computer to create a realistic fur texture. This way, we can get the visual of fur without harming the animal. Real animal skins and fur are extraordinarily expensive but people still buy it. This is because consumers feel fashionable in them. Yet, the fur industry is a power house of fur farms that not only kill animals but also attributes to environmental contamination. To test this idea, I will be printing the fur on various types of fabric and creating a four piece clothing line with the print, a fake snake skin, and a black neoprene. I will then be submitting this collection to the Buffalo State annual runway show, Runway 9.0, and posting the garments on my Etsy Store. Depending on the audience's reaction, and how many orders I get will determine the results/data for my project. My presentation will describe my inspiration, colors, garment designs, fabrics, and prints, as well as more about the significance of the name Simon and swatches of the fabrics.

### **Successful African American Women in Business**

**Jinene Thompson**, SOC 499: Independent Study  
Faculty Mentors: Professor Amitra Wall, Sociology and University College and Tamara McMillan, Associate Director, Student Life

The purpose of this research is to describe the necessary tools that are needed to build a successful business. Specifically, this research will identify the internal and external forces that contributed to the empire building of African American women. Themes such as grit and networking will be explored systematically. Findings will outline the various leadership styles of African American entrepreneurs, ways to build a sister circle (network), and the reasons why collaboration, or "new competition", is important. This research is important because there is a no how-to manual detailing how an African American businesswoman can build an empire. By providing this information, others can follow the suggestions.

### **Sustainability in Hospitality: Recycling within Hotel Food and Beverage Operations**

**Ashley Coleman**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Chen Chen Huang, Hospitality and Tourism, Professor Justin Donhauser, Philosophy, Professor Lori Till, Hospitality and Tourism, and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

My project explores recycling within hotel food and beverage operations including the reasons why some recycling operations are unsuccessful. I focused on the food and beverage operations within the Embassy Suites Hotel in downtown Buffalo, New York. This project is identifying obstacles that hotels encounter when implementing a sustainable program, as well as explore the economic and environmental benefits of recycling within the hospitality industry. I am developing a plan that could help restaurants overcome these obstacles and promote sustainability within hotels. Starting with recycling and establishing a successful program could be the impetus for hotels to consider other ways to adopt sustainable practices.

### **Trends in Hotels Appealing to Millennials**

**Brianna Durante, Erica Striffler, Ken Hartrich, Mike Goodlander, Gabrielle Rodriguez Negron and Donte Perry**, HTR 480: Practicum in Hospitality Operations  
Faculty Mentor: Professor Kathleen O'Brien, Hospitality and Tourism

Millennials are the largest, most diverse, and most technologically advanced generation the world has ever seen. People born between the years 1982 and 2004 make up this population. Census data indicates that there are 83.5 million millennials in the United States, which is more than a quarter of the nation's population. This year millennials surpassed Generation X, becoming the largest group within the American workforce. Millennials are more focused on budgeted travel because experiences are more important than luxury stays. So how does the hotel industry effectively market their products and services towards millennials? Investigative research is the technique that this team of students will follow in this study. Findings will build a more comprehensive picture of the marketing strategies hotels use to capture their market share of the growing number of millennial travelers. Information from this discovery will lead to an understanding of what millennials spend on travel, what type of travel experiences they are seeking and what hotel features and amenities they perceive as valuable based on their budgets.

### **Vietnam: An Emerging Economy**

**Briana Allen**, FTT 495: Special Project

Faculty Mentor: Professor Lynn Boorady, Fashion and Textile Technology

Vietnam's garment industry has often had issues in areas such as sustainability, working conditions, and low wages. However, through the Trans-Pacific Partnership (TPP) the country's contribution to the market will increase. The goal of the TPP is to promote economic growth, create and retain jobs, raise living standards and reduce poverty and promote transparency and better labor and environmental protections. This agreement places Vietnam in a strong position of growth over the next decade. The TPP agreement will increase the standard of living for the Vietnamese, positioning this country as a good market for US companies to pursue. In anticipation of this, McDonalds opened the first fast food restaurant there in 2014. Research focusing on the retailing and consumer behavior in Vietnam could inform US retailers wanting to conduct business in this emerging economy. Understanding their markets, what retailers are currently doing business in the country and how business is conducted are important considerations before entering a new market. Areas of visual displaying, merchandising and selling practices in this Vietnam are also. Vietnamese consumer behavior patterns include spending patterns, frequency of shopping, preferred brands and more are discussed. This research is being conducted as a preliminary study before going to Vietnam in July 2016. The findings of this research will inform future research and prepare the group for travel in a dissimilar country.

### **What's That Smell?**

**Tim Fezer, Jazmine Straus, Mallory Baiocco and Erin Partridge**, HTR 480: Practicum in Hospitality Operations

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

The United States Composting Council defines composting as "an organic matter resource that has the unique ability to improve the physical, chemical, and biological characteristics of soil or growing media." It is great for the environment. Composting may be a simple process for restaurants, but why are so few participating? Our research team will illustrate the easy steps any restaurant may take to initiate a composting program based on a review of literature and offer a list of advantages and disadvantages of being "green". The case study method often involves simply observing what happens to, or reconstructing 'the case history' of a single participant or group of individuals. Our students will use this method to demonstrate the procedures and outcomes of a composting program at Campus House and how it helps the restaurant and Mother Earth. A matrix will be created using data from the case study. Our conclusions will explain the effectiveness of the composting program and how Campus House benefits from it.

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# Computer Information Systems and Engineering Technology

## A-maze-ing Robots

**Kelli Bores** and **Kiara White**, CIS 189: Exploring Computer Systems and Engineering

Faculty Mentor: Professor Clark Greene, Engineering Technology

A robot is defined as “a machine resembling a human being and able to replicate certain human movements and functions automatically”. With the Lego Mindstorms EV3 System, building such a robot is made possible for anyone to do. These robots are able to walk, talk, move, and basically do whatever you program them to do. Additionally these robots have the capability of using sensors that can make it light up, “see” colors, and move when touched. Using this system we will be building a robot that will be able to navigate paths and mazes. This robot will have two motors controlling the wheels and a sensor used to detect the reflection of light or color. In order to make our robot functional we will be programming it using block code in the Lego Mindstorms software.

## Adventures of Three Brothers

**Mamadou Diallo** and **Steffon Townsend**,

CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

The project for presentation will create a virtual world using Alice 3D programming software. In the grass landscape three brothers, a dragon, a troll, and a human will set out for an adventure. Their main goal is to reach the world’s first snowman who can never melt. When that snowman is found they will tell their story of how they came about to be brothers and where their parents are. And on the journey there will be a variety of other creatures that they will have to encounter such as a boxing kangaroo, an annoying clown, and an evil carnival. These are the trials and tribulations the brothers will face and through various dialogues their story will be unfolded.

## The Bengal Outlook: Three Student Athletes

**Tyler Collins**, **Phillip Bryan** and **Jalik Jones**, CIS 189: Exploring Computer Systems and Engineering

Faculty Mentor: Professor James Gerland, Computer Information Systems

The Bengal Outlook is a website that explores life as a collegiate athlete. The site’s homepage is broken into two

sections. One section for “student-athlete” and the other for “athlete-student”. The two notions are then developed through the life experiences of two athletes that ended up at Buffalo State College. Athletics shape the character of all who participate. Also, team competition teach valuable lessons that are beneficial, later, in the workforce. The site utilize lessons learned about the basics of web design. To go further, we will use the Bootstrap CSS framework for a responsive layout design. We will dive further into traditional CSS3 techniques to make the site visually appealing as well as JavaScript programming to add dynamic flavoring to the research and the website’s flow.

## Bringing Email to the Modern Web

**Adam Stockton**, CIS 499: Independent Study

Faculty Mentor: Professor Robert Barone, Computer Information Systems

The Internet has become an increasingly significant aspect of today’s society. Web developers need to keep pace with the contemporary web. The objective of this project is to research and employ cutting edge web technologies in the creation of a single-paged, web based email client. This research project will utilize various modern web frameworks and techniques, such as JavaScript, MVC, and responsive design. This email client will be written in php, and will make use of a Model-View-Controller (MVC) framework. Emails and mailbox folders will also be asynchronously loaded into the browser from the server using a custom API. A responsive design will be used in order to adapt to various devices and screen resolutions.

## Buffalo State Motorsports SAE MiniBaja

**Matthew Pyle**, **Mike Palumbo**, **Cody Mays**, **John Cullen**, **Jessica Jaroszewski** and **Jeremy Fischer**,

ENT 422: Machine Design II

Faculty Mentor: Professor David Kukulka, Engineering Technology

We are preparing to compete in the Society of Automotive Engineers Baja intercollegiate design competition. To design and analyze our vehicle, we are using Computer Aided Design (CAD) modeling techniques to ensure that vehicle components do not interfere with the frame or other components. We also are using CAD to run performance checks on the frame design and locate high stress points on the frame and carry out design calculations and component evaluations. Improvements to the vehicle include modifying the suspension system to add high travel air shocks that allow the car to maintain steering and control on rough terrain. It also has the advantage of improved performance on the test course by providing greater ground clearance and a tighter turning radius. We also made modifications to reduce the vehicle’s weight by incorporating a lighter drive train that also lowers the vehicle’s center of gravity. This in turn gives a

more even weight distribution on each tire and more grip for the vehicle. A digital dashboard display is also being added that includes a 7" resistive touch screen display showing engine rpm, speed, lap timer, compass heading, GPS location, and how hard the driver is pressing on the gas or brake pedal. Our presentation shares our experiences preparing for the Baja competition and shows the vehicle we are driving in the competition.

## A Byte to Remember: Computational Thinking Makes Instruction Relevant

**Phillip Bryan**, CIS 490: Senior Seminar  
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

Gone are the days when students' feel secondary school mathematics is irrelevant. We live in a time where computers are easily accessible to the masses—arrays consisting of 1's and 0's shape our everyday lives. Perhaps it is time to incorporate computational thinking strategies into everyday classroom instruction. Computer programs allow us to gather significantly larger amounts of data, often referred to as "Big Data". We are able to do this very quickly/efficiently as well. Computers also provide the framework to arrange information in a myriad of interesting ways. Data sets are interpreted and mined differently through various visual lenses. You and I can look at the same piece of information and produce two totally different outcomes. Computational concepts, like Decomposition, Pattern Recognition, Automation, Abstraction and Algorithm Design, along with their applications, will be researched in an effort to introduce students to Computational Thinking. Students will be asked a question, who will win the Super Bowl, for example. Students will then be given the tools to find, analyze and interpret data that will allow them to draw justifiable conclusions. Next, students will discuss their findings with their classmates. This approach lets students take control of their learning but at the same time forces them to understand and use the computational strategies that will be discussed in this research presentation.

## A Case Study of Industrial Training Effectiveness

**Daniel Warf**, INT 689: Research Design and Methodology  
Faculty Mentor: Professor John Earshen, Engineering Technology

Effective training in the industrial setting is highly dependent upon selection of appropriate methods and materials to prepare and equip employees to better do their jobs. Indeed, with so many choices out there, it can be daunting to determine which methods to use and when to use them. Additionally, consideration of different student learning styles must be integrated into instructional design and delivery processes. This project centers on an in-depth case study of technical training at a high technology company. The research objective is to investigate

ways that an industrial teacher/trainer can accomplish targeted learning objectives efficiently and effectively, while fostering an environment that is both enjoyable and engaging. The study design examines past and present teaching practices with a critical eye, and is aimed at establishing a baseline understanding of effectiveness. The goal then is to design instructional methods aimed at improvement of effectiveness. The expected outcome of this research is to identify a new and more effective set of procedures for future training and assessment.

## Developing a LEED Certification Workbook for Thermo Fisher Scientific

**Jorel Ferguson**, INT 689: Research Design and Methodology  
Faculty Mentor: Professor John Earshen, Engineering Technology

Many organizations considering construction projects are focusing attention on the concept of sustainable design, a philosophy recognizing that humanity must ensure, "...that it meets the needs of the present without compromising the ability of the future generations to meet their own needs" (Brundtland, 1987). To encourage the adoption of sustainable design, the Leadership in Energy and Environment Design (LEED) certification system was developed by the US Green Building Council (USGBC) to measure the sustainability and performance of a building. Launched in 2000, LEED is a widely-recognized protocol used in both the public and private sectors. It is a comprehensive system covering all aspects of the construction process. LEED critics charge that many green builders win tax breaks, exceed local restrictions, and get expedited permitting under a system that encourages adoption of minor low-cost modifications with little or no proven environmental benefit. The guiding question is whether or not LEED certification is working the way it was intended. The research design will investigate the cost-benefits of LEED certification, in terms of its true environmental impact. Given this information, the principal objective of this project is to develop an independent evaluative tool that Thermo Fisher Scientific (Grand Island facility) executives can use in consideration of future expansion projects.

## ENERGX 6000

**Michael Freeman, Victor Robinson, Justin Kamrudin, Olivier Narcisse and Brad Louis**, ENT 465: Electrical Design  
Faculty Mentors: Professor Steven Barker, Engineering Technology and Professor Ilya Grinberg, Engineering Technology

According to the U.S. Energy Information Service, in 2010 energy from lights represented ~14% of an average household's electric bill. In 2014, residential electricity accounted for nearly 150 billion kilowatt hours. If we assume that a 40 watt light bulb is used about 4 hours each day, 5 kilowatts is used costing consumers \$0.50. To help people reduce the cost of

their electric bill and offer an alternative to standard light bulbs for illumination, we are creating an energy efficient “lighting system” called the ENERGX 6000. The design of our lighting system includes: two 6 DC voltage source (VDC) LED light bulbs; 12V solar panel; 12VDC rechargeable battery; 120VAC voltage source (VAC) wall outlet; 120VAC-to-12VDC adapter charge controller; relay switches; and an Arduino microcontroller. The lighting system includes components inside and outside of the house. Inside the house are the: light bulbs, 120VAC voltage wall outlet, and the circuit board that contains the 120VAC-to-12VDC adapter charge controller and relay switches. The inside component will also have the 12VDC rechargeable battery and the Arduino microcontroller, while the outside component contains the 12 volt solar panel. One lighting system is all that is needed for a single-family house. Depending on how much energy is produced from the solar panels, savings will be variable - but the potential for savings exists even after you factor in for the initial start-up costs to set up a lighting system. Another benefit of the lighting system is that it offers individuals living “off the grid” to store energy during the day and use it at night for illumination.

## Evaluation of Manufacturing Processes of Piezoelectric Quartz Motion Sensors

**Mike Al-Zoubi, Tiago Felizardo and Scott Andzel,**  
ENT 422: Machine Design II

Faculty Mentor: Professor David Kukulka, Engineering Technology

PCB Piezotronics, located in Depew, NY specializes in the manufacturing of piezoelectric quartz motion sensors. They manufacture a variety of accelerometers, forcesensors, vibration sensors and load cells. To manufacture the microelectronic substrates, PCB's microelectronics division uses various abrasion and heat welding machines to solder copper wire to the substrates. The current fixture processes two substrates per run, the objective of this study is to increase productivity and produce a fixture that allows the production of more substrates. Several different designs are presented and analyzed using a Cause and Effect (C & E) matrix chart; evaluation criteria includes cost, manufacturability, applicability and overall design. The fixture design was manufactured and installed at PCB; currently increasing their productivity by over 300%.

## Galactic Space Sanitation

**Brian Wallace,** CIS 490: Senior Seminar

Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

In this research project, a two-dimensional game will be created using Visual Studio with the XNA framework while using the coding language called C-sharp (C#). The project is a single player, space shooter game. The user controls a Player that is a

two-dimensional spaceship that has to survive while defending a Satellite from space debris in orbit. There is a health bar for both the Player and the Satellite. There is a high score based on how long the Player and the Satellite survives. The game is over if the Player's health or the Satellite's health drops to zero. The name 'Galactic Space Sanitation' comes from the debris and garbage that has been left from every human travel to space, such as the United States going to the moon. NASA has said there is more than 500,000 pieces of debris that are tracked as they orbit the Earth. Some of the trash in space includes broken parts of ships, satellites, rockets, cameras, and more. The reason for this is because the debris that are orbiting Earth are traveling approximately at 17,500mph. Galactic Space Sanitation project exemplifies the struggle that NASA has to go through when attempting to protect Satellites in space. A Satellite or spacecraft can be majorly damaged or destroyed by a piece of debris slightly larger than the size of a fingernail.

## Motion Charger

**Kevin Murray, Michael Urbanski, Terrance Manhardt and Patrick Severing,** ENT 465: Electrical Design

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

In today's society a cell phone is an essential tool for most people. As cell phones continue to improve and advance, battery life seems to decrease. What if there was a way to use everyday activities to charge one's phone battery? Our project involves the installation of a small motion generator inside a small portable device, which will transfer energy from the owner's movement directly into a capacitor within the case itself. Once the capacitor is charged the user will be able to flip a switch, which will transfer the stored energy to any device that uses a USB cord to charge it. This will greatly improve most people's daily struggle of constant battery depletion. The first component of the circuit involves a basic Faraday generator, which is a small magnet traveling through a series of coiled wire wrapped around cylindrical tube. The AC current generated will be rectified into a DC current and then stored into a capacitor. The voltage will be stepped up to 5 volts using a Lipo Rider v1.3 buck booster. This buck boost converter also includes a USB output that can be connected to any device that requires a USB to charge it. Power, current, and voltage will then be displayed either by the use of a computer screen, an LED display using an Adafruit USB Power Gauge Mini-Kit, or an app. Therefore by the conclusion of ENT 465 we will have a functioning motion generating charging station that will transfer the kinetic energy created by the user's daily motion.

## Natural Gas Compressor Design

**Travis Florian, Rob Sedivy, Ashely Vento and Jeremy Rockwood**, ENT 422: Machine Design II  
Faculty Mentor: Professor David Kukulka, Engineering Technology

FS-Curtis, a worldwide leader in air compression design and manufacturing solutions, plans to expand its model line to include state-of-the-art natural gas compression units. In order to remain competitive in the market, FS-Curtis must always be on the cutting-edge of technology and design while maintaining efficiency and reliability. Students in the Mechanical Engineering Technology department undertake the design and development of the unit. While maintaining a budget of \$12,000, the unit must be capable of compressing natural gas at atmospheric pressure to a discharge pressure of 550 psi. Design specifications must adhere to American Petroleum Institute (API) and National Association of Corrosion Engineers (NACE) standards of gas compressors. SolidWorks models of the compressor are developed and 3D printed to test their viability. Volumetric and temperature analysis will be performed to ensure adequate flow, proper discharge pressures and safe exit temperature. Results will include design specifications, technical drawings and computed data. Additionally, side-by-side comparisons will be presented to compare the new design to competitor's models.

## Old Games Versus New Games: Who Wins?

**Kaleb Collins and Sheromne Hunter**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor James Gerland, Computer Information Systems

Our research project primarily studies the differences and contrasts between various types of computer games. A website will be created using HTML, CSS and JavaScript programming languages to display the findings of our research. New games are compared with old classic games and their evolution through time. The website will contain information to show how the new and high tech games, equipped with better graphics, still does not compare with the older games since the old classic games never really get old. Even when these classic games are revamped to new levels, it never loses that feeling of the classic versions of the games.

## Revenge of the Rabbits

**Aaron Colbert and Andres Kulan**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

This project uses the Alice program to create a digital story about a war between the rabbits and the tortoise. The Alice program has many options to use to visualize our imagination on a 3D image. The project includes more than ten characters (five rabbits and five tortoise) and applies programming concepts including conditional logic and loops. The purpose of this project is to entertain the viewers as the characters battle for a long time. The presentation focuses on a full story and the viewers will not be required to interact to see the animation.

## Scavenger Hunt: A Day of Looking

**Hector Rosario and Yohanna Guerrero**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

Our project is a 3-D digital story written using the programming software called Alice. The landscape of the story is a town which included different buildings, for example, a school, a post office etc. Two main characters of the story are Hector and Yohana. The characters would go on a scavenger hunt like search to find each other. Almost bumping into each other a few times but not quite finding each other. There would also be another character that would come in towards the end to throw one of the characters off. Finally, they would find each other and collapse after a long day of search.

## Skeleton Snapper

**Mitchell Hawke and Keyshawn Gomes**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

This is a video game that will be made by using Alice programming language. In this game, the player will control a skeleton who will slay the incoming wave of zombies using a blade. In the level, zombies will keep coming until a certain number of them are killed. After that, the boss, Anubis, will jump in the level and attack the player. He will move around the level throwing lightning at the skeleton and summoning more zombies to attack. The skeleton will have a number of health that will decrease as he is hit which will fall until zero. At that time, the game will end and the player will have to restart the game. Skeleton Snapper will provide a fun and challenging user interactive gaming experience.

## Slicing the Pie: Big Data Processing with Raspberry Pi

**Adam Doktor**, CIS 490: Senior Seminar  
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

Advanced technology has allowed engineers to push the boundaries of computer power. A modern example of this can be seen with the Raspberry Pi (a small, low cost, and palm sized computer). This research project intends to test the efficiency of Raspberry Pi computers using more data than it normally can handle, thus introducing the term 'Big Data'. Big data consists of data sets that push the limits of the technology that they are contained on. The slicing and dicing of data, commonly known as data analysis can be done with the assistance of software like Hadoop. Hadoop is a tool used to manage large sets of data across multiple computers. It is often used to identify trends and develop predictions based on data. This research will look into the possibility of creating a small Hadoop cluster using multiple Raspberry Pi units. This will in return be cost efficient, because it eliminates the use of more expensive and more powerful computers. The primary goal is to maintain a system of devices using distributed processing and storage. Future research could look into extending the cluster.

## Smart Power Strip

**James DuBose** and **John Mangan**, ENT 465: Electrical Design  
Faculty Mentor: Professor Ilya Grinberg, Engineering Technology

The Smart Power Strip allows users to monitor the current and voltage of any device that is plugged into the power strip. Currents and voltages are being monitored remotely using an Android device connected via Bluetooth. Users will be able to turn outlets on and off as needed. Arduino is used to program the microchip and several relays. Current sensors and voltage sensors are used to monitor parameters. A surge protector is used as a source for the outlets to be monitored. The Smart Power Strip is useful for monitoring energy consumption of the devices that are plugged in. The user can also see how much phantom power is being lost when devices are in low power modes (sleeping or just left plugged in). Typical examples are cellphone chargers and televisions and other electronics left in sleep mode. Power strip with a surge protector is modified to provide smart capabilities to monitor and control power consumption of dormant connected devices.

## SNL Chat Room App

**Jose Sebastian Manunta**, CIS 490: Senior Seminar  
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

The purpose of this research project is to create a web environment where users will be able to create a chat room with specific styles for each room that will enable them to invite other users to the room or send an email to people to come to the site and sign up. The project idea is drawn from the regular attendance of an event called "MassiveLan". At the event gamer clans want unique ways to communicate with their groups with something other than the boring everyday chat Apps. The project will be used to target groups that want their chat rooms customized for them to cater their individual needs and preferences. The project is designed to allow the room creator to edit the background image, the colors of the fonts and containers, etc. The program will be hosted on a web server supporting PHP, MySQL, and will also use JavaScript, HTML, CSS, Laravel PHP, and JSON data. This chat room will be perfect to connect friends at gaming events, co-workers that do not want to use their internal chats, or connect people at any event.

## Space War

**Matthew Cino**, CIS 490: Senior Seminar  
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

C# (C Sharp) as a programming language has been rising in popularity since its creation in the last decade. Because of the languages' popularity and ease of integration across platforms, it seems that it is an ideal fit for a PC game. The XNA framework will also be integrated into the game. XNA is a gaming framework also authored by Microsoft and it is extremely portable across devices like the PC, Windows Phone, and the Xbox game console. The framework dramatically expedites the process of making 2D or 3D video games by providing various classes and libraries like Vectors, Rectangles, and Textures. The game is titled "Space War" and will feature one spacecraft controlled by the player, whom is given the objective of avoiding and destroying increasing waves of enemy crafts that are automated by the Computer. Every time the user destroys a whole wave of enemies, a more difficult level of enemies will spawn. The game continues to increase in difficulty and does not have an end—rather, the objective of the game is for the player to stay alive to the best of his/ her ability while destroying enemy crafts. The game is intended to perform consistently across all devices with a Windows Operating System.

## The Ultimate Movie

**Adama Fall** and **Courtney Vaden**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

This project involved creating a 3D movie using the Alice 2.4 software. The movie begins in a house where there lived a squidgy, hot monster named Adama. Not a scary ugly, cute house, filled with weapons and a damp smell, nor yet a solid, greasy, carefree house with nothing in it to sit down on or to eat: it was a monster-house, and that means comfort. One day, after a troubling visit from the monster Courtney, Adama leaves his house and sets out in search of three excited glasses. A quest is undertaken in the company of robots and warped aliens. In the search for the monster-guarded glasses, Adama surprises even himself with his leadership and skill as a detective. During his travels, Adama rescues a sword, an heirloom belonging to Courtney. However, when Courtney refuses to try smiling, their friendship is over. Then, Courtney is wounded at the Battle of Britain and the two reconcile just before Adama engages in some serious smiling. Adama accepts one of the three excited glasses and returns home to his house a very wealthy monster.

## The Unforgettable Baby Seat

**Aaron Blum, Yan Song Shi, Zhi Yuan Shan** and **Francis Swartz**, ENT 465: Electrical Design  
Faculty Mentor: Professor Ilya Grinberg, Engineering Technology

“The unforgettable baby seat” is an alert system designed to prevent anyone from leaving a child unattended in a vehicle. This system is based on a set of weight sensors and Arduino microcontroller. Children are being left in the vehicle unattended more and more often, and the “unforgettable baby seat” project is conceived to counteract this issue. The longer the child is left in the car, the more pronounced response will be executed. Alerts include: buzzer; activating the car horn; texting family members; and texting authorities (in that order). “The unforgettable baby seat” should help prevent injury or fatality to the infant. Our project is centered around detecting weight on seats, and the student team’s effort is concentrating on testing and calibrating the weighted seat. RF (Radio Frequency) transmitters will be used with most of the sensors to transmit information to the microcontroller and to establish communication between devices. The project also includes programming of GSM (Global System for Mobile) and GPS (Global Positioning System) to enable texting features within the system as well as Arduino programming.

## Warrior Saves the Day!

**Mayowa Okudero** and **Destinee Brown**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor Charles Arbutina, Computer Information Systems

This project will be designed to unfold the story of a common village and its people. The interactive story will be told using Alice programming software to create 3D video graphics. The story will narrate different relationships between different people and objects. The graphic movie will showcase a village which was once a peaceful and quiet place to live until a “TROLL” decides that it should cause havoc on this village. Then things started getting out of hands, villagers started doing things they were known not to do, until a certain warrior came to this aid. Find out the conclusion of this story at the presentation.

## What Happens After the Trial Period Expires? Strategies to Combat Software Piracy

**Jerome McFarlane**, CIS 490: Senior Seminar  
Faculty Mentor: Professor Sarbani Banerjee, Computer Information Systems

According to the Business Software Alliance (BSA) survey, 57 percent of the world’s computer owners have confessed to pirating software. Countries with emerging economies are the ones where piracy is the most rampant. The top three countries with the highest piracy rates are Venezuela at 88%, Indonesia at 86%, and China at 77%. The United States has the largest market for software yet has the lowest piracy rate at 19%. This research will investigate to find schemes to combat software piracy. It will take a look at the origin of piracy, the way it has evolved, and how it has become more mainstream to beginner level hackers. As the demand for software has increased, more individuals are pirating for personal use. Software is valuable intellectual property owned by software vendors who are all aware of this issue. But it is possible to combat software piracy if the machines on which the programs execute are distinguishable; these days hardware manufacturers have begun assigning unique identifiers to CPU chips, which makes it possible to address the piracy issue in a new light. Using this information along with knowledge gained from other sources, this project will result in a step in the right direction to combat “softlifting”; which is the equivalent of software shoplifting.

## **Xylem Inc.'s Exhauster Mounting Project**

**Kevin Ingraham** and **Alex Caya**, ENT 422: Machine Design II  
Faculty Mentor: Professor David Kukulka, Engineering Technology

Xylem Inc. manufactures heat exchangers and is a world leader in water purification technologies. These heat exchangers are used in a wide variety of projects from naval contracts to power generation. Xylem has noticed that there are some fabrication problems that result in lower profits. Specifically, the time it takes to mount the exhauster units to the main shell of the heat exchanger is excessive. In order to develop a solution to the problem a few designs were considered to speed up the fabrication process. Design changes include removing the need to weld the mounting structure on the main shell of the heat exchanger; which will significantly increase the adjustability and reduce fabrication time. Another change that will help reduce fabrication time is the addition of a brace to support the exhauster's inlet piping. This pipe brace decreases the stress on the inlet piping and create a fixed location for the piping unit. This design will reduce the amount of time to connect the exhausters to the main shell. The proposed new design will strengthen the support by 40% and reduce the fabrication cost by approximately 25%.

## **YAWD SPOT: A Small Business Website**

**Chanel Rowe** and **Brittany Colvin**, CIS 189: Exploring Computer Systems and Engineering  
Faculty Mentor: Professor James Gerland, Computer Information Systems

Using web design tool (notepad++) a website will be developed for small a business called YAWD SPOT, an on-campus food spot that caters to the student body at Buffalo State College on the weekends. We specialize in Caribbean style cooking, that reminds one about there mom's or grandma's cooking. In this web design presentation several computer languages and tools will be utilized, such as proper HTML 5 tags, appropriate use of CSS styles, and an innovative use of JavaScript programming language to create dynamic pages for this web development project. This website will be used to advertise and provide information about YAWD SPOT.

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## Education

### Action Research and Design-Based Research for Physics Teacher Preparation in Germany: A Case Study

**Joseph Heimburger**, PHY 690: Master's Project  
Faculty Mentors: Professor Dan MacIsaac, Physics and Professor Andre Bresgnes, University of Cologne

I describe my preparations and initial pilot activity undertaken in collaboration with pre-service physics teacher, their instructors and mentors at the Universität zu Köln making use of Design Based Research and Action Research methods. A literature review was prepared to inform and guide my scholarly exchanges creating a Transatlantic Design Based Research/ Action Research Network for physics teacher preparation in German and U.S. schools. AR projects have been used in the US for teacher development, but not yet in Germany. I present data collected during a pilot study conducted on graduate student exchange visiting Cologne, Germany January – February 2015 and June 2015. The study follows one preservice teacher through the “Praxissemester”, during which she developed classroom activities and assessed them in an AR/DBR format. I report her findings and discuss the appropriateness of using AR/DBR in the context of the German Praxissemester. This research was supported by the NSF Robert Noyce Teacher Scholarship Program.

### All About (the 411) Movement in the Classroom

**Morgan Allender**, Exceptional Education  
Faculty Mentors: Professor Angela Patti, Exceptional Education and Professor Pixita del Prado Hill, Elementary Education and Reading

I am exploring the benefits of movement in the classroom. I am in my first PDS methods placement, and I have noticed that many children in my classroom have difficulty sitting still and staying focused. I am interested to learn more about the theory and practices of using movement in the classroom to help children learn. This not only creates a warm environment, but a comfortable community for my students. With this in mind, I would like to identify teaching strategies for my students to learn, and keep their minds healthy. This can involve yoga strategies, dance movements, and exercises that alleviate the pressures of the classroom, and motivate the students to focus. I am using Buffalo State's library database and examining theories and tools from previous initiatives, as well as using online classroom strategies to help me conclude my results. My poster summarizes various theories about the connection between movement and learning and also offer a wide range of examples and resources for teachers to use in their classrooms. I am providing a rationale for why movement in the classroom is important and share a variety

of strategies, tips, and resources to help teachers incorporate movement in their classrooms.

### The Application of Multi-Sensory Teaching to Reading Instruction

**Ashley Austin**, EDU 690: Master's Project  
Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

Multi-sensory teaching is a way for teachers and students to be using hands on experiences. Instruction allows students to be engaged; having fun with their learning. The instruction is important within classrooms because students learn at different rates. Reading requires different techniques, abilities, and skills. Multi-sensory teaching allows students to continue working on these abilities and skills. While continuing to increase their reading abilities. In researching multi-sensory teaching, questions that arise: what are the benefits of multisensory teaching? What are some multisensory techniques or materials for teaching? How does multisensory teaching affect a child's reading? Through researching multi-sensory teaching, results found were students can increase decoding skills, phonological skills, and spelling. Students are stimulated to be involved in learning. Students are able to review and practice their skills and abilities; then apply what they have learned. Applying what they have learned students can achieve stepping stones towards reading. Participants in the first grade will be taught through multi-sensory teaching approaches and techniques; that are tactile, auditory, and kinesthetic. First grade teachers, reading specialists, special education teachers, administrators and parents can use this research. Outcomes are increased phonological skills, spelling, and reading skills. By creating individualized instruction educators can get parents involved in the future. Multi-sensory teaching gets children involved and having fun in learning. With increased skills and abilities students can also increase confidence.

### AVID for the Avid Learners

**Sara Rund**, SCI 650: Curricular Research Topics in Science  
Faculty Mentor: Professor Joseph Zawicki, Earth Sciences and Science Education

AVID for the Avid Learners will be a preliminary research talk focusing on how a specific college and career program, known as AVID (Advancement via Individual Determination), can be successfully implemented in a rural school district in Western New York. Other instructional programs, as well as the demographic information for the school demographic will be examined. The primary research question “Does implementation of the AVID program lead to significant, positive changes in both student attitudes and academic performance?” Specifically the research will focus on individual student organization through the use of a school-wide one-binder system and the introduction

of interactive note taking (Cornell notes). Supporting data will include, but not be limited to, affective student surveys and quantitative analysis of student growth in understanding. Data will be collected for the 2015-2016 school year (the second year of program implementation). The data will be analyzed; the impact of this program, and the implications for future years, will be addressed.

### **Best Practices for Classroom Management in a PDS School**

**Brianna Ware**, Early Childhood Education

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

As I prepare to have my own classroom in the very near future, classroom management is something that concerns me. Teachers have the responsibility of teaching a high level of content and getting the students to comprehend the material within one school year. There are many factors as to why achieving this goal may be challenging, but if a teacher is unable to successfully manage their classroom this goal is nearly impossible. Through this study I would like to discover some of the best practices for classroom management. I plan to share the findings to help prepare teacher candidates and shed some light on alternative methods for current teachers. In order to gather my data I have prepared a brief survey. I will invite attendees from the PDS meetings to complete the survey. This will also give me the opportunity to learn about classroom management from different angles. At an average PDS meeting there are teachers, teacher candidates, professors, principals and other administrators. I will also be working in an elementary school this semester, so I plan to incorporate this experience into my research as well. Lastly, I have been reading up on classroom management. I plan to compare the survey results with what the literature says. Once all of my research is complete I plan to present my findings in a poster. My poster will include a brief introduction as to why I wanted to research classroom management. I will then show the survey results. This would identify any underlying common threads or point out how different methods work best for different teachers.

### **Bridging Language Backgrounds in the Classroom: Linguistic Comparison Between Multiple Language Backgrounds and English**

**Mindy Lamb**, EDU 499: Independent Study

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

Considering the influence of multiple language backgrounds on a student in an English based educational context is essential to identify successful educational strategies to bridge language

differences. Grammatical elements in the areas of syntax, morphology, phonology, and semantics should be compared between differing language groups to determine effective means of education for ELL's (English Language Learners). For a student who is trying to learn English but comes from a multilingual language background, it is essential to consider discussing the phonemic basics he or she will find across both English and his or her primary language. Various vernaculars differ across geographical regions and are often expressed on several linguistic domains, from syntactic, morphologic, phonologic, and semantic. The focus of this study compares vernacular influence, these four linguistic elements of English and various language backgrounds, and effective educational methods for elementary age ELL's. The method I used to collect data was to observe a 4<sup>th</sup> grade student as a case study. This student's primary language is Somali at home but she also has a language background in Arabic and Swahili. Her language of educational instruction is English within her classroom setting. I observed which instructional methods were most effective for bridging her primary language to the language of instruction. Noting similarities and differences between these student's primary language groups will help to best communicate effective strategies to students whose primary language is not English

### **Co-Teaching with a Student Teacher**

**Alyssa Reynolds**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

The purpose of my Master's Curriculum Research Project is to identify the efficacy of student teachers and mentor teachers using the co-teaching models. The traditional approach in student teaching is considered to be obsolete by many modern researchers, who are sure that co-teaching with student teachers to be the optimal way of student preparation and cooperation in the classroom (Bacharach, 2010). The purpose of this study is to identify teachers' and student teachers' perspectives and efficacy of co-teaching approach. The research will be conducted during a sixteen-week placement of a student teacher in a third grade classroom. The mentor teacher, student teacher, and college supervisor will determine the influences of the co-teaching models, based on specified factors in the school setting. The third grade classroom with a student teacher and mentor teacher implementing co-teaching will be compared to the third grade class with only a general educator. Data was collected through surveys, observations, and records of student work. Differences were discovered in student academic and behavioral performances between the classroom that implemented co-teaching and the classroom that did not. Based on these preliminary results, co-teaching appears to be an effective instructional delivery option for meeting the needs of students.

The research can be used to model and educate co-teaching in the classroom with a student teacher. I plan on using my Master's Research Project to educate administration, current mentor teachers, and to educate non-mentor teachers on the efficacy of the incorporation of co-teaching models with a student teacher.

## **A Comparison of Biological Pedagogy in New York and China**

**Siqi Li**, Science Education

Faculty Mentor: Professor Joseph Zawicki, Earth Sciences and Science Education

This is a preliminary research presentation on a comparison study of The NYS high school biology curriculum, named "The Living Environment Core Curriculum," and the Chinese high school biology curriculum (a part of the Chinese National Curriculum) entitled "The Biology Standards of the National Curriculum". There are both many differences and many similarities between the two curricula. This project was undertaken in order to determine these differences and similarities. The project included the comparisons in eight detail aspects of the curricula: content organization, big ideas, teaching objectives, content details (specific content items), the problem solving, laboratory work, student assessment, and teacher preparation and certification. Through these comparisons, the pedagogical differences between Western and Eastern countries can be identified and explored. The perspectives and opinions of future teachers on the effective use this of these two curricula will be explored.

## **Creating Bilingual Books to Facilitate Second Language Learning**

**Kara Harris, Ashley Gandt, Symone Lewis, Elizabeth Tsang, Montaha Uddin** and **Mariah Gower**,

EDU 389/654: International Professional Development Schools (IPDS) International

Faculty Mentor: Professor Maria Ceprano, Elementary Education and Reading

We are teacher candidates participating in two different Professional Development School (PDS) each offering English as a new language. We created bilingual books supporting the children's abilities to make cross cultural connections as well as developing their understanding of specific topics in the New York State Core Curriculum for the Social Studies. Written at a readability level appropriate for the ESN students for which they were designated, we "Google Translated" the English texts to the first language of the learners at respective PDS sites; One being Spanish and the second Italian. Once the Google texts were edited for accuracy the books were published using either Shutterfly or Snapfish. Copies of these texts were used for instruction at the schools and then sent home with the children to be shared with their families. The children who received the books were

later interviewed about their attitudes and usage of the books at home. Our presentation will include the books and some of the children's responses to interview questions pertaining to the books.

## **Creating Bilingual Spanish Books for ENL Learners: Process and Outcomes**

**Dottie Ost, Siobhan Difiglia, Pam Gon, Melissa Fort, Kendall Szafnicki** and **Morgan Glazer**,

EDU 310/654: Teaching Social Studies in the Elementary School

Faculty Mentor: Professor Maria Ceprano, Elementary Education and Reading

We are teacher candidates participating in a Professional Development School (PDS) with a large Hispanic enrollment. We created bilingual children's books supporting the children's abilities to make their cross cultural connections as well as developing their understanding of specific topic areas in the New York State Core Curriculum for the Social Studies. Written at a readability level appropriate for the ESL level students for which they were designated, we "Google Translated" the English text to Spanish. The Spanish text was edited for accuracy by the Spanish teacher at the PDS, and then sent to Snap fish for publication. Copies of these texts were used for instruction at the school and then sent home to be shared with their families. The children who received the books were later interviewed about their attitudes about and usage of the books. Our presentation includes the books we created and the children's responses to interview questions pertaining to the books.

## **Creative Writing, Media Production, and Literacy Development in a Digital Writing Workshop**

**Spencer Miliotto**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor James Cercone, English and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

My project investigates what and how students learn in a digital writing workshop. Real learning can be hard to see as it's happening in the chaos of a regular school classroom. To address this, I designed an after-school workshop at JFK Middle School in Cheektowaga-Sloan School District where both students can improve their digital and print-based literacies and I can see the growth firsthand. Students develop their digital and English literacies by working through the writing process to create original works and record their writing using audio production software. I will start the workshop by conducting an anonymous survey to determine English and digital literacy skills. In order to determine the matter and manner of the learning, I conduct an identical survey at the end of the workshop, and ultimately compare the students' survey results to determine the impact of the workshop upon the development of English and digital

literacies. The current education system would suggest that learning takes place in a teacher-centered classroom. As it turns out, students learn an impressive amount when they're in the right environment and the right tools are put into their hands.

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

**Devon Holler**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Alexander Means, Social and Psychological Foundations of Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

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, this research will specifically offer insight on how educators perceive creativity in relation to the Common Core.

### **Educational Services for Children with Autism in South Africa**

**Stephanie Bickelman**, EDU 501: Seminar for the Reflective Teacher  
Faculty Mentor: Professor Hibajene Shandomo, Elementary Education and Reading

My project includes a literature review that is concentrated in the educational services that are available for children on the Autism Spectrum in South Africa. Although South Africa has made significant legal and educational advancements for children with disabilities in comparison to surrounding developing African countries, there are still gaps in Autism awareness and acceptance in South African classrooms, as well as in the general community. Therefore, these disparities can result in inadequate exceptional education services for children with an Autism diagnosis. Children on the Autism Spectrum are a very vulnerable population and are posed with unique spectrum challenges in receiving the basic education that they are entitled

to under South African law. My project aims to describe the types of schooling and quality of services that are currently in place for these children. Additionally, my project will attempt to answer the question: Are there any gaps in the South African educational services for children with autism? Is any reform needed? What role does culture, socioeconomic status, and community attitudes play in providing these services?

### **Family Literacy: Why it is Important to Families, Educators and Students**

**Susan Wolcott**, EDU 501: Seminar for the Reflective Teacher  
Faculty Mentor: Professor Hibajene Shandomo, Elementary Education and Reading

The ability to read is important, and perseverance to understand challenging texts is life-changing. Often times, the ability to read is taken for granted. It is easy to assume that everyone shares our literacy experiences, and we forget that not everyone has the same abilities or home-support. I believe that the strongest influence for success in reading begins at home with the family. From my own experience, my parents not only read to me, but encouraged me to read. I remember my fourth grade teacher who was passionate about reading and fueled my desire that was nurtured at home. When I look at the students that I work with, I see more children struggling to grasp the nuances of reading. Students who struggle the most don't have the family support at home. Whether this support is absent due to lack of time, interest or parental ability, the negative impact on their child is significant. This has sparked my curiosity about how the Family Literacy Theory functions globally. This study compares two English speaking countries, Australia and the United States to understand how family literacy is viewed and valued. What role does the family play in conjunction with the community and educational systems within each of these countries? The literature reviewed argues that the family is the primary model when it comes to literacy. It is vital for a child's success to have the support of the family working together with the teacher to achieve mastery in all subject areas.

### **Helping Elementary Students Read for Information**

**Victoria Arthur**, EDU 690: Master's Project  
Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

According to the latest Common Core shift in English Language Arts/ Literacy in grades PK-5, Balancing Informational and Literary Texts, students must read a true balance of informational and literary texts. In other words, at least 50% of what students read in the classroom must be informational ("Common Core Shifts"). Therefore, it is critical that primary classroom teachers not only incorporate informational texts within their classrooms and curriculum, but also that they teach

their students how to read and comprehend informational texts. This Master's Curriculum Research Project focuses on answering the question: In what ways can teachers help elementary students read for information? Through research, strategies were identified. Then several were selected, and a nine week third grade curriculum, relating to the Common Core State Standards, was developed. In an attempt to examine the success of this project and to assess students' knowledge, different forms of assessment were created. Third grade classroom teachers and/or Academic Intervention Service classroom teachers within the 42 states that have adopted the Common Core State Standards can utilize this project. When used accordingly, this project will promote teachers' awareness of how to teach their students to read for information. This in return will help to develop students' understandings of informational texts, which will then lead to the production of students that are confident informational text readers. When visiting my poster, you will learn about my project and gain insight into helping elementary students read for information.

### **Helping Families Develop Pre-Literacy Skills in Preschool Students**

**Shirley Drew**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

The questions I will be exploring for my Master's Curriculum Research Project will be: How can a parent influence the development of their child's pre literacy skills? How can teachers help influence that parental role in their young child's literacy education? What tools can the teacher give to the parent to positively influence the parental role in the education of their child? These questions are paramount because educators need to empower parents with the tools that will positively benefit their children. If schools can harness the enormous influence parents have with their children, and support that parental influence, I believe the entire school community will change exponentially in a positive direction. I will present multiple lessons to families on ways in which they can aid their children when it comes to school. The lessons will include strategies which have been studied in research and have been proven successful. Lessons can be tailored to parents of all age groups, but have the most influence with parents of young children, specifically in preschool. This research project will be successful because any time teachers can bridge the gap between school and home, to lift families up, it can only influence a child's educational experience in a positive way. Research has shown that when schools and families work together, it can have a huge positive impact on a child's education. I believe that this research project will help with addressing this important relationship.

### **How is Text Messaging Affecting Teen Literacy?**

**Trercia Noel**, CRS 302: Creative Approaches to Problem Solving

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

Communication skills have been the subject of various forums and research articles as they have become a global issue with the pervasive nature of digital communication, and the shorthand methods of communicating by text. According to a Pew Research project in 2011, young adults, 18-24, exchange an average of 109.5 messages per day. The objective of the research is to educate the audience on the possible effects on communication skills of obsessive text messaging among teenagers. The information presented in this poster review represents data obtained from articles in peer-reviewed scholarly journals found on Buffalo State's Butler Library website or the Google Scholar website which specifically address the effects of text messaging on young people. Emphasis is placed on those articles that found an impact on literacy and were published within the last 5 years. My presentation includes terms and definitions, positive and negative research reports, and conclusions from studies on the effects of text messaging, making the information visual and instructive. The significance of this study is showing individuals how compulsive texting can jeopardize one's writing, spelling, grammar, and punctuation skills. As a result, it can also lead to distraction in school, failing grades, and damage to school engagement or "bonding," as well as lowering students' perceptions of their own academic competence.

### **Immediate Corrective Feedback on Three-Term Contingency Trials with Pre-Service Teachers in the TeachLive Lab**

**Courtney Blake**, EXE 695: Master's Thesis

Faculty Mentors: Professor Krista Vince Garland, Exceptional Education, Professor Warren Gleckel, Exceptional Education and Professor Raquel Schmidt, Exceptional Education

Three-term contingency, an evidence-based practice, is a trifecta consisting of an (A) antecedent or opportunity to respond, (B) student response, and (C) the teacher providing praise or correction to the student response, a critical part to completing a TTC trial and the student learning process. Recognizing students for behaviors performed correctly reinforces and increases the frequency with which that behavior is exhibited. For incorrect answers, corrective feedback that is delivered immediately after the response prevents the student from continuously practicing or demonstrating the wrong behavior. A virtual learning environment platform, TeachLive™, allows individuals to immerse themselves within a virtual classroom to practice the delivery of content and classroom management skills. This study utilizes a single-subject modified multiple-baseline-design-

across-participants design to answer the following questions: (1) What is the impact of immediate corrective feedback on three-term contingencies with pre-service teachers in the TeachLivE lab? and (2) What is the perceived value of immediate corrective feedback on three-term contingencies? It is hypothesized that immediate corrective feedback will have a positive impact on participants' ability to complete three-term contingency trials. Analysis of the data between conditions consists of comparing changes in level and trend with a combination of percentage of non-overlapping data (PND; Gast, 2010).

### **The Importance of Play in Early Childhood Programs**

**Lisa Akers**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

Education in the United States is very results driven with a huge focus on academics. However, this Master's Research Project will be looking at the importance of play in early childhood programs across the country. Upon reviewing the literature for this topic, it has been found that students learn best when they are taught in authentic and meaningful ways. For young children the most meaningful ways that they can learn is through child-centered play. This curriculum research project will focus on early childhood programs serving preschool aged children. In order to see how students are able to learn through various forms of play, there will be careful observations of students as well as rubrics that outline how students are able to complete numerous play-centered activities or games. Using this Master's Graduate Research Project will help educators see the benefits of utilizing play as a way to help children learn. The curriculum that has been developed is flexible enough so that teachers can use it in its entirety or choose from it what is relevant to their classroom practices. The importance of play is something that is not discussed enough and deserves to be recognized for the benefits it provides young children. By finding ways to quantify how children are learning through play, hopefully more preschool and even kindergarten classes will be able to recognize the fact that play really does help students learn valuable life lessons and skills.

### **Increasing Cultural Competency in a PDS Urban School**

**Daniel Klein**, Childhood Education

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

For many years, SUNY Buffalo State has provided teacher candidates with the experiences that complete their transformation into professional educators. One requirement for this change is that candidates gain a strong understanding of global issues. SUNY Buffalo State supports this transformation

with educational courses such as The Teaching of Social Studies in the Elementary School, in which teacher candidates become more globally aware and learn how to effectively implement techniques and methods that promote intercultural competence with students at a PDS site. They are also provided with opportunities to expand their intercultural competence through many local and international service experiences. My research will focus on teacher candidates' experiences with intercultural competence over the course of a semester, what they learned through their experiences at the PDS site, and what they believe is missing from these experiences. Groups of teacher candidates in a Social Studies Methods course will be surveyed to identify current intercultural competency knowledge, how their experience in a PDS site has affected them, and their view on the role of intercultural competency in their future classrooms. Survey results of teacher candidates' attitudes, experiences, and preparation levels regarding their knowledge of intercultural competency will be analyzed. Recommendations to more effectively use the PDS model to prepare teacher candidates for intercultural competency will be included.

### **It's Three O'Clock: Do You Know Where Your Children Are?**

**Jessica Zaidel**, 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

With elementary aged students' successes being in the spotlight more than ever, it is important to consider the role after-school activities and extracurricular programs have on academic and social outcomes. After reviewing the literature on after-school and extracurricular programs for grades kindergarten through 5th, it has come to my attention that these programs and activities are not only beneficial to a student's social well being, but to their academic achievement as well. This literature study focuses mainly on the concept of "cultural capital" and how it influences elementary aged students. This notion of cultural capital can be explained as "linguistic and cultural competence and that relationship of familiarity with culture which can only be produced by family upbringing when it transmits the dominant culture" (Bourdieu 1973, p. 80). However, since this definition has come out, there have been amendments to the concept which now expands it to include culture that is learnt implicitly through after-school programs and extracurricular activities. I developed an idea for an after-school program that encompasses all the redeemable and necessary characteristics for it to be successful. This program must seek to promote personal and social skills. In conjunction with working to promote personal and social skills, this after-school program must be sequenced, active, focused, and explicit—or SAFE. With of this in mind, I developed a program with the name "Outside School,

Inside Learning.” By incorporating the aforementioned qualities, this after-school problem would then work to improve its attendees’ cultural capital. With a more diverse cultural capital, a student will have more social and academic success.

## **Math Anxiety in Female Upper Elementary Students**

**Audrey Agas**, EDU 690: Master’s Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

Math anxiety is a factor that can affect both male and female students, but female students are more exacerbated by it. Even when male and female students achieve similar performance on mathematics assessments, female students exhibit less positive feelings about their performance. The research question of this project is: What can be done to reduce math anxiety in students, in particular upper elementary female students? Action research will be used to assess the effectiveness of goal oriented, all-inclusive mathematics instruction. The anticipated participants of this project are diverse set male and female upper elementary students in a large, suburban school district. Math anxiety in female students is linked to two major factors: gender stereotyping and stereotype internalization. The idea that “boys are good at math, and girls are not,” is a huge obstacle to math performance in female students. The first step to help alleviate math anxiety can be to further educate teachers on mathematics, and mathematics teaching. Another suggestion is to change the goal mindset within the classroom. Rather than focusing on rote memorization of math facts, teachers can emphasize the goal of understanding and improvement. Math anxiety is a problem for all students, but female students are far more negatively influenced by it when compared to their male peers. Math achievement is an important part of overall academic and career performance. In order to help all students achieve higher rates of mathematics achievement, changes in instructional goals, teacher mindset, and instructional practice can be made.

## **Mnemonic Devices to Aid Students with Central Auditory Processing Disorders**

**Brianna Matheis**, EXE 360: Foundations of Teaching Individuals with Disabilities

Faculty Mentors: Professor Awilda Ramos Zagarrigo, Exceptional Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

This research is a look at The Use of Mnemonic Devices to Aid Students with Dysgraphia, and Other Central Auditory Processing Disorders. The question posed here is to what extent do mnemonic devices assist students with central auditory processing disorders? This research will attempt to answer, to what degree do mnemonic devices make a difference in learning, and what effect they have on students with auditory processing disorders in

relation to English language arts and communication skills? An auditory processing disorder (APD), is a learning disability that affects the way students process sounds, and it generally affects a student’s language skills. Dysgraphia is a specific kind of APD that generally strongly affects spelling and other written language skills. This research will look at mnemonics as a strategy to assist students with APD in achievement and retention of language skills in regard to spelling and vocabulary. Scholarly journals and peer reviewed research has been examined here, along with data from previously conducted surveys and studies. All of which suggest that there are many practical uses for mnemonic devices, and they tend to have a very positive effect on students with central auditory processing disorders.

## **Motivation in the Art Room: Finding a State of Flow**

**Rachel Zogaib**, Art Education

Faculty Mentors: Professor Cheryl Hamilton, Art Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

I have created two variations of a lesson plan for 7<sup>th</sup> grade art students. Using elements from both the Motivational Flow Theory by Mihály Csíkszentmihályi and the Self Determination Theory by Edward Deci and Richard Ryan, I will explore the effects of different types of motivation on the productivity of students in an art class. Csíkszentmihályi argues that teachers should strive to foster “flow” in their students, which is when students are involved in an activity that is of appropriate skill level and is adequately challenging for them. When they are engaged in an activity that exhibits “flow,” they will find success and pleasure in the activity, be motivated to keep working, and even challenge themselves to achieve at a higher level. Deci and Ryan researched ways in which a person acts: out of interest, for a reward, for personal gain, for approval, or even out of anxiety. Through this research they explored the different ways that extrinsic motivators affect motivation. They further studied how social contexts have an effect on intrinsic motivation. In one variation of my lesson plan, I used extrinsic factors as the motivation for art making, while in the other variation I relied solely on intrinsic motivation. By doing this field work and research I hoped to explore what ways of motivating are most effective in getting students to achieve a “state of flow.” As a future art teacher, it is crucial for me to be aware of what types of motivation will reach the largest number of students in my classroom.

### **Near, Far, Wherever You Are: Comparing Learning at Home and Abroad**

**Tiffany Bassett**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor William White, Social and Psychological Foundations and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

My goal for the project was to produce a comprehensive view, based on interviews with faculty and students, on the benefits and challenges of international study, including such elements as overall costs and the additional red tape that comes with transferring credits or applying for a visa. I consulted various academic journals and found that I needed more information on why students chose to study abroad, as opposed to remaining on their home campus, and what impressions their professors had after their return. The questions I sought to answer were, “What makes studying abroad an invaluable experience?” and “Would you, student/administrator, study abroad again and/or recommend studying abroad to a student?” I broke these questions down into more than a dozen related questions, selected student and administrative research subjects, and conducted an audio-recorded face-to-face interview with each. I then transcribed these interviews and compiled the data collected. My preliminary findings were, although both groups conceded to the various challenges involved, both students and faculty felt strongly that the personal and/or academic benefits gained while studying abroad far outweighed the costs incurred and any other difficulties that may or may not have surfaced. I continue to mine the data, watching for emerging themes and paying close attention to the relationships that develop between the groups and their responses.

### **Observe, Critique and Create: Visual Art Across the Curriculum**

**Casey Konieczka**, EDU 690: Master’s Project  
Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

The reality that art is undervalued in schools is unfortunate in many ways, but especially because visual art has the potential to inspire students and make their learning more meaningful (Bryce, 2012). This Master’s Curriculum Research Project answers how the integration of visual art across the curriculum can be beneficial to students in terms of meaning-making, content retention and socialization. Since it is often up to classroom teachers to keep the visual arts alive, this project also focuses on how visual art can be used to effectively teach literacy along with content in science, social studies and math. Over a period of ten weeks, twenty-five first graders and twenty-five fifth graders are taught several lessons from each content area involving some use of visual art. However, every topic taught with visual art elements is also taught without them. Lesson assessments and

detailed observation notes are collected, compared and analyzed to determine the impacts of visual art on student learning and socialization. Through the use of this Curriculum Project, students improve both academically and socially by learning about, with and through visual art. Teachers become more comfortable with visual art because they have more knowledge of the many ways that it can be used to teach topics in every discipline. Ultimately, this project suggests that visual art can and should be used to strengthen literacy skills, learn about people and places from the past, clarify scientific processes, and even create mathematical masterpieces.

### **Once Upon a Time: Promoting Creativity in Art Education Through Narrative Art and Storytelling**

**Caitlyn Camp**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Candace Masters, Art Education and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

There is a popular belief that creativity is a special characteristic that only some are born with. Creativity, however, is something that can actually be taught and learned. In the contemporary world, more attention is being paid to the benefits of promoting creativity and creative thinking. Creativity is becoming more and more important as we move towards a focus on problem solving, innovation, and bold, new ideas. One of the most optimal places for these skills to be fostered developed is in Pk-12 schools. As an aspiring art educator, it is an essential part of my job to promote creativity and creative thinking in the classroom so that students are prepared to face the complex world we live in. Because there is so much current research addressing the benefits of creative thinking across disciplines, I have designed a unit of study for intermediate students to encourage creativity and creative thinking in the middle school classroom. The unit consists of three lessons promoting creative thinking that look into different areas of narrative art and storytelling.

### **Perceptions of Reading in Native American Students**

**Elizabeth Malinowski**, Elementary Education  
Faculty Mentor: Professor Christopher Shively, Elementary Education and Reading

In the 2009-2010 school year, American Indian/Alaskan Native (AI/AN) students dropped out of high school at a rate of 6.7%, the highest dropout rate for any ethnicity in the United States (Stillwell and Sable, 2013); this trend was found in New York State and in Western New York. Difficulty with reading and a dozen other factors have been identified by researchers to explain this phenomenon (Faircloth and Tippeconic III, 2010). Hernandez (2011) found that one in six children who are not

reading proficiently in third grade do not graduate from high school on time, a rate four times greater than that for proficient readers. The purpose of this case study is to examine the self-efficacy beliefs in reading of elementary-aged AI/AN students. Two fifth grade, female students participated in the investigation. A variety of data sources were used to collect data, including student artifacts, a survey and an interview. Data analysis was conducted with open coding techniques to examine the participants' self-efficacy in reading after they had taken the New York State standardized ELA exams in 3rd and 4th grade. The data revealed participants with average and above average self-efficacy in reading. The participant with above average self-efficacy read more often, read twice as many different genres and believed she was efficient in more reading actions than the average self-efficacy participant. Both of the participants believed that they had positive home and school influences and that reading was essential to success in life.

### **Perspectives and Challenges on Promoting Reading Among Children: A Cross-Cultural Comparison**

**Crystal Holmes-Smith**, Literacy Specialist M.S.Ed.

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

As a literacy specialist candidate, a reoccurring interest of mine is to find ways to improve students' performance in literacy. Research suggests that the way to advance children's development in literacy is to increase their exposure to literature. It is known that children who come from homes where there are many books and/or other forms of literature demonstrate higher performances in literacy (Trelease, 2013). However, what happens when increased exposure isn't a convenient option? This idea led me to the question, "How do educators foster literacy development despite a lack of resources?" Specifically, I looked at the reading aspect of literacy. I took this question with me in my travels to Santiago, Chile and to Honduras (via email) through the SUNY Buffalo State International Professional Development Schools Program. I also traveled to the Muhanga District of Rwanda with The Anne Frank Project at SUNY Buffalo State. However, what I found was that before assessing their promotion of reading, I first needed to look at the culture of reading in each of these places. Limited resources proved to be an issue, but there were other factors that contributed to the degree of which the importance of literacy was emphasized.

### **Possible Reasons for Underreporting Bullying as Mandated by DASA**

**Kathryn Syracuse**, Early Elementary Education

Faculty Mentors: Professor Nanci Monaco, Elementary Education and Reading and Professor Pixita del Prado Hill, Elementary Education and Reading

On July 1, 2012, New York State implemented the Dignity for All Students Act. To provide all children with a safe learning environment, DASA states that all children are entitled to an environment free of harassment and discrimination. The legislation specifically outlines 11 discriminatory acts as protected classes, some of which include: threats or abuse based on a person's race, disability, or sexual orientation. During the 2013-2014 school year, a majority of the 4,000 schools in New York State failed to report any incidents of bullying. Western New York schools reflected this trend, as local news station WGRZ found that 25% of schools did not report any bullying incidents. I researched the reasons bullying incidents were not being reported, as mandated by DASA. I plan to interview school administrators, teachers, and counselors to gain insight into whether or not these incidents are occurring, and whether or not reports are encouraged. While conducting these interviews, I hypothesize four potential causes for the lack of bullying reports: a school's fear of damage to its reputation, the cost to a school found liable by reporting bullying, lack of clarity regarding what constitutes a reportable incident, and whether or not the reporting system is user friendly enough for schools to utilize. Findings will suggest specific ways to make DASA legislation more effective.

### **Science and Mathematics Integration: Methods and Implementation**

**Caleb Moore**, Mathematics Education (7-12)

Faculty Mentor: Professor Susan McMillen, Mathematics

Traditionally secondary schools have divided subjects into different areas. This contributes to an inability of students to apply the skills they have learned when solving the complex problems in science and mathematics. Schools today are facing many challenges in implementing interdisciplinary teaching at the secondary level. This poster will present an overview addressing the effective integration of science and mathematics instruction. Strategies that teachers can practice to begin the process of integrating content areas will be shared. These include essentializing, contextualizing and problem centering. Process skills and best practices in facilitating the connections between science and mathematics will be identified. These best practices are skills that teachers can implement in the classroom daily to help facilitate the learning of any content area. The poster will also show case studies of secondary schools that have already begun the process of integrating content areas. These case studies demonstrate the successes and obstacles that

schools will encounter and set a blueprint on how to begin a successful integration model. As we move forward in teaching we are realizing that there is a need for interdisciplinary study in order to give students the ability to recognize the connections between the different content areas and to apply them in real life situations.

### **Social, Emotional and Literacy Benefits of Dramatic Play in Kindergarten**

**Camille Graczyk**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

I am studying the impacts of dramatic play in the kindergarten classroom. I will look at the social, emotional and literacy impacts that are made while engaging in play (Miller and Almon, 2009; Hansel, 2015; and Graue, 2010). Some research questions that will be raised will be, "Do children always benefit from dramatic play socially, emotionally, as well as becoming more literate?" "Does dramatic play help students become better readers and writers?" The participants of this Master's Curriculum Research Project will be kindergartners, who will participate in dramatic play centers over 9 weeks (45 days). Weekly they will explore a new topic that enables them to practice dialogue with peers, working together, sharing and they will be doing literacy activities. I anticipate the results of this Master's Curriculum Research Project to be that the students will grow socially and emotionally in a positive way (Graue, 2010). Students will also become more literate. While reading and writing during these play centers, students build the foundation toward becoming strong, fluent readers and writers (Lysaker, 2010). I could use this Master's Curriculum Research Project in the future by doing this with students and obtaining the positive results that the research supports (Miller and Almon, 2009; Hansel, 2015; and Graue, 2010). I could also add new dramatic play centers. In summation, children learn best by playing; when they are actively engaged in a learning environment through hands-on activities, they will learn. Students benefit from dramatic play socially, emotionally, as well as becoming more literate. These skills will hopefully improve over time.

### **A STEAM Approach to Teaching High School Chemistry**

**Martin Hunt**, SCI 694: Research Methods and Techniques in Science Education

Faculty Mentor: Professor Joseph Zawicki, Earth Sciences and Science Education

Teaching high school chemistry with a STEAM approach will deepen students' understanding of chemistry and raise students' awareness of STEAM careers. STEAM careers are expected to grow over the next decade with, on average, higher earning wages than non-STEAM careers. The current classroom situation often

provides for content without context. A STEAM approach to teaching chemistry frames the content in real-world problems for students to creatively solve. In addition, a STEAM approach integrates many student skills including design and mathematics. Students' attitude and understanding will be evaluated as well as the impact on teacher preparation time and execution. Finally, the broader scope of potentially stimulating students' interest in STEAM careers beyond high school will be explored.

### **Step One to Effective Education: Engagement**

**Emma Carpenter**, HON 400: All College Honors Colloquium

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

How do young children learn most effectively? Education that is hands-on, active learning is arguably the most influential in a child's life. Thanks to the research from esteemed education theorists, it can be discovered how children learn best. By looking at theorists' research and drawing on experiences in the education field, answers to the question how do young children learn most effectively, can be found. Answers which are essential to teaching the whole child: a common goal amongst educators. My initial findings suggest science education is vastly influenced by the way material is taught. Through the use of inquiry based education, recognized by NAEYC, the National Association for the Education of Young Children, children can be involved with high engagement and excitement in the learning of science education. Educators must provide an education appropriate for young children. Engaged students are being supported by an educator that is conversant in the developmental stages and domains of children. My preliminary findings show a strong understanding of the physical and cognitive development of young children is necessary in order to teach any subject as opposed to sticking to the known and too often used lecture style of teaching. In my presentation, one could expect to learn the plethora of benefits attached to engaged education for young children.

### **Supporting Play in an Academic World**

**Megan Grandits-Mahan**, EDU 690: Master's Project

Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

Formal education often begins between three to five years of age when children enter preschool. Research indicates that developmentally appropriate instruction supports the social, physical, cognitive, and emotional needs necessary for future school success (Bodrova, 2007; Bodrova and Leong, 2003; Dalton and Trostle Brand, 2012; Gestwicki, 2012; Lynch, 2015; Marcon, 2002; and Tsai, 2015). However, preschool teachers are often pressured to focus on academic work, and discouraged from providing developmentally appropriate play opportunities

for their students (Bodrova and Leong, 2003; Lynch, 2015; and Marcon, 2012). This study explores the differences between academic and play-based curricula and addresses the question of how teachers can effectively implement play-based learning to support the development of preschool children. The research reported here will be utilized to design a curriculum for four and five year old students who attend a Universal Preschool in Western New York, and aims to support teachers as they transition from an academic to a play-centered curriculum. It is anticipated that once the shift from academic to play-based learning has occurred, students will maintain current skills, and will make additional social, emotional physical, and cognitive gains. It is also anticipated that, as teachers become familiar with research and how to support quality play, they will become more confident in the use of this new curriculum, thus allowing them to become more effective when implementing it with their students. This study is intended to be a starting point for teachers transitioning from an academic curriculum to a play-based curriculum.

### **Sweden Versus the United States for Early Childhood Education Programs**

**Alexis Whelan**, EDU 501: Seminar for the Reflective Teacher  
Faculty Mentor: Professor Hibajene Shandomo, Elementary Education and Reading

For children, the most critical level of education to be engaged in is Early Childhood Education. During this stage children are exposed to new strategies, information, and basic fundamental skills. This is also a crucial time due to the brain acting as a sponge and absorbing all of the new information. In the past few decades, the United States has remarkably reformed the Early Childhood Education System by creating the Head Start Program. This program is comprised of experienced educators and specific skills that the children will be taught. The program has progressed greatly, but there is more that can be done. This poster compares the Head Start Program of the United States to the Early Childhood Program, known as Educare, in Sweden. Although the United States has made an ample amount of adjustments to their program, they are ranked 25<sup>th</sup> in the world where Sweden is ranked in the top ten (Herman, 2013). This research will present factors that make the Sweden program successful and suggest how these factors might be used in the United States Program. By reforming the Head Start Program using a successful model such as the Educare Program in Sweden, the United States may increase it's standing in the world of education.

### **Technology Integration in Elementary Education: A Cross-Curricular Approach**

**Christine Kling**, EDU 690: Master's Project  
Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

This project investigates issues associated with technology integration in Elementary Education and examines the best practices corresponding to classroom use. The method used in this investigation was to conduct a literature review addressing current issues with technology integration and ways technology has been effectively incorporated into the classroom. The following questions were addressed: 1) What factors influence teachers' success in technology integration? 2) What evidence do we have that technology can enhance teaching and learning? 3) What are the best practices that incorporate technology in Elementary Education? Major findings report teachers as the greatest factor in technology integration and that technology does enhance student performance. Best practices include student collaborations that integrate problem solving and critical thinking strategies. Anticipated participants include elementary students and teachers who are interested in integrating technology into the curriculum. Anticipated results from this Master's Curriculum Research Project is to come away with a new understanding of issues related to technology integration and to uncover ways in which those obstacles have been overcome. Future use includes reflecting on past and present integration issues and bypassing them for future practices. Reflecting on these issues will help current and future educators determine the best practices for technology integration. Lesson plans created for this research project reflect practices that have been effective with technology integration in elementary classrooms while meeting local, state, and national standards. Recommendations stemming from this Master's Curriculum Research Project would be to use a cross-curricular approach for successful technology integration.

### **Three Weeks Studying Abroad: Is it Worth it?**

**Elizabeth Meyerhofer**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Maria Ceparano, Elementary Education and Reading and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Can traveling and studying abroad for three weeks be sufficiently rewarding and informative as a learning experience for college students? Buffalo State College has a program for education majors that allows them to travel abroad for three weeks and be immersed in an Italian elementary school while also experiencing the culture and history of its people. One requirement the participating college students have while traveling abroad is the maintenance of a blog that contains details of what they have been doing and learning in the foreign

country. In January 2016, I along with six other girls traveled to Italy for three weeks. During that time we had opportunity to tour multiple major cities and also teach in an elementary school in a small Italian town. A content analysis of our blog posts documented the extent of the knowledge we gained about Italy, whether it was cultural or historical. We also wrote about what it was like being in a country whose primary language is not English and self-reflected about what the experiences meant to us personally. Our blogs are documented proof that even though the experience traveling abroad only lasted three weeks, rather than four to five months, we still gained a great amount of knowledge about ourselves, the world, and what it is like to be a teacher.

### **Thunderstruck: Teaching Boy Scouts About History and Cannon**

**Gary Nobbs Jr.**, HIS 495: Military Transformations  
Faculty Mentor: Professor Andrew Nicholls, History and Social Studies Education

This project focused on US Field Artillery in the War of 1812. Specifically, a cannon's performances, construction, strategy and technology. The project was put together to teach older scouts about history, teamwork and engineering. The project was created based out of a larger program called the Scout Brigade of Fort George which examined the previously stated aims with the exception of engineering. The sources used included regimental histories, articles and books as well as interviews with professional reenactors. Primary sources included an artillery manual from 1807. The conclusions that were reached were eye opening and included a first hand look at an artilleryman's life in battle, the confusion created on Napoleonic battlefields and the difficulty of recreating technology from the past.

### **Using Context Clues to Strengthen Comprehension of Nonfiction Text**

**Lucille Perry**, EDU 690: Master's Project  
Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

Using Context Clues to Strengthen Comprehension It has been found that vocabulary development in young readers is a strong indicator of their reading ability will be as they progress through the grades. One way to strengthen vocabulary acquisition skills is to teach strategies that help students acquire vocabulary independently such as context clues. Context clues are not only part of a Common Core Anchor Standard for acquiring and use of vocabulary, but it is included as a grade level standard for almost each grade in the area of ELA. I may be a great skill to have for building a vocabulary but how does it help students understand what they are reading? This Master's Graduate Research Project will aim to answer the question: In what ways can using context clues aid in the comprehension of nonfiction

text? The method that will be used for this project will be a series of lessons implemented to a small group (5-6) of second grade students. Participants will receive small group instruction relating to comprehension work within nonfiction texts along with context clues instruction. Students will be given pre and post assessments to measure growth and assess instruction. Students will most likely benefit from the instruction and be able to use context clues as a skill they can use independently for their own vocabulary acquisition and comprehension of text. The lessons can be used for small group instruction of students within an intervention group to strengthen their vocabulary and comprehension.

### **Using iPads to Make Physics Videos**

**Andrew Roberts**, PHY 590: Independent Study  
Faculty Mentors: Professor Dan MacIsaac, Physics, Professor David Abbott, Physics and Professor Kathleen Falconer, Mathematics

I am describing the development of Buffalo State's iPad video physics project. Beginning in summer 2015, graduate students and in-service teachers were tasked with explaining concepts or experiments through the creation of short videos labeled physics content multimedia presentations. These have many similarities to videos on the YouTube channels minutephysics and Veritasium, but are not meant to achieve the same production quality. Conceptual learning is the intended outcome of the assignment, not a professional video. Videos are produced on the iPads using filming, editing, and voiceover features of apps like iMovie and iMotion. I am presenting and discussing suggestions, rubrics, guidance, and lessons learned for teachers desiring to assign and evaluate expository physics videos produced by students for credit. This work was supported by the NSF, SUNY IITG and the University of Cologne as well as SUNY Buffalo State Physics.

### **Using LEGOS to Teach Mathematics**

**Casey Orth**, EDU 690: Master's Project  
Faculty Mentor: Professor Coralee Smith, Elementary Education and Reading

The purpose of this Master's Curriculum Project is to explore the benefits of integrating LEGOS into Common Core mathematics instruction. LEGO bricks are naturally captivating and motivating to students in elementary school. Children are more likely to perform mathematical activities with conviction if they feel personally connected to the materials being used. This project aims to find how to incorporate LEGOS into daily mathematics instruction, and also explore the effect it has on student's confidence in their abilities to solve math problems. The anticipated participants that this project will focus on are third grade students; 12 males and 12 females. All foreseen students are either eight or nine years old who attend a rural school district in New York State. They will tentatively use LEGOS to meaningfully

understand the following topics: Partitioning a whole into equal parts, comparing unit fractions and their connection to the whole, fractions on the number line, and equivalent fractions.

The anticipated results of this project are that LEGOS will increase students' confidence in their mathematical abilities, become more engaged in the classroom, and perform better on mathematical performances. In the future, teachers can use the research and lesson plans provided to inspire their students to accomplish challenging mathematical problems while using a familiar, attention consuming manipulative. This curriculum project will provide research-based advantages of using LEGOS in the classroom, and a unique set of lesson plans that embrace authentic means of mathematics instruction.

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# ***Health, Nutrition, and Wellness***

## **Adolescent Substance Use: Who's To Blame?**

**Courtney McGregor**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Substance use has been an ongoing health issue for many years affecting our youth. Although rates are declining they are still alarmingly high. Substance use at a young age leads to risky behavior, addiction, long term health problems, and possible death by drug overdose. Healthy People 2020 states in 2008, 18.4% of children aged 12 to 17 reported use of alcohol or any illicit drugs during a 30 day period; the objective of HP 2020 is to reduce reported use to 16.6%. Determinants of adolescent substance use include genetic predisposition, peer pressure, and environmental factors. Children who have a dependent parent have a higher chance of developing a dependency. Addiction is not hereditary, the susceptibility to addiction is, which is why environmental factors play an important role in substance abuse. Some factors include: availability and access to substances; peer-group behavior; and parental attitudes toward drugs and alcohol. New York ranked within the top ten states for drug-use rates in cocaine use and illicit drug dependence among persons age 12 and older, during 2009-2010. This presentation will further explain details associated with adolescent substance use and the correlation between relationships that may affect adolescent choices.

## **Alzheimer's: The Disease We Often Forget About**

**Christina Cox**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Preparing for Alzheimer's or a dementia in an elder family member is uncommon. More often, the disease is dealt with as it happens. Hispanic life expectancy is predicted to increase to 87 years by 2050 placing them at higher risk for developing the disease. Healthy People 2020 seeks to increase the awareness of Alzheimer's and other dementia's among adults aged 65 and older, as well as with their caregivers. Alzheimer's and dementia affect the day-to-day lives of older adults who are experiencing these diseases. It is common for these diseases to be unrecognized by family members and doctors due to lack of knowledge or appropriate testing. According to the CDC, approximately 80% of Alzheimer's patients are cared for in-home, making awareness a necessity. The US Census reported in 2014, New York's population

was estimated at 19,746,227; 14.7% were 65 and older; 18.7% were Hispanic. The poster presentation focuses on Hispanic adults over 65 and the access they have to healthcare, as well as genetic predispositions to the disease. Linking genes to Alzheimer's disease is a topic requiring much research, but could help prepare families and lower the risk factors in their lives.

## **Anxiety Caused by Trauma: The Benefits of EMDR**

**Ashley Jindra**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Louis Colca, Social Work and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

According to psychologist Dr. Francine Shapiro, Eye Movement Desensitization and Reprocessing (EMDR) has been shown to be effective in treating those with Posttraumatic Stress Disorders, but the question is whether EMDR could be effective in reducing anxiety in clients. Shapiro noticed that eye movements could reduce the intensity of disturbing thoughts, under certain conditions and decided to use it to treat those who suffered trauma. In 1989, she reported the success of the treatment on clients with a traumatic past. It is the author's hypothesis that EMDR will reduce the amount of anxiety clients experience. The author will research articles that discuss the effectiveness of EMDR throughout treatment, as well as, success clients experience post-treatment. The author will analyze articles that discuss EMDR and the pros and cons of this treatment. This study will examine how effective EMDR is at reducing anxiety as well as discuss other benefits of EMDR.

## **An Apple Today is What I Had All Day**

**Alexander Dimitrievski**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, 14.3% of all adolescents, in 2009, were attempting to curb their body weight by means of disordered eating practices; over 50% of female adolescents are employing baleful, restrictive dieting methods to procure idealistic weights. This constitutes maladies from anorexia nervosa, bulimia nervosa, binge eating, and many other disorders concomitant to the irregularity of their food consumption. While one could certainly distinguish a multitude of plausible determinants, there are three in particular that are of pervasive influence, exclusively worth analyzing, and eliciting to the forefront in today's society. The contemporary phenomena of social media, father-daughter relationship dynamics, and the inception of puberty are all associated with whether or not a female will employ dysfunctional eating practices from the outset of their development, or in distinct manifestations – become precursors to latent body image plights after progressing through

the adolescent juncture. For the premise of this paper, three pertinent determinants will be examined, which disclose how adolescent females have come to be associated with disordered eating habits, in particular, so that we may thoroughly familiarize ourselves with how and why young women could become immersed in these unwholesome practices in order to manipulate their body weights.

### **Are Anti-Obesity and Healthy Eating Campaigns Adding to Weight Phobia and Disordered Eating in Adolescents?**

**Kerry Keyes**, Nutrition and Dietetics

Faculty Mentor: Professor Tejaswini Rao, Health, Nutrition, and Dietetics

Obesity is a risk factor for several chronic diseases including the number one killer in the US, cardiovascular disease. The Academy of Nutrition and Dietetics and US Department of agriculture have implemented multiple anti-obesity and pro-healthy eating campaigns to try to improve the overall health of all Americans including children. Nutrition education implemented in the last 5 years aimed at school children include ChooseMyPlate and the Lets Move 2010 by Michelle Obama, all emphasizing healthy eating and physical activity to maintain healthy weight and the reduce risk of obesity. On the other end of the spectrum, disordered eating as anorexia, bulimia, and binge eating seen most often in women aged 15 to 24 years old are also major health concerns in the United States. The goals of this study were to determine if federal nutrition education programs ChooseMyPlate and Let's Move currently endorsed in public schools to promote healthy eating are effective and to ascertain if students who are more aware of the nutrition education campaigns misinterpret the healthy eating message and are more likely to suffer from disordered eating or weight related phobia. A questionnaire was administered to 81 high school ages (14-16 years) students to determine their awareness of healthy eating campaigns, nutrition knowledge, eating habits, factors influencing eating habits, presence of weight and shape phobia, and desire to lose weight despite being of normal BMI. Between 65-75% of the students were aware of the two federal nutrition education campaigns but there was no relationship between students' awareness of these programs and their making healthy food choices, or scoring high on the food intake score, or nutrition quiz. Significant weight/shape phobia existed in the sample population but there was no correlation between weight/shape phobia and influence of nutrition classes, federal nutrition education programs, media, nutrition knowledge, or food intake patterns. There was a correlation between having weight/shape phobia and low parental or family influence on food choices. Based on the results of the study it appears that targeting parents for nutrition education may be beneficial in promoting healthy eating habits and minimizing the risk of weight/shape phobia

and eating disorders among adolescent. Follow up studies with larger number of subjects, more grade levels, and ethnically and economically diverse populations may yield other results.

### **Athlete Awareness: Looking at Female College Athletes and Disordered Eating**

**Rachael Bielmeier**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Although female college athletes look healthy and physically fit their mental health might be lacking. According to Healthy People 2020, 14.3% of adolescents engaged in disordered eating behaviors in attempt to control their weight in 2009. Unhealthy eating habits can create problems such as amenorrhea and osteoporosis, referred to as the athlete triad. Athletes are expected to compete and perform at high levels and experience various pressures to look and behave like a champion. Disordered eating and body image dysmorphia are prevalent among this population. Body image is an important factor in the onset of eating disorders and negative body image is strong predictor of development. Studies have predicted that female athletes would show higher signs of disordered eating and positive body image perception than non-athletes. Pressures from teammates, coaches, and parents can cause athletes to develop disordered eating or exercise habits. Social and media pressures within the sport can trigger negative behaviors to obtain a specific build such as muscular or thinness. The poster presentation will further examine factors that contribute to the onset of disordered eating among female college athletes and how to mitigate the problem.

### **Benefits of DHEA**

**Yimy Queipo** and **Fernando Pineda**, NFS 330: Integrative and Functional Nutrition

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

Dehydroepiandrosterone (DHEA) is a naturally produced hormone in the adrenal glands and liver in human body. In males, DHEA is also produced in the testes. DHEA levels decrease with age, reaching to peak around 20-30 years and down to about 80% less by 70 years. The body converts DHEA to male and female hormones like testosterone and estrogen. DHEA is a popular on market as supplements. This prompted us to investigate the health effects of DHEA in the body and its efficacy and safety. We, therefore conducted literature reviews on DHEA and present our findings on this poster. We found many beneficial effects of DHEA supplementation including the increase in serum levels of DHEA to those of younger adults and bone mineral density (BMD), anti-aging, and boosting energy and strengthening immunity. Early studies indicate that taking this supplement could cause liver damage. On the other hand, DHEA

has been found to have positive effects on libido for menopausal women in the study conducted by the European Congress on Menopause. Another study showed that DHEA treatment increased the rate of sebum, which was perceived rather positively by a menopausal population usually affected with a declining sebum level. The topical application of DHEA in two groups of 20 post-menopausal women improved skin brightness by counteracting papery appearance of skin and epidermal atrophy, a characteristic feature of hormone-related skin aging. DHEA is available over-the-counter in the United States and in other countries. Some possible side effects were reported with doses over 50-100 mg/d for a long duration were acne, hair loss, stomach upset and high blood pressure. Some women experienced facial hair growth, a deeper voice and a change in menstrual cycle. DHEA seems to be safe when taking the proper dosage over a few months. For many of the health claims of DHEA, more research is needed.

### **Books and Pills**

**Jennifer Spencer**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

The purpose of this research is to identify the prevalence of college students that are abusing non-medical prescription medication. Due to increased diagnoses of medical disorders such as hyperactivity, sleep disorders, and anxiety disorders, the amount of medication prescribed has increased. Though there are many positives to this treatment option, there are also many consequences. The increase in the availability of prescription drugs makes the drug easily accessible, even if not personally prescribed. According to Healthy People 2020, 6.1% of persons aged 12 years and older have reported non-medical use of any psychotherapeutic drug in 2008. There is major concern with the prevalence of non-medical prescription drug abuse among young adults, but mostly college students. The amount of college students abusing prescription medications is growing at an alarming rate. Research indicates that between 14%-25% of students use non-medical prescription drugs; one in three students reported ever using non-medical prescription drugs. Educational and preventative measures need be developed in order to increase the awareness of the dangers of abusing prescription medication. This poster presentation will discuss an educational overview of why this is a problem and how to reduce rates.

### **Brain Injury Crash Course: Rising Concussion Rates in the NFL**

**Benjamin Van Kuren**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, 46.6 medically consulted sports-related injuries per 1000 participants occur yearly in the US. With the popularity of contact sports in the US, injuries such as concussions have become a major concern. Occurring between 1.6 and 3.8 million times per year, sports-related concussions have become the leading cause of mild traumatic brain injury in the US. Football is arguably the most popular sport in America, but it is also one of the leading causes of sports-related concussions. Concussions have been a hot topic in football recently, especially in the National Football League (NFL). Between 2012-2014, there were 437 reported concussions in the NFL. By reviewing the statistics made available by the NFL, it can be determined which players are at the greatest risk for traumatic brain injury. The popularity of the NFL has also created a culture of toughness and aggression that rewards players who fight through injuries, including concussions. This poster presentation will further discuss the factors that make concussions so prominent in the NFL.

### **Caffeine Decreases Hunger Post Exercise**

**Stephanie Trifunovic**, Dietetics and Nutrition

Faculty Mentors: Professor Leah Panek-Shirley, Health, Nutrition, and Dietetics and Professor Jennifer Temple, SUNY Buffalo

Physical inactivity is an ongoing health problem. Many individuals use supplements such as caffeine to enhance physical activity. Positive feelings associated with exercise predict beneficial exercise behaviors. Caffeine has a positive relationship with mood. No studies have examined the effect of exercise with or without caffeine on mood. The purpose of this study was to compare the effect of short-term exercise alone and exercise with caffeine on mood. Subjects were required to abstain from all caffeine sources 24 hours prior to each conditioning/treatment session where they drank 350-mL of Gatorade with a relative (mg/kg body weight) dose of caffeine or placebo and then participated in 30 minutes of moderate to vigorous aerobic exercise. We hypothesize the combined effect of caffeine and exercise will improve mood state than exercise alone. Caffeine had a significant effect on hunger within each session and over time compared to placebo. Hunger significantly decreased with caffeine administration just prior to exercise to just after exercise compared to increased hunger with placebo ( $p = 0.02$ ). The effect remained, but was attenuated, after 8 days of exercise ( $p = 0.022$ ). After 8 days of exercise, all subjects felt less tired compared to the first day of exercise ( $p = 0.042$ ). As expected,

after exercise all subjects' body felt more 'body feels tired' ( $p = 0.018$ ), more sweaty ( $p < 0.001$ ), and more tired overall ( $p = 0.038$ ) compared to just before exercise. Summary: The present study shows that caffeine paired with exercise decreased hunger while exercise alone increased hunger post exercise. Contrary to but had no effect on mood. These findings are valuable for researchers who wish to further explore the post exercise effects of caffeine paired with exercise. The present study will help lay the foundation for healthcare practitioners to further understand how caffeine consumption and exercise may alter mood and hunger profiles.

### Centenarians

**Kendel Levy**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

America has made many changes within the health field that has increased the longevity of mankind, and has allowed people to function better in their older ages. Research indicates that people aged 80 and above are a rapidly growing population. The once-shaped pyramid of the populations displayed by the United Nations is now shifting to a cube. Throughout the world there are sections that are labeled blue zones. These zones include many areas that are predominately islands. What makes these areas significant is the fact that people are living considerably longer there than other areas in the world. Also, these people are living past the age of 100 and are still physically active. The individuals of these areas share many characteristics that may be the reason for the extreme longevity. Using a cross-sectional survey of 631 men and 699 women, it was found that diet, daily exercise, and sleep were key factors to extreme longevity. Healthy People 2020's goal is to improve the health, physical function, and quality of life of older adults. Within the poster presentation, the key factors to improving longevity and function of older adults will be further discussed.

### Chew On This

**Joi Jones**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Dental caries, also known as cavities, can pose many health concerns among children and can lead to chronic health conditions later in life. Not only can dental caries cause acute complications such as pain, sensitivity, and difficulty in chewing, if not treated can cause chronic problems such as diabetes, heart disease, and stroke. According to Healthy People 2020, 33.3% of children aged 3 to 5 years had dental caries experience in at least one primary tooth during 1999-2004. Although dental caries are prevalent in children, the problem lies with their caregivers. Some caregivers may lack knowledge of oral health and not recognize the importance of maintaining good dental health.

Consuming a healthy diet that contains low sugar and utilizing the recommended amount of fluoride is essential for reducing children's risk of developing dental caries. The poster presentation will give the audience an interpretation of the factors that contribute to dental caries in children. Clarification on the role of caregivers contribution to oral health and what can be done to correct the problem can also be expected during the poster presentation.

### City That Never Sleeps: Sleep Hygiene in NYC Residents

**Kaitlyn Lozo**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, almost every night of the week, 1 of 3 New Yorker's report insufficient sleep. In New York City, residents are exposed to noise pollution and maintain hectic lives that cause the mind to stay active throughout the night. This paper discusses the struggles adults, ages 20-49, experience that contribute to sleeping problems. There are many determinants that affect New Yorker's and their sleep patterns; determinants include environmental, behavioral, and mental health. Almost 90% of individuals with depression complain of insomnia; 25% of those with insomnia complain about anxiety. Sleep is very important to health. Like physical activity and a well-balanced diet, sleep is crucial for well-being and development. Young adults feeling daily fatigue experience a decrease in productivity and an increase in accidents. Studying determinants that contribute to unhealthy sleep hygiene is ideal for correcting these factors for healthy sleep; adequate sleep is necessary for a strong immune system, metabolism, performance, and safety. This poster presentation will present further knowledge on how to improve sleep hygiene in the young adult population of New York City.

### Connecting the Crumbs: Family and Food

**Elizabeth Clifford**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Jason Grinnell, Philosophy and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

As a nutrition and dietetics major here at Buffalo State, I forget that there is more to the world than just the pure facts of science. In fact, there is so much more to food than the calories, vitamins, and minerals that they supply to our bodies. Food impacts each and every one of us much further than that, and it connects to far more than what science emphasizes. That is what I would like to introduce with my presentation, starting with what a vast majority can relate to: food's link to those we hold dear to our hearts. How does food, even something as simple as an apple pie, affect our relationships with those who we call family? With the help of a few studies on the impact of food on family life, I

will break down just how much of an effect those meals we share with our loved ones have and why food is so important to our lives. I will examine the crumbs to expose a new point of view on what was once a little cupcake and prove that it was so much more than that.

### **Cosmetic Effects of Resveratrol and Green Tea on Aging Skin**

**Maya Scherer** and **Meghan McTiernan**,  
NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Resveratrol, is a phytoalexin antioxidant which is produced by plants in response to environmental stresses. It is found naturally in grapes, red wine, peanuts, mulberries, and fruits and is known for its perceived anti-inflammatory properties. Green tea, produced from the leaves of the *Camellia oleifera* plant, is an antioxidant and considered a skin revitalizer due to the presence of its polyphenolic compounds: epicatechins and catechins. Both have been shown to exert their antioxidant action through polyphenol binding sites on plasma membranes. The poster will examine if Resveratrol and Green Tea can protect skin against the detrimental effects of ultraviolet beam (UVB) exposure on skin. Conducting a scholarly analysis of the literature, evidence of the efficacy of resveratrol and green tea polyphenols in mitigating the effects of photo-aging has been established. The studies support the use of resveratrol and green tea polyphenols in hydrophilic cream to prevent the oxidation of dermal lipids by preserving the antioxidant enzymes that consequently prevent the damage of skin from aging. The poster will also present some biochemical actions of resveratrol and green tea and their protective effects on aging and skin health.

### **Diabetes: Don't Sugar Coat It**

**Jessica Flores**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020 (HP2020), 8.0 new cases of diabetes per 1,000 people occur annually among those aged 18 to 84, as reported in 2006 - 2008. The goal of HP2020 is to reduce the incidence of diagnosed diabetes in the US population. The chosen population is minorities between the ages of 18 to 25 in the US, as this is the age range when diabetes is most often diagnosed or pre-diagnosed. Studies in New York State show the majority of adults with diabetes are non-Hispanic whites (55%), with minorities making up a larger proportion of the population of adults with diabetes (45%) than the total population (32%). Risk factors of type 2 diabetes include lack of physical activity, unhealthy eating, and lack of education about diabetes, all of which can be modified. Diabetes in the US is increasing tremendously with 1.3 million new cases occurring annually

during the past few years. Sixteen million Americans, equaling about 8% of adults, are affected with type 2 diabetes. This poster presentation will educate the priority population and community on ways to reduce the probability of developing type 2 diabetes.

### **Discourses of Socioeconomic Status in a Preschool Classroom**

**Isabelle Poslinski**, Speech-Language Pathology  
Faculty Mentors: Professor Camilo Maldonado, Speech-Language Pathology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Using data from Maldonado's (2013) qualitative work, this project explores the ways that teachers shaped and influenced academic discourses related to socioeconomic status (SES) in a preschool classroom. It also investigates how preschool educators' beliefs regarding the SES of their students impacts the ways in which they interact with their students and how they differentiate instruction and social engagement with children based upon suppositions of financial means and social capital. Using discursive theories that borrow heavily from sociocultural tenets and speak to the link between positioning, identity, and power (Fairclough, 2010), data were analyzed to comprehensively frame issues of privileged voices and discourses related to SES. Ethnographic research methods such as discourse analysis (Gee, 2005), participant observation (Graue & Walsh, 1998), reactive entry (Corsaro, 1985), and participant interviews (Fine & Sandstrom, 1988) were employed. Results indicated that teachers frequently engaged children of varied SES differently during formalized instruction. Specifically, they felt it necessary to scaffold more language and directly question children of lower SES as they tended to use less complete utterances throughout formal and informal learning activities than their more financially solvent peers. Teachers prohibited access to artifacts of higher SES (e.g., toys, games, and electronics) within the classroom in an effort to ameliorate stratified marginalization observed within their classroom after it became clear that children had become aware of such privileged capital. Teachers also asserted that limited SES could impact a parent's access to learning experiences outside the classroom, as well as affect the ability to support scholastic development through academic support and necessary advocacy.

### **Don't Break My Heart or My Bones**

**Emily Passer**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Dating violence is an ongoing problem in our country; incidence is growing among college students. As mental health becomes a bigger concern for many populations, young adults are becoming more aware of what kind of thoughts and behaviors may be signs of bad mental health. Domestic violence between young

adults has become a bigger issue than it has been in the past, and it may especially affect young women in college. According to Healthy Campus 2020, approximately 2.5% of college students reported being in a physically abusive relationship during the past twelve months. Healthy Campus 2020 has designated a desire for a 10% improvement in this area of concern. With the increase in mental disorders, as well as such determinants as the stigmatization to receive help for mental health, many students state they will feel judged by their peers for being treated for mental health disorders. There is also an increase in the demand for mental health services, but many colleges lack the resources to provide students the help they need. With many forces working against college students, there is no surprise to hear about dating abuse and violence between young adults in higher education. In this poster presentation, violence against college women in relationships will be examined in further detail.

### **Don't Die Because Your Sugar is High**

**Roderick Epps**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Healthy People 2020 aims to reduce the incidence of diagnosed diabetes in the African American population by 10%. The main goal is to diminish overall disease and reduce economic pressures. Diabetes is the 7<sup>th</sup> leading cause of death in the United States, and 13.2 % of African Americans have the 2<sup>nd</sup> highest rate among diabetes patients. Different ethnicities have a plethora of varying beliefs but everyone in some way, is similar. Every individual has some level of education and life experience. Formal education is a considerable determinant because of health knowledge. Among the African American male population one can question, does school always have a positive affect on student health? Diabetes has factors that determine whether an individual has a high or low risk to contract the disease. After analyzing several peer-reviewed journals, the main determinants include weight, stress, and genetics. In order for this unruly disease to decrease, we must come together to seek a solution as to how to reduce family history of the disease to decrease future risks. The poster presentation will further discuss the diabetes dilemma among the priority population.

### **Educating the Community: Perinatal Mood and Anxiety Disorders**

**Tara Petty**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Kimberly Zittel-Barr, Social Work, Sonia Murdock, Executive Director, Postpartum Resource Center of New York and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

As much as 20% of women who gave birth in Western New York in 2013 experienced a Perinatal Mood and/or Anxiety

Disorder (PMAD). Children of these parents are more likely to experience mental health, learning, cognitive, conduct/behavioral, and/or developmental issues. Effective PMAD care is complex, involving minimal medical/mental health education in schools, minimal referral resources, limited screening, parental reluctance to discuss perinatal mental health changes and medication refusal. To address these complexities, a non-profit resource-center, college social work department (SWD), and psychologist at a medical school collaborated to improve access-to-care. This Collaboration to Improve Perinatal Mood and Anxiety Disorder Care is inviting medical/mental health educators and professionals, legislators, child care workers and teachers, insurance representatives, medical/mental health students, and community members who have experienced PMADs to a free conference, the Perinatal Mood and Anxiety Disorders: Film Screening, Panel Discussion, and Community Awareness. Conference attendees will be requested to answer a pre-test/post-test survey upon signing in to the event. The data from the surveys will be used to assess the overall effectiveness of the conference in increasing education and awareness about PMADs to those in attendance, analyze which components of the conference were the most useful in educating the attendees about PMADs, and inform the planning and execution of future conferences with similar aims.

### **Educational Positioning of Children Based on Race, Class, and Gender**

**Vanessa Clifton**, Speech-Language Pathology, **Lauren Calabrese**, Speech-Language Pathology, **Lauren Farage**, Speech-Language Pathology, **Mindy Lamb**, Speech-Language Pathology and **Shakera Murray**, Speech-Language Pathology  
Faculty Mentor: Professor Camilo Maldonado, Speech-Language Pathology

Over the course of nine months, we conducted an ethnographic study in an urban preschool classroom of four-year-olds in the northeastern USA. Qualitative methods were employed throughout this study. Formal transcription of narrative events and descriptions of activities observed throughout the study were reviewed. "Thick description" (Graue and Walsh, 1998) was used to depict activities, number of participants, communicative exchanges, educational activities, and groupings of individuals to better understand social and academic discourses within the classroom environment. The data for this project were gathered during classroom observations and interviews conducted by the researchers. In total, there were over 260 data points collected over a 36-week period. Three specific research questions were established: what are young children's social and academic discourses related to race, SES, and gender, how do these discourses evolve over time, and how do adults shape these discourses. The results of the study indicated that discourses could be used to welcome or exclude children. Additionally, they could

be used to express a sense of shared racial identity among like children or emphasize the differences between them. Children were marginalized and/or idealized based on perceptions of SES. Additionally, discourses were used to adhere to gender-typed behaviors, or challenge expectations. This study illustrates the subtle, yet powerful and complex ways that social constructs impacted discursive practices within a preschool classroom. These observations were made during free-play, group activities, individualized instruction, meals, and transitional experiences between activities. Interviews of educational classroom teachers were also conducted throughout the study.

### Examining Gender-Based Discourses in a Preschool Classroom

**Kelsi Smith**, SLP 497: Undergraduate Research

Faculty Mentors: Professor Camilo Maldonado, Speech-Language Pathology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Whether they are learning in a classroom or socializing with peers on a playground, children are constantly held to certain gender-based expectations. This project examined discourses related to such social requirements, how they evolved over time, and how educators shaped these conversations. Data from Maldonado's (2013) ethnographic study of teachers and their preschool students were used to determine how gender-related discourses impacted peer and student-teacher interactions within the context of the educational setting. Qualitative research methods such as discourse analysis (Cazden, 2001; Gee, 2005; Rex and Schiller, 2009), participant observation (Graue and Walsh, 1998), and participant interviews (Fine and Sandstrom, 1988) were used to obtain data from the field. Data were analyzed using a grounded theory approach (Corbin and Strauss, 2008) to clarify and better understand the processes of discursive and social engagement. Teachers appeared to expect children of specific sexes to participate in activities and conversations that were specific to their respective genders. Heteronormative conversations supporting the ideas that children would, and should, eventually assume heterosexual roles were observed within a number of discussions that were marked with subtleties of homophobia. Although teachers positioned themselves quite maternally throughout the year, creating a loving and safe space for young learners to flourish, at times, their conversations and expectations for children unwittingly created conditions that were optimal for discourses of gender-typing and heteronormativity to thrive. Additionally, findings indicated that gender-related discourses remained almost exclusively heteronormative and that discussions differing from this norm were effectively "silenced." This work illustrates the need to develop pedagogy that supports healthy, developmentally-appropriate, discussions regarding gender-based topics with preschool children.

### Fight the Excuses, Let's Get Physical

**David Suchyna**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Barriers such as the environment, socioeconomic status (SES), and behavior affect how often Caucasian males engage in regular leisure-time physical activity. Environment relates to an individual's access and appeal to certain amenities that contribute to physical activity; exposure to these facilities increases chances of physical activity. SES pertains to the amount of income an individual brings in, and the social class with which they associate; those with a lower economic standing are at higher risk for not being able to obtain health care and services. One's behavior and lifestyle including self-efficacy, social support, and outcome expectancy will either support or discourage physical activity. Healthy People 2020 indicates 36.2% of adults engaged in no leisure-time physical activity in 2008; the objective is to improve this number by 10%. Facilitating ways to mitigate this current situation include methods such as forming new government health policies, building attractive activity environments, and creating programs to assist those struggling with healthy lifestyle decisions. This poster presentation will explain barriers causing inactivity and actions that can be taken to improve this problem.

### Filtering Out Kidney Disease

**Denee Tidwell**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Chronic kidney disease (CKD) is a gradual loss in kidney function overtime. Most cases of CKD result in end stage renal failure causing a need for dialysis and/or kidney transplants. Healthy People 2020 seeks to increase the amount of people who know they have impaired renal failure by almost 12% to prevent the progression of CKD. According to the National Institute of Diabetes and Digestive and Kidney Disease, 1 in 10 American adults have some level of this disease. This is a continuing problem among the African American population aged 40 and above. Even though African Americans make up about 13.2% of the U.S. population, they account for 35% of the patients receiving dialysis for renal failure. There are many factors that play into why African Americans are more susceptible to developing chronic kidney disease. Diabetes is the leading cause of chronic kidney disease followed by hypertension being the second. One's socioeconomic status is also a determinate to this disease. Educating African Americans with regards to their risk factors and the importance of testing is an essential mechanism for prevention. This poster presentation will further discuss suggested measures for this primary population to reduce incidence of CKD.

### Forest Bathing in Phytoncides: A Walk in the Forest

**Rachael VanKoughnett**, NFS 330: Integrative and Functional Nutrition

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

Forest Bathing is popular in Japan, where it is known as *shinrin yoku*. Forest bathing is simply visiting a forest in a leisurely walk while breathing in the fresh oxygenated air in the forest. I became interested in finding what gives the claimed health benefits and the scientific evidence. From literature, we learned that beneficial chemicals are volatile substances, called phytoncides (essential oils emitted by the trees), which are antimicrobial volatile organic compounds such as pinene and limonene. They also can assist in boosting immune function, relieve stress, lower blood pressure and improve your mood. When walking through the forest, one can experience a fresh air feeling and cleanliness. When people breathe in the fresh air they are actually breathing in plenty of phytoncides that are airborne chemicals that plants give off to protect themselves from insects. They are antibacterial and antifungal chemicals which help plants fight disease. Research has shown that the human body responds to these chemicals by increasing the natural killer cells and their activity. Research has also shown that the effects of forest bathing on natural killer cells last from a week to thirty days after leaving the forest.

### Get Smart, the Safe Way

**Jonathan Soluri**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

College is a place for formal education, professionalism, and starting the basis of a long-lasting career. Unfortunately, the environment surrounding students is not always safe. Students can one day find themselves a victim of sexual or physical assault on campus. A current Healthy Campus 2020 objective seeks to reduce the proportion of students who report being physically or sexually assaulted during a 12-month time frame. Programs that teach safety measures are lacking for students upon arriving to college. Orientation is mandatory and yet many programs lack the depth and information needed to make the program valuable to a student's safety. With its easy accessibility, alcohol is the party drug of choice for college students, and is abused and responsible for a majority of incidents on campus. Statistics show 80% of college students use alcohol placing all students at risk. A lack of proper security on campus leads to an unrestricted flow of bad behavior from college students. Implementing proper orientation and safety programs for students upon arriving to college and throughout, will educate students safety measures involving alcohol, defense from physical attack, and using campus security.

This poster presentation will further explore these determinants and additional solutions.

### A Glass of Wine a Day Keeps the Doctor Away

**Brooke Briscoe** and **Donya Barendeh**, NFS 330: Integrative and Functional Nutrition

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

Red wine has been shown to lower cholesterol, strengthen bones, help control blood sugar levels, increase energy production, and protect against cardiovascular disease and cancer. We became interested in exploring what in red wine provided these beneficial effects, conducted library research and reviewed scientific articles on red wine and more. Our findings are presented in the present poster. Resveratrol, a polyphenol compound found in red wine has antioxidant and anti-inflammatory properties in addition to the activation of the antiaging gene and longevity proteins. The skin of grapes where most of resveratrol is present has been found to provide a wide range of health benefits, including chemoprevention and cardioprotection. The red wine connection lies in the mechanism by which calorie restriction affects cellular activity. Certain genes, called sirtuins, are activated when a person takes in about 40 percent less calories than generally recommended. These genes are responsible for the longevity factor of calorie-restricted diets. In 2003 David Sinclair, MD, at Harvard Medical School, found a way to duplicate the benefits of a calorie restricted diet by using resveratrol found in red wine. By producing the same effects as the calorie restricted conditions that activate the sirtuins, resveratrol could lead to greater longevity and better health. With hundreds of studies showing evidence that red wine in moderation is beneficial to our health and longevity, why not have a glass with dinner? Enjoy!

### Got Sleep?

**Imo-Jah De Souza**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Forty percent of Americans get less than the recommended 8 hours of daily sleep. Often times people say, "sleep is for the weak" but no sleep makes you weak. According to the Centers for Disease Control and Prevention, insufficient sleep is becoming an epidemic, with 25% of adults reporting insufficient sleep at least 15 out of every 30 days. Adequate sleep is essential because it impacts physical, mental, and social health. Sufficient sleep is just as important as nutrition and being physically active. A constant lack of sleep can increase risk factors associated with diseases such as diabetes, obesity, high blood pressure, and heart disease. Additionally, lack of sleep can affect one's appearance,

self-perception, mood, and cognitive abilities. Healthy People 2020 has recognized this issue and implemented an objective to increase the amount of adults who get sufficient sleep from 69.6% to 70.8%. Educating about the importance of adequate sleep can bring awareness to this matter and encourage everyone to achieve good sleep health. The studied population included in this presentation is US residents ages 18-45 years. This poster will further discuss determinants, which impact this population through the use of peer-reviewed journals.

### **Help Female College Students Avoid Eating Disorders**

**Jiaxuan Liu**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy Campus 2020, 5.3% of students reported experiencing an eating disorder during 2009. Common types of eating disorders on college campuses are anorexia and bulimia; the most common causes are unhealthy body expectations and stress, respectively. Nowadays, many advertisements advocate a tiny body, which encourages young females to develop an unhealthy attitude toward body image. Unhealthy weight management seems to bring about a perfect body, but women must pay for it. In addition, many young females choose eating to make them feel confident when they experience pressures, such as studying, work, and relationships. Eating too much will make them feel more pressure of gaining weight. A current statistic states that 25% of college-age females binge and purge to manage their weight. Eating disorders are a vicious cycle affecting young females' daily life. Therefore, schools can play an important role in educating students how to face an imperfect body and avoid eating disorders. The poster presentation will discuss how to help female college students understand risk factors that may lead to eating disorders as well as how schools can help them avoid this patterned behavior.

### **Herbal Concoctions for Self-Healing**

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

Botanical medicine, also known as herbal medicine, is the use of plants or plant extracts that may be eaten or applied to the skin. Humans have used plants as medicine for as long as we have existed. The oldest written records are from India, dated 700 B.C., that documented the use of more than 300 medicinal plants and Egypt, dated 1500 B.C. As time passed, we have learned more about the beneficial aspects of herbal medicine and used to cure disease and certain illnesses. Different herbs are used for different illnesses; for example, the Ginkgo Biloba is a maidenhair tree, one of the oldest trees on earth, and it is used to treat Alzheimer disease. Brahmi is another herb that has been used in India for

thousands of years; it reduces anxiety and improves cognitive functions. Even though herbal medicine is seen as an alternative or complementary to conventional medicine, it is a growing practice. And it is becoming more and more popular, specifically with people who are seeing beneficial outcomes that they don't see with conventional medicine.

### **The Impact of Minimal Contrast Treatment on Improving Intelligibility of a Person with Ataxic-Flaccid Dysarthria**

**Marissa Caruso** and **Solina Krickovich**, SLP 690: Master's Project

Faculty Mentor: Professor Deborah Insalaco, Speech-Language Pathology

Our research retrospectively investigates minimal contrast treatment and related factors involved in improving the intelligibility of a person with ataxic-flaccid dysarthria. Minimal contrast treatment is an articulatory treatment directed at improving intelligibility by stimulating distinct speech production of similar sounds. Minimal contrast treatment was chosen, because, as a component of Sound Production Treatment, it has been shown to be effective in treating individuals with apraxia of speech (Wambaugh, 2010). Both apraxia of speech and ataxic dysarthria share a common area of deficit in motor programming (Spencer & Slocumb, 2007; Ballard et al., 2000). Minimal contrast treatment is particularly effective when programming is the underlying reason for the errors in movement of the articulators (Wambaugh, 1998). The primary speech characteristics of those with ataxic dysarthria include impaired articulation, obscured phonetic contrasts, abnormal prosody, and slowed speech rate. Because phonetic contrasts are obscured in ataxic dysarthria, creating better distinction between phonemes may improve the intelligibility of those with ataxic dysarthria. Because rehearsal of minimal contrast pairs provides opportunities for repeated practice and modification of movement patterns, individuals with motor programming deficits, such as those with ataxic dysarthria, should benefit from this treatment. This preliminary study seeks to explain the relationship between intelligibility and minimal contrast treatment and to stimulate discussion and future study of the potential effectiveness of Sound Production Treatment and minimal contrast treatment for people with ataxic dysarthria.

### **The Implementation and Evaluation of Nutritional Behavior in Greek Life**

**Racquel Praino**, Dietetics and Nutrition and  
**Brooke Briscoe**, Dietetics and Nutrition

Faculty Mentor: Professor Jonathan Lindner, Center for Health and Social Research

The purpose of this study is to evaluate the influence of the "Healthy Eating" workshop within the Student Health

Ambassador program. This program encompasses a select group of future health professionals who function as educators and liaisons between the Health, Nutrition, and Dietetics department and Buffalo State students. Two student health ambassadors (SHAs), Brooke Briscoe and Racquel Praino, presented a workshop on healthy eating habits to over 60 students within the Alpha Epsilon Phi sorority. The study aims to assess the health and nutrition knowledge of the students who attended the health eating event, A Greek Guide to Healthy Eating, on February 25th 2016. The student health ambassadors (SHAs) presented on several topics requested by students, several of which included: the basics of healthy eating and portion control, the myths vs reality of “fad diets”, and the best ways to eat healthy on a budget. This poster will discuss the Greek Guide to Healthy Eating event within the Student Health Ambassador program in detail and will describe the frequencies from the data collected from the pre-and post-questionnaire. These frequencies will include knowledge and perception influence pertaining to individual eating habits, perception of proper nutrition, and change in nutrition-related knowledge.

### **Increase Teen Safety One Drive at a Time**

**Christopher Bennett**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, teen motor vehicle accidents (MVAs) are a continuing problem throughout the U.S. In 2014, NYS had 22,469 MVAs involving males ages 16-20. Many contributing factors such as distracted driving, drinking and driving, and having different beliefs in perceived risk causes many accidents for teens and can even cause death. With MVAs being the single biggest public health threat to U.S. teens, this makes it a very relevant and important topic. Drinking and driving is a major contribution to MVAs with teen males. During 2014, in NYS almost 500 accidents were due to teenage drinking and driving. With perceived risk, teens are still developing mentally and socially, therefore, they are not always concerned with risks associated with driving. Also, distracted driving, which includes texting, and driving with peers are major contributing factors to MVAs. Teens, being extra susceptible to social pressure, take more risks than adult drivers and are more likely to be involved in MVAs. With advances in technology, distracted driving has become more common. This poster presentation will discuss and suggest ideas to decrease teen MVAs and increase safety.

### **Individual Responsibility to Homelessness**

**Tracy Monroe**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

The prevalence of mental health issues among the homeless population in the United States is twice the rate as compared to the overall population. Mental health services are limited to this population, which obstructs the individual's well-being. A majority of this population experiences comorbidity along with psychological issues. Determinants of mental health are lack of resources, discrimination, traumatic life stressors, and substance abuse. Lack of resources contributes to the reduction of treatment, which perceives the path for elevated delusions and poor behavior. Theories specific to life stressors are Traditional Stress Theory (TST), whereas individuals attempt to alter and adjust to an enduring torrent of stressors with determination to regress variables that transcend anxiety and recondition homeostatic state. Various studies and in-depth interviews took place in particular to homeless men and women, families, and veterans. Research conducted was to thoroughly analyze the social marginalization concept and its relationship to the lack of resources that are available to homeless individuals. In relation to the continuum of care questions examined include: have we perceived our responsibility as individuals to its entirety; and how much influence people of a population have on an individual from their community and its progression to behavior. This poster presentation will further discuss societal attribution to marginalization.

### **Infant Mortality: Is it a Race War?**

**Ceeyon Leake**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

As reported by Healthy People 2020, 0.93 infant deaths per 1,000 live births were attributed to sudden unexpected/unexplained causes in 2006. The major health problem associated with this objective is the high death rate among infants in the United States. African American infants have a history of dying before their first birthday at a rapid rate, with deaths reported as 14 per every 1,000 births. White infants accounted for 6 deaths out of 1,000 births during the same period. Deaths prior to the age of one is termed infant mortality; number of deaths per 1,000 births is called infant mortality rate. What indicators suggest a higher level of infant mortality among the African American community? According to New York State Department of Health, in 2012, the infant mortality rate per 1,000 live births among African American infants were 9.46, which was more than double for any other race the same year. Some factors that contribute to high infant mortality among this priority

population include geographic location, socioeconomic status, and social norms. This presentation will further discuss infant mortality among African American infants and how to reduce infant mortality.

### **Institutional Bummer**

**Elizabeth Adenegan**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

College is a time for students to explore and learn new things. It can be a fulfilling moment as well as a stressful and difficult one. Depression is a disorder that has an affect on an individual's daily activities. According to the Centers for Disease Control and Prevention, only 29% of individuals with depression reported they contacted a mental health professional during the past year. Research suggests depression in students can be triggered by events that take place within the college experience; many students do not seek treatment following such events. Severity of depression in students may vary due to gender, life trauma, and social involvement. According to Healthy Campus 2020, 83.5% of students reported a diagnosis of depression and received treatment during the 12 months prior to spring 2010. Healthy Campus 2020 seeks to increase the proportion of students reporting a diagnosis of depression and receiving treatment during a 12 month time period. This poster presentation looks at some of the top reasons as to why students experience symptoms of depression and efficient ways to overcome it. Additionally, this limited review will help in understanding why some diagnostics are not reported and potentially create ways for students to feel comfortable with seeking help.

### **Keep Calm and Stop Bullying**

**Tonya Tucci**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, 19.9% of students in grades 9-12 were bullied on school property in 2009. Bullying is an issue in schools across the United States, most often including physical violence, name-calling, teasing, and social isolation. Transitioning into middle school and high school is a vulnerable time for students to experience bullying and can negatively manipulate emotions, physical and social health, and academic performance for victims and perpetrators. The U.S. Department of Health and Human Services determined that 70.6% of students notice bullying occurring in their schools. Parental characteristics have an influence on the likelihood of children participating in bullying behaviors. In addition, peer influences, lack of policies, and disciplinary actions at school and at home can also have an effect. Furthermore, the increased use of social media among adolescents provides an easier way to bully others,

also referred to as cyber-bullying. This poster presentation consists of studies that determine probable causes of bullying behaviors in schools, as well as presents the need for students, educators, and parents to take action to reach Healthy People 2020s goal of a 10% decrease in bullying behavior.

### **Knockout Hypertension**

**Charlise Davis**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Healthy People 2020 seeks to reduce the proportion of adults with hypertension. It is estimated approximately 31% of Americans living below poverty level suffer from hypertension. This health problem is linked to chronic health conditions such as diabetes and cardiovascular disease. According to the CDC, about 29% of Americans live with hypertension; only half have it under control. Hypertension disproportionately affects African American women 40 and above in terms of prevalence, treatment, and control rates as compared to whites. This discrepancy could be attributed to food consumption patterns, which are affected by multiple, potentially overlapping interpersonal, cultural, and environmental factors. The disease costs the US \$46 billion each year. If the nation focuses more on prevention and reduction the money spent on medications and care services should decrease. It is suggested that modifications of nutrition such as limiting the intake of salt and alcohol, and eating a diet that emphasizes vegetables and fruits have been linked to a reduction of systolic and diastolic blood pressure readings. This poster presentation will discuss why African American women age 40+ have higher rates of hypertension and suggest measures to reduce incidence.

### **Kombucha Tea: Do the Health Claims Hold True?**

**Kayla Kio**, NFS 330: Integrative and Functional Nutrition

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

While taking NFS 330, I learned Kombucha tea claims numerous health benefits and conducted in-depth literature reviews to find if these health claims really hold true. Kombucha tea is a sweetened drink made from green or black tea fermented by a symbiotic colony of bacteria and yeast (SCOBY). This fermentation process takes about 7-14 days to complete and the result is a slightly acidic drink composed of organic acids, glucosamine, B Vitamins, probiotics, antioxidants, enzymes, and alcohol. The origin of kombucha dates as far back as 2,000 years ago in the Chinese Qin Empire where it has spread throughout Asia to Russia and a variety of countries in Eastern Europe. Kombucha has now reached the grocery stores and homes of people within the United States. Many people who drink kombucha prepare it at home rather than buying it from the

food stores. Benefits of this fermented drink have been shown and developed quite a few health claims over the years; including its ability to help cure cancer, reversing the ageing process, boosting the immune system, detoxifying the body, helping digestion and joint health, and so much more. Although it has developed many health claims over the years, it has also shown to have some side effects. These may include incidents of lead poisoning, hepatotoxicity, metabolic acidosis, and some allergic reactions. So exactly how true are these health claims? Is kombucha tea really beneficial for everyone? How safe is it for people to prepare this tea at home? These are some of the questions I aim to answer in my poster.

### **Labor Pains: Pregnancy in Hispanic Teenagers**

**Anne Winter**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, while teenage pregnancy has decreased, the statistics for pregnancies among adolescent females is still high, especially among women in the Hispanic community, as they have the highest teen pregnancy rates. Hispanic teenagers, aged 15-17 years, have a 25.5% birth rate per 1,000 teens. Teenage pregnancy is supported in Hispanic culture, likely to occur in low income families, and, where there is a lack of access to health care. Additionally, the CDC reports adolescent Hispanic females will have a 24% chance of giving birth before the age of 20, as compared to 10% of non-Hispanic female adolescents. Targeting to reduce pregnancy rates by 10% is the goal of Healthy People 2020, which can be achieved by investigating associated determinants and instituting change. The lack of sex education universally in the United States increases teenage pregnancy, with 80% of teenagers having zero knowledge before engaging in sex. With the help of a support system and the community, female Hispanic adolescents will be more mindful of these determinants leading to reducing teenage pregnancy. This poster presentation will further discuss why this issue needs to be addressed within the Hispanic population.

### **Los Pequeños Bufalitos**

**Brittany Bennett-Allis**, Social Work and **Geminis Ramirez**, Social Work

Faculty Mentor: Professor Louis Colca, Social Work

During our two and a half weeks in El Sauce, Nicaragua, we the student researchers focused on the impact our time there would have had on this impoverished community. It was our primary goal to survey whether or not our time in teaching English and promoting work skills through building stoves continued after our stay. Our central scholarly research question was, “if outside human resources are employed for a short period

of time in a third world country can the projects be sustained after the human resources leave?” We the student researchers collaborated with a small not-for-profit organization and long-term volunteers to build sustainability in the El Sauce projects we initiated. The researchers’ goal was for the project to continue teaching English and to increase marketable skills. In addition, it was our goal for the stove apprenticeship program to be continued and expanded after we left El Sauce, thus giving the youth tangible work skills. Lastly, the program employed a team building approach that increased the children’s self-esteem and empowered them to remain in school. Our poster presentation will provide visual information about the projects we initiated that became a part of a larger effort to bring prosperity into the community. Our presentation will demonstrate that in a short time in a third world country sustainability of programs can be built in so that the children can become catalysts for change and role models for others in their town. We will also be sharing updated information about the results of our projects since we have left El Sauce.

### **The Low Down on Falling Down**

**Briget Arway**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Hip fractures are a devastating injury that can ultimately end in death. One Healthy People 2020 objective is to reduce hip fractures among women ages 65 and older. These women are more prone to bone loss due to osteoporosis. Seasonality and weather, tobacco use, and alcohol consumption are three determinants of hip fractures. During winter, older adults are more likely to slip and fall due to ice or snow. Tobacco use could cause lower bone mineral density, which weakens bones, and puts an individual at an increased risk for fracture. Alcohol consumption can result in impaired functional ability and imbalance, and many older women are at an increased risk for weak bones, these two factors combined cause an increase rate of hip fractures. The CDC states at least 250,000 adults over 65 are hospitalized yearly for hip fractures; 75% of women contribute all hip fractures. According to the US Department of Health and Human Services, about 24% of hip fracture subjects over 50 die within one year post-fracture. This poster presentation will further discuss how older women can implement preventative measures to avoid hip fractures.

### **Mindfulness Shapes Happier Life: Importance of Positive Thinking and Confidence**

**Aierfan Maierdan**, Computer Information System and  
**Vaibhav Sharma**, Business

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

This research study presents how mindfulness thinking changes the way people perceive the world and alters their mindset to better enjoy their lives. Stress has played a major role in everyone's life. People live a very high paced life and forget to slow down and enjoy. Therefore, it is significant to study how our mind works and how to create a better life quality. In this research, data from previous scholarly literature review and data from surveying and interviewing people will be used. As a preliminary result, we have learned that a positive attitude plays a significant role in whether or not someone is able to overcome failure in life and focus on the happy side. By positive attitude, they can overcome more challenges and develop the confidence that nothing is impossible, breaking misconceptions of the word impossible. By studying how their minds work, people can shape their thinking, train themselves to have a positive mental state, change how they perceive things, learn to enjoy their lives, and get the sense of being grateful for what they have instead of being stressed out with the challenges in front of them.

### **Move it or Lose it**

**Kelly Edwards**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

The population of adults 65 years and older is expected to increase 2.6% annually between 2010 and 2030, making it the fastest growing population in North America. Previous studies have shown that among this population 57% are overweight or obese, which is most commonly a result of inactivity; defined as lack of physical or cognitive function. Continuing to study older adults and their living environment, income level, and gender we can work towards understanding the barriers regarding low levels of physical and cognitive functions. High residential areas increase traffic and make for unsafe walking conditions; low income areas do not provide safe facilities for activity. As women age and move through menopause they experience a change in hormone levels, all of which contribute to a decline in functional abilities. Research concludes adding cardiovascular exercise at light, moderate, or vigorous intensities to daily routines increases oxygen rich blood flow to the part of the brain associated with cognitive function. The poster presentation will further discuss the goal set by Healthy People 2020 to increase the proportion of older adults who engage in activity from 32.6% to 35.9%, in order to help improve their lives physically and cognitively.

### **Neuroblastoma: A Not So Childish Cancer**

**Abigail Guzzino**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

An objective for Healthy People 2020 is to reduce the overall cancer death rate by 10%. Neuroblastoma is a cancer that occurs in young children; according to the American Cancer Society it accounts for 6% of all cancers in children. This type of cancer is the most common tumor in infants, and one of the most common extracranial solid tumors in children. Preventable risk factors that can stop a child from getting neuroblastoma are little known; there are measures that doctors and family members can be aware of that may possibly reduce incidence earlier in a child's life to create a better prognosis. The age of the child when diagnosed, parent's access to health care, and parent's education of neuroblastoma are significant determinants for this cancer's prevalence. The tumor for neuroblastoma is very unpredictable; this cancer can range from life threatening to regression without any procedures performed on the child. Finding this type of cancer can be very difficult in children. Neuroblastoma can be found in outwardly healthy children with no signs or symptoms. This poster presentation will discuss how to decrease the death of children caused by neuroblastoma.

### **The Newest Form of Contraception: Education**

**Sarah Mahoney**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Healthy People 2020 aims to reduce the proportion of females experiencing pregnancy despite use of a reversible contraceptive method from 12.4% to 9.9%. The 49% of unintended pregnancies are a result of failed contraceptives, contraceptive misuse, lack of education regarding family planning, and lack of access to contraceptives. The purpose of this research is to establish prevalence and what methods can be used to reduce the number of pregnancies with use of contraceptives. Studies and surveys conducted by the National Surveys of Family Growth, and similar organizations, established factors that lead to the highest unintended birthrates. African American and Hispanic women account for most cases, specifically those of lower income. Women in these areas have less access to family planning care, contraceptives, or lack funds to access these resources. Recent research initiated extensive training on long lasting contraceptives and further education for physicians with hands-on experience. Results from this program yielded a dramatic increase in contraceptive use and decrease in unintended births. Conclusions suggest programs similar to this would be the best

way to combat this problem. This poster presentation will further discuss the measures to reduce pregnancy rates with contraceptive use among priority populations.

### **A New Generation of Preventable Obesity**

**Katherine Stoll**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Obesity is a prominent health problem in the US. What may be surprising is who is obese and when it really starts. Healthy Campus 2020 has an objective to reduce student obesity rates from 11.6% to 10.4%. According to the Bureau of Chronic Disease Evaluation and Research, in NYS, 25.9% of individuals ages 18-24 were reported as overweight; 11% were reported as obese. Being classified as overweight or obese places students at high risk for many chronic illnesses. Through this review of scholarly articles, three pertinent factors were found affecting obesity in this age group. Self-efficacy, or one's belief they have the ability to do something, correlated with self-perception, personal recognition of an issue contribute to potential obesity problems. Female students rely heavily on friends or peers for input and support. Technology can also affect the amount of time one spends sedentary; further development in technological mobility may become a tool to help lead a healthy lifestyle. This presentation will discuss the aforementioned determinants and how they can be altered to help female college students lead a healthier lifestyle and prevent obesity.

### **Not Enough Hours in the Day**

**Sarah Gorski**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, approximately 31% of 9-12th grade students received adequate sleep, (8+ hours), on a regular basis; a projected goal is to increase adequate sleep to 33%. Sufficient sleep helps students perform better in school and activities while maintaining better health. It was found that high school students receiving grades of C and below slept 25 minutes less, while going to bed 40 minutes later than students who receive grades of B and higher. One major role is the delay of secretion of melatonin through the body at this age. Melatonin plays a significant role in allowing the body to fall asleep. Along with biology as a determinant, students' use of electronics during the evening impacts melatonin secretion. Additionally, many high schools begin classes early. Biology and lifestyle affect students' habits, making it difficult for them to receive a full 8 hours of sleep. According to the Journal of School Health, 93.7% of students reported feeling tired throughout the day. Delaying school start times in addition to discouraging the use

of electronics during the evening could improve sleep. The poster presentation will discuss determinants and benefits of sleep health among high school students.

### **Not Just a "Little" Bi-Curious: Obesity in the LGBT College Community**

**Jon-Luke Krywalski**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

For the past decade, obesity has been an epidemic in the US and on college campuses. One objective of Healthy Campus 2020 is to lower the proportion of students who are obese from 11.6% to 10.4%. Though many communities on campuses have obesity issues, the LGBT community has been overlooked in this matter. Many recent studies have suggested that lesbian and bi-sexual women are twice as likely to be obese as compared to heterosexual women. It has also been observed that homosexual men are more likely to engage in unhealthy eating habits, and that gay and bi-sexual individuals overall, are less likely to engage in moderate to vigorous physical activity or exercise. Populations such as these should be targeted for obesity intervention in order to stymie the rise in obesity rates and reach Healthy Campus 2020 goals. The purpose of this review is to use compiled data to determine disparities in the LGBT community when it comes to obesity and determine factors that induce these disparities, which could include things such as social pressures, partner preferences, dieting behaviors, or screen viewing time. The poster presentation features information that further supports the LGBT community's need for obesity intervention.

### **Not So Sweet After All: Put SSB Spending on a Diet**

**Samantha Baker**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, children's consumption of calories from added sugars has serious immediate and long-term effects on their health. Sugar sweetened beverages (SSBs) are the largest source of added sugars in the diet of America's youth, and contribute to the prevalence of obesity among this population. School-aged African American males consume at least one SSB per day, which is associated with an approximate 15% increased risk for type 2 diabetes in their adult life. Review of the literature revealed that consumption of SSBs has declined over the years, however, the diagnosis of diabetes in adult life suggests that parents and school board members reconsider allowing children's access to SSBs. Conclusions drawn by researchers recommend a closer look at the advertising industry and its target audience: adolescents. In 2010, \$948 million was spent on television

advertising by beverage companies, which was a decrease of 40% from 2003-2009. These companies have adapted to the growing popularity of “apps” and social media, and made vending machine contracts too sweet for school districts to ignore. The poster presentation will further discuss health complications attributed to obesity within the adolescent population, primarily focusing on African American male students.

### **Nutritional Values and Health Effects of Spirulina and Chlorella**

**Katy Graf and Anna Thompson**, NFS 330: Integrative and Functional Nutrition

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

Spirulina and chlorella are often taken as supplements to improve one's health. We as dietetics students were interested in finding the chemical background on each of these supplements to inform consumers of what they are. Our goal is to find the facts on these products and discuss the benefits and drawbacks of taking different types of algae and seaweed as supplements. Methods used for our poster include literature review to collect information from both sources of alternative medicine and conventional western medicine such as medical journals, encyclopedias, and natural medicine comprehensive databases. Spirulina are prokaryotic blue-green algae with no nucleus, whereas chlorella are eukaryote with a nucleus and a thick cell wall that binds to toxic materials but prevents being digested in the gut. Studies have been done to investigate the effect of Chlorella supplementation on liver enzymes, glucose and lipid profile in patients with nonalcoholic fatty liver disease and results have shown a significant decrease in weight, liver enzymes, fasting blood sugar and lipid profile. Spirulina is very high in bio-available iron, making it beneficial to those with anemia or pregnancy, with reduced risk of constipation. The quality of the protein in Spirulina is considered excellent, comparable to eggs. It contains all the essential amino acids that we need. Both are highly nutritious with protein, vitamins, minerals and fibers. Spirulina and chlorella have been shown to promote health benefits of detoxification, enhancement of immunity, anti-inflammatory, tumor killing ability and cholesterol lowering effects. In conclusion, Chlorella and Spirulina have shown beneficial effects on health.

### **Osteoporosis within the Elderly Population**

**Aiesha Dinnall**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Osteoporosis affects more than 25 million Americans, male and female, and is the cause of more than 1.5 million

fractures annually. Among the elderly population, osteoporosis is increasing. According to Healthy People 2020, 5.9% of adults aged 50 years and older have osteoporosis. Research suggests the risk factors associated with osteoporosis are age, gender, and family history. As Americans age, increased risk for fall-related injuries is realized, which can result in an increase of death. Family history can be a strategy for targeting subgroups of the population who are at a higher risk for osteoporosis. The National Osteoporosis Foundation reports 8 million U.S. women and 2 million U.S. men have osteoporosis; millions more have low bone density. Osteoporosis, most associated with the elderly population affects all ethnic groups. Hip fractures are the most common associated injury; 20-30% of individuals die the following year and only 50% regain independency. A preventive strategy for osteoporosis would be a balanced diet that includes an adequate calcium intake and vitamin D, weight bearing exercise, and daily physical activity to reduce the risk factors. The following poster presentation will further explain how osteoporosis affects the elderly age group and preventive measures to reduce incidence.

### **A Pap Test Does a Woman's Body Good**

**Krystal Robinson**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

In order to be aware of cervical complications, participation in regular screenings, also known as a Pap tests (Pap smear) is needed. Healthy People 2020 reports Asian American women as having the lowest cervical cancer screening rates at 70.5% as compared to 82.7% of participating Caucasian women. It is well known through research that Asian American women have some of the highest rates of cervical cancer and yet screening rates are at a detrimental low. This ethnic group is less likely to be formally educated on the importance of these screenings. Also, cultural factors or beliefs have been described as a barrier that inhibits the safe practice of cervical screenings. Asian American women are five times more likely than Caucasian American women to have cervical cancer. Asian American women are also known to have a higher incidence of invasive cervical cancer in comparison to their white counterparts. Research indicates Asian American women feel as though their relationship or experience with physicians is unsatisfying. With further explanation, the poster presentation will discuss the barriers that this priority population encounter facilitating their low participation rates in regular cervical screenings.

### Parents' Insights into Their Children's AAC Device

**Bethany Nemmer**, SLP 495: Special Project

Faculty Mentor: Professor Deborah Insalaco, Speech-Language Pathology

This research was designed to understand better how parents feel toward the communicative devices their children are using to speak with. This project entailed an interview of 21 questions that 10 different parents participated in. The data that were collected indicated very similar responses from the participants. Overall, the parents said that the devices were beneficial to their children's communication and that the education teams working with their children's devices were wonderful. On the other hand, the participants commented that they would rather have their children be able to speak on their own, but with that not being an option, they agreed that their AAC devices were a wonderful aid to their children's communication both at home and at school. The common complaint about the devices was the complexity of them. Most parents agreed that they did not know how to control and navigate through the technology and, when it malfunctioned, they spent a lot of time calling outside sources to help them rather than knowing how to fix the problem themselves. Most of the participants had only good things to say about the device other than the complexity, and all participants stated that their children's AAC device was a blessing to them and their families. It was unfortunate that, while we collected data from 10 participants, 4 of these recorded interviews were erased due to technical difficulties.

### Physical Activity Amongst Adolescents: Get Up and Play

**Jayquan Tillman**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Continually, studies have revealed that physical activity is an important function for adolescents. Many, who are not physically active have shown negative effects including physical, emotional, and mental. Physical disadvantage has the biggest impact on adolescents and their ability to be active. Obesity, a disorder involving excessive body fat, is a leading result of lack of physical activity, and associated with limited accessibility. Healthy People 2020 shows that 48.7% of students met current federal guidelines for aerobic physical activity in spring 2010; a targeted increase is 10%. Adolescents, especially minorities in urban communities lack access to participate in physical activities. Approximately 21% of Latino and 24% of African American children and adolescents are obese as compared to 14% of Caucasian youth. Additionally, adolescents are unaware of the importance of physical activity and the result it can have on their body. This poster presentation will offer different perspectives on physical

activities for adolescents, improving awareness as to unhealthy living, and encouraging healthy changes for life long benefits.

### Physical Activity in Elder African American Women

**Celine Jamieson**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, 32.6% of older adults with a reduced function engaged in light, moderate, or vigorous physical activity in 2008. Only 19.2% of older minority adults engage in physical activity. Many older African American adults live a sedentary lifestyle due to their reduced function, which can lead to chronic illness, especially among this population. Contributing determinants include lack of knowledge, lack of social support, and low income levels. Many elder African Americans lack basic knowledge and social support. Increasing roles in community service for African American elders, geared towards health promotion, can help African American women with low income levels gain access to physical activities as well as gain social support from others. Health promoters need to take into account the type of population with whom they are dealing as well as the type of communities to achieve their goal of increased activity among elderly African American women. This poster presentation will further explain the factors that cause decreased physical activity among this priority population.

### The Power of Knowledge: Are You in Good Hands?

**Sorriah Wilson**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Physical assault on college campuses has increased tremendously in the last few years. The preventative policies and law enforcement in place to protect students seem ineffective. The intended objective of Healthy People 2020 is to prevent unintentional injuries and violence by reducing students' consequences. In 2008, Healthy People 2020 reported that 21.3 physical assaults per 1,000 population aged 12 years and older occurred. A college student's susceptibility increases due to environmental pressures such as alcohol and drugs, peer pressure, and where they might reside. Reducing physical assault occurring on college campuses as it is associated with the objective would expand student body knowledge regarding any type of physical assault, reassurance that pertinent information such as time and location are not a breach of privacy concerning their safety, and increase student awareness of campus police regarding their role in safety, prevention, and enforced policies on campuses. A research study reports that 89% of students

identify sexual assault prevention as important, but are the program initiatives in place to protect students and decrease their likelihood of being assaulted effective? This limited examination of the current literature will discuss ways to decrease occurrence of assaults towards college students as stated by Healthy People 2020.

### **The Power of Echinacea, the Purple Cone Flower**

**Rhianon Condello**, NFS 330: Integrative and Functional Nutrition

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

Echinacea continues to be a popular herbal supplement many people use to fight against the common cold, upper respiratory infections, bronchitis, and some inflammatory conditions. The purpose of my research is to find evidence of beneficial effects of the herb and its applications. After reviewing published articles on the herb, I found some research that supports Echinacea's effects on the immune system and its benefits for AIDs and Cancer patients. It's been popular in America and widely used in Europe, especially Germany. Echinacea continues to be incredibly popular with annual sales of \$300 million in the United States alone. Though Echinacea has been safely used for many years, the question is does it really work to stimulate the immune system? My poster presents the various types of Echinacea, a short history, its effects and known mechanisms that were reported in various studies.

### **The Power of Vitamin D in Health and Disease**

**Nicole Callahan**, NFS 330: Integrative and Functional Nutrition

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

The Power of Vitamin D in Health and Disease Nicole Callahan, NFS 330, Integrative and Functional Nutrition Faculty Mentor: Suk Oh, Health, Nutrition and Dietetics Vitamin D has long been recognized as an essential micronutrient for maintaining bone health. Although named a vitamin, it behaves more like a hormone in our body helping to regulate calcium absorption and bone formation and may also have some anti-inflammatory properties. The major source of Vitamin D comes from our body synthesis from cholesterol in skin exposed to sunlight. Oily fish, like mackerel, salmon and sardines as well as egg yolks are foods that naturally contain Vitamin D and fortified foods such as dairy products, cereals and orange juice are also good sources. Despite these efforts, evidence suggests there is a world-wide deficiency in Vitamin D especially among dark-skinned people. To compensate for the lack of sun-exposure or low dietary intake, clinical practitioners have increasingly

offered Vitamin D supplementation. Vitamin D is the number one supplement prescribed and used by physicians. I was intrigued to find the recent development in Vitamin D research. The purpose of this research is to examine the data currently available concerning Vitamin D and its role beyond its traditional functions. Recent studies suggest that adequate Vitamin D intake may also be associated with lower risk of cardiovascular disease, Diabetes, certain Cancers, and decreased risk of falls among the elderly. Furthermore, there are questions regarding the benefit (or side effects) of high dosages of Vitamin D. Currently there are several large-scale, general population trials underway to determine the adequate level of supplementation.

### **Probiotics and Prebiotics: Gut to the Point**

**Kristen Tilson and Jenna Guadagna**, NFS 330: Integrative and Functional Nutrition

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

Gut health begins with the maintenance and proliferation of good bacteria in the gut and can be heavily affected by a person's diet, antibiotic use, genetics, and outside factors relating to the introduction of different bacterium in the gut using probiotics and prebiotics. Despite the vast research pertaining to probiotics and prebiotics, there still exists many questions with regards to their efficacy in maintaining gut health and also their effectiveness in treatment of Irritable Bowel Syndrome (IBS). IBS has two different subgroups, diarrhea specific IBS (IBS-D) and constipation specific IBS (IBS-C). Depending on the type of the syndrome, different strains of probiotics and prebiotics will be beneficial for treatment purposes. Many studies have shown that probiotic and prebiotic use have been beneficial in promoting bowel movement, relieving pain, inflammatory response, and flatulence associated with IBS. However, there is still contention as to how the different types of bacteria used within these can affect symptoms of IBS.

### **Quinoa: A Super Grain**

**Sarah Hopkins and Kelly Braun**, NFS 330: Integrative and Functional Nutrition

Faculty Mentors: Professor Suk Oh, Health, Nutrition, and Dietetics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

We examined the health benefits of quinoa relative to other grains and its use in gluten-free diets. Quinoa has been used in the Andes for centuries, but is just newly becoming popular in the United States. Quinoa has a strong adaptability to extreme growing conditions, making it a practical protein source for much of the rural population. Multiple controlled studies have labeled it a "superfood" for its high protein, fiber, and essential fat content. Preliminary research shows that in comparison to

other gluten-free cereal grains (mainly rice and corn), quinoa has higher digestibility, higher protein content, lower glycemic index (making it a good option for diabetics), higher essential fatty acids (linolenic and linoleic acids), and higher fiber content. Our research goal is to further explore the comparison between the use of quinoa and other grains in a therapeutic gluten-free diet to treat a patient with Celiac disease. Quinoa is similar to other commonly used grains in taste and texture, thus making it easy to incorporate into a variety of recipes appropriate for many cultural palates. In this presentation, we are highlighting the positive nutritional and culinary attributes of quinoa, in addition to utilizing it as a supplemental medicinal tool for a gluten-free diet.

### Reducing Recidivism Post Incarceration

**Teela Gajewski**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Catherine Mazzotta, Social Work and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Individual's relapse into criminal behavior after receiving sanctions or an intervention for a previous crime is an issue that has not been thoroughly addressed by research. It is important to know what prison conditions rehabilitate individuals so that they do not return to criminal behavior. What factors of a prison experience decrease recidivism? To investigate the aspects of prison that can reduce recidivism, a review of current literature on the issue will take place. Along with data research on certain prisons and their conditions as well as their rates of return. Previous research suggests that visitation has a modest impact reducing recidivism of all types (Mears, D. P., Cochran, J. C., Siennick, S. E., & Bales, W. D. (2012;2011;)). The effects of visitation may also be most substantial if the spouse or significant other is visiting (Mears, D.P., Cochran, J.C., Siennick, S.E. 2012:2011 et. All). Further research proposes harsh prison conditions increase post- release criminal activity (Drago, E., Galbiati, R., & Vertova, P. (2011)). I hypothesize that a less severe prison experience leads to a reduction in likelihood to return to prison. Optimistically, the research will contribute to the reduction of recidivism.

### Relevancy of Different Determinants on Underage Drinking

**Brandon Klein**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Underage drinking is among one of the biggest health problems in the US. According to the CDC, underage drinking was responsible for 189,000 hospital visits, 4,300 deaths, and economically cost approximately \$24 billion in 2010. Underage drinking can also lead to increased disease risk, social or behavioral problems, and a greater chance of becoming addicted

to alcohol in the future. With 11% of all alcohol consumption in the US coming from underage drinkers, it has become an objective for Healthy People 2020 to reduce the proportion of adolescent alcohol use. Current literature suggests that there are several factors that can increase the risk of underage drinking. This research seeks to determine which of these factors holds the most impact. Trends and correlations between the various factors have been analyzed to better collect data for future promotion programs focused on underage drinking prevention. Research suggests that financial difficulty can indirectly affect adolescents' decisions to drink alcohol through added stress on the parent(s) causing weakened emotional states and poor parenting behaviors. Additional factors related to underage drinking will be discussed at the poster presentation.

### Remedy the Natural Way

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

Botanical medicine consists of herbal remedies that have long played a role in human health and wellness. Our ancestors actively used algae, fungi, and plants to cure sicknesses and optimize overall well-being. Today, herbal remedies still play an active role in the lives of many and those who include botanical medicine in their diet believe that they are gaining additional health benefits. Popular in diets today include Siberian ginseng, ginkgo biloba, and green tea, all of which originate from the Far East regions of the world. Siberian ginseng is used to treat asthenia in elderly as well as strengthen muscle and bone; studies suggest it as a natural remedy to prevent osteoporosis. Ginkgo biloba is thought to be effective in decreasing cognitive decline and therefore is used to help prevent dementia. 57.3% of physicians recommend the use of ginkgo, furthermore, 50% of dementia is believed to be preventable. Green tea leaves are considered a substantial wellness cup warding off diseases from cancer to obesity. A 1994 cohort study concluded that drinking green tea decreased mortality from all causes. Botanical medicine may be a natural way to increase stamina, intellect, and prolong life, amongst many other healthful benefits.

### The Role of Yin and Yang Foods on Health

**Ka Sin Cheung** and **Evelyn Low**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

The principle of Yin-Yang food originated in the 3rd Century BCE or even earlier in China. As a concept that emphasizes holistic health, Yin and Yang foods take into consideration of all components to promote well-being. Yin and Yang are two opposite poles that attract and complement each other. The

balance between two poles symbolizes harmony. Yin represents feminine, dark, water, and cold, while yin illustrates masculine, light, fire and warmth. The theory of yin and yang suggests that these complementary forces exist in everything in life, including food, which can improve person's health by having a balance of yin and yang food in the diet. Foods that contain higher water contents and potassium and lower in calories, such as most fruits and vegetables, soy products, crab and duck, are categorized as cool or yin food. "Yang" foods tend to have higher energy contents from protein and fat; they are also higher in sodium. Some examples will be poultry, pork, beef, warm spices, eggs, and glutinous rice. The imbalance of yin and yang may lead to illness or diseases. Therefore, it is important to attain balance between yin and yang to achieve optimal health.

### **Sexual Violence on College Campuses**

**Kaila Branche**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Violence within intimate relationships can vary from domestic abuse to sexual violence. NASPA states, 25% of women and 15% of men in undergraduate studies are victims of sexual violence; only 5% of attacks are reported to authorities. Research suggests the role of alcohol and crimes go unreported, attackers tend to know the victim, and campus authorities play a role. Analysis of research suggests that alcohol use impairs ability to make proper judgement, as well as defend oneself in compromising situations. Students tend to not report crimes for various reasons, which include fear of not being believed, lack of discipline for the attacker, and having to come to terms with being a victim. Healthy Campus 2020 seeks to reduce the proportion of college students who report being in an intimate relationship that was physically abusive; the current benchmark is 2.5% reported cases. The goal for the objective is to reduce reports to 2.3%. In order for the crime to be reduced people must be aware that it is happening and report it, so in order for rates to decrease they need to first increase. This poster presentation will further discuss sexual violence and how it affects the Buffalo State College community.

### **SIDS: Saving Infants Dying Too Soon**

**Kadiatou Diallo**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, in 2006, 0.55 infant deaths for every 1,000 live births were attributed to sudden infant death syndrome, better known as SIDS. In 2010, it was reported that more than 2,000 babies died of SIDS in the U.S. The objective is to reduce the rate of infant deaths from SIDS by

10%. Infants under one year are dying unexpectedly, most often while sleeping. Most SIDS death, occur before a baby turns 6 months old, 90% to be exact. Causes of death are attributed to physical or sleep environmental factors. Physical factors include brain abnormalities, low birth weight, and respiratory infections. The physical factors combined with sleep environmental factors increase the risk of SIDS. One kind of environmental factor is the baby sleeping on their stomach or side. One determinant associated with SIDS is the lack of breastfeeding, which promotes safer sleep by organizing the baby's sleep pattern and having a tranquil affect on the baby. The chances of a baby succumbing to SIDS can also be determined by the baby's sex. Males are more likely to be affected than females. This poster presentation will further explain the population with all demographics included, determinants that contribute to this health issue, and a number of statistics.

### **A Sip Away From Health: Green Tea Versus Black Tea**

**Caitlin McCullough** and **Deanna Gallicchio**,

NFS 330: Integrative and Functional Nutrition

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

Tea is the second most consumed beverage in the world next to water. With over 3,000 varieties of tea which is the most beneficial for our health? The purpose of our study is to explore two of those varieties: green tea and black tea by conducting in-depth literature reviews. Green and black tea both come from the leaves of the *Camellia sinensis* plant. Tea consists of flavonoids and polyphenols that are known for their antioxidant properties, the most powerful being the antioxidant epigallocatechin-3-gallate (EGCG). Specific brewing methods are used for each type of tea that contributes to their difference in appearance, taste, chemical content and health effects. Green tea leaves are steamed during their production whereas black tea is made from fermented leaves. Black tea undergoes fermentation or oxidative polymerization to bisflavanols, theaflavines, thearubigins, and other oligomers that are not nearly as effective in preventing and fighting various disease as green tea. In our poster presentation, green tea and black tea will be compared to find which one is superior in its chemical content and health benefits.

### **Sleep Health: High School Students**

**Ryan Kowal**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Sleep is essential for the physical and mental well-being of all, especially high school students. The National Sleep Foundation recommends that adolescents strive for eight to nine hours of sleep per night, at a minimum. Healthy People 2020 states only 30.9% of students in grades 9 through 12 had sufficient sleep in 2009.

Today's high school students are faced with a variety of factors that can affect the amount of nightly sleep. Influential determinants include family history, lifestyle choices, media consumption, and environment. Students have more obligations, more part-time work, more distractions from technology, and more responsibilities than ever before. Healthy People 2020 aims to increase the number of students that receive sufficient amounts of sleep by 10%, which can be achieved by examining determinants and implementing change. This research intends to bring awareness to the sleep health problem in high school students and offer solutions for improving this issue at hand. A joint effort is needed by educators, parents, and health care professionals to adequately address the problem. By increasing the proportion of students in grades 9 through 12 who get sufficient sleep, the result will be healthier, more successful adolescents.

### **Sleepy Heads: College Students and Sleep**

**Devon Parkes**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

College students are known for their erratic lifestyles and irregular sleep schedules when it comes to receiving adequate sleep at night. Students may not have the knowledge of the importance of sleep quality or hygiene, which causes many students to experience this problem. Many consequences accompany inadequate sleep, academic performance being most prevalent. Healthy Campus 2020 states that 20% of students reported sleep problems affected their academic performance during 2009; intentions are to reduce the proportion of students who experience inadequate sleep by 10%. Multiple health factors that influence sleep problems include environment, not maintaining a consistent sleep-wake cycle, personal health, and technology. Many college students experience daytime sleepiness due to these causal factors, but the problem is not taken seriously. Through a limited review of current research, determining how sleep problems affect students' academic performance and what students can do to prevent or remedy the situation will be examined. The poster presentation will further discuss the prevalence of sleep difficulties among college students, health factors that contribute, and prevention methods that can be used to help with reducing the percentage of students experiencing inadequate sleep.

### **Sticks and Stones Don't Just Break Bones, You Can Too**

**Breana Hargrave**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy People 2020, in 2007, 823.5 hospitalizations for hip fractures per 100,000 females aged 65 years and older occurred. Most hip fractures were associated

with osteoporosis, which is a bone disease existing in older women more often than men. Affecting older Caucasian and Asian women more than other ethnicities, some statistics report, 20% of Asian and non-Hispanic Caucasian women over the age of 50 have osteoporosis; 52% have osteopenia, the precursor to osteoporosis. The disease causes bones to weaken and become brittle leading to additional health problems in older years. In some cases, a light fall, sneeze, or a bump into an object can cause the bone to break, leading to pain, depression, and even fear of falling among this population. Some determinants associated with osteoporosis include, lifestyle, nutrition, and biological makeup. It is important for women to be aware of their risk factors for osteoporosis so a reduction in the number of hospitalizations and decrease in the incidence of disease is recognized. The poster presentation will further discuss the determinants that increase causal risk of disease and usable prevention methods for the population.

### **Stop Running From Cardio**

**O'Neil Jones**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

According to Healthy Campus 2020, college students do not participate in sufficient aerobic physical activity. Federal guidelines indicate that 51.3% of female students do not perform moderate intensity cardio for 7 days a week. Female freshman and sophomore students are the focus as they face new environmental changes, which influence personal behavior. Students who display a trend of unhealthy lifestyle habits show increased weight gain, moving into their sophomore and junior years. Smoking is health risk factor that hinders exercise performance among this population. Strength training and aerobic exercise helps with weight control and injury prevention. Decreased strength training can result from lack of time, or basic knowledge of strength training. The goal of Healthy Campus 2020 is to improve aerobic exercise by 10%, which can be achieved by having a better understanding of modifiable determinants and improving behaviors. Students, faculty, community, and health educators can help increase awareness and participation of college females in physical activity to improve physical health. This presentation hopes to inform those on the benefits of aerobic activity and to assist those looking to improve cardiovascular fitness.

### **Stopping Obesity One Child at a Time**

**Cory Cox**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Childhood obesity has become one of the largest issues in terms of health in America today. Obese children can develop health issues, which can carry over into adulthood

causing problems such as diabetes, heart disease, and high-blood pressure. Childhood obesity can stem from a number of determinants including socioeconomic status of the family, healthy quality of food the child receives while in school or at home, and education level in terms of the child knowing what is healthy and what is not. Also, daily physical activity in which the child engages as well as parental influence play a role in childhood obesity. The goal for this health issue according to Healthy People 2020 is to reduce the proportion of children ages 6-11 who are considered obese from 17.4% to 15.7%. In the US, approximately 17% of children and adolescents are considered obese. These statistics can be broken down by race and gender. Knowing that obesity can carry over from childhood to adulthood, statistics show that African American women and Latino men have the highest rates of obesity. Bringing awareness to childhood obesity while at the same time finding ways to reduce this disease in children is the ultimate goal of HP2020 and health educators. The poster presentation will further discuss the importance of the health issue and ways to treat this problem.

### **Strength: Train to a Healthier You**

**Patrick Gallagher**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

The average 30-something will lose roughly 25% of their muscle strength and tone by the age of 75; by age 85, reaching as high as 50%. Many adults are aware that exercising is a key component in keeping healthy and as they age; aerobic exercise seems to be the predominant choice. However, resistance training has been shown to provide adults with certain benefits that aerobic training cannot. One such benefit includes reducing the onset of osteoporosis, which is the decrease in bone density. According to the Centers for Disease Control and Prevention, only 21% of adults meet the physical activity requirements of performing muscle strengthening activities twice a week, working all major muscle groups. Healthy People 2020 has addressed this problem by setting a standard to increase the proportion of adults who perform muscle-strengthening activities twice or more a week by 10%. As our population, including the baby-boomers, continues to age the incidence of falls, disease, and many other illnesses become more frequent. The poster presentation will discuss how muscle-strengthening activities provide prevention or delay the incidence of osteoporosis and falls in older adults. Further discussion addresses how certain perceived barriers and living in different geographic regions affect the proportion of adults who exercise.

### **The Strength of the Heart**

**Michael Edwards**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

High blood pressure and other cardiac morbidities affect the lives and haunt the future of many African American males, however, proper resistance and aerobic training can be an effective way to decrease this risk. According to the Centers for Disease Control and Prevention, almost 27% of African Americans are hypertensive or pre-hypertensive; this figure is only exacerbated by the country's decreasing physical activity. Adding simple training regiments to regular workout routines, or even to a lack of exercise, African American males were able to decrease risk for multiple heart related ailments and diseases. According to Healthy People 2020, 21% of adults in 2008 performed muscle strengthening exercises for at least two days a week. Are the benefits or result of these workouts exacerbated because of race? While African Americans are the target audience, this poster presentation will also compare their bodily responses to different training regimens to those of white Americans shows ethnicity's affect on exercising results on the heart. Because the risk for hypertension is much higher, paying close attention to blood pressure before and after workouts is especially important in African Americans.

### **A Survey of Stroke Peer Visitor Training Programs**

**Melanie Doroski, Kayla Fielder and Julie Mazur**,

SLP 690: Master's Project

Faculty Mentor: Professor Deborah Insalaco, Speech-Language Pathology

A stroke is a life-threatening incident that can lead to lasting effects on an individual's emotional well-being. With a focus on improving quality of life, peer support and peer mentoring programs have been developed. One such program, The ShareGivers™ Peer Visitor Program, was established by the American Stroke Association (ASA) in 2009. Previous studies have focused on the overall effects of peer support programs; however, research regarding adequacy of training programs for mentors is limited. With our research, we gained insight into perceptions of peer mentors regarding the adequacy of the training they received. In addition, some questions examined the mentors' impressions of their role in the ShareGivers™ program. Participants were contacted by phone to determine if they wished to participate in a telephone interview. The survey consisted of 17 mostly open-ended questions. The number of questions that were asked of each mentor differed based on his or her level of experience as a mentor. Preliminary analysis of results revealed that many participants were pleased with their experience during the modified ShareGivers™ training program.

However, a trend was noted in which participants demonstrated a general dissatisfaction with the amount of time lapsed between the training and visits with peers.

### **Taurine: An Important Nutrient for Brain Neurogenesis**

**David Rasmussen-Spratt**, NFS 330: Integrative and Functional Nutrition

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

Taurine is the second most abundant amino acid in the CNS (Central Nervous System), but it also has a widespread presence and high physiological concentration throughout the body. I conducted an in-depth literature reviews on taurine to explore the pathophysiological effects on a variety of effects throughout the body, especially the brain. Taurine is essential for newborn development. Since newborn mammals have limited ability to synthesize taurine, it is considered a conditionally essential amino acid. The overall taurine levels decreases as the body ages. Lower taurine levels may directly affect the reduced neurogenesis in the brain. Neurogenesis occurs in the dentate gyrus of the hippocampus. A study was conducted on 10-month-old mice, the approximate age when neurogenesis reaches its minimal activity, to determine the effect of taurine injections on hippocampal neurogenesis. The injections showed to increase the proliferation of the radial glia-like stem cells of the hippocampus. Additionally, taurine increased the survival rate of the new neurons. A previous study had shown that the number of active microglia, the immune defense of the central nervous system, is inversely correlated with proliferation of stem cells. The results from the taurine injections showed a decrease in the number of active microglia. Additionally, an in vitro study determined that taurine had a direct effect on the proliferation of stem and progenitor cells. Recently, a study found a receptor on stem cells and immature neurons. It has been proposed that taurine interacts with this receptor to cause proliferation with the stem cells and increase the survival rate of the immature neurons. Since many age-related neurodegenerative disorders and cognitive impairment are due to reduced neurogenesis, taurine may be beneficial in restoring neurogenesis in aging brains.

### **Think Before You Drink: Fetal Alcohol Syndrome**

**Tricia Jimerson**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Fetal Alcohol Syndrome (FAS) is the leading cause of birth defects among children, which are 100% preventable. According to the CDC, 1 in 10 pregnant women reported any alcohol use and 1 in 33 pregnant women reported binge drinking in a 30-day

period. The prevalence of drinking rates among childbearing-aged women has initiated a need to reduce the occurrence of FAS, an objective formed by Healthy People 2020. A decrease in cases of FAS is desired and necessary as HP2020 accounts 3.6 cases per 10,000 live births. Cases of FAS can be attributed to race/ethnicity, socioeconomic status (SES), and access to health care. Native Americans experience a higher incidence of FAS, with some Native American tribes accounting an incidence of 1.5 to 2.5 per 1,000 live births. Women with lower SES tend to have higher rates of alcohol consumption, which can lead to Alcohol Exposed Pregnancy, leading to FAS. Health care access can lead to a lack in prenatal services and intervention surrounding alcohol consumption and pregnancy. Intervention and prevention is crucial in decreasing the occurrence of FAS. This presentation will further discuss the determinants of FAS as it pertains to race/ethnicity, SES, and health care among the Native American population.

### **Tuberculosis: Win the Fight Before it Starts**

**Tenzin Lengzey**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Tuberculosis (TB) is an infectious airborne disease affecting one-third of the world's population and is known as the second deadliest contagious disease killing almost 2 million people each year. Healthy People 2020 reported an average of 20.4 tuberculosis cases per 100,000 people in 2008, in the US, most which occurred among the foreign-born. Multiple studies have shown that among the foreign-born, Indian, Chinese, Filipino, and Vietnamese have the highest rates. Foreign-born women of reproductive age have the highest risk of developing TB, experiencing barriers such as lower socioeconomic status, lack of health care, and fewer educational opportunities as compared to men. Increasing latent tuberculosis infection (LTBI) testing and treatment among the foreign-born population in the US is an approachable method to control TB. Also, expanding immigrant screening of TB not only to legal residents but also those entering on work and student visas can help with control. Addressing this public health issue, Healthy People 2020 aims to reduce the incidence of TB cases among foreign-born by 14.0 cases per 100,000 population. The poster presentation will further discuss the prevention and treatment of tuberculosis among the foreign-born.

### Turn Down the Heat! Black Cohosh for Hot Flash Relief?

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

According to the North American Menopause Society there are approximately 4 million U.S. women entering menopause each year. Menopause is characterized by changes affecting a woman's blood vessels, urinary tract, hair, skin, and emotional health due to decreased estrogen in the body. Some symptoms include hot flashes and night sweats. Preparatory findings show since the 1940's, hormone replacement therapy (HRT) has been the primary treatment for women who experience vasomotor symptoms and are concerned with higher risks for heart disease and osteoporosis. In 2000, however, the Women's Health Initiative study concluded that serious side effects were associated with HRT. These results became a driving force in finding complementary and alternative methods for women to relieve symptoms, protect against heart disease and osteoporosis, and minimize risks of stroke and cancers associated with certain HRTs. Black cohosh, an herb native to North America, has been used for years to treat muscle aches, arthritis, and depression. More recently it has been touted as a safe alternative to HRT for reducing hot flashes. Preliminary research yields conflicting results as to the efficacy and safety of using black cohosh. Large randomized, placebo-controlled studies concluded that there was no significant correlation between the use of black cohosh and the decrease in vasomotor events. Conversely, smaller studies suggest black cohosh can provide relief for many women. By conducting in-depth literature reviews, my research will determine if black cohosh is a reliable therapy for relieving hot flashes and examine any risks that may be involved with its use.

### Unemployment: Across the Autistic Spectrum

**Christian Feickert**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Autism Spectrum Disorder (ASD) refers to a range of neurological disorders characterized by difficulty communicating and interacting socially, as well as restricted and/or repetitive behavior, varying in severity. In 2015, research found that 58% of 20-somethings with ASD were employed. According to Healthy People 2020, 29.7% of people with disabilities were employed in 2009. ASD sufferers are less likely to be employed as compared to their peers with other disabilities. Due to the fact that symptoms are inherently opposite from traits considered employable by contemporary standards, ASD can have a damaging impact on employment opportunities. This impingement is attributed to cognitive differences between ASD groups and the remainder of

the population, however, the relationship of some ASD-related factors to employment appears to be cyclical. Feelings of social isolation can result in feeling inadequate or being less equipped to enter the workforce, which can validate perceptions of isolation. The solution to poor employment rates of people on the autistic spectrum could be to address the employment problem indirectly by addressing ASD side effects. This poster will touch on ASD symptoms and side effects that indirectly contribute to low employment rates among individuals on the autistic spectrum.

### Use it or Lose it

**Mark Boswell**, HEW 411: Critical Issues in Health and Wellness  
Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Sarcopenia is the loss of muscle mass associated with aging. Healthy People 2020 states that about 22% of adults are performing muscle strengthening activities at least two days a week; the goal is to increase the amount by 10%. Around the age of 30 our body's hormonal levels begin to deplete, which causes a loss in muscle mass each year after. Research has found that resistance training and adequate protein intake can help maintain and improve muscle mass. Sarcopenia can also be the underlying cause for some chronic conditions and in return, presents a higher demand for health care. Approximately ten years ago it was estimated that sarcopenia was responsible for more than \$18.5 billion in health care costs. The loss of strength and mobility can make daily life activities more difficult. Independence is affected, which requires assistance to complete simple tasks normally taken for granted. Not only does it make daily living more difficult, it also increases chances for physical disability and falls that can be fatal. This presentation will further discuss the importance of resistance training and proper nutrition to maintain muscle mass in middle aged adults.

### Vitamin B12 and Folic Acid on Brain Function and Cognitive Activity

**Kara DiTucci** and **Alicia Pawlowski**, NFS 330: Integrative and Functional Nutrition  
Faculty Mentor: Professor Suk Oh, Health, Nutrition, and Dietetics

Vitamin B12 and folic acid play many important roles in the human body. The benefits include brain development and cognitive function at different stages of life. Throughout our research, we've looked into the prevention and preservation of cognitive function and brain development through vitamin B12 and folic acid supplementation. Both vitamin B12 and folic acid have a vital role in DNA synthesis, as well as building and maintaining a healthy central nervous system. Research has shown that a deficiency of vitamin B12 can be associated with memory loss, a lack in concentration, shrinkage of brain mass and dementia. Deficiencies of folic acid during the pre-

conception and gestation period will have negative consequences on the developing fetus, and neural tube defects in newborns. Folic acid deficiency can also lead to depression in adults. Folic acid and vitamin B12 are essential for the prevention of megaloblastic and/or pernicious anemia and heart diseases by reducing homocysteine toxicity and/or hypo-methylation. We noted that limited research has been conducted on the cause and effect on the relationship between low vitamin B12 and folic acid and cognitive problems, and further research is warranted.

### **Who's the Boss Around Here Anyway? The Microbiome Beyond Intestinal Health**

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

The bacteria which reside in the human digestive system, collectively referred to as the gut microbiota or microbiome, have an interactive relationship with their human host. While some bacteria are pathogenic and cause illness in humans, the majority of our gut bacteria are symbiotic, providing us with nutrients and other benefits in return for a place to live – our intestines. Recent studies have shown that these bacteria can influence our immune system, in some cases enhancing it and in others diminishing it, and that in return our immune system can exert control over the number and variety of bacterial species living inside our bodies. The methods used by the bacteria to trigger immune responses are varied, and research is ongoing to identify these processes. The control of bacteria by our intestinal epithelial cells is also the subject of current inquiry. The purpose of my study is to gather prevailing research and present an up-to-date picture of our understanding of the human-microbiota relationship with regard to host immune function and bacterial control.

### **Yoga: A Threefold Practice Cultivating the Mind, Body, and Spirit**

**Danielle Bruch**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor David Derner, Fine Arts and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

How does yoga improve one's health in a holistic way? Yoga is a threefold practice; when one practices yoga, one is improving the mind, the body, and the spirit. Connection of these three aspects is fundamental in the Eight Limbs of Yoga, which are Yama (universal morality), Niyama (personal observances), Asanas (body postures), Pranayama (breathing exercises, and control of prana), Pratyahara (control of the senses), Dharana (concentration and cultivating inner perceptual awareness), Dhyana (Devotion, meditation on the Divine), and Samadhi (union with the Divine). These guidelines promote universal ethics, personal reflection, body postures, control of breath,

control of the senses, perceptual awareness, meditation, and union with the Divine. The physical aspects of yoga include the asanas, or body postures, improve flexibility, strength, and balance; they're also a tool to calm the mind and explore the inner essence of one's being (intent, concentration, emotion). Pranayama, or control of breath, is another physical aspect that improves respiratory health. Meditation releases the flow and inner strength of one's mind, which in turn grounds spirituality in the physical body. I practice acrobatic yoga, which is a synthesis of yoga, acrobatics, and Thai massage. I started my yoga journey almost three years ago. Practicing yoga (not only acrobatic yoga, but vinyasa flow and bikram yoga) has changed my life in the best way; through acro yoga, I have gained muscle mass, flexibility, mental clarity, inner peace, and found balance in many aspects of my life.

### **You're in the Clear with a Clean Grill**

**Nicholas Jones**, HEW 411: Critical Issues in Health and Wellness

Faculty Mentor: Professor Barbara Olivieri, Health, Nutrition, and Dietetics

Dental hygiene is one of the first self-care methods children are taught. What starts as a chore done upon waking and again before bed, can have a much more profound impact as an individual ages, especially if the task becomes more of an afterthought. Without proper home hygiene and dental visits periodontal disease can occur. According to Healthy People 2020, 12.8% of adults aged 45 to 74 had moderate or severe periodontitis in 2001-2004. This disease is becoming increasingly prevalent in Buffalo, especially in communities that struggle to stay above the 30% poverty level. In New York State, 52% of adults in the lowest-income households had a dental visit during the past year as compared to 77% in the highest-income households. This correlation can suggest that lower income equals less dental visits. As the population ages, the prevalence of periodontal disease grows, leading to many other potential health complications. Education and programs that target those in their mid-twenties can assist with decreasing the number of individuals having to be treated for gum disease later in their lives. The poster presentation will discuss the prevention, causes, and treatment of gum disease, as well as provide recommendations and guidance for great oral health.

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## *Humanities*

### **American Idol the New Rendition: Why Do Americans Idolize Celebrities?**

**Kerianne Atkinson**, COM 450: Communication and Society  
Faculty Mentor: Professor Ron Smith, Communication

We live in a world where influence is abundant everywhere. Influence comes from the media we engage in, the people we enter personally communicate with, and most of all, the celebrities and society that we do not personally know impact our lives. In my paper, I want to focus my research primarily on the basis of why we idolize celebrities we do not enter personally know, and how they impact our behavior and communication in society. Why is it that people take music artist song lyrics literally and do something irrational? Why do people bring in a picture of a celebrity to their hairstylist for their next haircut? Is it because they like the haircut, or is it because they generally want to resemble their idol? I would also focus my research with how celebrity influence through social media affects human behavior and communication. When researching for my paper, I will gather data of celebrity influence that is chronologically after 2000. I feel that social media has the most millennial appeal. I will utilize certain communication theories that I find relevant to my topic as well. My paper is expected to give thorough research behind why humans are made to be impressionable by celebrities and how it impacts humans in society.

### **An Analysis of Bias in the News Media**

**Diego Felix**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

The purpose of this study is to examine how news media applies the four information biases, personalization, dramatization, fragmentation, and authority-disorder bias, by looking at news on the Charleston church shooting that occurred on June 17<sup>th</sup>, 2015. It is important that a popular news event is chosen for this study because the event can be told in several angles that can shift the readers' viewpoints in various ways. The goal of this study is to measure the consistency and awareness of the biases by using two research methods, content analysis and in-depth interview. For the content analysis portion, 100 different articles from news organizations that covered this event will be examined and the four biases will be quantitatively tallied. Interviewees will then disclose their experiences on the sources they initially obtained information from for this event, and how they recall that source portraying the shooting and how it affected their opinions on the event.

### **Black or White: How Black Twitter Promotes Afrocentricity in 140 Characters or Less**

**Tiffany Gaines**, Journalism

Faculty Mentors: Professor Annemarie Franczyk, Communication, Dr. Sandra Washington-Copeland, Director, McNair Scholars Program and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

With over 25% of Blacks online actively using Twitter, the term "Black Twitter" has been created to identify this large online community of descendants of the African diaspora. Black Twitter has become a forum in which members can discuss and bring awareness to topics of race in America that may not be getting significant mainstream media coverage. This study will involve the analysis of Twitter archives in order to examine commentary by Black Twitter participants about their feelings, experiences and frustrations with being Black in America, and observe Black Twitter's response to these issues, compared to the response of the overall Twitter community. Another goal of this study is to understand how the use of Black Twitter by Blacks may be diluted when used by members outside of the Black Twitter community. Because Black Twitter is a community within a larger online universe, the intention of the group to bring awareness to social and cultural issues within the Black community may not always be understood by those who are not direct participants in the group. As a result, this study aims to find out whether the Afrocentric ideas of community and emphasis on social issues of the Black community are being correctly translated to the larger mainstream population.

### **Brave New World or Old Oligarchy: An Argument for Globalization Rehumanized**

**Elan Lafontaine**, PHI 314: Contemporary Ethics

Faculty Mentor: Professor John Draeger, Philosophy

In a new capitalist world order increasingly defined less by traditional geopolitics of "nation-states", and more by the shifting profits of elite, privately held, transnational corporations (Unilever, GE, Monsanto) old walls to a true international economy have all but vanished. The so-called phenomenon of "globalization" has been variously interpreted as good or very bad: its "neo-liberal" advocates (the IMF, WTO, and World Bank) argue that globalization has only meant more jobs, faster growth, further intercultural exchange, increased competition, and, eventually, real global democracy. Unbelievers, citing numerous examples of human rights abuses and environmental contaminations perpetrated in the spirit of "free trade" by corporations, argue "globalization" is merely fancy powerspeak for yet another scheme by which the rich get richer and the poor get poorer. I argue against the neo-liberal iteration of globalization by elaborating a non-consequentialist, non-relativistically defined concept of morality, bearing upon the

positions of Kant, Nagel, Herman, and others. Dignity's value transcends identity, and if all acted as though equally non-negotiable protections were owed to everyone, irrespective of time, nation, costs and benefits, ideology, we might celebrate the kind of "globalization" which would not so easily exchange the integrity of people for profits, the integrity of the land and the water for bigger bottom lines, the needs of the very many for the vanities of a very few.

## **Bringing Jane Austen into the YouTube Age**

**Catherine Morse**, English

Faculty Mentor: Professor Aimee Levesque, English

I researched web adaptations of Jane Austen's novels, *Pride and Prejudice*, and *Emma*. The web adaptations are *The Lizzie Bennet Diaries*, an adaptation of *Pride and Prejudice*, and *Emma Approved*, an adaptation of *Emma*, both created and produced by a company called Pemberley Digital. There are professors who have decided to use these web videos as teaching resources for literature classes, which raises the argument that the videos must be of literary value if they are being used in a classroom. My goal was to prove that these webseries are of literary value and can be used as a secondary resource when attempting to understand Austen's dense, nineteenth century prose. I read both novels, and watched the webseries in their entirety side by side, to compare the novels to the webseries. What I found as I was documenting my research was that, while the webseries were entertaining and had value as their own stand-alone works, as adaptations, they had no value as resources for literature or education. There were many reasons for this, which include major changes in characters, events and some themes. My research shows in-depth analysis of differences between the novels and the webseries, and explains why these differences cause *The Lizzie Bennet Diaries* and *Emma Approved* to have no educational value. My research also shows that, though they have no educational and literary value as adaptations, they can still be a resource for young readers when attempting to gain relatable context while struggling to relate to the lives of nineteenth century women.

## **Can Friendship and Family Relations Grow in Epicurus' Garden?**

**Justin Tasker**, PHI 401: Problems in Philosophy Seminar

Faculty Mentor: Professor Kimberly Blessing, Philosophy

Epicurus, the founder of Epicureanism, was born on the island Samos in 341 BC. The Garden of Epicurus was a garden near the city of Athens that was owned and used by Epicurus and his followers. It became a symbol of Epicurean philosophy. The popular yet misguided conception of Epicureanism is that we should "eat, drink, and be merry." In fact Epicurus was a

moderate hedonist who advocated a life of simple pleasures, which amounted to avoiding pain and anxiety. A very important ingredient for happiness was friendship. I will examine Epicurus' teachings on friendship. Some scholars have argued that when Epicurus discusses friendship he abandons his egoistic hedonism and advocates altruism toward friends. On the other hand, scholars have argued that Epicurus sees friendship as valuable because it is one of the greatest means of attaining pleasure; in other words, friendship is not intrinsically but instrumentally valuable. I shall argue that the Epicurean notion of friendship does indeed see friends as instruments for pleasure. Epicurus encourages us to seek friendship in order to secure our own well-being. This leaves him vulnerable to the objection that Epicurean friendship does not allow for deep emotional connections, which are necessary to maintain intimate relationships with others, including family. Yet these are the very relationships that are necessary for happiness or for living a good life. Thus it seems as if there is something that is importantly missing from *The Garden of Epicurus*.

## **A Child's Right to Die**

**Jessica Simpson**, PHI 314: Contemporary Ethics

Faculty Mentor: Professor John Draeger, Philosophy

This poster explores whether people should be allowed to end their lives when they believe that their present existence is so painful that they would be better off dead. In "The right to life," H. J. McCloskey defines a right as an entitlement to do, have, and enjoy. Rights allow individuals to make meaningful choices. In the case of older individuals, it seems plausible to suppose that people have a right to choose when to end their lives, especially in cases of painful terminal illness. It is less clear, however, that thirteen year old children should be allowed to make a similar choice. In "Children's rights: a test-case for theories of right," Neil Maccormick argues every child at birth has a right to be nurtured, cared for, and, if possible, loved until such time one is capable of caring for oneself. Caregivers have a responsibility to nurture children, especially those who are terminally ill. However, Maccormick's view raises the possibility that children might have a right to decide when their lives are too painful and no longer worth living.

## **Conversations on Nonviolence: Nepal, Jordan, Chile and Here at Home**

**Eric Gersbacher**, Individualized Studies

Faculty Mentors: Professor Roswell Park, Director, Academic Support Programs and Maria Jose Bermeo, Ph.D. candidate, Columbia University

Conversations on Nonviolence took place during a comparative study of Human Rights while abroad in Nepal, Jordan, and Chile. Various actors including educators, local

grassroots' activists, transnational solidarity activists, the everyday individual, large non-profit organizations, and spiritual leaders, each have taken nonviolence into deep consideration. Nonviolence is as broad and vague as it is focused on revolutionary measures of transforming power structures. Dr. King's three evils were militarism, consumerism, and racism; each of which are alive today, both at home and abroad. Gandhi's philosophy of satyagraha transformed nonviolent actors into persons of conviction who cling to truth. Across the world, nonviolent philosophies, methodologies, and lifestyles encompass a wide range of peoples and tactics. We will discuss some important players within the nonviolent movement of Nepal, Jordan, Jordan's neighbors, Chile, and the U.S.

### **Does Physical Fitness Content in Social Media Inspire Lifestyle Change?**

**Ryan Richey**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

The question that my research project is investigating is: Does social media have an effect on physical fitness lifestyles? I will study how social media contributes to people's physical fitness mentalities and lifestyles. There is not a lot of research in this particular area of study, but from personal experience, people tend to let social media influence how they perceive physical fitness. This in-turn makes some individuals want to be involved in physical fitness and makes some individuals want no part in it. I will use a survey and a focus group to collect data on this topic because it is better understood through social interaction and personal evaluations. My hypothesis is that individuals, who view positive physical fitness related content (workouts, progression pictures, healthy eating, etc.) on social media, are more likely to have an increase in the desire to live a healthy, physically fit, lifestyle. I will be researching and conducting studies to prove whether or not social media has an effect on people's physical fitness lifestyles by evaluating the social capital, age, social media usage and physical fitness involvement of individuals. I would like to examine what role social media plays in the fitness industry.

### **Domestic Protection: The De-Animalizing Truth**

**Tyler Midgley**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

Why is it that we find killing cow, pigs, turkeys, and other animals permissible, and animals like dogs, cats, horses, and other domestic animals a taboo? Julia Annas argues that social conventions can distort moral intuitions. We have become accustomed to killing certain animals, and, seemingly, don't mind the slaughter because it provides food. When a dog, cat, horse, or any domesticated animal is harmed, we tend to apply

that it is unethical. Annas maintains that we must be virtuous, which requires us to value one another and respect each other on a mutual level, regardless of conventional pressures. We should care about this problem because, as Thomas Nagel argues, everything has an equal right to live out their lives. Nagel requires that we decide what is moral—independent of an agreed upon opinion—because sometimes the agreed upon opinion isn't actually morally sound. Nagel helps us distinguish how our social conventions promote the right to life of domesticated animals, while demoting the others. This presentation sorts through these views as is applied to the case of the domestication of animals.

### **Drug Trafficking for a Better Tomorrow**

**Anthony Maldonado**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

This project explores whether it is permissible to traffic drugs to support the welfare of one's family. What is an individual to do under conditions of extreme poverty? I argue that the goal of supporting one's family outweighs protecting a nation where the drug trade will continue regardless. Simon Keller offers both a restricted and unrestricted view of moral decision-making. The restricted view does not allow individuals to make choices that violate moral principles, while the unrestricted view allows individuals to make choices on the basis of what promotes their greater good. Following Keller's view, I argue that drug trafficking can lead to a better tomorrow, at least for those in extreme poverty.

### **The Ethics of Preservation: Buffalo Since the 1901 Pan-American Exposition**

**Michael Cirrincione**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

In 1901, the first Alternating Current generation plant goes into operation at Niagara Falls. Buffalo was primed to be at the center of it all. The Pan-American exposition that year was a turning point for communication between all groups of people worldwide. Despite it and so many other events like its impact on history, very few remnants of World's Fairs from 1850 even to the current day are still intact. Today, we are left with structures such as the Buffalo Museum of History and Hoyt Lake. In the heyday, there were dozens more buildings and legendary pieces of landscaping. From the perspective of rights, we might clear these great space for future entrepreneurial land use. From the perspective of consequences, we have lost major components of the human experience. This poster explores the value of new economic opportunities when weighed against historical preservation.

## **Expression and Perception**

**Francesca Austin**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Gregg Biglieri, English and Professor  
Andrea Guiati, Director, Muriel A. Howard Honors Program

My research will provide an answer to the inquiry of why self-expression, unique perception, and artistic creation is significant in understanding ourselves and the world. I plan on using my own writing and the writing of recognized authors to examine why one's thoughts, emotions, and sensitivities are important to recognize, acknowledge, and explore further. I have documented my own moments of self-discovery and realization in the form of poetry and prose. By expanding the concept of merely experiencing these epiphanies or new thoughts, I solidified them and made them part of myself. Other credible writers have found a value in doing this, and to explore this value I will look at specific pieces of writing. William Wordsworth was the first poet laureate to write about the importance of one's mind in his epic poem *The Prelude*. This monumental piece of writing demands that we recognize reality is subjective due to our unique perceptions, and that each person experiences and interprets naturally and individually. "The American Scholar" and "Nature," works by Ralph Waldo Emerson, reinforce this idea as well by envisioning ways in which to find truth and understanding within the world, humanity, and oneself. With these works he explores his sense that one must transform personal experiences into something creative, and that it is necessary to create one's own experiences by actually writing.

## **Gender Inequality in Sports Journalism: This is Not a Game**

**Madison Marquardt**, COM 450: Communication and Society  
Faculty Mentors: Professor Ron Smith, Communication and  
Professor John Karlis, Communication

Since the conception of ESPN, the Entertainment and Sports Programming Network in 1979, women have made enormous strides within the field of sports journalism. From just a handful of female reporters to several dozen, the industry has seen an influx of females working in print, radio and television. While improvements have been made and there are more opportunities than ever for women in sports journalism, there are still many problems within the field. Very few women act as analysts or commentators, and even fewer contribute as play-by-play announcers. This paper will seek to prove that the lack of female analysts and play-by-play announcers is a result of several communications theories, including muted group theory, expectation violation theory and semiotics. I will attempt to prove that the demographic that networks like ESPN are trying to reach are accepting of female journalists so long as they are "seen and not heard." To collect data I will create editorial pieces of various mediums. I will study is a feminine byline or female analyst changes a viewer's reaction to the editorial. I predict that males

will be less accepting of the editorial presented by a "female," and that the level of acceptance will decrease in correspondence to the age of the subject. The findings will be presented in oral format.

## **Hey Teachers, We Want Our Education Back**

**Taylor Morse**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

Go to college they said, get an education and "find yourself" along the way. I looked forward to this, as many high school students do, until I sat in those seats myself and realized what was actually in store. Recent utilitarian aspirations have shifted universities original aims. Students are now gaining a dull job skillset, and the loss of autonomy. Critical thinking skills have been replaced by narrowly defined degrees; respecting students' rights has gone out the window. Since when has finding truth become overridden by economic value? Higher education of the latter form is deeply concerning; it's taking away students' abilities to develop intellectually, individually, and reflectively, a right all students should have. If consumer driven priorities aren't brought to a halt, society is at risk of collectivism. We should be forming new intellectual perspectives on the world, advancing our metacognition, and discovering independence. Learning that's reduced to letter grades, to produce a simple skill set, and market ourselves for "the real world", seems weak in comparison. College education was once much more than that, hence change needs to be made if we want our ideas, visions, and minds back.

## **How Does Location Affect Our Access to News Media?**

**Whitney Woodburn**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

My research examines how location and accessibility impact the types of channels that college students in an urban setting use to consume news. Lance Bennett, author of *News: The Politics of Illusion*, states that news attention is declining among younger generations. In addition to conducting literature review, fifty resident students and fifty commuter students will be surveyed in order to decipher where they get their news from, and the type of news that they consume. My hypothesis is that young adults who have greater access to news will be more attentive to news. By investigating this phenomenon, I hope to understand why college students consume news in the manner that they do, and how much of this is affected by where they live and the resources available to them. I hope that this study will identify other factors that can impact news attention, instead of simply attributing young adults' inattentiveness to news to a lack of interest.

### **I Am Not a Role Model**

**Brennan Carey**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

I am looking at the role professional athletes play as role models, and whether or not they should even be viewed as role models. Despite what some people may feel or believe, given the amount of money that athletes make, and their relevance to pop culture and entertainment, they are viewed as much a role model as a celebrity would be, and maybe even more so. I hope to dissect all that goes into being a role model, and research how an athlete acts on the field, and off, and what goes into the way we judge their actions. I want to look at the way race affects this, what differences there are between each sport compared to other sports, an athlete's cultural background, and many other factors. I will use survey to gather people's opinions on different athletes, for example Peyton Manning and Cam Newton, as they are relevant currently, and do relevant literature review on the topic.

### **If Not Here, Then Where?**

**Wanda Wilson**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

What are we to make of those who say that breastfeeding in public is not the sort of thing that should be done around here? Some say 'I do not want to see it at my dinner table' or 'not in front of strangers.' However, Nicholas Southwood argues that we should not confuse conventional norms with moral judgments. Social practices may explain why many people are uncomfortable about infants nursing in public, but discomfort should not undermine the rights of mothers and infants. Thomas Nagel, for example, argues that moral boundaries play a major role in determining or perhaps shaping our individual rights through public domains and private domains. The public domain gives way for political and economic relations while private domain supports personal rights in public places. There is a misconception in the social norms of public nursing. The grounds view would argue the nature of moral judgments verses conventional normative judgments in the sense that breast feeding is not only essential but also a social practice of free will. On one hand many individuals are completely against public nursing while one the other hand others are not.

### **The Impact of Message Framing on Nonprofit Organizations**

**Megan Fagyas**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

The purpose of this study is to find out which message frames inspire altruistic behaviors among individuals, specifically regarding nonprofit organizations. Donations and volunteers are essential to nonprofit organizations in order for the organization to continue its mission of working for the benefit of the public

without a profit motive. Negative message frames focus on the negative consequences of not donating time and money and positive message frames focus on the positive consequences of donating time and money to the organization. In order to test this question, I will be conducting surveys and in-depth interviews to collect data. The two independent variables I will be using are positive and negative message frames. The two dependent variables I will be using to measure altruistic behaviors are the desire to donate money and the desire to donate time. There has been previous research about framing in fundraising. I intend to find out that negative message frames are more effective when motivating someone to take action and become more philanthropic by donating their time and/or money.

### **Life Begets Life: The Moral and Ethical Dilemma of Stem Cell Research**

**Tiffini Rogers**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

There is a widely accepted misconception that stem cell research, more particularly embryonic stem cell research, is synonymous to the harvesting of aborted embryos and fetuses. This stigma has prevented the growth of this field of research that could potentially cure a wide array of ailments. There are several questions that must be contemplated in order to resolve this dilemma. The questions I will focus on are: For what reasons has the unethical nature of stem cell research been deemed as such? What rights should embryos be afforded? Is the potential for success in stem cell research enough to allow the study to go on or do the ethical and moral problems outweigh it? Along with consideration of the works by Nicholas Southwood, C.A.J Coady and Onora O'Neill, this project hopes to determine whether or not stem cell research should be a permissible medical practice by exploring the rights involved as well as the consequences of the continued foray down this scientific path.

### **Lowering the Legal Drinking Age From 21 to 18**

**Thomas Comfort**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

This poster considers whether the legal drinking age in the U.S. should be lowered from twenty-one to eighteen years of age. It explores the conflict between individual liberty and public safety. Thomas Nagel, for example, argues for the right of individual expression even when the exercise of that right leads to harmful consequences. At eighteen, young adults are given a number of such rights, such as the right to vote, right to join the military, and the right to use tobacco. In 1984, concerns about an increase of motor vehicle fatalities led to the drinking age being raised from eighteen to twenty-one. While concerns about public safety are understandable, I argue that rights of eighteen year olds to

purchase and consume alcohol outweigh risks to the collective good.

## **Modern Theory for a Modern Age: A Contemporary Approach to Navigating Social Media Storms**

**Alexandra Asenjo**, English

Faculty Mentor: Professor Barish Ali, English

Social networking sites like Facebook and Twitter not only allow people from all over the world to connect, they are also responsible for creating social media storms that draw considerable attention to breaking news, which in turn spur controversial debates and incite various social movements. The language used in these social media storms is precisely what I set out to investigate as I noticed how people engaged with one another in a very distinctive manner. By focusing on one particular movement known as #Gamergate and using several concepts from the French philosopher and literary critic, Michel Foucault, my research investigates how language functions in an online social media storm. By conducting critical discourse analysis of #Gamergate-related texts on Twitter and other networking sites and implementing concepts by Foucault, my project gains insight into how language is used throughout social media storms. This project identifies three key factors that influence language in specific regard to these storms. I then applied Foucault's theories on authorship and power within the fabric of the language in order to better understand these key factors. Doing so allowed me to demonstrate the importance of utilizing contemporary theory in navigating the effects of language in social media storms in both gaming culture and modern society.

## **The Moral Relevance of Nonhuman Animals**

**Max Jaworski**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Jason Grinnell, Philosophy and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Throughout the history of Western philosophy, various answers have been offered to the fundamental normative question, "How should one behave?" While some have claimed that we ought to abide by some particular set of duties and rights, others have stated that moral actions are those that promote the greatest net happiness. In recent years, philosophers offering such disparate answers to this query have grappled with the further question of who exactly deserves our ethical consideration, and if the boundary for ethical inclusion might extend beyond our own species. If we are to prefer a duty-based deontological ethical theory, do nonhuman animals have rights, and do we have obligations toward them? Alternatively, if we choose to take the consequentialist perspective, should we concern ourselves

with the effects our actions have on nonhumans? Several works that address such questions will be surveyed and an attempt will be made to assess animal agricultural and research practices through the ethical lenses their authors offer. From this, it will be shown that a trichotomy of animal rightism, animal welfarism, and animal traditionalism predominates contemporary efforts to evaluate our conduct toward nonhuman animals and that each of these three distinct ideologies suggests a unique path forward in the realms of factory farming and animal experimentation.

## **Parenting: Right or Privilege?**

**E. Elise Cloutier**, PHI 314: Contemporary Ethics

Faculty Mentors: Professor John Draeger, Philosophy and Professor Jason Grinnell, Philosophy

Many people choose to become parents without giving realistic forethought to what the quality of life for the child will be and whether they are responsible enough to raise a productive member of society. In my view, the principal goal of parenting is to raise humans who will feel that their lives have purpose and who will make positive contributions to their respective societies. I argue that biological parents have a moral responsibility to oversee and nurture positive human growth. It is for this reason that I argue parenting should be regarded as a privilege and not a right. Hugh LaFollette contends that parents should be licensed prior to the conception of a child. His account provides one theoretical solution to the problem of unlimited procreation and provides a mechanism for holding individuals accountable for their procreative behavior. Although reproduction is a natural human capability, my presentation will explore the often deleterious consequences of unrestricted human procreation to illustrate why a capability should not be equivocated as a right. I will take into consideration several objections to my stance, and then display how these objections fail to solve the existing problems associated with unrestricted procreation.

## **A Parent's Choice, a Child's Choice: Which Holds the Danger?**

**Kalie Taylor Acosta**, PHI 314: Contemporary Ethics

Faculty Mentor: Professor John Draeger, Philosophy

A competent society knows that letting a child make every decision in life is a very dangerous path. A child can be impulsive and may make choices like having ice cream for dinner every night or refusing to get an education. These choices could be harmful. However, the role of a child's voice in the decision making of its own life is drastically undermined in the field of medicine. Child autonomy is vastly overlooked in a medical decision making process which is far different than choices such as ones previously stated because it could mean life and death. Until the age of 18 a child's medical life is completely dictated by the thoughts of their parents. The case of a child who is 15, has treatable cancer, and needs medical attention that conflicts with

the parent's religious views poses the question, Should a parent be able to make a medical decision that could cause deadly harm to a child, if the child disagrees? After considering Herman's account of autonomy and Nagel's account of rights, I argue that children should be consulted when it comes to the value of their own lives.

### **The Power of Full Presence in Rwanda**

**Lilly Inglut**, THA 470: Ensemble Theater

Faculty Mentor: Professor Drew Kahn, Theater

What does it mean to be present? Many people living today, specifically in America, struggle with being mindfully present. Whether we realize it or want to admit to it, we'd rather not be fully in the moment. Many of us spend most of our time distracting ourselves; either regretting the past or worrying about the future. This is an issue because during those moments that we choose to be out of touch, we miss the wonders of life that are passing us by. After traveling to Rwanda in the 2016 J-Term, my life has changed and I have learned what it means to be fully present and alive. Myself, along with the SUNY Buffalo State village of delegates that traveled to Rwanda this past J-Term were able to document these meaningful moments. I will share a 12 minute presentation made with Prezi that shows how being present in Rwanda affected my life. I will share background information on the 1994 Rwandan genocide, explain what it means to be present, and share personal and meaningful experiences from the Rwanda 2016 trip. This entails explaining and showcasing a few of the various activities we took part in while in Rwanda such as visiting perpetrators of the genocide, and the full-day game drive we went on in Akagera National Park in Rwanda.

### **The Pros and Cons of Social Media**

**Nicholas Maxwell**, COM 450: Communication and Society

Faculty Mentor: Professor Ann Liao, Communication

This study is to examine the psychological and sociological cons of social media. I base my research using constructs such as alienation and social withdrawal. I will conduct a survey on the type of things people look at on social media. I will also be asking questions about the frequency that people use social media, and what specific social media apps they use (since new ones are created every day). I will take these results to test of my hypothesis that social media does more harm than good to the public.

### **Religious Inclusivity and the Ordination of Gay Clergy**

**Nathaniel Casey**, PHI 314: Contemporary Ethics

Faculty Mentor: Professor John Draeger, Philosophy

It is in the light of the landmark case *Obergefell v. Hodges* that mainstream Protestant churches are grappling with whether they should accept members of the LGBT community into their congregations. Historically, protestant communities have not

included LGBT individuals, but religious discourse has started to evolve. This presentation will focus on the ordination of gay clergy. It seeks to balance the rights of religious communities against the rights of LGBT individuals. Should churches be more inclusive? Should the governing body of a particular denomination or the federal government be the final authority in deciding the issue? I argue that respecting the rights of LGBT individuals demands that churches should be more inclusive.

### **Saint Augustine on Happiness**

**Jessica Simpson**, PHI 401: Problems in Philosophy Seminar

Faculty Mentor: Professor Kimberly Blessing, Philosophy

Saint Augustine (354-430 AD), also called St. Augustine of Hippo, was a rhetorician, Christian Neoplatonist, North African Bishop, and Doctor of the Roman Catholic Church. He is one of the main figures responsible for merging the Greek philosophical tradition and the Judeo-Christian religious and scriptural traditions. Augustine is also one of the towering figures of medieval philosophy who influenced thinkers into the modern era, such as Rene Descartes. I am interested in Augustine's views on the nature of happiness. Augustine views happiness as an end that all humans desire. He argued that it can be acquired through knowing and loving God. I will focus attention on two key works. First, "The Happy Life" is a dialogue between St. Augustine and his family and friends that was written shortly after his conversion to Christianity in 386 AD. Second is his "Confessions" (started around 397). This masterpiece is the first Western autobiography in which Augustine addresses his spiritual path to happiness, expressing how much he regrets having led a sinful and immoral life, as well as his regrets for following the Manichaeian religion and believing in astrology. We have much to learn from Augustine about happiness or the good life.

### **A Selective Society: People Choosing Their Content**

**Louis Oswald**, COM 450: Communication and Society

Faculty Mentors: Professor Jack Karlis, Communication and Professor Ron Smith, Communication

In recent years, modern society has become accustomed to an ever-changing lifestyle of technology and wider public opinion than ever before. Compared to how different things were even ten years ago, the way people live now is its own world. Due to this change, people have become more selective of their wants and needs, and have been very vocal about exactly what it is that they desire. Within the past few months, people have expressed the desire to be more selective with their cable/satellite providers, as they claim to not watch all the channels that they are paying for, believing most of their bill to be a waste of money. Similar to this phenomenon is the issue of people downloading music illegally and even the way music is actually purchased. For more than a decade, music sales have been declining due to the advent

of certain Internet sites and even more have the sales of physical music (CD's and Vinyl) become more of a novelty than anything. With all of this information, I am proposing a research topic concerning why these phenomenons have begun to occur and why they have continued to occur more frequently. Relating to this study itself is the communication theory of the elaboration likelihood model, due to its similarities with the topic itself. Within this research, I will be presenting a history of music and media providers, the details of the issue itself, my findings as to why this could be occurring, and the possible solutions to resolve this issue.

### **Sexual Perversions: What's Your Fetish?**

**Jacky Wang**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

What is sexual perversion? While we often turn to conventional norms or common sentiment to answer this question, the best means of determining if something is a sexual perversion is by use of Thomas Nagel's Reflexive Mutual Recognition. According to his view, an act of sex does not count as perversion if it is reciprocal and mutually arousing. Some acts are obviously perversions. Toys, children, and animals have no means of reciprocating. Other cases are less clear (S&M, foot fetish, orgies). This presentation uses Nagel's reciprocity test to categorize various sex acts that are controversial, but might not actually be perverted. It also underscores the importance of reciprocity in relationships.

### **Should Recreational Drugs be Legalized?**

**Ryan Donnelly**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

There is a tension between individual rights and government responsibility. People can be harmed by drugs and government has a responsibility to protect people from harm, but people also have the right to make bad decisions. This research will not construct an empirical argument against the "War on Drugs", but rather a philosophical one that claims we should respect people enough to make their own decisions, even if we do not agree with them. There would still be consequences for inappropriate use and abuse of these substances, or for obstructing other people's rights because of their use, such as public drunkenness or driving while impaired, but to imprison someone for consuming or possessing a mind altering substance is a direct violation of our personal autonomy. Through the works of Sarah Buss and Thomas Nagel, I argue that sometimes having individual rights means having the right to make what some might consider to be bad personal decisions, such as the choice to use recreational drugs.

### **Solving the Problem: Public Safety Versus Education**

**Nastacia Brown**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

Our governments spends around a billion dollars a year on our correctional system, while far less money is being allocated to improve our educational system. This poster explores two important social policy priorities, namely education and public safety. It offers a cost-benefit-analysis of our government's choice to prioritize prisons over schools. Arguably, our educational systems is failing our youth. Funding is decreasing, while the dropout rate is rising (Johanna Wald and Daniel Losen, 2003). Academic failure is often associated with youth delinquency and neighborhood violence (Christle, Jolivette, Nelson, 2005). Supporting education programs. If improvements to education programs could reduce the public safety problem, then prioritizing schools over prisons would be in society's long-term best interests.

### **Technologies Used by Communication Professionals: A Uses and Gratifications Approach**

**Zack Reese**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

In this study, technologies used by different communication practitioners will be explored within the framework of uses and gratifications. In other words, I intend to examine the different ways that journalists, public relations professionals, and media production professionals use technology. I will conduct online surveys as well as surveys among the staff of Buffalo State's Communication Department. Understanding what technologies each profession uses is important moving forward in the age of technology as I join the working world. This paper will also include results from interviews with professionals from various fields in communication. This study will try to answer the questions of what technologies each discipline uses primarily and which they don't use and why.

### **To E or Not to E: Writers in an Electronic Age**

**Jude Lester**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Aimee Levesque, English and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Digital media has created many new channels that authors can use to distribute their work. My 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 effort. It is this process of sales that has created publicity for authors and has led to monetary returns of books that they have published, without the need to rely on a large publishing company. I will discuss the research that I have conducted based on various written sources and these resources' ideas regarding digital media. In addition, the advent of self-publishing and digital media has resulted in a paradigm shift of how the modern writer views himself and the process of writing. 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. Digital media has transformed writers from individuals, working in isolation, for perhaps years, in hopes of creating something worthy of being published, to creative producers who can get their work out to the public, quickly and easily, and get paid for it, as they continue to perfect their craft and produce more work.

### **To Live and Die in L.A.: Understanding Neo-Noir**

**Michael Rickard**, ENG 304: Forms of Films  
Faculty Mentor: Professor Barish Ali, English

Film critics are divided whether film noir is a genre or a style of film. Genre is a classification based on narrative structure while style is classified by filming techniques such as cinematography. Noir is defined both by its narrative and technical elements, which makes categorizing it problematic. Even more confusion exists over the genre of neo-noir. This discussion is important to film studies because if neo-noir is not a genre, then noir may not be a genre either. Questions remain over what elements (if any) differentiate neo-noir from film noir. These questions can be answered with an examination of William Friedkin's 1984 film, "To Live and Die in L.A.". The film contains noir stylistic elements such as rain, shadows, and symbols such as Venetian blinds. The film contains noir narrative elements such as fatal women and fatal men; and the city as spectacle, with Los Angeles seen as a corrupting labyrinth. Friedkin inserts neo-noir narrative elements such as post-feminist characters and a renegade cop who skirts the law to enforce it. The film includes neo-noir technical elements such as the dynamic use of color and light. These narrative and technical elements transform what could have been a traditional noir film into an example of neo-noir. This presentation will establish that noir is a genre, and that it continues today as neo-noir, a genre with elements unique to itself. This presentation will incorporate specific scenes from the film, along with critical analysis of the film, and the neo-noir genre.

### **To Love ...**

**Maria Lema**, Mathematics and Philosophy  
Faculty Mentor: Professor John Draeger, Philosophy

The desire to be loved is part of human nature, and whether or not love needs to be earned is the general question explored in this talk. In particular, familial love is contrasted from friendship love and romantic love. Simon Keller describes love as the appreciation of an individual's surface properties, while Neil Delaney understands love to be the appreciation of properties that are central to an individual's deep-self. On the other hand, J. David Velleman views love as the appreciation of an individual's inherent value, which is related to the respect that one may have for an individual. The relationship between love and respect motivates the distinction between recognition love and appraisal love (adopted from Stephen L. Darwall's formulation of respect), which will help determine when love is earned. Additionally, these distinctions will help establish specific differences between familial, friendship and romantic love.

### **Torture in the Ticking Bomb Scenario**

**Alexandra Krygger**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

A ticking bomb scenario requires a person to decide whether it is permissible to torture a person, if in doing so, they will find out the location of a bomb and save a large number of lives. This paper explores whether the end justifies the means. I will consider Mayerfeld's account of rights which argues that a person's rights should never be violated by exposing them to torture. Thus, it is impermissible. On the other hand, Moore's view suggest that sometimes consequentialism can override other views, and in situations where the consequences are truly awful, torture can be permissible, however it still comes at a cost. Exploring the ticking bomb scenario will clarify the connection between the rights of individuals and the greater social good.

### **What's Mine is Mine**

**Lavon Green**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

It's reasonable to suppose that some things should be kept private. However, it is becoming abundantly clear that we live in an age where it is increasingly difficult to have secrets. In particular, the FBI has recently asked Apple for backdoor access to the cellphones of suspected criminals. While complying with the request might help solve a present crime and might help prevent future ones, compliance puts the privacy of millions of people at risk. This poster considers the conflict between two moral values, namely privacy and public safety. It explores the extent to which privacy should be considered a universal, inviolable, and fundamental right. The discussion will be framed in terms of Thomas Nagel's account of personal rights and public spaces.

## Who's Tweeting? A Look into Today's Opinion Leaders

**Kyla Hunter**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

The theory of the two-step flow says that people don't get information strictly from the media. Instead, people get their information from opinion leaders who they trust. Opinion leaders can be a well-known individual or organization that has the ability to influence public opinion. In the social media era we live in people get their information off line and most of the time it is not directly from the news. They follow popular people who they trust to give them information and form their opinion based on the opinion leader's thoughts. In my research I plan to find out who are the top 10 people on Twitter with the most followers. These people have the power to reach the mass audience, but what is their message? Do they use their voices to market products, push political agendas, or just tweet about their life? I will use content analysis in order to decode and categorize the most recent 100 tweets of the top tweeters. I will break down the tweets into three categories: marketing, political, and personal. I predict that the top tweeters will all be celebrities who use their platform simply to market themselves as well as other products.

## Why Can't Grandma Choose to Die?

**Samuel Merriman**, PHI 314: Contemporary Ethics  
Faculty Mentor: Professor John Draeger, Philosophy

This poster explores whether elderly people have the moral right to end their lives peacefully through doctor-administered euthanasia. Consider, for example, someone who does not suffer from dementia, but retains a clear functioning mind. Why are they not allowed to die peacefully? Thomas Nagel argues that people have the right to make decisions about the meaningfulness of their lives. If ending a life through euthanasia preserves life's meaning, then individuals should have the right to do so. Likewise, Simon Keller argues that individuals should be responsible for their own welfare. If euthanasia allows people to die well, then they should be permitted to make that choice. On both views, elderly people should be allowed to die in a peaceful manner. Following Nagel and Keller, I will argue that Grandma, who has a fully functioning mind and no longer desires to live, has the right to die.

## The Wisdom of Cicero: "Non Nobis Solum Nati Sumus"

**Carly Pershyn**, PHI 401: Problems in Philosophy Seminar  
Faculty Mentor: Professor Kimberly Blessing, Philosophy

He is described as "the brightest flame" of the last days of the Roman Republic. Saint Augustine views him as the greatest master of Roman eloquence. Marcus Tullius Cicero, born in Rome in 103 BC and murdered on December 7, 43 BC, was an

orator, lawyer, politician, and philosopher. This enemy of Julius Caesar is credited with translating Greek philosophy into Latin. Or, in Cicero's words, in him "philosophy is being born in Latin." But he is also a philosopher in his own right. Cicero was critical of the Epicureans as revealed in "De Natura Deorum" ("On the Nature of the Gods"). Although he admires the Stoics, especially in the area of ethics, his works "Tusculanae Disputationes" ("Tusculan Disputations"), "Academica" ("Academics") and "De Finibus" ("On Ends") reveal that it is the moderate skepticism of the Academic Sceptics that won his heart. I shall trace the influences of the Stoics and Academic Sceptics on Cicero's thought. One important theme in Cicero's writings, which stands in sharp contrast to the Epicureans who advised against getting involved in politics and public life, is the extent to which he placed politics above philosophical study. While we are indebted to Cicero for bringing the Greeks to Rome, I will focus attention on "De Officiis" and "De Finibus" to reveal what this Roman orator and philosopher has to offer us, specifically the Millennials. "Non nobis solum nati sumus" or "Not for ourselves alone are we born."

## Wonder What College Students Find Interesting: Content Clicks on Social Media

**Tiera Daughtry**, COM 450: Communication and Society  
Faculty Mentor: Professor Ann Liao, Communication

College students always complain how they waited till the last minute to study for tomorrow's exam or type up their 20-page essay due at midnight. What's one of the reasons they procrastinate? Two words: Social media. Social media is known to distract the future lawyers and doctors from their studies. Have you ever wondered what content students are most interested in? We all know news is transitioning from newspapers to stories on the Internet. The majority on the Internet are young adults. Journalists have to find a clever way to attract the audience of the wandering mind of a college student. As a college student myself, I am curious as to what drives this age group to take the time out of their internet surfing to click on a news story to read. Is it news about celebrities? Feature stories? Hard or soft news? Is it news that has a proximity factor? Does it affect them? My research will answer these questions by the use of interviews and surveys of college students. The mystery of student procrastination will finally be answered by the use of the theory of uses and gratifications.

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## ***Physical Geography, Sciences, and Mathematics***

### **Analysis of Lead in Local Tap Water Samples Using Graphite Furnace Atomic Absorption Spectroscopy**

**Kris Hoyt**, Forensic Chemistry and **Muhibatu Osumanu**, Biology

Faculty Mentors: Professor Jinseok Heo, Chemistry and Professor Tao Tang, Geography and Planning

Analysis of drinking water for lead has become a rising topic among society today due to many public breakdowns in drinking water sources like Flint, Michigan. The action level of lead in drinking water set forth by the EPA is 15 parts per billion (ppb). Lead is found naturally in the ground, but it can enter the water supply chain in increasing amounts mainly through lead pipes and/or solders used in a distribution system or an individual household plumbing system. Water samples used for this experiment were collected from different locations in North Tonawanda, New York, with the help of Dr. Tang Tao's lab in the Department of Geography and Planning at Buffalo State. The samples were analyzed using Graphite Furnace Atomic Absorption Spectroscopy (GFAAS), which can detect elemental lead on the level of ppb. Although water testing for lead using GFAAS is commonplace in analytical laboratories today, many unique problems arose during the course of this experimental procedure, including possible lead build-up within the graphite furnace. During this experiment, we successfully addressed these problems by adding extra furnace clean-out steps among other things. After these issues were resolved, we were able to detect small amounts of lead in most samples which were all under the EPA action limit.

### **Analysis of Physiologically Active Compounds in Nutmeg**

**Brandon Woitas** and **Kris Hoyt**, CHE 406: Analytical Toxicology

Faculty Mentor: Professor Alexander Nazarenko, Chemistry

Natural and everyday compounds can be useful in their specified ways, but when a deeper look is taken, interesting things can be found. Natural products contain numerous physiologically active compounds, some in significant quantities. We are analyzing nutmeg, in various sources, including essential oils, ground and whole. We are interested in any active compounds, but more specifically, in myristicin (6-allyl-4-methoxy-1,3-benzodioxole). This molecule is present in a reasonable quantity in naturally occurring nutmeg. Essential oils of nutmeg are also great source of interesting compounds, but their source and purity can be varied. Because of this, we are using a Soxhlet

extraction method, to produce our own extracts from both ground and whole nutmeg samples. Fractional distillation will also be used to purify our essential oils to rid them of any unwanted compounds. Gas chromatographic separation with subsequent mass-spectroscopic (GC-MS) identification show numerous fascinating compounds in essential oils and extracts. We hope to extract some of these active compounds, by distillation or possibly crystallization to better observe them. In addition to GC-MS, infrared spectroscopy (FTIR), as well as proton NMR and Raman spectroscopy are also employed in this research.

### **Analyzing Eastern Hellbender Habitat**

**Megan Kocher**, Biology

Faculty Mentor: Professor Amy McMillan, Biology

The Eastern Hellbender (*Cryptobranchus alleganiensis*) is a large salamander that is native to North America. Hellbenders are fully aquatic, inhabiting cool rivers and streams, and depend heavily on the conditions of these waters. Large flat rocks lining the streambed provide shelter and protection for these animals and therefore the salamanders are very sensitive to changes in substrate size and composition. Local populations of Hellbenders in the Allegheny and Susquehanna watersheds of New York State have been rapidly declining. This decline could possibly be due to a shift towards smaller substrate size, leaving Hellbenders without the specific habitat conditions needed for their survival. However, there have not been any studies that focus on substrate composition in these local watersheds. In cooperation with the New York State Department of Environmental Conservation (NYSDEC), surveys were completed to characterize substrate at sites of previous, current, and potential Hellbender habitat. Surveys were conducted in four sites in the Susquehanna watershed, one of which is thought to still have Hellbenders. Two surveys were conducted in the Allegheny watershed in sites known to currently be occupied by Hellbenders. Substrate was characterized through methods using pebble counts and estimates of substrate composition and substrate embeddedness. Overall, results showed a wide range of rock size but boulders and larger rocks that make streams habitable for Hellbenders were scarce. Many of the larger rocks were found to be either completely embedded by surrounding substrate or not embedded enough to be used for shelter. These findings provide us with a better understanding of Hellbender habitat for the purpose of possible restoration in the future.

## Analyzing Macroinvertebrate Communities in Hellbender Sites

**Shelby Priestler**, Biology

Faculty Mentors: Professor Amy McMillan, Biology and Robin Foster, Ph.D. Candidate, SUNY Buffalo, Ecology and Evolutionary Biology

The eastern hellbender (*Cryptobranchus alleganiensis*) is an aquatic salamander endemic to the eastern United States. Recently, hellbender populations have been declining. The causes of this decline are poorly understood. Benthic macroinvertebrates, as a biological indicator of water quality, may be related to the presence of hellbenders in a stream. The diversity of macroinvertebrate communities in hellbender sites was examined in this study. It was hypothesized that macroinvertebrate diversity and abundance will be positively related to the presence of hellbenders. Invertebrates were collected using a kick sample method and identified to family. Macroinvertebrate abundance was highest in sites with current populations of hellbenders. There is no apparent difference in diversity and water quality indices between sites, however further taxonomic refinement will be needed to better understand the relationship between hellbenders and macroinvertebrates.

## Building the Real Number System

**Bridget Torsey**, MAT 491: Capstone Research in Mathematics

Faculty Mentors: Professor Robin Sanders, Mathematics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The goal of this research project is to successfully build the real number system and then finally complete the world of numbers by defining the set known as the complex numbers. Numbers first came about in prehistoric times; they were invented for counting and trading purposes. In present societies numbers are still used daily, but have you ever wondered actually how numbers were invented and how the different sets of numbers can be defined? The most commonly used set of numbers is known as the real number system. Within this set there are many subsets consisting of other number systems. The most mysterious of these systems is by far the set of irrational numbers. This set of numbers is uncountable and infinite, yet it can still be defined. This research project will explore the several number systems within the real numbers and learn how to properly define them with axioms and mathematical principles. Various mathematics books and articles will be used to understand the different axiomatic systems that have been developed throughout time by famous mathematicians. Two well known and extremely valuable systems that will be used are Peano's Axioms and Dedekind Cuts. The main purpose behind this research project is to aid others in better understanding the real number system; which is one of the most used tools when working with mathematics.

## A Chaotic Look at Fractals: Exploring Julia and Mandelbrot Sets

**Jacob Oddy**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

Gaston Julia and Benoit Mandelbrot, French mathematicians, launched the mathematical world into a frenzy when they discovered fractals. The Julia Set, discovered by Gaston Julia in the early 1900's, looks at an iterative process done over given equations and examines how each iterative process returns different types of results, either the iterative set is bounded or unbounded. The Mandelbrot Set, discovered by Benoit Mandelbrot in 1979, looks at the Julia Set and combines the two types of results behind Julia's iterative mapping to create a new fractal set. Fractals are infinitely self-similar geometric shapes and can create beautiful images. Self-similarity means that a smaller portion of the whole object retains a majority of the characteristics of the larger part. Some famous examples of fractals are the Koch Snowflake, the Cantor Set and Sierpinski's Gasket. The mathematics behind these geometric figures deals mostly in the complex plane and the two sets being investigated here are not any different. The object of this research is to look into the mathematics behind these beautiful sets and explain what the colors mean and represent using their standard visual representations. We will also seek to explain the rationale behind the discovery of these sets and how they relate to each other. This will also look into the mathematics behind chaos as it relates to fractals. Chaos deals with complex systems that have a sensitive dependence on the initial conditions.

## Coding Theory: Minimizing Errors in Data Transmission

**Raymond Hutchings**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

In our digital age countless messages, sent as digital signals, are transferred everyday. Whenever we send a text, post a tweet, or even save our data to a flash drive, coding theory ensures us that the received message, or the data retrieved later is accurate even if it was slightly altered. These digital messages are most often translated into a form of symbols known as binary, a string of 0's and 1's. These strings often become corrupted due to noise: imperfections in the medium in which the message is transferred or stored. This investigation dives into the practice of algebraic coding theory, the study of error-control codes. The purpose of this practice is to determine where errors have been made and possibly recover the correct message. The techniques utilized vary from simple to complex, however, with complexity the possibility of detecting and correcting errors becomes much higher. The simpler methods covered include parity checks and repetition codes to introduce the topic, while the more advanced techniques include linear codes, polynomials, and cyclic codes. We will test

out these various methods using a self-written program on user created messages with random noise simulated. The methods will also be tested for efficiency and accuracy, over different versions of simulated noise on the transferred messages.

### **Comparison Study of Recovering Indented Writing**

**Alexandra Himes**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Douglas Ridolfi, Chemistry,  
Professor Judith Walsh, Art Conservation and Professor Andrea  
Guiati, Director, Muriel A. Howard Honors Program

Indented writing is the impression from a writing instrument made on paper below the first sheet which contains the original writing. The ESDA, Electrostatic Detection Apparatus, can pick up the indented writing using magnetic fibers to collect wherever indentation is found. With crumpled papers, though, the ESDA cannot pick up on the indentation without also picking up on tears in the paper or creases, which can be a huge speed-bump when trying to solve a crime. In this research, I will create indented writing on the same type of paper numerous times and crumple them up. One sheet, the standard, will be placed into the ESDA immediately, The same type of paper will be run through a humidifier at varying lengths of time and drying under a weight. Once the best length of humidification is found, meaning the most amount of creases have been flattened, this sheet of paper will also be run through the ESDA. Finally, Reflectance Transformation Imaging will be used. This process is the relighting of the subject of interest at numerous angles while being photographed. The photographs are superimposed onto each other once all have been taken, enhancing the subject and revealing surface information that had previously been unseen. This paper will be placed into the ESDA, and once finished, I will have results from each method. With this specific comparison research, the main goal is to find the quickest and most opportune method that will bring life back to damaged papers to make any original indentation visible again.

### **Comprehensive Assessment of an Igneous Complex at the Edge of a Pluton in Southern Maine**

**Steven Caldwell, Kevin Good, Victor Morales II and Christopher Polisoto**, GES 401: Igneous and Metamorphic Petrology  
Faculty Mentor: Professor Gary Solar, Earth Sciences and Science Education

Our term projects for Advanced Petrology are individualized efforts. However, our projects are related because they are on research specimens from the same large exposure, localized in Southern Maine. The exposure is approximately 3km long, and found, geologically, at the contact zone of a granite pluton. Given the large exposure, in combination with its location, rock

types exposed fall in to multiple different groups. The majority of these different groups are the subject of our research projects, individually. The dominant rock type is coarse-grained granite. One project is documenting the largest grain sizes (pegmatite), and one project is focused on the contact between the pegmatite, and the normally, otherwise large-grained granite. Another project focuses on documenting the fabric within these rocks. Lastly, one project focuses on the smaller-grained igneous intrusion of the otherwise coarse-grained granite. Each project involves; sample handling, including cutting and thin sectioning, in order to produce samples for microanalysis using standard petrography. Microscope analyses include point-counting for mineral composition and calculation of geochemistry. Other analyses include fabric intensity determination. All of these data are used on standard plots to identify rock type and affinity. Each project results have been compared and contrasted to determine the entire geologic history as recorded by the rocks in this single, large exposure. Through combining our efforts, we have created a poster, summarizing the findings we've made individually, and as a group.

### **Could Western New York's Garden Spot be Contaminated?**

**Fawn Hoelcle and David Shemtov**, GES 460: Environmental Field Methods  
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

Crescent Manufacturing is a facility that manufactured numerous auto and household products such as Rain-X, transmission fluid, car wax, shampoos and conditioners. According to the Department of Environmental Conservation, there were five tanks, ranging in capacity from 500 - 15,000 gallons, on the property, three of which were above ground and in contact with the soil. The facility received a fine from OSHA on September 7, 2006, in the amount of \$272,900 following a hydrochloric acid spill. They were cited for 39 violations of health and safety standards and failure to correct a hazard from a previous violation. The company was issued three 'willful violation' citations, meaning they were committed with an intentional disregard for the requirements of the Occupational Safety and Health Act. Because of the nature of the chemicals used within this facility, it is believed that the site may be contaminated. Maps from Google Earth show that north of the facility, there is a plot of dead and barren land, just on the other side of the woods. There is a drivable pathway leading from Crescent Manufacturing to this land. Chances are that this land is contaminated. There is also a creek directly behind the facility to the south which might have been impacted. A variety of chemicals were reportedly utilized at the facility including: Ucaride 250, toluene, sodium carbonate, RTU 75, heptane, D-Limonene, as well as chromium and other heavy metals. It

is possible that these contaminants made make their way into the local soil or water. The goal of this research is to see if the manufacturing facility is a source of contamination by testing the soils around the building, on the site north of Crescent Manufacturing that is barren of vegetation, and along the creek to the south to see if in fact the sediment is contaminated with similar compounds.

### **Deadly Ash in Our Backyard**

**Andrew Balcomb**, GES 460: Environmental Field Methods  
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

The incineration of waste converts material into ash, heat, and flue gas. The ash is generally formed from the inorganic constituents of the waste and can take the form of solid lumps or be carried by the flue gas in particulate form. Regulations require that flue gases be cleaned of gaseous and particulate pollutants before they are released into the atmosphere. The RCRA Subpart O incineration regulations, promulgated on January 23, 1981, required all hazardous-waste combustion devices in the United States to have a detailed compliance-monitoring program. Limits on the amount of ash, heavy metals, as well as chlorine and other halogens, in emissions were also added to most permits in accordance with the waste-feed rate. Large changes in the waste feed stream, or poor maintenance, can result in massive dispersion of ash, smoke, and noxious odors into our atmosphere. The City of Buffalo burned waste in the Lackawanna Incinerator from the 1920s until 1980, thus it is plausible that the plant is responsible for releasing multiple pollutants. The City of Lackawanna is in Erie County, NY just north of Buffalo and the Lackawanna Incinerator site is situated on a 1.57 acre city-owned parcel of land in an urban area. Considering the amount of ash that was locally airborne over the site during the course of six decades, it is likely that the soil surrounding the Lackawanna site has a significant contaminant load. For this project soil samples will be taken from an athletic field adjacent to the incinerator, in a line across the primary wind direction from the incinerator, and by a local creek. If, as suspected, the incinerator is the primary source of contamination, there should be higher levels of arsenic, mercury and lead in the soil samples collected in the primary wind direction.

### **Detection of Gasoline Residue on Household Materials**

**Kelly Grau** and **Michael Swierczynski**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Jamie Kim, Chemistry and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The research for this project focuses on the detection and identification of gasoline residue found on household materials for potential applications in arson investigation. In this research, three types of household materials, carpet, cardboard, and cotton, were spiked with a 50 uL of gasoline and were dried for a controlled period of time at room temperature prior to chemical analysis. Extraction and chemical analysis of gasoline residue from each of these samples were conducted via headspace-solid phase microextraction (HS-SPME) and gas chromatography equipped with mass selective detector (GC-MSD), respectively. Our results showed that the amounts and structures of identifiable compounds from the gasoline-spiked samples depended on the type of household material and their drying periods. A majority of highly volatile, and lighter compounds such as aliphatic hydrocarbons, and toluene, were evaporated during the first 1 h after gasoline dripping for all types of samples investigated. However, heavier and less volatile components, such as xylene, C3- and C4-alkylbenzenes, and substituted naphthalenes were found to stay longer. Our GC-MSD data show that a trace of these compounds were detected from the cotton samples up to 5 days of drying, but both cardboard and carpet samples were able to retain these compounds longer than three weeks. Physical features of the samples such as porosity, thickness, and number of layers, were found to be more important factors to retain gasoline residue for an extended period of time, rather than chemical compositions of sample materials.

### **Determination of Phenylephrine in Common Pharmaceutical Formulations**

**Jessica Spencer**, **Robert Genovese** and **Sabrina Blayda**, CHE 406: Analytical Toxicology

Faculty Mentor: Professor Alexander Nazarenko, Chemistry

Phenylephrine HCl is the active ingredient of multiple over the counter nasal decongestant drugs. Phenylephrine has a similar structure to methamphetamine, an illegal abused stimulant. This homology enables researchers to approve viable methods of analysis for illicit drugs in order to provide the best analysis of a drug possible without using the actual drug immediately. The main goals in analytical chemistry are qualification, identifying what the compound and components are in a matrix, and quantification, identifying how much of the compound is available. In our experiment, we will determine if the active ingredient in common nasal decongestants are labeled appropriately, as well as contain the specified quantity of active

ingredient. As a result, we have looked at the phenylephrine in generic nasal spray and pill forms through multiple analytical methods. To validate that our active ingredient is phenylephrine, we have used Fourier Transformed Infrared Spectroscopy and confirmed using Gas Chromatography. Phenylephrine is extracted from the pills and nasal spray through Soxhlet extraction, re-crystallization and gravity filtration. Further confirmation tests are performed with our purified phenylephrine using Nuclear Magnetic Resonance Spectroscopy, X-Ray Diffractometry, and Raman Spectroscopy methods. A quantification of the amount of phenylephrine in both pill and nasal spray form was achieved through UV-visible spectrophotometry and Gas Chromatography coupled with Mass Spectroscopy (GC-MS).

### **Dextromethorphan: An Analytical and Toxicological Investigation of an Over-the-Counter Drug**

**Eric Gauchat** and **Matthew Pothier**, CHE 406: Analytical Toxicology

Faculty Mentor: Professor Alexander Nazarenko, Chemistry

Seemingly innocuous and common over-the-counter (OTC) drugs have a wide range of uses to treat illness and relieve pain, but they can also lead to long-term abuse and fatalities. Dextromethorphan (DXM) is a drug commonly found in many cold and cough medicines. In high concentrations, DXM has effects similar to phencyclidine (PCP) and ketamine, a dissociative anesthetic, which are known to induce visual hallucinations and a heightened sense of perceptual awareness. The similarity to well-known substances of abuse that are highly controlled makes DXM an attractive target for recreational ingestion and purification from OTC products. Using established pharmacological methods, DXM is extracted from generic cough syrup for analytical chemical analysis. Techniques used include Gas Chromatography, Gas Chromatography-Mass Spectrometry, IR and Raman Spectroscopy, and X-ray Powder Diffraction and Single-Crystal analysis. Discussion of results focuses on purity and yield of extraction methods, applications in toxicological and forensic examination, and discussion of potential for abuse of DXM and the place of OTC medications within the context of pharmaceutical drug abuse in general.

### **Digitizing Old(er) Buffalo River Bathymetric Survey Maps: Insights into Differences Between Navigation Dredging and Environmental Dredging on Channel Geometry**

**Brandon Luther**, Earth Sciences

Faculty Mentors: Professor Jorge Bajo, Earth Sciences and Science Education and Professor Jill Singer, Earth Sciences and Science Education

The Buffalo River is classified as a federal navigation channel and the United States Army Corps of Engineers (USACE)

maintains a navigation channel at a depth of 6.7 m below mean lake level through a program of navigational dredging in the lower 8 km of the river. This involves the removal of bottom sediment every 2-3 years from within the navigation channel with annual surveys conducted by USACE to determine the volume of sediment to be removed and the portions of the channel to be dredged. As part of the efforts to restore the Buffalo River, a multi-agency effort combined routine navigational dredging with an environmental dredging project that allowed for the removal of contaminated sediment both within the navigation channel and outside of it. Before the relatively recent change from paper records to digital maps, the USACE produced large sheets showing the depths of the channel. Many of these records are no longer available and much of this information has been lost, and converting paper records to digitized maps is very labor intensive. My project focuses on the period between 1985 and 1991 and at a time when routine navigational dredging was taking place with much less sediment removed than during the recent environmental dredging project. This should allow me to determine the 'pre-condition' of the river (before large-scale sediment removal) and a basis for comparison with recent events in the river. For this project, I am focusing on a section of the river where a longitudinal bedforms known as sedimentary furrows have been mapped using side-scan sonar. I am using ArcMap 10.3.1 to georeference and extract bathymetric data from the USACE maps. The GIS data extracted from these maps are being used to create cross-sectional profiles of the channel and make temporal comparison with other Buffalo River data sets using GIS software.

### **The Dysfunctional History of Functions**

**Paige Hurley**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

A function is a common term to anyone taking a math course. Functions are expressions used all the time in various types of math. Someone who studies mathematics probably assumes the term function has been around since ancient history. It turns out the term function was not even introduced until the early 1700s. From then on, there have been many mathematicians who played a part in forming the concept of functions in which we know today. The history of functions started with a very simplistic definition of what a function is. From there, mathematicians like Euler, Cauchy, Lobachevsky, and Dirichlet, continued to evolve what the concept of function really was. This history is not linear and somewhat dysfunctional since many mathematicians felt very differently about how the concept of a function was defined. My talk will include all the major mathematicians who were involved in this process. To begin my research, I focused on the timeline of the history of the concept. This project will consist of research pertaining to the individual mathematicians themselves to see what they were working on

during the time they played a part of the history of functions. Many of us know the definitions and different properties of functions, but some of us do not know the history. The goal of the project is to give the audience a look into the history of functions and have a better understanding of why they are so important.

### **Enhancement of the Map Turtle Population in the Upper Niagara River Through Translocation and the Development of Anthropogenic Nesting Sites**

**Jesse Karcher**, Biology and **Chelsea Moore**, Biology  
Faculty Mentor: Professor Edward Standora, Biology

Reptile populations around the world are declining due to impacts related to anthropogenic development. The Northern map turtle (*Graptemys geographica*) located in the Upper Niagara River of Western New York is a species following this trend. The small population continues to decline as a result of subsistence fishing and inadequate access points to terrestrial nesting sites. At other locations 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 plan to augment the Northern map turtle population in the Niagara by translocating turtles from Presque Isle State Park, and increasing suitable nesting sites. Floating, artificial nesting platforms will be created to provide female map turtles with proper substrate for nesting. Twelve translocated turtles will be released into the recently restored habitat of the Beaver Island Lagoon, and the Army Corps of Engineer's boat slip. Temperature/depth data loggers along with radio and sonic transmitters will be attached to the turtles. Biotelemetry will be used to determine and compare habitat use, home range, and behavior between resident and introduced individuals. Surveillance cameras along with a drone will be used to record nesting and basking activity on and near the platforms.

### **Environmental Dredging in the Buffalo River: What Side-Scan Sonar Reveals About Sediment Removal**

**Emily Sampey**, Earth Sciences  
Faculty Mentor: Professor Jill Singer, Earth Sciences and Science Education

The Buffalo River is classified as a Great Lakes Area of Concern (AoC). This designation reflects the industrial legacy of the river that includes bottom sediments contaminated by heavy metals and organic compounds. Efforts to restore the river and de-list it as an AoC requires the impairments to the river to be remedied and that in turn has led to a large scale environmental dredging project between 2011 and 2015. During this time period, ~1 million cubic yards of sediment were dredged from within and outside the navigation channel. This project has involved federal, state and local agencies with coordination

by the Buffalo Niagara Riverkeepers. Annual side-scan sonar surveys were conducted before, during, and after the dredging took place. Side-scan sonar systems transmit sound and analyze the strength of the return (reflected) signal to detect objects and map the bottom. Side-scan records show natural objects such as sedimentary bedforms, current and ice scour marks, and large tree limbs. It also can show man-made features and debris including pilings, tires, and bottom disturbances from dredging. The purpose of my study is to use the Buffalo River side-scan sonar records to better understand dredging's impact on bottom morphology. In particular, I am documenting features formed as a result of dredging, including the well-defined margin between dredged and undredged portions of the river, and the degree of disturbance from dredging and how slowly or rapidly these features lose their sharpness or disappear. I also am looking for evidence of sediment slumping related to over-steepening of the bank during dredging.

### **Ethnopharmacological and Western Uses of Medicinally Significant Plants**

**Kate Ersing**, ANT 498: Honors Research  
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

Ethnopharmacology involves the study of present and historic traditional medical knowledge (TMK) indigenous populations hold in regards to the application of plants for their relative medicinal properties. Western development and commercialization of medicines and pharmaceuticals has evolved to its modern application partially as a result of bioprospecting, which implies the documentation of traditional knowledge, with or without consent. Many present day cultures rely on medicinal plants as primary health care because of accepted traditional application, economic feasibility, and/or availability over Western pharmaceuticals. This research will discuss current and historic uses of seven medicinally significant plants which give rise to Western pharmaceuticals and pharmacological research. Phytochemical constituents of particular pharmaceutical importance and the ecological relationships which lead to biochemical variability and concentration will be discussed in this literature review. Additionally, biodiversity conservation and indigenous resource protection will be addressed as they have become increasingly necessary in regards to the research and development of new plant-based drugs. Both the continuing application of these plants by indigenous populations and Western pharmacology, however, must be continually revisited to understand environmental implications for future use.

### Exploring Euclid's Parallel Postulate and its Equivalent Statements

**Michelle Pascolini**, MAT 491: Research in Mathematics  
Faculty Mentor: Professor Robin Sanders, Mathematics

My research mainly focuses on Euclid's Parallel Postulate and its role in Euclidean geometry. The Parallel Postulate is the last of Euclid's five postulates in his book, the *Element's*. It is also the hardest to comprehend out of the five. For centuries, mathematicians believed that the parallel postulate was not a true postulate, but a theorem that could be derived from Euclid's first four postulates. In the past, many mathematicians, such as Lambert and Legendre, have attempted to prove the parallel postulate with no success. Some of these attempts may have resulted in statements that are equivalent to the parallel postulate. One of better known equivalent statements is Playfair's Postulate. Some of the other equivalent statements include the equidistance postulate, Proclus' axiom, the triangle postulate, and the Pythagorean Theorem. The benefit of using the alternative statements as opposed to the original is that they are normally easier to understand. I will look at some of these alternate statements and prove that they are in fact equivalent to the parallel postulate, and that the parallel postulate is equivalent to them. One equivalent statement that I will be proving is Playfair's Postulate. I will also look at why there are alternative versions and whether or not the mathematicians were trying to prove the parallel postulate when they came up with them.

### Exploring the Theory and Applications of Percolation Modelling

**Timothy Schuler**, MAT 491: Research in Mathematics  
Faculty Mentor: Professor Robin Sanders, Mathematics

In 1957, Hammersley and Broadbent first presented the idea of percolation modelling as a means of determining the amount of time for water to reach the center of a porous rock that was completely submerged under water. Modelling techniques using percolation clusters have played an important role in describing systems that exhibit critical phenomena in statistical physics. More recent applications include percolation models for the spread of both forest fires and contagious diseases. Additionally, percolation clusters have been shown to exhibit significant fractal structure. We investigate the theory of percolation and its applications to modelling dynamic social interactions. Moreover, the fractal dimensionality of the generated clusters is discussed. Implementations for traditional cluster labeling algorithms in Java programming language are explored, along with the more efficient Hoshen-Kopelman algorithm. The algorithms for gathering cluster statistics are strongly analogous to graph theoretic algorithms for determining minimal spanning trees (MST) such as Kuskal's and Prim's algorithms; the similarities and differences between MST approaches and cluster labeling techniques are analyzed. We provide our own example of

a percolation model, and discuss the relevant statistics and emergent phenomena from the clusters.

### Fabric and Mineral Analysis of 400 Million Year Old Diatexite and 1.3 Billion Year Old Diopside-Calcite Migmatite

**Jacob Trzepakowski** and **Brandon Luther**,  
GES 401: Igneous and Metamorphic Petrology  
Faculty Mentor: Professor Gary Solar, Earth Sciences and Science Education

This combined project focuses around two differing composition and aged migmatites, aged ca. 1300 and 400 million years old. The younger rock, diatexite migmatite, was collected from Western Maine and the older, diopside-calcite Migmatite (calcsilicate rock), was collected from the southern Adirondacks. Despite different locations, both migmatites share a sedimentary protolith and process of formation. A migmatite is formed when a metamorphic rock is subjected to substantial heat to induce partial melting of the rock (*anatexis*); the diatexite is a result of further melting to remove the structural integrity of the protolith's fabric. Each rock is analyzed individually using thin-sectioning processes to observe the individual minerals and microscopic fabric within each specimen and use a point-counting process to further study the mineral assemblages. Finally the data is compared between the migmatites to find similarities between two migmatites of the same age formed in different locations roughly 1000 kilometers apart. Both migmatites were found to have strongly defined lineations but a strong foliation is found in the diopside-calcite migmatite only. Despite sharing a common protolith, the mineral composition between the two migmatites is highly variable as the diopside-calcite migmatite displays a dominance of pyroxenes mixed with quartz, calcite and feldspars; the diatexite is dominated by micas surrounded by quartz and feldspars with phenocrysts of garnet. The diopside-calcite migmatite contains accessory garnets as well, implying the diatexite was likely held at a slightly higher temperature for longer. This allowed for more extensive growth of garnet and higher percentage of total melt in relation to the diopside-calcite migmatite which implied less melting at slightly lower temperatures.

### Fibonacci Numbers: From Architects to Atoms

**Eleazar Mejia Jr.**, MAT 491: Research in Mathematics  
Faculty Mentor: Professor Robin Sanders, Mathematics

For my research talk, one of the questions I will pose is what are the Fibonacci numbers? Fibonacci numbers are a sequence of number named after Leonardo di Pisa, who was nicknamed Fibonacci. The problem was posed in *Liber Abacci*, Fibonacci's book of calculation, as way to practice the Hindu Arabic Number

system that we use today. How do the Fibonacci numbers, relate to the Golden Ratio? Fibonacci's relationship to the Golden Ratio is the key to "seeing" Fibonacci sequence in other fields of study. The Golden Ratio, or Phi, is an irrational mathematical constant, whose first written instance can be seen in Euclid's Element. Taking a special proportion of the Fibonacci numbers, can get us a very good approximation of Phi. And lastly, where do the Fibonacci numbers show up? We can see it everywhere, from nautilus shells to the Pyramids of Giza. Through Phi, we can "see" it show up in various architectures, primarily the Parthenon. I will analyze some of the dimensions and how it relates to Phi, the Golden Spiral, and the Fibonacci Spiral. We also see them in the Kekule structures of hydrocarbons; I will analyze their bonds and describe their relationship to the Fibonacci Sequence.

### Fighting Fire with Fire for Forest Improvement

**Timothy Fricke**, GES 460: Environmental Field Methods  
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

An essential part of humans' everyday life is fire, whether it be for heat, cooling or through combustion for transportation. However, fire also plays a significant role in nature's course in forest soil health and ecology. This project will aim to research the impact that prescribed burning (controlled burns), has on soil and ground vegetation properties and qualities. The use of these prescribed fires is also beneficial for the prevention of devastating, costly fires, which destroy forest health caused by large amounts of dead fuels, which accumulate in the absence of fire, and can readily ignite to release large amounts of energy. Before and after the prescribed burn, soil samples and fuels coverage will be measured within a New York State Forest. Soil samples will be tested for a variety of nutrients and pH levels. The plots sampled will be covering a large area within and outside of the proposed burn area. There is expected to be a general increase in nutrients such as inorganic Nitrogen and Carbon, a decrease in pH, and reduced ground vegetation coverage within the burn areas. The use of the data obtained through this project will hopefully be utilized in planning prescribed burns, within the Wildland-Urban Interface, where forest lands meet suburban homes and infrastructure. As climate change continues to effect daily life, the preservation of our public lands and wildness, coupled with the human environment, is becoming an ever-changing and increasingly challenging task.

### Forecasting Exchange Rates with Time Series Models

**Meng Lin Ma**, MAT 495: Applied Mathematics Project  
Faculty Mentor: Professor Bruce Sun, Mathematics

Exchange rates' prediction has been a challenging task. As the economic globalization improves, the demand of finding the accurate models to forecast the exchange rates is significantly growing. Comparing to the accuracy of forecasting ability of the usual econometric models, some specific mathematical models can make better predictions. This study focuses on the autoregressive model to forecast exchange rates of four different currencies—Japanese Yen, Euro, British Pound (GBP) and Canadian Dollar (CAD)—against the U.S. Dollar. The empirical results suggest that the autoregressive model has the significant ability to predict the exchange rates, but the accuracy of the models with respect to different currencies may be distinct.

### Forensic Analysis of Ignitable Liquid Residues on Human Hands

**Michael Swierczynski**, Chemistry, **Kelly Grau**, Chemistry, **Jocelyn Mueller**, Chemistry and **Zaina Rozmus**, Chemistry  
Faculty Mentor: Professor Jamie Kim, Chemistry

Arson is a crime that can quickly and easily cause massive property damage and endangerment of life. The presence of ignitable liquids, which are used in a majority of arson cases, can provide proof of arson and link a suspect to the crime. Our research focuses on the detection and identification of ignitable liquids present on human hands for potential applications in arson investigation. For our research, 50 ul of four common ignitable liquids (gasoline, diesel, charcoal starter, and paint thinner) were spiked on human hands and collected after 15 min, 30 min, 1 h, 2 h, and 3 hours of drying. Residues were collected by swabbing of the hands with medical gauzes and Kimswipes. The residues were extracted using headspace-solid phase microextraction (HS-SPME), and then analyzed using gas chromatography-mass selective detector (GC-MSD). In our poster, preliminary GC-MSD data and the potential applications for arson investigation will be discussed.

### Forensic Chemistry: Fingerprints and Environmental Factors

**Kelsey Lynch**, CWP 102: College Writing II  
Faculty Mentor: Professor Shevaun O'Connell, College Writing Program

Serving as an intern in the Niagara Falls CSI Department, I had the opportunity to work in the forensic laboratory. With their permission, I designed a study using several different procedures and equipment to determine how environmental factors can affect fingerprints. I gathered my own fingerprints and placed them on a patrol car, collecting them using black powder and

lifting tape. In using black powder you must dust the entire area of the fingerprint spreading the powder out completely so there is no excess powder. I used lifting tape to carefully gather the fingerprint and seal it in a crime scene evidence bag and labeled them with what was used as the independent variable. I placed my fingerprints on the patrol car and labeled them as the original set without any disruptions to the fingerprints. I then placed a second set of fingerprints on the patrol car and rubbed dirt on it as well as first placing dirt in another section and then placing the fingerprints to compare. I wet a section of the patrol car and put my fingerprint on it and in another section placed my fingerprint down first and then put water on it. After waiting about ten minutes for the water to dry, I went back and lifted both set of prints. I used side by side screens attached to a microscope to compare friction ridges with the original fingerprints next to the fingerprints that have been tampered with to prove environmental factors do change the print. My poster includes pictures of the fingerprints lifted and describe where they were affected due to environmental factors.

### The Formal Definition of Limit

**Zhenlin Pan**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

In this talk, I will discuss some of the history behind the modern day definition of limit. When Newton and Leibniz developed the Calculus, they did not use the formal definition of limit that you study in modern Calculus. The epsilon-delta definition of limit came along roughly 150 years after Newton and Leibniz did their work. Augustin-Louis Cauchy (1789-1857) gave the first reasonably formal definition of limit. Karl Weierstrass (1815-1897) finalized the definition in symbolic form. The concerns that lead Augustin-Louis Cauchy (1789-1857) and others studying limits rigorously is that most formulas hold true only under certain conditions, and for certain values of the quantities. Cauchy wants to make all uncertainty disappear by determining these conditions and values with rigorous notations he uses. Cauchy defined limit in 1821 as follows: "When the successively attributed values of the same variable indefinitely approach a fixed value, so that finally they differ from it by as little as desired, the last is called the limit of all the others." Weierstrass successfully restates Cauchy's definition as the used epsilon-delta form studying in Calculus I or Real Analysis. I will also look at how the idea of Continuity was developed. Cauchy's definition of continuity is somewhat technical, but is similar to the definition of limit.

### Geomorphic Mapping in the Southern Margaritifer Terra Region of Mars

**Hiruni Senarath Dassanayake**, Earth Sciences

Faculty Mentor: Professor Kevin Williams, Earth Sciences and Science Education

Some areas on Mars were shaped by large flows of water in the past. The Margaritifer Terra region is one of these areas that has an interesting history and can be further studied using orbital images. This study, covering an area of 1186 square kilometers in southern Margaritifer Terra, created a geomorphic map of features in five large craters with the goal of understanding the geology and timing of surface processes within these craters. For example, the Dison crater dominates the southwest portion of the map and contains an alluvial fan. Another large crater towards the east end of the map is approximately 38.8 km in diameter and shows many water-related features including several alluvial fans of different ages and a landslide. Several of the craters also contain deposits of windblown material, and older plains material covers the regions surrounding the craters. Overall, this study has revealed details of the geology within several large craters in this interesting region on Mars, allowing for consideration of how water has transported sediment and shaped the surface over time.

### Getting in Shape: A Geometric Morphometric Analysis of Lake and River Emerald Shiners

**John Lang**, Biology

Faculty Mentor: Professor Randal Snyder, Biology

Understanding mechanisms that account for phenotypic variation has been of interest to biologists since the advent of Darwin's theory of evolution by natural selection. It is now understood that adaptive divergence is a key driving force of intraspecific differentiation. Further, differences in habitat (e.g., flow regime, prey regime) have been shown to drive adaptive divergence in fish. For instance, fish inhabiting faster flowing water generally exhibit more fusiform bodies than their lake counterparts. Similarly, the partitioning of benthic and pelagic morphs generally results in smaller heads with the latter. This study assessed morphological differences in the emerald shiner inhabiting the Niagara River, Lake Erie, and Lake Ontario using geometric shape analysis. It is expected that emerald shiners inhabiting the two lakes will have more robust bodies and smaller heads. Conversely, river emerald shiners are more likely have fusiform bodies with larger heads. The emerald shiner is a key component of the food web in the Niagara River and throughout the Great Lakes. Therefore, understanding factors that influence its morphology and adaptation to local conditions is important to inform future management decisions that may impact this species.

## GIS Analysis of Buffalo River Bathymetry Using USACE Survey Data

**Katherine Pfender**, Earth Sciences

Faculty Mentors: Professor Jorge Bajo, Earth Sciences and Science Education and Professor Jill Singer, Earth Sciences and Science Education

The Buffalo River is classified as a Great Lakes Area of Concern due to loss of habitat, poor water quality, and contaminated bottom sediments. Much attention is being paid to restoring the environmental health of the river with the goal to address the environmental impairments and de-list the river. In support of this effort, an environmental dredging project taking place between 2011 and 2015 removed over 1 million cubic yards of sediment. This project has involved federal, state, and local agencies as well as community stakeholders. To support the dredging project, the United States Army Corps of Engineers (USACE) conducted numerous surveys before, during, and after dredging to determine the amount of sediment to be removed from different portions of the river. The USACE bathymetric data are available in digital format. For my research project, I am using bathymetric records collected between 2012 and 2015. I am using these data to generate digital elevation models (DEMs) with ArcGIS 10.3.1 to show channel topography and generate cross sectional profiles. The cross sections are being used to document changes in the geometry (e.g., width and depth) of the channel related to the removal of sediment over the duration of the environmental dredging project. My findings contribute to gaining an improved understanding of changes to Buffalo River's channel resulting from the dredging project. This project can also advance our fundamental understanding about the response by rivers to channel modifications.

## Growth and Optical Characteristics of Ytterbium Iron Oxide Thin Films

**Kelly Brzyski**, Physics and **Michelle Pascolini**, Physics

Faculty Mentors: Professor Ram Rai, Physics and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Our research was focused on studying the growth and optical characteristics of  $\text{YbFe}_2\text{O}_4$  thin films.  $\text{YbFe}_2\text{O}_4$  (YbFO) samples were prepared by a solid state reaction. The stoichiometric proportion of  $\text{Yb}_2\text{O}_3$ ,  $\text{FeO}$ , and  $\text{Fe}_2\text{O}_3$  powders were mixed and ground using a mortar and pestle, then pressed into pellets of about 3 grams and 0.5 inch diameter each using a hydraulic press. The pellets were then sintered in the furnace at  $1000^\circ\text{C}$  for 12 hours. After sintering, the pellets were ground, pressed and sintered for a second and sometimes third time. To make the YbFO thin films, we used an electron beam deposition method. The pellets were placed into crucibles and the target pellet was heated by an electron beam for about an hour. The YbFO pellet slowly evaporates onto YSZ and sapphire substrates heated at  $850^\circ\text{C}$  until the desired thickness was reached. YbFO

thin films were annealed for 3 hours at  $600^\circ\text{C}$ . Reflectance and transmittance versus wavelength (200-3000 nm) of YbFO thin films were measured at temperatures between 10K and 400K using spectrometers. The optical data of YbFO show several electronic peaks associated with the intra (Fe 3d to d) and inter (O 2p to Fe 3d, Yb 6s, and 5d) atomic electronic transitions. Moreover, the optical properties change as temperature changes, suggesting a strong temperature dependence.

## Heuristic Algorithm for Near Optimal Solutions in Traveling Salesman Problems

**Jon Battison**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

The Traveling Salesman Problem is an important NP complete problem that asks, in its simplest form, what is the shortest path between a given number of vertices in which the traveler goes to each vertex only once with the exception of returning to the start point. The algorithm developed in this talk will take a near optimal solution and run an optimization heuristic to attempt to find a solution closer to the optimal solution in the time allotted. The search optimization heuristic will be created by hybridizing Prim's greedy algorithm for finding the minimum spanning tree with Christofides's algorithm for finding a solution guaranteed within 1.5 times the optimal. We then use the result of this combination to supply an Ant Colony Simulation (ACS) with initial vectors, in order to search for an optimum path in a Traveling Salesman Problem (TSP). These well-known and documented mathematical processes should together result in a near optimal solution to a set of discrete vertices given in three dimensional metric vector space. There will be exploration into using a neural network to control the Ant Colony Simulation. The program will be rendered in the C# programming language and interpreted to visual information via a program referencing the visual python codex in the python programming language. Discussion will cover algorithm types and programming techniques utilized, as well as results of the created algorithm.

## How Geometry All Started

**Rosanna Hiam**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

Geometry is one of the oldest known forms of mathematics out there. It was used before recorded history. Geometry was originally used to measure the land. It was used to find distances of ships from the shore or the height of things like the pyramids. But now it is much more than that. The Greeks wanted to know how it all worked, so we have people like Thales of Miletus that discovered truths dealing with circles and triangles. Pythagoras proved how  $a^2 + b^2 = c^2$  always to be a right triangle and other definitions of triangles we know today. Euclid came up the idea

of the proof. He believed that all mathematical statements could be proved through reasoning. Archimedes was the master of manipulating space. He found the most accurate value of pi and used it to calculate area and volumes. Lastly, there is Apollonius. He created the words like ellipse, parabola and hyperbola. Apollonius is referred to as the Great Geometer. The Greeks main purpose for looking into geometry is to prove why things worked. People, like the Egyptians and Babylonians, knew these techniques worked and didn't question it. The Greeks wanted to know why it worked and because of that we now consider geometry as a form of mathematics. So the purpose of my research is to find out how these founders discovered the truths of geometry.

### Identification and Quantification of Naltrexone, an Opiate Receptor Antagonist

**Jefferson Sinnott** and **Aveary Menze**, CHE 406: Analytical Toxicology

Faculty Mentor: Professor Alexander Nazarenko, Chemistry

Alcohol and opiate dependence are potentially life-threatening disorders associated with adverse physical and societal effects including poor social functioning, familial problems, and crime. One strategy suggested to address these issues is the inclusion of receptor antagonists that reduce, and can even reverse, the euphoric effects of the drug sought by abusers. Naltrexone (systematic name: 17-(cyclopropylmethyl)-4,5 $\alpha$ -epoxy-3,14-dihydroxymorphinan-6-one) is an opioid receptor antagonist that has been widely used to prevent relapse in heroin and other opioid-dependent subjects, and has been found to reduce cravings in alcohol-dependent subjects. Our research involved analyzing naltrexone hydrochloride tablets. For identification of naltrexone as well as inactive ingredients of the tablet, we employ various analytical techniques, including gas chromatography with mass spectrometry detection, infrared (FTIR), UV-vis and NMR spectroscopy, and X-ray diffractometry. Structure and property of naltrexone molecule will be discussed.

### Invasion of a Native Ecosystem

**Katelyn Reed**, Biology

Faculty Mentor: Professor Robert Warren, Biology

Invasive species can severely impact native habitats with overwhelming numbers and no apparent limitations by habitat or other species. Moreover, mutualisms with other invasive species can facilitate these invasions. Here I explored the changes in a European ant population two decades after it invaded Tiff Nature Preserve in Buffalo, NY, USA. I also investigated the interactions between the ants and native and invasive plants. I hypothesized that the *M. rubra* population boundaries had not changed in 20 years due to moisture limitations (desiccation) and that its

presence would be enhanced by an abundant invasive plant at Tiff, *Fallopia japonica* (Japanese Knotweed). I measured *Myrmica rubra* (European fire ant) populations by placing sugar bait stations at the same points and times of year as used in 1994 to census the ants. I collected data on soil moisture and temperature to determine limiting factors, and I conducted transect survey to further explore *M. rubra* habitat limitations. Finally, I simulated herbivory on a native nettle plant and the invasive *F. japonica*, the latter known to produce nectar rewards for ants when damaged, to test whether *M. rubra* populations were affected by the plants. I found *M. rubra* more in warmer, moist areas at the preserve, with low moisture appearing to be its strongest limiting factor. Additionally *M. rubra* occurred more frequently with invasive plants, particularly *F. japonica* plants that were experimentally damaged.

### Is Varied Vegetation Cause for Alarm Along Four Mile Creek?

**Cara Urban**, GES 460: Environmental Field Methods

Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

The quality of the soil that runs along both sides of Four Mile Creek varies causing a noticeable difference in vegetation on each side. The creek empties into the Niagara River, which has a history of dumping just a few miles down from the mouth of Four Mile Creek. The Four Mile Campground runs alongside the creek, but is separated by dense trees and bushes. Across the creek and along the bends of the creek are sparse dead patches with small shrubs and grasses. The area where the creek and river meet has a history of accumulations of dead fish along the shoreline. All of this gives rise to questions concerning the source or sources of these problems. Through soil sampling on both sides of the creek, analyzing for nutrients, heavy metals and textural differences, the goal for this project is to determine why the vegetation varies. While taking into consideration the topography of the area, soil texture will be assessed to ensure it isn't just a flood plain deposition causing the varied vegetation due to the presence of a compacted clay based layer void of nutrients. Soil will be tested for nutrient levels and the presence of heavy metals. Water sampling in the creek will show if the creek is the source of contamination. The goal is to determine what is to blame for the differences observed in vegetation.

### **Journey to Infinity: Our Understanding of Infinite Sets**

**Leslie Sanchez**, MAT 491: Research in Mathematics  
Faculty Mentor: Professor Robin Sanders, Mathematics

Students often learn math without the historical context connected to it completely bypassing the struggles of the mathematicians that have provided the simplest founding blocks for the math we use today. This study connects the research of infinite sets with the life of mathematician, Georg Cantor. Cantor being the mathematician who helped establish modern set theory. This study goes through the progression of how infinity was thought of prior to Cantor's publications of infinite sets and their numerability. Cantor's professional and personal life was extremely affected by his revolutionary 'radical' ideas within the 1800s. His work sparked controversial conversations within philosophy and theology of the absolute one and the absolute many. He proved that not all infinite sets are one size and in further that these infinite number sets that we often think of, for example Naturals, Integers, and Rationals, etc. can be measured in a convoluted way with transfinite cardinal numbers. He was able to use one-to-one and onto correspondence to help establish the equivalence between sets. We will address how the historical view of infinity helped to shape the opposition that Cantor faced, which fueled the concise argument he had established of understanding infinite sets and transfinite cardinal numbers.

### **Laboratory Study and Analysis of Rock Unit Patterns in the Migmatite Granite Complex Surrounding the Sebago Pluton, Southern Maine**

**Christina Swenson**, Geology  
Faculty Mentor: Professor Gary Solar, Earth Sciences and Science Education

The main focus of this research project is to analyze and interpret structural and mineral patterns found in hand samples collected from the Northern Appalachian Migmatite-Granite complex located in southern Maine, and using standard laboratory and microscopy analytical methods. This is a continuation of research done by B. Luther (2015, SRCC), and is part of a larger multi-disciplinary study. In the Summer of 2014, Luther's work focused on a single large exposure in Cumberland, Maine. He mapped a newly re-exposed 3-D outcrop within the Migmatite-Granite complex where it is east of the Sebago pluton (300 million years old). The new exposure revealed a cliff face nearly 30m in length and 15m high, and, below it, re-exposing glacially polished pavement measuring approximately 76m x 24m. The rocks there are mainly metasedimentary metatexite migmatite (partially molten) with subordinate granitic gneisses. The outcrop itself permitted evaluation in the field for extensive and multi-dimensional data, and several samples of migmatite and intruding granite were used in the analysis. Migmatite is a

high grade metamorphic rock where part of the rock undergoes anatexis, a partial melting of unstable minerals as a reaction to increasing thermal energy. That increase was due to increased burial during continental collision about 400 million years ago. Examining the deformation of these rocks allows insight to the geologic history of the Migmatite-Granite Complex. Laboratory study of the samples involved careful observation of hand specimens and creating thin sections for microscopy. Microanalysis of thin sections is done with cuts along the foliation (planar structure) and lineation (linear structure) of the rocks. Microstructures in the fabric of the rock, defined by the relation between leucosome (partially melted portion) and the paleosome (part that stayed solid), indicate syntectonic metamorphism, followed by anatexis, and then followed by further solid-state strain.

### **Lancaster Oasis: What's in the Water at the Lafarge Quarry?**

**Katherine Pfender**, GES 460: Environmental Field Methods  
Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

A quarry on Peppermint Road in Lancaster NY has been a long time "swimming" hole for local residents, often being referred to as Lancaster Beach. I have often found myself swimming in this curiously tropical blue water, wondering why the color was so vibrant. This particular quarry on the outskirts of town sits between two concrete manufacturing facilities LaFarge and Buffalo Crushed Stone. Also Ellicott Creek runs behind the quarry at a distance of roughly 728ft. For this project a combination of water and sediment samples from the quarry and Ellicott Creek will be tested to find out why the water in this quarry is such a vibrant blue. Due to the location, it is possible that there are higher than average levels of copper in this water resulting from contact with the nearby industries. Alternatively it is possible that Ellicott Creek could be effecting the water quality of this quarry. The creek has a long history of poor water quality, pollution, and in July 2015, the New York State Department of Environmental Conservation cited the creek as being an impaired waterbody. Public bathing is noted as being "stressed" though safe, however, consumption of fish was not addressed in the DEC review. To test for contaminant levels and investigate the possibility of a connection between the creek and the flooded quarry, multiple soil and water samples will be taken to test for heavy metals, concentrating on copper.

### **Leisure Time Physical Activity and Obesity**

**Eroll Simnica**, MAT 495: Applied Mathematics Project  
Faculty Mentor: Professor Chaitali Ghosh, Mathematics

More than two-thirds of adults are considered to be overweight or obese. An estimated 300,000 deaths per year are due to obesity. Physical inactivity and obesity have been linked to serious medical conditions, such as heart disease, stroke, high blood pressure, diabetes, osteoporosis, cancer, anxiety and depression, and a low quality of life. Obesity constitutes a major public health crisis, being a social burden to many and a financial burden to employers and taxpayers. This project will use cross-sectional data with 6445 subjects between the ages of 20 and 80 years from the 2009-2010 NHANES survey, to determine the association between leisure time physical activities such as vigorous intensity sports, running, basketball, walking, bicycling, swimming, golf, etc., and obesity. Body mass index (BMI) defined as  $\text{weight(kg)/height(m)}^2$  is widely used to assess obesity. A BMI of 30 or more is considered to be obese, and will be used as the measure in this analysis. Other risk factors for obesity such as age, gender, marital status, total cholesterol, HDL cholesterol, systolic and diastolic blood pressure, and duration of sedentary activities such as sitting at a desk, reading, watching television or using a computer, will also be considered using standard statistical analysis. Subgroups most or least likely to be obese will be identified, based on intensity of leisure time physical activities. This study will benefit the public by providing data which would help demonstrate the efficacy of physical activity in managing health issues related to obesity.

### **Mathematics in the World of Biology**

**Lillian Marotta**, MAT 491: Research in Mathematics  
Faculty Mentor: Professor Robin Sanders, Mathematics

“Science attempts to find logic and simplicity in nature. Mathematics attempts to establish order and simplicity in human thought” -Edward Teller. Because the sciences are seen as an abstract world to so many, we use mathematics as a bridge to pave the way into understanding them. Although the connection between the sciences and math are endless, in this talk I will focus specifically on three topics: Genomics, Ecology and Environmental Sciences. All three use mathematical models explicitly to predict future outcomes. Genomics is an area of genetics with focus on the sequencing and analysis of an organism’s DNA content. All life is written in a four letter code and with combinatorial analysis we can understand this to a much greater depth. Ecology, theoretical ecology specifically, is devoted to the study of ecological systems using specific mathematical models to reveal how the dynamics of species populations are often based on specific biological conditions. Environmental sciences, focusing on the hot topic of climate

change (pun intended), uses mathematics to predict future outcomes based on pollution, solar energy use and much more. I am hopeful this talk will begin the transition from the conceptual biological world to a relieving clarity of thought.

### **A Novel Approach to the Study of Membrane Permeability**

**Sandra Hunt**, Biology  
Faculty Mentor: Professor Derek Beahm, Biology

We are modifying surface plasmon resonance (SPR) techniques to develop a medium throughput assay to identify compounds affecting membrane channels and transporters. SPR is a label-free technique exhibiting high sensitivity to mass changes on a surface and is widely used in the pharmaceutical industry to identify and characterize binding events between proteins and drug candidates. SPR has yet to be successfully applied to membrane proteins because it is difficult to immobilize enough of the protein on the sensor surface to detect one-to-one binding of small molecules. We intend to overcome this limitation by exploiting the fact that a single channel/transporter can facilitate the transport of many molecules into a vesicle, which allows for the indirect assay of inhibitor binding by measuring the effect the inhibitor has on total vesicle mass. This poster presents our experimental strategy and initial results in demonstrating the ability to detect mass changes in vesicles using SPR techniques. Specifically, we demonstrate the successful capture of lipid vesicles onto different types of surfaces and interpret changes in SPR signals in terms of excluded volume when exposing vesicles to hypertonic solutions of membrane impermeable molecules, such as sucrose. We then show the time dependent increases in vesicle mass that occurs when exposing vesicles to membrane permeable molecules, such as glycerol or d-xylose. We also show that the permeability of d-xylose is dependent on the cholesterol content of vesicles in a predictable manner. This experimental design allows for membrane permeability measurements and will be used to measure the facilitated transport of molecules by protein channels or transporters reconstituted into the vesicle membrane.

### **Old McDonald Had a Farm Stand: Farms Stands in Orleans County**

**Sarah Gatti**, HON 400: All College Honors Colloquium  
Faculty Mentors: Professor Jason Knight, Geography and Planning and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Orleans County, located just northwest of Buffalo, has a robust agricultural economy with many large farm operations. These farm operations supply fresh, local, and affordable produce to residents of the County. By appealing to farm producers and collecting data regarding roadside stands/markets selling locally sourced goods, I am seeking to compile a map, using

Geographic Information Systems (GIS), illustrating the locations and offerings of said stands/market. As previously stated, I will use the data I obtain from farm producers to create said map. An additional aim is to determine how many of the County's 20,000+ parcels are used for agricultural purposes as well as how much of the County's acreage can be considered viable farmland. Furthermore, I seek to examine the economic impact of the agricultural and agribusiness industry in the County. For example, what is the fiscal output per acre of productive agricultural land? A final goal is to distribute these findings to residents of the County so they are then able to make informed decisions about where to buy their fresh produce and clearly understand their options.

### Optical Properties and Electronic Transitions of $\text{YbFe}_2\text{O}_4$ Thin Films

Joshua Hinz, Physics

Faculty Mentor: Professor Ram Rai, Physics

My research is on the growth, structural, optical and electronic properties of Ytterbium-Iron-oxide,  $\text{YbFe}_2\text{O}_4$ , thin films.  $\text{YbFe}_2\text{O}_4$  exhibits the unique physical properties due to the presence of  $\text{Fe}^{2+}$  and  $\text{Fe}^{3+}$  valance states within the triangular lattice structure. We prepared the compound by a solid state reaction starting with stoichiometric proportion of  $\text{Yb}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ , and  $\text{FeO}$ . The material was then deposited on c-axis sapphire substrates using a reactive electron beam deposition technique to produce ~100 nm thick films. Absorption, reflectance, and transmittance of the  $\text{YbFe}_2\text{O}_4$  films were measured in the temperature range of 10 – 450°K. The optical spectra contain Fe d to d on-site transitions as well as O 2p to Fe 3d, Yb 6s, and Yb 5d charge-transfer transitions. In addition, the optical spectra exhibit strong temperature dependence, indicating evidence of a structural distortion of the crystal structure at  $\sim 180 \pm 10^\circ\text{K}$  as well as a magnetic transition at  $\sim 250^\circ\text{K}$ . The detail analysis of the optical data in comparison with theoretical studies will be presented.

### Outside or In? How Does External Acidification Close Hemichannels?

Mariah Schaus, Biology

Faculty Mentor: Professor Derek Beahm, Biology

The lens connexin proteins that form gap junction channels between cells are unique in that they can also form functional hemichannels in non-junctional plasma membrane. These hemichannels can open and close in response to changes in external calcium or pH or membrane voltage, but have unknown physiological roles in the lens. Part of the pH effect may be mediated by the transport of external protons through an open hemichannel to activate an intracellular pH gate. However, given the speed and completeness of block, we believe that an external

pH gate also contributes to channel closure. This project uses classical structure/function approaches to identify regions of the Cx50 protein that are responsible for closing the channel at low external pH, a condition found in the core of the lens. A better understanding of the biophysical properties of hemichannels will provide us with better insight and approaches to study their physiological role in normal and pathological tissue.

### Preparation of Synthetic Indian Yellow

Katherine Spendel, Forensic Science

Faculty Mentors: Professor M. Scott Goodman, Chemistry, Professor Aaron Shugar, Art Conservation and Professor Rebecca Ploeger, Art Conservation

Indian Yellow is an historic pigment that was banned in 1908 by the Indian government due to the inhuman means of production. It was obtained by feeding mango leaves (*Mangifera indica* Linn.) to cows, or possibly extracted from the plant itself. Indian yellow is the magnesium salt of euxanthic acid ((2S,3S,4S,5R,6S)-3,4,5-trihydroxy-6-(8-hydroxy-9-oxoxanthen-2-yl)oxyoxane-2-carboxylic acid). It is a yellow-orange pigment that fluoresces under ultraviolet light. The manufacture of a synthetic version of Indian Yellow has been difficult due to the relative unreactivity of the two main constituents that form euxanthic acid, euxanthone and glucuronic acid. A new methodology was designed to attach surrogate groups to euxanthone and generate a magnesium salt to obtain a pigment with similar spectral properties to authentic Indian Yellow. In this methodology, the red, dibasic form of euxanthone is generated in dimethyl formamide using potassium carbonate. One of the deprotonated oxygens on the euxanthone is then allowed to react with the surrogate group, ethyl 4-bromobutyrate. Column chromatography is then used to purify the reaction product, followed by saponification of the ester. In a similar fashion, the methylated euxanthone was also synthesized. The magnesium salts of the two new pigments were formed by maintaining the compounds under basic conditions in contact with a source of magnesium. The resulting yellow pigments were vacuum filtered and dried. The surrogate Indian Yellow pigments were analyzed with optical microscopy, microscopic FT Infrared spectroscopy, and Raman spectroscopy. The surrogate synthetic Indian Yellow pigments share similar fluorescence characteristics, microscopic structures, and spectral signatures as authentic Indian Yellow.

### Prime Testing and the Riemann Zeta Function

Charles Whitcomb, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

Primes are and always have been mathematical curiosities. To some, they are just numbers. To others, well, they are an ever expanding rabbit hole of endless possibilities. In this presentation

I will address a few particular topics, though the most talk will be centered on prime testing and the Riemann zeta function. I will look at the progression of how primes have been generated over the past few centuries and branch into discussing certain types of primes and their importance. For example, Mersenne primes are a special subclass of prime numbers, of which less than 50 have been discovered. The reason? They follow a distinct pattern:  $2^p - 1$ , where  $p$  is a prime number. As for the Riemann zeta function; the other focal point of the presentation, Riemann found a way to bridge two seemingly unrelated mathematical fields in a way that seems to be pure harmony. The idea of producing an equation such that real numbers and complex numbers can combine together to produce prime numbers is astounding. The “zeros” that you obtain in the function map out the primes and the equation as a whole is key to prime distribution.

### Put a Ring On It

**Maria Lema**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

Rings are algebraic structures that are defined by addition and multiplication with similar properties to the operations for which integers are defined. Ring theory becomes very important for things like coding. My project mainly serves as an exploration of ring theory, which is directly related to group theory and field theory, where a field is a ring that is commutative. Exploring how all of these ideas come together to form a solid foundation will help for a better understanding of Galois Theory. This in turn allows us to reduce field theory problems to group theory problems, so that they can be better understood and more easily completed.

### Rowe Formation Schist Composition and Fabric Analysis, Western Connecticut

**Heather McCarthy**, Geology

Faculty Mentor: Professor Gary Solar, Earth Sciences and Science Education

The garnet-mica schist (GMS) unit of the Rowe Formation is the result of a metamorphosed Ordovician and Cambrian oceanic shelf sequence. Evidence of progressive metamorphism is shown by idioblastic centimeter-sized garnet and similarly sized staurolite porphyroblasts in an otherwise muscovite-dominant matrix. The turbidite protolith is reflected by the five-to-ten-centimeter interlayers of metapsammite and metapelite; the latter being the layers that contain most garnet and all staurolite. Samples were collected from a steep, single large exposure of the Rowe Formation in Roxbury, Connecticut. The focus of this work is on samples of the pelitic layers where thin sections were prepared parallel and perpendicular to fabrics within each specimen. Petrographic analysis includes mineral composition of the matrix and porphyroblasts (point counting), matrix grain

sizes, phase alignment, and microstructures. The matrix of the GMS is dominated by muscovite-quartz aggregates with biotite, plagioclase, K-feldspar, and chlorite. Point counting results show mineral composition to be consistent between thin sections. Fabric analysis reveals that all matrix phases demonstrate preferred orientation, and that they are all internally consistent across all thin sections. Point counting results are used to calculate bulk wt.% of major elements that was tested using the scanning electron microprobe.

### The Runge-Kutta Method

**Michael Weisbeck**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

My research topic is on the mathematical process known as the Runge-Kutta method. This method is a formula or device to solve ordinary differential equations using a technique called a recursion formula. I have been introduced to this topic in my differential equations class as well as my physics classes. I am researching the history and development of the method as well as the applications in the real world. However, it will be a challenge to find material on my topic in a historical sense. I also am researching the actual mathematics of the method. The Runge-Kutta Method is basically an advanced version of the Euler Method which was developed much earlier. I will also be discussing this process as well as it is difficult to explain one without the other. The actual mathematics are not too complex to explain to the average audience, so I will also give examples of certain problems solved using the method. I will also give examples from programs I have used to solve physics problems which will also tie in nicely with my discussion on the modern uses in everyday life that the method can be used. I believe that I have a plethora of good material to base my research on. As stated I have used the Runge-Kutta method a few times in the past and still have those previous projects to show in my presentation. I am very excited to be able to present my research to my fellow classmates at the student research and creativity day.

### Safety Starts with Me

**Samantha Katus**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Maria Pacheco, Chemistry, Professor Anne Marie Sokol, Chemistry and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The objective of this work was to determine the current status of student chemical safety training in the Chemistry department at Buffalo State College and to suggest ways to improve its delivery and assessment. The impetus for this project was the American Chemical Society's revised chemical safety curricular requirements for program accreditation, and the need for the Chemistry department to abide by such requirements to continue its accredited status. A literature search was conducted with the goal of finding national best practices in both the delivery

and assessment of chemical safety instruction. Local colleges were contacted to find out their current safety curricula and assessment methodology. A list of basic safety skills/content knowledge items was assembled and submitted to the faculty in the Chemistry department in the form of a survey, with the goal of determining our faculty's own priorities and interest in selecting topics deemed crucial for a chemical safety curriculum. Preliminary analysis of the survey results point towards faculty and teaching assistant's/lab instructor's different views on the importance of specific safety techniques presented in the survey. Final survey results will be presented and their implications discussed. The results will also be utilized in the development of a student confidence/content knowledge survey to be delivered during the Fall 2016 semester.

### **Schist! A Closer Look at Appalachian Metamorphic Rocks**

**Heather McCarthy, Melissa Bennett and Michael Bartkowiak**, GES 401/590: Igneous and Metamorphic Petrology  
Faculty Mentor: Professor Gary Solar, Earth Sciences and Science Education

The east coast of the United States has a long geologic history involving multiple mountain building events due to continental collision. These violent episodes are recorded in the rocks that remain at or near the collision sites. As continents moved together, sediments from ancient oceans were trapped between them, resulting in the metamorphosed Ordovician and Cambrian oceanic shelf sequence we see today. Each researcher has completed individualized studies on a unique but similarly aged schist from the Appalachian region (Massachusetts, Pennsylvania, and Connecticut). Projects involved individual specimen handling, including cutting and thin sectioning for microanalysis. Microscope work utilized standard point counting to identify and quantify mineral assemblages. These data are used to calculate bulk chemistry for the rocks. Individual analysis is compared to identify similarities and differences between the rocks and their respective regions.

### **Separating Roles of Hemichannels and Gap Junction Channels**

**Max Destino**, Biology  
Faculty Mentor: Professor Derek Beahm, Biology

Gap junction channels connect cells together and allow the cells to share ions and small molecules. Each cell provides a "half" channel, called a hemichannel, which are composed of connexin proteins. These hemichannels dock end-to-end to form a functional gap junction channel. Most hemichannels stay closed in the plasma membrane to prevent leakage of cellular components. However, a few connexin proteins, like Cx46 and Cx50 expressed in lens tissue, can form hemichannels that open and close in non-junctional membrane. It is difficult

to separate out the physiological roles of hemichannels and gap junction channels because traditional techniques of gene/protein disruption will affect both types of the channel. Our lab is trying to create mutant connexin proteins that can only form one functional type of the channel, either a hemichannel or a gap junction channel. My project involves using site-directed mutagenesis to create a hemichannel that still functions properly but cannot assemble to form gap junction channels. I am altering amino acid residues in the extracellular loops of the protein that are known to be important for gap junction formation and test for the ability of the mutant to still make a functional working hemichannel. These mutants can be reintroduced into a system to identify physiological roles that are specifically served by hemichannels in the absence of gap junction channels.

### **Shortest Path Problem on Randomized Graphs**

**Mitchel Lochhead**, AMT 495: Special Project  
Faculty Mentor: Professor Valentin Brimkov, Mathematics

Given a network represented by a graph, the shortest path problem (SPP) consists in finding a tour along graph edges connecting two given vertices (nodes) of the graph. SPP is among the most popular and best studied combinatorial optimization problems. It features a rich set of applications in various areas of human practice, such as transportation, motion planning in robotics, communications, social networks, VLSI design, and imaging sciences. In the present work, I first formally define the problem and discuss some important applications. Then I describe the two basic algorithms for the shortest path problem. These are known as Dijkstra's Algorithm and Floyd-Warshall's Algorithm. The former finds a shortest path between two vertices in a graph while the latter computes the values of all shortest paths between any two vertices of the graph. Next, I use the Floyd-Warshall's Algorithm for experimentally investigating the values of the shortest paths in randomly generated graphs with different graph sizes and probabilistic distributions. The experiments are carried out by the algorithm implementation available in Mathematica. In addition, for each graph sample I compute the minimum and maximum sizes over all shortest paths between graph vertices, as well as the corresponding average value. Then I analyze the obtained results and compare them with known theoretical results. I conclude my work with some final comments and open questions for future research.

### Spatial Analysis of Lead Contamination and Impact on Children Population

**Michael Monroe**, GEG 430: Senior Thesis

Faculty Mentor: Professor Tao Tang, Geography and Planning

The objectives of this research are: 1) spatially visualizing and analyzing the relative lead (Pb) concentrations using the parcel land ownership data with “year of built” attribute and laboratory analysis of lead (Pb) concentrations of tap water at the randomly selected locations, and 2) assessing the potential impact to young children in the study area by overlaying the relative lead (Pb) concentration index digital map on the distribution map of young children population. Since the lead paint was only applied for the houses prior to 1970s, the houses were built before 1970s are considered carry some degree of lead materials. The original hypothesis of this study is that the areas of high relative lead (Pb) concentrations are coincident with the areas of high young children population in the town. Significant numbers of high risk areas exist across the region. The detail parcel land ownership digital data with “year of built” attribute was obtained from the Town of Tonawanda. A total of 19 randomly selected tap water samples were tested by faculty and students at the Chemistry Department. The distribution of young children population in the town will be determined using the U.S Census Bureau block group level dataset. Both interpolation methods of inverse distance weighting (IDW) and Kriging spatial statistics will be applied to analyze the data. The expected results are: 1) relative lead (Pb) concentration index map, 2) the young children (age 10 or younger) distribution map, and 3) the potential lead (pb) poisoning hot spots map.

### Spatial Interpolations of Results and Potential for PUSH Green Project

**Jason Paeplow**, GEG 528: Environmental Assessment and Planning Applications in GIS

Faculty Mentor: Professor Tao Tang, Geography and Planning

PUSH Buffalo has assisted the local community in several ways for years. PUSH Green, a division of PUSH Buffalo, assisted many citizens throughout Western New York by auditing home energy efficiency. PUSH Green has been working to help low income families or home owners of older or less insulated homes to increase their energy efficiency and/or lower their monthly utility bills. The purpose of this project is to assist PUSH Green by creating a visual representation of the collected data of homes that have taken advantage of the home energy efficiency programs. Furthermore, this project will also interpolate the spatial data in terms of areas that have been assisted as well as the income level of the families. The expected result of this study is to present that most of the areas assisted are located in lower-income areas. This study will also identify some other low income areas that PUSH Green can focus on in developing

energy efficiency programs. In accomplishing this service research project, I will utilize ArcGIS software to analyze the spatial datasets of multiple layers including assisted homes and Census block group data (income, education level, population.) The data provided by PUSH Green will be geocoded for accurate visualization and interpolations. This project hopes to impact the community by providing PUSH Green with both a means to communicate their work to the general public as well as providing other areas for the organization to explore as potential targets for future programs.

### Strange Magnetic Anomaly: The Quantum Hall Effect

**AC Williams**, Physics

Faculty Mentor: Professor Dermot Coffey, Physics

My research is going to focus on understanding a phenomenon known as the Quantum Hall Effect (QHE). First, the Classical Hall Effect is known for determining the sign of charge carriers in a material. This effect comes about by applying a perpendicular magnetic field to a flat, doped semiconductor while passing a current,  $J_x$  through it. This leads to a Hall Voltage in the transverse direction. Using a classical approximation, conductivity,  $\sigma_{xx}$  has a constant value as a function of magnetic field strength.  $\sigma_{xx}$  can be expressed by  $n_e e^2 \tau / m_e$  [1], an expression using variables dependent on the material. However, the Quantum Hall Effect is stranger. Von Klitzing (1980) discovered that when the applied field was large enough at 4.2 K the current along the x direction,  $J_x$ , goes to zero except at narrow periodic regions of the applied field strength, where there is a sharp rise and fall in  $J_x$ . This is completely different from the classical approximation, but can still be simply explained with quantum mechanics. However he also discovered that transverse to this direction, a new current,  $J_y$ , appeared characterized by a resistivity,  $\rho_{xy} = R_H / n$  [2], where the Hall resistance,  $R_H = nb / e^2 = 25812.807 \Omega$  [3], and  $n$  is an integer.  $\rho_{xy}$  is constant to one part in  $10^5$  between the sharp peaks in  $J_x$ . This constant value is found, regardless of the purity and dimensions of the sample! Through calculation, I will discuss how this mysterious behavior arises and its consequences for subsequent research.

### A Study in Low Frequency Horn-Loaded Loudspeaker Engineering

**Peter Dragos**, Music and Mathematics

Faculty Mentor: Professor Tom Kostusiak, Performing Arts Center at Rockwell Hall

Low-frequency horn loudspeakers exhibit a number of advantages over standard direct radiator loudspeakers. By placing a gradual flare between the diaphragm of the speaker driver and the space into which sound is meant to radiate, higher efficiency, lower distortion, and better directivity may be achieved. However,

the engineering process is far more challenging for this type of loudspeaker due to size, weight, and bracing which require special techniques to overcome; it has historically been considered too difficult for the hobbyist to attempt without prior experience. This presentation will outline a method devised to allow a novice to design, simulate, draft, model, and construct a well performing horn subwoofer on a minimal budget. The method was compiled from exploring many existing techniques which both hobbyists and professionals use to engineer horns, and selecting those which gave the best trade off between ease of use and end result. The final method uses a number of academic and internet sources for literary research, David McBean's "Hornresp" program for simulation and design, Trimble's "Sketchup" for drafting and modeling, and a variety of woodworking tools for construction. The project produced a working prototype, loaded with a B&C 15NW100, that will be presented as well. The design process of the prototype will be used as an example of the method.

### Success and Controversy in the Use of Data and Mathematics in Health, Fitness and Personalized Medicine

**Yuetao Zhu**, Applied Mathematics

Faculty Mentor: Professor Joaquin Carbonara, Mathematics

In this project we look at examples of data in the area of health, fitness and personalized medicine. Such data is used to predict how different behaviours are associated with health benefits. Modern techniques used to understand this data include statistical analysis and artificial intelligence. We examine the advantages and disadvantages of different methods. One important aspect we discuss is how artificial intelligence techniques like machine learning are able to deal with one important aspect or real life applications: data is inaccurate and contains errors of different kinds. In such situations, classical mathematical approaches which depend on understanding the predetermined characteristics of the data are not as useful. Finally we discuss general trends of applied mathematics and data analytics.

### Synthesis and Characterization of Pyrazole-Substituted Tetraazamacrocyclic Metal Complexes for Contrast Enhancement in Magnetic Resonance Imaging

**Kayleigh Bemisderfer**, CHE 795: Research Thesis in Chemistry

Faculty Mentor: Professor M. Scott Goodman, Chemistry

The synthesis and characterization of pyrazole-appended tetraazamacrocyclic ligands are reported. Synthesis and separation of Boc protected 1,4,8,11-tetraazacyclotetradecane (cyclam) allows for the obtention of several isomers: tris(*t*-butyl)-1,4,8,11-tetraazacyclotetradecane-1,4,11-tricarboxylate, bis(*t*-

butyl)-1,4,8,11-tetraazacyclotetradecane-1,11-dicarboxylate, and bis(*t*-butyl)-1,4,8,11-tetraazacyclotetradecane-1,8-dicarboxylate. The different isomers were then each appended by reaction with the corresponding equivalents of either 1-(2-bromoethyl)-1H-pyrazole or 1-(2-bromoethyl)-3,5-dimethyl-1H-pyrazole. Thereafter, the protective Boc groups were removed from the compound by heating in water for an extended time to afford the unprotected macrocycles with 2 or 3 pyrazole pendant groups. The resulting ligands could potentially be further functionalized if desired. The proton NMR spectra of all synthesized ligand systems show highly dispersed and relatively sharp proton resonances. By forming complexes of these ligands with various transition metal ions, it should be possible to prepare a new class of paramagnetic chemical exchange saturation transfer (paraCEST) MRI contrast agents.

### Synthesis and Separation of a Novel Class of Scorpionate Ligands: 3,5-Dimethyl-Substituted Tris(pyrazolyl) methanes

**Eric Gauchat**, CHE 499: Organic Synthetic Research

Faculty Mentors: Professor M. Scott Goodman, Chemistry and Professor Alexander Nazarenko, Chemistry

Tris(pyrazolyl)methanes (TPM) represent an exciting class of organic scorpionate ligands. Similar to tris(pyrazolyl) borate scorpionates, TPMs differ in the central atom binding three pyrazole rings, and have an overall neutral charge, unlike their negatively charged cousins. A large variety of ligands can be produced via substitution of the pyrazole rings at positions 3, 4, and 5. An arrangement of particular interest involves the distribution of 3,5-dimethyl pyrazole and unsubstituted pyrazole around the central carbon atom. In this study, we report on the synthesis of a novel class of TPMs that exchange 3,5-dimethyl-substituted pyrazoles with unsubstituted pyrazolyl rings, producing two chemically and physically similar compounds, the mono(3,5-dimethyl)- and bis(3,5-dimethyl)- derivatives. Synthetic methods are discussed, as well as a proposed carbene mechanism, and particular attention is given to the separation, resolution, and purification of the two novel compounds. NMR and single-crystal X-ray diffractions data is presented, as well as potential applications in coordination chemistry and spin-state transition studies that is ongoing.

### Synthesis of Tetraaza Macrocyclic Ligands with Pyrazole Pendant Arms

**Anjuli Bhandari**, Forensic Science M.S.

Faculty Mentors: Professor M. Scott Goodman, Chemistry and Professor Alexander Nazarenko, Chemistry

Metal complexes that contain naturally occurring metals have been proposed as replacements for gadolinium-based MRI contrast agents. Binding a metal (e.g. copper or iron) to

a macrocyclic ligand that has a high water transfer rate would potentially be able to replicate gadolinium-based dye conditions while also having a higher excretion rate. Such macrocyclic ligands have been steadily accruing interest in contrast agent development due to their stability and lack of flexibility, which reduce the chance of metal dissociation. Tetraaza macrocycles, such as cyclam and cyclen, are popular ligands that can potentially serve as a scaffold for new MRI imaging complexes. To this end, we synthesized tetraza macrocyclic ligands with four pyrazole pendant arms. These ligands were then purified, characterized, and crystalized. The ligands thus produced could then be used to attempt to form stable metal complexes using varied metals and solvents. In each case, the metal complexes appear to be polymeric. All new compounds were characterized using NMR, mass spectrometry, and X-ray crystallography. The synthesized compounds show promise in one day being a strong contender for imaging contrast and possibly a therapy for cancerous tumors.

### **Techniques for Testing VOCs at Local Niagara Street Brownfield**

**Korey LePage** and **Trevor Jennings**,  
GES 460: Environmental Field Methods

Faculty Mentor: Professor Elisa Bergslien, Earth Sciences and Science Education

Volatile organic compounds (VOCs) are organic compounds that easily vaporize at ambient temperatures. When contained in soil, VOCs can become concentrated in an enclosed space, such as a basement, compromising air quality and posing risks to developments. In this project we are testing a technique for measuring VOCs in soils at a Brownfield site located at the corner of Lafayette and Niagara streets in Buffalo. The 1318 Niagara St. site is currently a Brownfield site that once contained two buried storage tanks filled with 22,000 gallons of oil, a furnace pit, and nineteen 55-gallon drums filled with PCB's and oil. The drums, tanks, and furnace pit have since been removed, however, the area remains a Brownfield site due to the known presence of VOCs that will need to be removed before construction can occur at the site. Currently, surrounding buildings have no risk of volatile compounds accumulating according to the NYSDEC. For this project, we will be using a Manual Gas Vapor Probe, which is a hollow stainless steel core that allows volatiles to enter the probe which can then be extracted using a syringe. This technique, as well as soil core samples, will be used to test for VOCs at the Brownfield site and the adjacent grassy area surrounding the site. We will also be testing for polychlorinated biphenyls and heavy metals to analyze the spread of contaminants off site. This project will result in improved knowledge of techniques for testing for VOCs as well as a better understanding of the spread of contaminants on such sites.

### **Temporal Changes in Buffalo River Furrows Mapped Using Side-Scan Sonar**

**Nicholas Miller**, Earth Sciences

Faculty Mentors: Professor Jill Singer, Earth Sciences and Science Education, Professor Thomas Manley, Geology, Middlebury College and Professor Patricia Manley, Geology, Middlebury College

Between 2011 and 2015, >1 million cubic yards of contaminated bottom sediment was removed from the lower ~9 km of the Buffalo River as part of an environmental remediation project. This involved removal of sediment from both within and outside the navigational channel and the project represents an important step in the delisting of the Buffalo River as a Great Lakes Area of Concern. This dredging project provided an ideal opportunity to document changes in the morphology of a section of the river between 4 and 5 km from the mouth (and known as Cargill's Reach) that is distinct in that there are large-scale sedimentary bedforms known as furrows. Furrows are elongate, longitudinal grooves that form in cohesive sediment by scouring of bottom currents; ridges separate furrows and furrows can bifurcate. These tuning-fork features form where two furrows join with the opening of these features useful in determining current direction. While significant dredging activities occurred within Cargill's Reach, portions of the furrow field were not dredged. My research involves documenting changes within the furrow field to provide a better understanding of how dredging modified this section of the river. This was done using side-scan sonar – a technique based on the strength of returning sound reflections – to map natural and anthropogenic river features. Side-scan sonar data were collected in 2005, 2009, and 2011 – 2015. These data were processed in the Geology Department at Middlebury College. Processing involved adjusting the gains on data images until the contrast appropriately displayed surface features and also included positioning the records to ensure direct comparisons between years are possible. I used the processed maps to observe changes in furrow location, length, width, and presence or absence of bifurcations. Preliminary findings include: decrease in the overall number of furrows following dredging and furrows that persist from year-to-year exhibit differences in their distinctiveness.

### **Tessellation Using Regular, Semi-Regular and Penrose Tiles**

**Jai Adhikari**, MAT 491: Research in Mathematics

Faculty Mentor: Professor Robin Sanders, Mathematics

Tessellation is covering a plane with tiles without any gaps or overlaps. Tessellating a plane can be done using four transformations- translation, reflection, rotation, and glide reflection. Some shapes can be used to tessellate the plane while some cannot. Regular tessellation uses regular polygons and semi-regular uses more than two regular polygons to tessellate

a plane. A Penrose uses nonperiodic or aperiodic tiles. The basic strategy to create these tiling is by using the symmetry and geometric approaches such as angles and polygons. One can construct plane covering with tiles without any gaps but question is how can we create those planes? This paper describes ways to create different types of tessellation mainly regular, semi-regular and Penrose tiling using isometries, angles, vertices and edges of a shape. By investigating I found to construct a plane with regular and semi-regular tessellations, the measure of the interior angle at a point must add up to 360 degrees. Penrose tiling uses kites and dart, which is derived from rhombus with angle 72 and 108 degrees. Discovering the connection between mathematics and art is also emphasized using tessellation in this paper.

### **Tonawanda Landfill Remediation Analysis Using GIS**

**Bryan Radez**, GEG 430: Senior Thesis

Faculty Mentors: Professor Tao Tang, Geography and Planning and Professor Kelly Frothingham, Geography and Planning

GIS is applied to conduct a study on the Tonawanda Landfill to determine the best remediation method for radioactively contaminated soils of three chemical elements; radium, thorium and uranium. The data used to conduct this study is being provided by Mr. Shawn McCabe at the US Army Corps of Engineers, Buffalo District in a service learning project. In this study, GIS software including ArcMap, ArcCatalog and ArcScene, is used to create point feature of each contaminated soil sample site that include the sample depths. The point features are created by using ArcMap and ArcCatalog to digitize points based on geographic coordinates provided for each soil sample site. Once all the sampling points have been digitized, I will then bring the point map layer and landfill boundary layers into ArcGIS ArcScene to create the three dimensional visualization of results. By taking the averages for each of the three contamination types and an overall average of the radioactively contaminated soils, I can determine the severity of contamination within the landfill. Based on the analytical results, the conclusion will be reached as to whether a site excavation should be funded or if a landfill wall and capped barrier will be a sufficient remediation method. A site excavation will be deemed necessary if the contaminants average over 50 feet and a landfill wall and capped barrier will be more necessary if the averages are below 50 feet. The expected results will include interpolations using ArcMap and ArcCatalog and three dimensional visualizations in ArcScene.

### **Using GPR to Determine Grave Locations in a Historic Cemetery**

**Matthew Eckle**, Earth Sciences and **Mike Bartkowiak**, Geology

Faculty Mentor: Professor Kevin Williams, Earth Sciences and Science Education

Ground penetrating radar can be used as a non-invasive research method to study the subsurface in a variety of settings. This technique uses radar waves to detect changes in subsurface structures by detecting reflected energy. GPR can be especially useful as a means for evaluating burials at a cemetery without disturbing the surface. Bennet Cemetery is a small, privately owned cemetery in Cheektowaga, NY, where some graves are marked by tombstones of various ages but other areas are unmarked. This project aims to determine whether unmarked areas in the cemetery contain burials. For an initial survey, six parallel transects were laid out in two separate areas running along several existing tombstones and many potentially lost burials. Because the cemetery contains burials of Cheektowaga's earliest settlers from the late 1700s and also contains more recent burials, various graves are expected to contain different buried material and states of preservation. Different burials would also be affected by variations in how each grave was constructed. Some burial markers from this time may have been simple wooden crosses, increasing the likelihood of lost burials after decay of the wood. By using GPR to locate lost burials, the Cheektowaga Historical Society will be better able to honor their town's earliest residents.

### **Using Ground Penetrating Radar and GIS to Map Archaeological Features at Old Fort Niagara**

**Trevor Jennings**, Earth Sciences

Faculty Mentor: Professor Kevin Williams, Earth Sciences and Science Education

Ground Penetrating Radar (GPR) is a non-invasive geophysical tool used to analyze the subsurface. Electromagnetic waves emitted into the ground from an antenna reflect off objects and are received by the antenna resulting in a 2D view of the subsurface. GPR radargrams reveal features including stratigraphic layers, pipelines, building foundations, burials, and other features useful for scientific applications in subsurface geology, environmental studies, engineering, and archaeology. Collecting data in a precise grid pattern also allows for a 3D block of data to be obtained by combining parallel transects of data and using processing software for interpolation. The 3D visualization allows for more complete interpretations of subsurface structures compared to individual 2D profiles. In this project, a GSSI SIR-3000 GPR system with a 400 MHz antenna was used at Old Fort Niagara in Youngstown, NY, in order to better understand

remaining archaeological features at the fort. The Buffalo State Archaeological Field School lead by Dr. Susan Maguire performs excavations at the site every two years, and due to varying degrees of accuracy in historic maps, planning of excavations is sometimes a difficult task. Maps also reveal structures that existed at the fort, and what currently remains in the subsurface is questionable. In order to better understand remaining archaeological features and assist in planning excavations, GPR was used to analyze the subsurface and an accurate map of current structures was generated using Google Earth Pro software. 3D data were collected over a 3,000 m<sup>2</sup> area in the summer of 2014 and 3D radargrams were compared to computer reoriented maps in order to aid interpretation. The resultant map displays accurate locations and depths of several foundations, utility lines, trash pits, a hearth feature, and remnants of a pre-existing seawall structure.

### Visitor Attendance Effect on Howler Monkey Behavior and Location

**Alistair Stewart**, ANT 322: Research Methods in Primatology  
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

I studied black howler monkeys (*Alouatta caraya*) to determine if amount of zoo visitors affects the howler's behavior and location within an enclosure. I hypothesized that when the enclosure is split into three sections (two with high and one with low visitor exposure), high amounts of visitors in one section will cause the howlers to be in a different section. I also hypothesized that the howlers will prefer the section with low visitor exposure to other sections where there are more visitors. Also, the howlers would social rest, scan, and be out of view more at times of high visitor attendance. Using focal samples, I collected twenty hours of data on the behaviors of two adult black howler monkeys and recorded visitor attendance at their enclosure at the Buffalo Zoo. The mean number of visitors in two different viewing locations was highest when the howlers were located in an area of the enclosure with the least amount of visitor exposure. The howlers had a higher percentage of the out of view behavior when there were more than ten visitors at the enclosure. Visitor attendance can cause the howler monkeys to be in a more secluded area of an enclosure.

### Voronoi Diagram and Delaunay Triangulation

**Bokun Jin**, MAT 495: Applied Mathematics Project  
Faculty Mentor: Professor Valentin Brimkov, Mathematics

Voronoi diagram and Delaunay triangulation are fundamental concepts in computational geometry, with numerous applications in mathematical and natural sciences. In my work, I first make a brief overview of their history which dates back to the 17th century. Then I define Voronoi diagram

and Delaunay triangulation. Informally, Voronoi diagrams divide the plane according to the nearest neighbor rule: each point is associated with the region of the plane closest to it; the Delaunay triangulation is a triangulation which is equivalent to the nerve of the cells in a Voronoi diagram, as the Voronoi diagram and Delaunay triangulation are dual to each other. Several figures illustrate and facilitate the better understanding of the presented concepts. After that, I survey various properties of Voronoi diagram and Delaunay triangulation, methods for their generation, and applications. I introduce two methods for generation for each of them and then compare the methods with respect to their computation time. Then I experimentally investigate by computer programs (using Mathematica) some properties of Voronoi diagrams and Delaunay triangulations on special classes of point sets, such as ones belonging to a circle, to a number of concentric circles, to ellipses, and to various convex sets. Finally, I analyze the graphs of the obtained Voronoi diagrams and Delaunay triangulations and present the conclusions made.

### Water Elevation Changes and the Oscillation of the Buffalo River

**Brandon Franks**, Professional Applied and Computational Mathematics, **Allison Torsey**, Physics and Mathematics and **Kari Clayton**, Earth Sciences

Faculty Mentors: Professor Jill Singer, Earth Sciences and Science Education and Professor Thomas Manley, Geology, Middlebury College

The Buffalo River, an urbanized watershed located in Buffalo, NY, discharges into the east end of Lake Erie. The Buffalo River, including the riparian zone, has been degraded due to industrial activities and loss of habitat. Over the past 30 years, much research has taken place to support the environmental restoration of the river and this activity has accelerated in recent years along with redevelopment taking place in and around the river. The Buffalo River has some interesting flow dynamics that relate to the orientation of Lake Erie in the same direction of the prevailing WSW winds. Persistent winds blowing across Lake Erie can pile water up at the eastern (Buffalo) end of the lake causing large elevation changes creating surges in the Buffalo River. This study builds upon prior investigations examining the propagation of surges in the Buffalo River that also revealed that the river has its own periodic oscillation. The river's ~2 hour oscillation behavior has been well documented for 2010 to 2014 based on water level recorders located near the mouth, 4.5 km and 9 km upriver. The behavior of the oscillation was very similar between 2010 and 2013, but interesting changes were noted in 2014. This change might be related to deepening and widening of the river resulting from the removal of sediment in an environmental dredging project. To better understand the change in the behavior of the oscillation, two additional water level recorders were

deployed in the Buffalo River between June and early November 2015 to collect elevation data every 1 minute. These data are being processed and interpreted to document the changes in the shape of the oscillation's wave pattern. To evaluate the relative magnitude of these changes, data are being filtered to remove high frequency oscillations and detrended to remove long-term trends in the data. These data are being used to compute an average water level, and a residual signal that represents the magnitude of the observed changes in water level and allow us to directly compare the 2015 records with the previous five years of data. This in turn should help us determine if the 2014 change in the shape of the oscillation's wave form persisted in 2015. It also could lead us to figure out the underlying causal mechanism for the river's 'seiche'.

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# ***Psychology and Social Sciences***

## **Advanced Collections Analysis**

**Michael Doty**, ANT 499: Independent Study  
Faculty Mentor: Professor Lisa Marie Anselmi, Anthropology

This study documents late 19th century images that are part of a private collection in Buffalo, NY. This process has been broken down into several phases which include: photographing the images, recording known data from the collector, researching images using primary and secondary sources, and then synthesizing the research into a photographic journal. The goal is to illuminate the variety of ways in which photographs were taken in the late 1800's with private examples of such and to document this specific private collection. A sampling of these important historical photographs will be presented.

## **All Physicians Must Wash Hands: Infant Mortality at Forest Lawn**

**Caitlin McClellan**, ANT 418: Seminar in Physical Anthropology  
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

The practice of hand washing by physicians was not a common practice before the acceptance of Louis Pasteur's Germ Theory of Disease (Berche 2012; Lane et al., 2010). Before this, disease was thought to be caused by spontaneous generation due to weather or supernatural forces, and hand washing was considered unnecessary. In this paper I considered the effects of the advent of hand washing by physicians on infants, who are most susceptible to infections during the first twenty eight days of life. I examined the cause of death of a sample of infants in the death registers of Forest Lawn Cemetery in Buffalo, NY. Time periods before and after the practice is accepted were compared. I argue that there would be fewer cases of infant death from an infectious cause in 1894-1902, than in the time period 1853-1875, because the practice of handwashing aids in the prevention of the spread of disease. The results support my hypothesis with fewer cases of deaths determined to be from infectious causes in the later period. Also, convulsions is discussed as an ambiguous cause of death that offers support to findings.

## **American Cultural Symbolism Through Food**

**Shatie Brown**, HIS 400: Senior Seminar in History  
Faculty Mentor: Professor Christienna Fryar, History and Social Studies Education

In America, we consider our culture a "tossed salad". That is, every distinct ethnicity, race, and culture play a role in creating the conglomerate that symbolizes our American Identity. While these are central to the foundation of American culture, it is

not all that defines us. In my presentation, I will showcase how one aspect, food in particular, has crossed the barriers of race and ethnicity and became a symbol that distinguishes American identity across its inner boundaries. How has food come to affect American cultural identity? To answer this question, I will explore the origins of popular American foods, its national growth, and how it has affected American Culture. I will showcase staples such as: Buffalo Wings, New York style Pizza, Philadelphia's Cheese Steak, and so on. These staples, in particular, have become iconic foods that have spread from the original region throughout the world. In fact, some people still travel from across the country, or even across the world just to taste these delicacies. Given the information, I can argue that food plays an important role in shaping our actions, identity, and pride. Just as Americans take pride in their country, they also take pride in their city's iconic food as well. This research helps form the identity of the many urban cultures in today's American cities. Without this analysis of food in American culture, we can easily omit its importance. It is my belief that this research will not allow the listener to do so.

## **The Association Between Prenatal Exposure to Cigarettes and Language Development**

**Marycarmen Perez**, Individualized Studies  
Faculty Mentor: Professor Pamela Schuetze, Psychology

A large body of literature has demonstrated that prenatal exposure to cigarettes is associated with negative developmental outcomes including reduced fetal growth and behavioral problems. Less is known, however, about language development in these children. The purpose of the study is to explore the following questions. 1), Do cigarette exposed children show differences in language development compared to non-exposed children? 2), Does child gender interact with prenatal cigarette exposure to impact language development? I hypothesize that cigarette exposed toddlers will have delayed language development relative to non-exposed toddlers. I also anticipate that non exposed girl toddlers will have better language capabilities than non-exposed boys, cigarette exposed boys, and cigarette exposed girls.

## **Big Five Test Construct Validity**

**Sarah Holenstein**, PSY 499: Independent Study  
Faculty Mentor: Professor Dwight Hennessy, Psychology

In psychology, there is a general consensus about the five basic traits of personality (referred to as "The Big Five"), however, instead of a single standardized test, there are several tests developed to measure the same five traits (John, Naumann, & Soto, 2008). Investigating whether the personality traits actually represent the traits similarly among tests is beneficial in that it may aid in finding the most parsimonious way of measuring

personality traits. The current study investigates two versions of personality tests used to measure the five traits. Goldberg's Unipolar Big-Five Markers (1992) and The Big Five Inventory (BFI) (John, Donahue, & Kentle, 1991). Comparisons will be made between participant scores on the two personality test batteries and the participants' self-reported rankings of how much each of the traits are part of their personality. Participants will complete online questionnaires which consist of both personality test batteries. At a later date participants will be asked to complete another online questionnaire which will consist of the definitions of each individual personality trait and participants will be asked to rank on a scale from 0% ("not at all") to 100% ("completely like me") the degree to which they feel that trait fits their own personality. It is expected that scores between the Unipolar Big-Five Markers and the BFI will not vary significantly. Furthermore, it is expected that participants will self-report the presence of traits which will in turn also be similar to the trait scores of each of the personality test measures.

### **The Buffalo Bar Scene Through the Years**

**Christian Jones**, HIS 400: Senior Seminar in History

Faculty Mentor: Professor Christianna Fryar, History and Social Studies Education

How has the change in the type of jobs in Buffalo through the years changed the type of crowds and how economically it affected the unemployed who would enter the bars weekly from 1900 to the closing of the steel plants like Lackawanna steel in 1973? I will be touching base upon how some bars came to be because of the immigrants that formed them and their surrounding communities. With many uneducated immigrants who had laborious jobs in the early 1900's the factories and plants had many shifts and employees who worked long days. These men after work would go to have a couple of drinks to relax and then return home to sleep and prepare for their next day of work. In the 1970's this all changed, less factory and plant jobs were available so people had to start being educated to have jobs causing unemployment with many other social effects upon these people. With Buffalo struggling to change over to a white collar town many of these workers spent most of their days now in the bars wasting away their lives and money which in turn would cause drastic changes to the bars they would drink at and their surrounding communities.

### **Buffalo Built on Beer: How Prohibition Changed Drinking Culture**

**Tyler Wood**, HIS 400: Senior Seminar in History

Faculty Mentor: Professor Christianna Fryar, History and Social Studies Education

As historians, we analyze the past to make sense of the present. In order to understand Buffalo's current drinking culture—why it has some of the largest drinking celebrations in the

world, is home to numerous bars and breweries, and is known as "a drinking town with a football problem,"—we must look to the past. The Prohibition Era (1920-1933, when the Eighteenth Amendment made the manufacture, sale, transportation, importation, and exportation of "intoxicating liquors" illegal) marked a turning point in Buffalo's drinking culture, wherein many traditional ideals were challenged. Buffalonians proved how far they would go to get a drink and demonstrated how important drinking is to Buffalo's culture by electing a mayor whose entire political platform was about trying not to enforce prohibition in Buffalo. During Prohibition, speakeasies popped up all over the city to illegally serve alcohol. In these establishments, it became socially acceptable for men and women to drink together for the first time in American history. In order to feed Buffalo's insatiable thirst for alcohol, rum-runners risked life and limb to smuggle boatloads of bottles over the Niagara River from Canada; smuggling became so prevalent the National Guard was forced to step in to patrol the Niagara River. For these reasons and more, the Prohibition Era can be considered the origin of the modern drinking culture in Buffalo; in a time when the Nation outlawed alcohol, Buffalo defied the Constitution, and in doing so, forged alcohol as an integral part of its cultural identity.

### **Buffalo's Revival: Transformations Through Music and Space**

**Samantha Kittinger**, Anthropology

Faculty Mentor: Professor Kimberly Hart, Anthropology

Buffalo, New York has a long-standing reputation for crime, violence, and poverty. However, in recent years Buffalo has been transitioning into a new place of social and economic revival. The memories of a booming, industrial, and successful city no longer seem so distant. Within the context of this social and economic revival, lies a community built upon art, culture, and agency. This community has new ideas, businesses, and projects drawn from the remnants of Buffalo's past. My presentation represents two semesters of ethnographic research on the positive use of abandoned space in downtown Buffalo. In particular, I am considering how the use of space has benefited the current cultural resurgence of Buffalo. Silo Sessions is a webseries created by Kevin Cain, in which local and national musicians are recorded inside an empty grain elevator along the Buffalo River. Silo Sessions exemplifies three major points of my research. First, Buffalo's agency. Second, Silo Sessions is a strong example of the current UpCycle and DIY culture particularly popular among the young. Lastly, the Sessions embodies a nostalgia among young people for Buffalo's past, a past in which they have not known personally yet strive to preserve. The grain elevators represent a unique architecture and history of Buffalo, but also serve as a symbol of a strong standing, tight-knit community. My research is aimed at the ways in which people interact with space and how these interactions have helped lead to Buffalo's present.

### **Causes and Implications of Pathological Conditions in Human Skeletons**

**Sandra Hunt**, ANT 498: Honors Research

Faculty Mentor: Professor Julie Wieczkowski, Anthropology

Our knowledge of pathological bone conditions and their effects on human lives has increased exponentially with advances in modern medicine. However, what about the effects on the lives of those who can no longer speak for themselves? The purpose of this study was to look at pathological conditions of human skeletons and discuss the effect of the condition(s) on their lives. I examined the natural human skeletons in the Anthropology Department at SUNY Buffalo State and cataloged any potential pathology seen. Once documented, academic articles on each condition or potential condition were found which could help provide information on causes such as genetics, trauma, illness, and age, as well as on potential disease progression and treatment. This information was then used to provide insight into the effect the condition may have had on the individual's life. There are four main pathologies I chose to focus on: spina bifida, extra patellar ossification that extended to the femur and tibia, dagger-like ligament ossification superior to the spinous process of the lumbar and thoracic vertebrae, and diffuse idiopathic skeletal hyperostosis, or DISH.

### **College Students' Perceptions of Older Adults, Depression, and Treatment Options**

**Shannon Coyne**, Psychology and **Demi Schlotzhauer**, Psychology

Faculty Mentors: Professor Jessica Pates, Psychology and Professor Howard Reid, Psychology

This study is designed to access college students' perceptions of older adults, depression, and potential treatment recommendations. In today's society, many attitudes towards older adults is the result of the media. Many younger adults use the media and their individual experiences with older adults to create an idea about aging (Dussen & Weaver). Many studies have looked at younger adults' attitudes about aging and have found that the knowledge students have about aging is low which is leading their negative misconceptions about aging to be higher (as cited in Kimuna, Knox, & Zusman, 2005). Research has shown that the public is extremely uneducated about the older population. It is thought that getting older is directly connected with decreased life satisfaction. It is critical to enlighten the community about the reality of depression in the geriatric population. The current study will examine college students' perceptions about older adult depression using a questionnaire which includes demographic information and personality measures. In conjunction, students will examine vignettes about both young and older adults with follow-up questions about what they read. We believe college students that are empathetic and conscientious will view older adults in a more positive way.

### **Comparison of Work and Family Issues of Law Enforcement Officers and 911 Dispatchers**

**Amanda Schiedel**, Psychology

Faculty Mentor: Professor Robert Delprino, Psychology

Law enforcement is an extremely stressful career that can cause negative effects on family life. 911 Dispatchers typically work along with police officers and have a high degree of responsibility while on the job. Dispatchers might not be physically present as part of a rescue or tragic event but they still may experience a great deal of mental stress while dealing with these incidents. The goal of this study was to compare these two careers in terms of factors related to the job and family life. Data was collected through the use of survey questionnaires. Officers and dispatchers completed scales related to work family conflict, job stress, relationship satisfaction, departmental support, and job satisfaction. This study identified that police officers and dispatchers share the same views in regards these measures. While officers and dispatchers believed that they are able to separate their family and work issues effectively, in reality they both experience high levels of work family conflict and stress. While these two occupations may be viewed differently in the department, in reality they could be treated similarly related to the development of department support programs. Such an approach could result in cost effective programs that address occupational issues related to employees work and family issues.

### **Failing Schools? High Crime Neighborhoods and Graduation Rates**

**Tayquan Shields**, PSC 470: Senior Seminar

Faculty Mentor: Professor Patrick McGovern, Political Science

High crime rate neighborhoods have many negative effects. These negative effects vary between the potential for violence, loss of economic opportunities, decreases in property value, and a lost sense of security. Literature in this area suggests that there is a correlation between the rise of troubled neighborhoods and the decrease in high school graduation rates. Students are affected by their environment, and a safe, healthy environment would help with academic achievement. This paper seeks to test this relationship. I believe, if a neighborhood has high crime rates [violent and property] then the graduation rates of the schools in those areas will be low. Students will not be able to learn to the best of their abilities if they find themselves in a high crime school district. To examine this question, I look at schools within the Buffalo Public School System and analyze crime rates in specific districts along with their graduation rates. I propose that there will be a strong correlation between low graduation rates and high crime neighborhoods.

## **Family History of Alcoholism in Adolescents Referred for Substance Use Counseling**

**Shannekah Burke**, Psychology

Faculty Mentor: Professor Michael MacLean, Psychology

Alcohol is the most commonly misused psychoactive substance among adolescents in the U.S. (CDC 2014). A family history of alcohol dependence is a significant risk factor for developing alcohol problems among adolescents who drink. The aim of the current study is to examine the rate of family history of alcohol problems among a clinical sample of adolescents referred to a community substance misuse prevention program. Participants will be 1064 adolescents (ages 14-21) who participated in the Focus on Consequences for Adolescents program in Buffalo, NY. Analyses will include computing the participants' rate of family history of alcohol problems and comparing it to rates in community samples. It will also involve comparing participants with a family history to participants without a family history on a number of risk factors, including drinking motives, age at first drink, alcohol-related consequences, and the use of other drugs. Implications for identification of high-risk adolescents and the prevention of alcohol problems will be discussed.

## **Gasp: Asthma Biases in New York and Local Areas**

**Austin Polino**, HON 400: All College Honors Colloquium

Faculty Mentors: Professor Eric Krieg, Sociology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Nearly 26 million American's suffer from asthma. Data show that asthma is unequally distributed both demographically and geographically, disproportionately impacting non-whites and particular geographic locations. This project uses 3 indicators of asthma: diagnosis rates, hospitalization rates and death rates to better understand the social and geographic distribution of asthma. It also uses interviews with asthma experts and healthcare professionals to devise intervention strategies to better treat this disease. New York state data show that diagnoses rates are not characterized by a racial bias; however, hospitalization and death rates have a significant racial bias. Additionally, an analysis of zip code-level data reveals a geographic bias for hospitalization rates. Healthcare professionals interviewed for this study concur that disparities in the distribution of asthma are both demographic and geographic. They attribute this, in part, to disparities in access to healthcare and to disparities in education. Targeted educational programs for high-risk asthma populations could be an effective strategy to combat this. Additionally, strides need to be made to combat healthcare disparities in these high-risk geographic areas. The knowledge of these disparities can enhance the effectiveness of healthcare intervention strategies

and in turn, may potentially improve the public health of these populations.

## **Getting Your Money's Worth: Campaign Costs as Voting Deterrent**

**Zachary Rodbourn**, PSC 470: Senior Seminar

Faculty Mentor: Professor Patrick McGovern, Political Science

My research examines the role increasing political campaign costs in deterring voter turnout. To investigate this question, congressional and presidential elections turnout records and campaign costs since 1975, when the Federal Elections Commission was founded and campaign finance reform was first attempted, will be charted to show that voter turnout is effected by the cost of campaigns. Election districts will be divided into low and high income districts. The division will be based on national median income at the time of the election. Voter turnout and campaign cost will be charted. For presidential elections, statewide numbers will be used for every district, while congressional elections will be district specific. It will be shown that turnout in low income districts, defined as any district where the median income is below the nation average at the time of the election cycle, decreases with the increased cost of campaigning, with the opposite effect in the higher income voting districts. This will support the notion that the recent relaxation of campaign finance legislation has decreased the overall level of democracy in the country, as the "little people", those who feel shut out of the election process due to the cost of campaigns, no longer feel the need to vote, because, for them, money is more important than they as voters desire.

## **Good News Everyone 'Kopa Dalej': An Excavation of Polish History**

**Emily Mrozek**, Anthropology

Faculty Mentor: Professor Lisa Marie Anselmi, Anthropology

I aim to present to you the field work that I was a part of in Drawsko, Poland and its cultural significance to our local archaeological efforts. Under the guidance of El bieta Gajda, MA (Site Director), Dr. Marek Polcyn (Project Coordinator), and their amazing instructors, The Slavia Field School aims to collect and preserve as much cultural data from the Drawsko gravesite as possible. While "vampire" has long been an inflammatory word in many cultures, the term is used in this context to describe atypical burials of individuals. Atypical burials here meant the individuals were unbaptized, considered as witches, were criminals, or died unusual deaths. Examples of atypical burials found at Drawsko are ones buried in supine positions with iron sickles or rocks placed on the body, with coins placed in the mouth, or those with head and hands removed from the body and placed at the feet. The Drawsko site and its remains date from 17<sup>th</sup> to the 18<sup>th</sup> Century AD. Most of the artifacts recovered from

this pre-industrial field site were potsherds and coins, along with human remains. Our field instructors guided us on the proper use of methods essential to field work including but not limited to: mapping, surveying, excavation, and osteological analysis of the human remains in a laboratory setting.

### **The Great Depression and East Buffalo**

**Anadarlene De Jesus**, HIS 400: Senior Seminar in History  
Faculty Mentor: Professor Christienna Fryar, History and Social Studies Education

Things rapidly changed for East Buffalo when the Great Depression took a toll on America's economic system. The Great Depression affected all of Buffalo but there were certain sections of Buffalo, like East Buffalo, that dealt with the aftermath of the Great Depression due to increasing deindustrialization and rising unemployment. The area of East Buffalo has experienced growing problems with poverty and population decline, as has the region as a whole. What effects did the Great Depression have on neighborhoods of East Buffalo? How did it pull East Buffalo specifically back from how it used to be? How were tactics like the New Deal not effective for the East of Buffalo? Original pictures shown in the Buffalo News article showed the ways in which the streets of Buffalo changed from the 1930s in the east side and how its physical appearance changed. A disproportionate number of the city's vacant and abandoned houses are located in East Buffalo. Using the research on the primary sources will help support the argument that East Buffalo was once a place that was prosperous and rapidly changed when the Great Depression took a toll on the business that were in the east side of Buffalo. An oral presentation will help show the significance in the change of economic and ethnic dynamic of East Buffalo, and how it has affected the way the Buffalo community over time.

### **Heading in Soccer Play: Does Your Reaction Time Hold Up?**

**Sasa Vann**, PSY 496/498: Honors Thesis  
Faculty Mentor: Professor Jean DiPirro, Psychology

The present study was designed to investigate whether heading – done during both soccer games and practice – affects the reaction time of the athlete and whether the effect, if present, differs between women and men. The participants were 120 SUNY Buffalo State student athletes on the fall 2015 Men and Women's Soccer team (heading groups) and Track & Field team (no heading groups). The ages of participants ranged from 18 to 24 years old. The design of the study is 2 X 2 between-subjects (ex post facto): SPORT – soccer OR track & field X SEX – female OR male. The dependent variable is reaction time, as measured using the SANZEN reaction time test (SANZEN, 2015); reaction time was determined approximately 5 months after the conclusion of the fall 2015 soccer and Track and Field seasons. (Note that deficits

in reaction time have been demonstrated up to 6 months post-concussion in soccer players.) The number of headings incurred during games was determined from video recordings; the number of headings incurred during practice was determined from information provided by both athletes and coaches. The data are currently being analyzed and will be discussed in light of growing awareness of the risks that concussion poses to athletes. The deleterious consequences of concussion to neural health make it critical to understand the nature and gravity of athlete-sustained concussion to facilitate efforts aimed at treatment and prevention of this perturbed neurological state.

### **Help Wanted: Seeking Assistance in Psychological Statistics**

**Nicholas Michalski, Nikolas Martinez-Saroff, Kristin Rogowski, Mekkah Frazier and Mike Palaguachi**, PSY 488: Internship

Faculty Mentor: Professor Howard Reid, Psychology

This study examined how personality characteristics and seeking assistance are related to student grades in the psychological statistics course. Specifically, we examined if the Big Five personality traits were correlated with seeking assistance as well as exam grades in Buffalo State students enrolled in psychological statistics. We also explored whether students seek academic help outside of class from the TAs and/or the professor and if this significantly correlated with their exam grades. Data were collected from 59 Buffalo State College students who took the required psychological statistics course in the Fall semester of 2015. 53 students were female and 6 were male. The questionnaire consisted of 77 multiple choice questions, which included demographic items, as well as questions about past grades and the Big Five personality inventory. The questionnaires were given to students during class time and were completed outside of class. Students who participated received a small amount of extra credit. A series of Pearson r correlations were calculated and many were found to be statistically significant. However, conscientiousness was the only personality trait that was found to be significantly correlated with our other variables. Prior to the data analyses, it was hypothesized that personality factors would be related with whether or not students would see the professor or the TAs. However, there were no significant correlations between any of the personality factors and seeking outside of class assistance. There were significant relationships between quiz and homework scores, quiz and exam scores, and homework and exam scores.

## **High School Preparation and College Academic Achievement**

**Kiara Grant**, PSY 499: Independent Study

Faculty Mentor: Professor Jill Norvilitis, Psychology

Socioeconomic status and race are two variables that can have an effect on individuals' academic performance and level of preparedness for higher education (Hedges et al., 1999; Roscigno, 2000 as cited in Battle and Lewis, 2002). The purpose of this study is to examine the differences in college academic achievement and preparation among students from high and low socioeconomic statuses and different racial backgrounds. To determine this, academic and social adjustment to college, confidence in career decision making, high school education quality, socioeconomic status, perceptions of others' academic achievement and preparation and perceptions of personal academic abilities will be measured. It is predicted that students from areas of low socioeconomic status will report lower rates of confidence in decision making, lower rates of adjustment to college and will be less likely to report their high schools as sufficiently preparing them for college as a result of lack of resources, funding and teaching quality. It is also hypothesized that students from areas of low socioeconomic status will rate their overall quality of education to be less than their counterparts. This study will also seek to examine how the previous factors play a role in the race gap in achievement. Results will be presented at the conference.

## **I Speak for the Trees: Palm Oil Crisis of Asia**

**Zakiyyah Simmons**, ANT 499: Independent Study

Faculty Mentor: Professor Julie Wieczkowski, Anthropology

Palm Oil is an edible vegetable oil derived from the fruit of the African oil palm tree (*Elaeis guineensis*). Today, the majority of palm oil is produced in Indonesia and Malaysia, and is consumed globally through foods, beverages, cosmetics, and household cleaning products and as a bio-fuel. Although once believed to be a "miracle oil", the production process of palm oil is having disastrous consequences on the rain forests of Asia. Due to rain forest destruction and habitat loss, the orangutans (*Pongo spp.*) of Borneo and Sumatra in Indonesia and Malaysia, as well as the rare Sumatran rhino (*Dicerorhinus sumatrensis*) are critically endangered and are at risk for extinction within the next decade. A literature review was conducted to research palm oil and ways to make it sustainable. During this talk, viewers can expect to learn more about the palm oil crisis and what they can do as a consumer to help.

## **Impulsivity, Sensation Seeking and Substance-Related Problems in Adolescence**

**Rebecca Zagrabski**, PSY 499: Independent Study

Faculty Mentor: Professor Michael MacLean, Psychology

The use of alcohol and marijuana lead to repeated negative consequences for many adolescents, but there are large individual differences as to who experiences such problems. Impulsivity has consistently been shown to predict alcohol-related problems in a variety of populations. However, there is no consensus as to how impulsivity should be defined or measured. Many researchers have considered sensation seeking as an underlying aspect of impulsivity. However, a study of college students' personality traits and drinking habits found that sensation seeking and impulsivity are distinct traits. (Magid, MacLean & Colder, 2007). Furthermore, the study found that sensation seeking predicted levels of alcohol use while impulsivity predicted alcohol-related problems. This widely cited study focused on college drinking, but to date no research has examined how well its findings generalize to a clinical sample of adolescents or to marijuana use. The current study will replicate the Magid et al. (2007) study on a clinical sample of adolescents and extend it to see if the same relationships are found regarding the use of marijuana using a data set previously collected as part of the Focus on Consequences for Adolescents (FOCA) prevention program in Buffalo, NY. The data will be analyzed using hierarchical multiple regression models. We hypothesize that sensation seeking will predict alcohol and marijuana use in adolescents but it will be impulsivity that predicts related problems.

## **MDMA (Ecstasy) Administration Affects Social and Non-Social Behavior in Rats**

**Leanna Kalinowski**, PSY 496/498: Honors Thesis

Faculty Mentor: Professor Jean DiPirro, Psychology

Ecstasy is a recreational drug abused almost exclusively by adolescents and young adults. Ecstasy is like other recreational drugs of abuse (e.g., cocaine) in that it produces feelings of euphoria and central nervous system (CNS) arousal during use. However, it is unique among other recreational drugs of abuse in the nature of its psychoactive effects (i.e., empathogenic effects), its pattern of intake (i.e., 1-2-day binges) and its use in a limited setting (i.e., social/club setting). Ecstasy has both psychostimulant and hallucinogenic properties that are likely due to the presence of 3,4-methylenedioxymethamphetamine (MDMA). Previous analyses in our laboratory characterized the consequences of MDMA exposure to several physiological measures, including body temperature, brain serotonin activity, and brain oxytocin content, and some behavioral measures, including pain sensitivity and play. This study was designed to evaluate the short and long term effects of repeated binge-

style exposure to MDMA on social behavior and CNS arousal in adolescent rats. Rats were given “binges” of MDMA on postnatal days (PND) 35, 40, 45, 50, 55, & 60, and were given a 10-minute modified social interaction (SI) test on PND 35, 39, 60, & 120; all behavior was recorded. I am currently analyzing social behavior (i.e., social contact time/frequency) and locomotor activity (i.e., rearing frequency) in the recorded SI tests. Information provided by this study, done in rats, will add to our knowledge of how the use of ecstasy during human adolescence, a critical period of development, affects social interaction not only during adolescence, but also into adulthood.

### **Mindfulness as a Mediator Between Yoga and Working Memory**

**Laura Garrett**, Psychology

Faculty Mentors: Professor Michael MacLean, Psychology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

Yoga has been shown to have many positive effects on the physical and mental health of those who practice it. There is an abundance of support showing that a continuous yoga practice can lead to improved flexibility, increased strength, and a decrease in stress levels. Yet, one interaction that has not been heavily researched is the relationship between yoga and working memory. More specifically, whether or not this relationship is a direct relationship or one that involves a mediator. One possible mediator is mindfulness, which is the practice of maintaining a nonjudgmental awareness of one’s thoughts, emotions, and experiences. For all types of yoga, breathing and continuous focus on the here and now are two major components. My research involves an in-depth review of existing psychological studies involving yoga, mindfulness, and working memory both independently and paired. The main intent is to test my theory that mindfulness mediates the relationship between yoga and working memory. This theory is based on the observation that the underlying foundation of yoga and mindfulness are so closely related. Yoga is shown to have a positive effect on an individual’s mindfulness trait and mindfulness training has been shown to have a positive effect on working memory, but there is very little research pertaining to all three variables at once. Implications of the findings of the current review will be discussed.

### **Mirror or Mirage: Political Polarization and State Supreme Courts**

**Gregory Hilbert**, PSC 470: Senior Seminar

Faculty Mentors: Professor Patrick McGovern, Political Science and Professor Peter Yacobucci, Political Science

There has been a growing interest in the political polarization of our governmental institutions. The majority of this focus has centered on Congress. Only recently has the focus on ideological polarization turned to the judicial branch. This emphasis on

judicial polarization has been greatly aided by the development of objective measures of judicial ideology beyond partisanship. This research will extend these discoveries to the state supreme court level. Specifically, I hypothesize that members of state supreme courts, on average, are more ideologically extreme than the populace of the state they serve. I will test this hypothesis using a comparison of means, independent pooled sampling procedure utilizing the State Supreme Court Ideology Database (Bonica, 2012) of positioning of state supreme court members against survey data of resident ideological scores obtained through the American National Election Study (ANES). A number of independent variables will be included in my analysis to parse out the ideological differences between the members of state supreme courts and the constituents they serve. I suggest that as political polarization has increased throughout the country, the judiciary is not immune to this phenomenon. I argue that ideological polarization is as evident in the judicial branch as the other traditionally elected branches. I will conclude by suggesting the implications of these findings on the reduced persuasiveness of judicial rulings and the declining health of democracy.

### **The Modern Family and Voting**

**Nakeem Whitlock**, PSC 470: Senior Seminar

Faculty Mentor: Professor Patrick McGovern, Political Science

I am examining an emerging phenomenon in U.S. society with potentially profound political implications: the rise of nontraditional family structures. I am exploring households that are led not by the traditional two parent, male/female model. I argue that nontraditional family structures have an effect on voting behavior. This research will look at how family structure can affect a family’s political efficacy. Literature in this area supports the notion that nontraditional families tend to be less politically active. To test this, I utilize preexisting data on family structures (though the GSS database, that surveyed individuals throughout the country) to find their political participation as well as other variables, like race, income. I then run a binary logistic regression analysis on whether a person votes or is otherwise civically engaged, and establish any correlations. I expect to find data to support my hypothesis that nontraditional family structures has suppressing effect on the family’s political participation.

### **Musical Preference and Personality**

**Dylan Vlaovich**, Psychology, **Samantha Wolff**, Psychology, **Grissel Henriquez**, Psychology and **Nolan Wall**, Psychology

Faculty Mentor: Professor Howard Reid, Psychology

This study is designed to expand our knowledge of the relationships between musical preference and personality characteristics. Previous research has found that music preference is related to the big five personality traits. In the present study

we are examining music preference and how it is related to relationship insecurity, Machiavellianism, need for approval, rebelliousness, emotional detachment, altruism, conservatism, depression, perfectionism, and interest in drinking. The data will come from students enrolled in a variety of classes at SUNY Buffalo State. The questionnaire includes demographic questions, a scale we created to determine music preference (the genres include country, rock, pop, rap/hip hop, heavy metal, classical, reggae, R&B, electronic, and Christian/ gospel), and scales to determine the personality traits.

### **Olmsted's Park System in Buffalo**

**Anthony Harris**, HIS 400: Senior Seminar in History  
Faculty Mentor: Professor Christianna Fryar, History and Social Studies Education

My research paper is about Frederick Law Olmsted designing Buffalo into the great city it is today. I am doing this research paper for my Senior History Class. My paper will go to shed light on how and why Olmsted's park system helped Buffalo grow into the city it is today, as well as how the system helped to put Buffalo more into the world spotlight. The Olmsted park system designed for Buffalo by Frederick Law Olmsted was the first park system of its kind with hubs and links. Parkways link the three larger hubs or parks to complete the system and to give the feel of a city entangled by nature. I have dug into many primary and secondary sources to get a complete picture on exactly how the parks helped to build Buffalo into the Buffalo we know and love today. As my research is not yet complete at this time I expect to find much more information on just how much the parks and changed from the way Olmsted himself designed them to the parks we actually can go and walk through today. These parks helped push back against the rapid changes the cities were undergoing during the Industrial Revolution, giving people a piece of nature in an otherwise concrete jungle. This research will hopefully shed light on the reasons why Olmsted's park in Buffalo made the city what it is today.

### **Perceptions of Sexual Intimacy**

**Carly Pershyn**, PSY 498: Honors Thesis  
Faculty Mentor: Professor Jill Norvilitis, Psychology

Gender and sexual orientation are headlining topics of discussion, from Caitlin Jenner as the new spokesperson for transgendered individuals, to the recent legalization of gay marriage, these changes are prevalent throughout Western society. Growing gender awareness is observed in the recent desegregation of gendered toys in Target's aisles, the 2015 Barbie campaign promoting career choice in young girls, and the movement away from gender-biased terminology such as fireman and waitress to more neutral terms such as firefighter and server (Ludden, 2016). These trends combine to form the earmarks

of a cultural evolution of Western thought pertaining to gender and sexual orientation. Investigating intimacy patterns outside a committed, long term relationship is also increasingly important as casual and premarital sex become the new norm. A 2002 study revealed that by age 20, 75% of Americans have had premarital sex, rendering abstinence among peers the minority (Finer, 2007). The present study investigates how gender roles and sexual preference influence perception of sexual intimacy among young adults. The goal of the research is to gain understanding of how constructs such as fear of intimacy, masculinity, femininity, and sexual orientation affect perceptions of sexual intimacy. The present study further aims to increase discussion of the psychological implications of these patterns. This research is survey based and includes participants from Buffalo State College, as well as throughout the United States via Amazon's Mechanical Turk. Results of the study will be presented at the conference.

### **Perceptions: Stereotypical or Reality?**

**James Kay, Sharif One, Kevin Tulloch, Olantia Ashcroft and Mohamed Gomaa**, UNC 101: Integrated Hour  
Faculty Mentors: Professor Susan Paige, University College, Professor Joseph Marren, Communication and Professor Amy Rockwell, Research Librarian

The reading, "A Review of Perceptions of Journalism in Hard-Boiled Detective Fiction in the 19th and 20th Century," (Marren 2014) was used as a starting point for our investigation that led us to our research question: How do stereotypical perceptions influence the behavior of law enforcement toward college age individuals? Secondary research was used to analyze the incidence of unnecessary use of force by law enforcement as perceived by fellow officers. Excessive force was defined as "the use of force greater than that which a reasonable and prudent law enforcement officer would use under the circumstances is generally considered to be excessive." A review of the literature from several sources including International Journal of Police Strategies and Management and from websites including [www.lawenforcementtoday.com](http://www.lawenforcementtoday.com) was conducted. Findings suggest that age is correlated with aggressive activity. Because of this, 18-24 year olds are more likely to be the recipient of an aggressive response from law enforcement. Our presentation will provide detail the findings and conclusions

### **Political Choice and Personality Characteristics**

**Leah Waldman, Brooke Humel and Brittney McKee**, PSY 488: Internship  
Faculty Mentor: Professor Howard Reid, Psychology

The United States is currently in the midst of the primaries for the 2016 presidential election. Surprisingly little research exists which examines the relationship between student personality factors and political preference. Recently, Indiana and Morosanova

(2009) published a paper which examined the personality characteristics which are associated with rational and emotional voters. The present study builds on their findings. Specifically, we are examining possible associations between personality characteristics and preferences for a political party as well as for specific candidates. The questionnaire consists of a number of IPIP personality scales along with items that assess political preferences. The data will be collected from SUNY Buffalo State undergraduate psychology students.

### **Race, Neighborhood and Economic Self-Help: The Buffalo Cooperative Economic Society, 1934-1961**

**Ryan Glauser**, HIS 300: Research and Writing Seminar  
Faculty Mentors: Professor Martin Ederer, History and Social Studies Education, Professor Felix Armfield, History and Social Studies Education and Professor Bridget Chesterton, History and Social Studies Education

The African-American community struggled economically throughout the Great Depression, and still does today. Dr. Ezekiel Nelson attempted to strengthen the community economically, but also incorporate the entire city of Buffalo through cooperative economics. By using the financial records of the Buffalo Cooperative Economic Society, and oral testimony from local members of the community, I discovered that the BCES was a business failure. This failure is can be mainly blamed on economics and business practices, but the racial and cultural pressures of the mid-twentieth century Buffalo played a contributing factor. In the end, the business had lofty ambitions that were not met, which left the community in a precarious position as the Urban Renewal Plan was released. A combination of the Urban Renewal Plan and the closure of the BCES allowed the community to slip deeper into poverty.

### **The Relationship of Anxiety with Conformity and Marijuana Use Among College Students**

**Grissel Henriquez and Philip Brunner**,  
PSY 488: Internship  
Faculty Mentor: Professor Howard Reid, Psychology

This study examines whether students with high anxiety have a greater need for conformity, and also smoke more marijuana. A number of studies have reported a link between anxiety and marijuana use, with high anxiety being associated with greater use of marijuana. The current questionnaire study is designed to determine if conformity could also be related to both anxiety and marijuana use. We will be utilizing undergraduate students in psychology classes at SUNY Buffalo State. The questionnaire includes demographic items such as students' gender, age, and ethnicity, as well as a commonly utilized 25-item Marijuana Motives Measure. This scale also provides information on coping,

conformity, and social factors. In addition, the questionnaire includes items that assess anxiety, as well as a self-esteem scale. It is predicted that students with high anxiety will smoke more marijuana. It is also predicted that these students will have a greater need to conform.

### **Saving Seeds, Preserving Culture**

**Ruth Luzak**, ANT 495: Independent Study  
Faculty Mentor: Professor Lisa Marie Anselmi, Anthropology

In this research project I address seed saving as an important cultural practice. I chose this topic because of recent worldwide issues concerning the scarcity of food and the modification of seeds so that they are unable to be saved and used to produce food long term after the initial harvest. I am studying the importance of saving seeds in various cultures and periods of history through accessing journal articles and books on this subject. In addition, I will contact seed saving organizations for information on the methods needed to save true seed and to start a seed saving garden and seed bank. My research will take me to Cornell University as well as to local botanical gardens for information. I will interview local seed savers. I explore how heirloom varieties of seed have been preserved and the importance for this practice. My observations have been that the recent emergence of a seed saving movement has been valuable in obtaining the cultural histories and demonstrating the impact of saving seeds for societies. Seeds carry within them information on social and political ties as well as information on heritage and tradition.

### **Seasonal Variations in Cause of Death**

**Meaghan Champney**, ANT 418: Seminar in Physical Anthropology  
Faculty Mentors: Professor Julie Wieczkowski, Anthropology and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The purpose of this study was to determine if there is a correlation between seasonality and mortality in Buffalo, New York. I hypothesized that there would be more deaths caused by infectious illnesses during winter months than other seasons because of factors like extreme temperatures (Jimenez et al. 2006). I collected one hundred records from the Death Register for 1886-1892 at the Margaret L. Wendt Archive and Resource Center at Forest Lawn Cemetery. I collected twenty-five entries from each season and then determined if the causes of death were from infectious or non-infectious illnesses. Infectious illnesses were responsible for 73% of deaths in summer, but only 57% deaths in winter. The data collected does not support the hypothesis; this may have happened for several reasons. First, the people that are buried in Forest Lawn may not be an accurate representation for the entire population of the city of Buffalo in the late 1880s. It is likely that since people had to pay to be

buried here they belonged to a socioeconomic class that was able to afford proper health care. By not taking this into account, the data may have been skewed.

### **Seasonality of Deaths Caused by Noninfectious/Medical and Infectious Diseases**

**Kaitlin Browning**, ANT 418: Seminar in Physical Anthropology  
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

Diseases have different mortality occurrences throughout the year depending on whether they are infectious or non-infectious/medical. Looking at the Death Register of 1914-1919 at the Margaret L. Wendt Archives and Resource Center at Forest Lawn Cemetery in Buffalo, NY, I hypothesize that non-infectious/medical diseases have higher mortality numbers during the summer months than the rest of the year, whereas infectious diseases have the most frequent related deaths in winter. From each season, 25 names along with the cause of death, date of death, and age were recorded. My hypothesis was supported. Non-infectious/medical diseases occurred most frequently during the summer months of June, July, and August. This could be from the exertion from outside work and the hot, humid climate. Infectious diseases had the opposite occurrence, where they were at their highest in winter. A possible reason for this is the dry climate and people are more likely to stay inside together.

### **Sex Differences in Adolescent Substance Use Motives and the Prediction of Related Problems**

**Brandi Hoffman**, Psychology  
Faculty Mentor: Professor Michael MacLean, Psychology

Previous research has indicated that variations in why adolescents use substances strongly predict the likelihood they will experience related problems. Relatively little has examined whether male and female adolescents differ in their reasons for using alcohol and marijuana. The current study expands on previous research on sex differences in substance use motives to include how motives predict use and related problems. The hypotheses were that there would be significant sex differences in substance use motives as well as differences in how the motives predicted problems. Secondary data analysis was done on a successful indicated prevention program called Focus on Consequences for Adolescents (FOCA). FOCA is a two-session intervention that utilizes a developmentally-informed, non-judgmental Motivational Interviewing approach to provide normative feedback on how the participants' use compares with that of others their age as well as a discussion of their life goals and how their substance use challenges those goals. The results revealed that female adolescents showed much higher scores for coping and conformity motives, and were also at a much higher

risk to develop related problems as a result of these motives. Sex difference may have important implications when it comes to tailoring alcohol and marijuana misuse prevention interventions to individual needs.

### **Skeletal Osteoarthritis and its Medical Implications**

**Janelle Jakobi**, ANT 498: Honors Thesis  
Faculty Mentor: Professor Julie Wieczkowski, Anthropology

Osteoarthritis is the degradation of collagen and proteoglycans in cartilage leading to fibrillation, erosion, and cracking in the superficial cartilage layer. This is often a result from cumulative mechanical stress or injury. In this research, I will examine the 12 natural human skeletons housed in the Department of Anthropology at SUNY Buffalo State for osteoarthritis. I will use the grading system from *The Atlas of Standard Radiographs of Arthritis* (1963) as my standard in evaluating each skeleton. Using this method, I will grade each skeleton's level of osteoarthritic changes as normal, doubtful, minimal, moderate, or severe. I will compile information from the medical literature to discuss the general causes and implications of this debilitating condition. Preliminary results indicate that many skeletons in the collection have more than one joint affected: seven of the skeletons have more than one location of osteoarthritis, two present with only vertebral osteoarthritis, and three show no osteoarthritis. In addition, information from the medical literature and my continued evaluation of the skeletons will be combined to write a profile of each skeleton. These profiles will be useful to future students in Anthropology who work with these skeletons.

### **Speech Perception and Working Memory: More Than What Meets the Ear**

**Leanna Kalinowski**, Psychology  
Faculty Mentor: Professor Stephanie Foraker, Psychology

Imagine you're in a crowded and noisy restaurant, having a conversation with the person sitting across from you. The auditory signal is very poor, but you are often able to successfully integrate the visual stimuli, such as facial cues (McGurk and MacDonald, 1976; Mitchel and Weiss, 2014; Sekiyama et al., 2003), with the audio stimuli. I investigated how working memory plays a role in integrating audio and visual input during language comprehension. I was interested in two types of working memory content—verbal and visual-spatial—which I measured with multi-tasking type tests (Daneman and Carpenter, 1980; Redick et al., 2013). For my experiment, I had participants listen to two types of tricky sentences: tongue twisters, which are phonologically difficult, and garden paths, which are structurally difficult. These sentences were presented in audio only or audio-visual conditions, combined with either a noisy or silent background. I measured participants' accuracy for a

comprehension question, as well as their reaction time. Overall, participants were faster and more accurate in both audio-visual and silent background conditions, and in noisy conditions the audio-visual input helped more than audio only. In addition, individual differences in working memory played a role in reaction time and comprehension accuracy. I found that higher visual-spatial working memory ability is a significant predictor of processing along the way (i.e., reaction time) for tongue twisters, but not garden path sentences. On the other hand, higher verbal working memory is a significant predictor of the final interpretation (i.e., comprehension accuracy) for all kinds of sentences, but for garden paths in particular.

### **Star Search: Can Celebrity Politicians Help Advance Democratization?**

**Ashley Etienne**, Political Science

Faculty Mentor: Professor Kyeonghi Baek, Political Science

Michel Martelly is the current President of Haiti, a former pop star turned head of state. Celebrity politicians, e.g. Michael Martelly of Haiti, Imran Khan of Pakistan and Marudhur Gopalamenon Ramachandran (MGR) of India, have been able to bring excitement to electoral politics. Unfortunately, many celebrity politicians do not necessarily help advance democratization significantly. In this research, through interviews on the socioeconomic and political development of Haiti under Martelly, I find that the class divides shape public opinion of Martelly; people with the lower socio-economic class are more in favor of Martelly, as opposed to the middle-upper Class. In addition, I have completed a content analysis of news articles (e.g., The New York Times, The Haitian Observateur) from 2011-2015, following the news coverage on Martelly during his term. I find that despite the excitement and hope Martelly brought to Haiti in 2011 at the beginning of his term, Martelly's administration has been caught in corruption and poor administration decisions, failing to leave his post by the end of his term.

### **Students' Perceptions of Children with ADHD Varying in Gender and Age**

**Mecca Cook**, Psychology

Faculty Mentor: Professor Jill Norvilitis, Psychology

Approximately 3 to 5% of children are affected by Attention Deficit Hyperactivity Disorder (ADHD; Taylor et al., 2010). ADHD is characterized by trouble concentrating and paying attention, staying organized, remembering details, as well as difficulty with impulsivity, hyperactivity, and restlessness. Because psychology majors are at the threshold of their careers, it is important to understand how they view this controversial disorder so that we can know what attitudes they carry with them as they begin to

work in the field. Thus, the present study examined psychology students' perceptions of children with ADHD varying in gender and age and overall perceptions of ADHD. It was predicted that participants' perceptions would change depending on the child's age or gender. The results indicated that girls with ADHD were viewed more negatively than boys and 6-year-olds were viewed more negatively than 12-year-olds, perhaps due to the social norms that are associated with girls and the fact that younger children are often viewed as more impulsive. Overall perceptions of ADHD were optimistic about the potential of the child but unsure about treatment. Further research should examine teachers' perceptions and to see if perceptions vary among gender and other disabilities as well.

### **Suicide Ideation and Depression Among College Students**

**India Rittenburg**, INS 497: Research Methods

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 because it is salient and underrepresented in exposure. Depression can lead to suicidal ideation that compromises the safety and amount of comfort of students, but it is seen to impact everyone in a given area. Suicide is the second leading cause of death of students between the ages of 18-24. It is our responsibility as researchers to shed light on this phenomenon in order to decrease the harmful effects that has on students both on and off campus. This study examines the psychological well-being, depression, and suicidal ideation of college students. The population that I am studying is college students and I will be using a probability sample, which gives all the individuals in the population equal chances of being selected. The method that I am using to carry out this project is a questionnaire that will be anonymous. It will measure several different scales. The scales that will be taken into consideration are collectivism, hopelessness, depression, anxiety, self-mastery, individualism, negative and positive affects and overall psychological well-being. It is hypothesized the all of these scales will further explain how closely related depression and suicidal ideation is among college students. Students will be asked to give their opinion on a series of statements that generally assesses how much stress is in their life and their reaction to this stress. This research is intended to study college students' perception of depression and suicide ideation and how it is correlated to factors like individualism and collectivism, psychological health, and school performance.

## **U.S. Influence on the Political Development of Countries in Latin America**

**Gabrielle Montalbano**, PSC 399: Research Skills

Faculty Mentors: Professor Mehwish Sarwari, Political Science and Professor Andrea Guiati, Director, Muriel A. Howard Honors Program

The U.S. foreign policy is structured around influencing inferior nations such as Guatemala, Nicaragua, Costa Rica and Cuba. The United States played an active role in the political development of these nations which were all at one time colonized and went through revolutions. The findings go to show the United States in regard to Guatemala and Nicaragua, played a heavy military role in the revolution process. Providing training and monetary assistance to the military juntas. Costa Rica abolished its military and the US was able to work through United Fruit Company to influence the economy because the political elites were the ones who had money. In the case of Cuba, revolutionary leader Fidel Castro did not allow any US influence militarily or politically. Given the US's influence, or lack thereof in Cuba's case, the effects of the influence will be measured via political development of the countries. The factors to describe "political development" will include level of corruption, existence of a civil society and the type of political system in place. These factors will be examined in a small-n study building on the current literature to bring to light the faults of US influence on inferior developing nations. The role of the U.S. proves detrimental to the political development of such countries, and although that negative outcome was not the goal it proves to be a problem as the US has repeated this in different countries within the same region.

## **Undergraduate Learning Assistants in a Hybrid Economics Course**

**Rachel Dennis**, Psychology, **Jennifer Snyder**, Business Administration, **Patrick McGuire**, Mechanical Engineering, **Eric Wojcik**, Biology, **Janelle Jakobi**, Biology and **Esther Ekong**, Business Administration

Faculty Mentors: Professor William Ganley, Economics and Finance, Meghan Pereira, Senior Instructional Designer and Michael DiFonzo, Instructional Resources

Economics 101 is a General Education course primarily for college freshman, but open to all students. The Economics System course is designed for students to not only gain information in a classroom setting, but to participate in online learning as well. This hybrid course involves undergraduate learning assistants or (ULAs) to manage all online activities that can be accessed on BLACKBOARD. ULAs also track the progress of the students and provide face-to-face interactions to answer any questions the students may have. Some of the activities on BLACKBOARD consist of students participating in weekly

on-line discussion forums. The discussion forums allow the students to post a response to a given question and then respond to their peers' responses. In addition to the discussion forums, we have also created a Toon-Do activity, where the students can create their own cartoon related to an Economics topic. This creates a fun and creative way for students to engage in the information they have learned. Weekly quizzes are also given as a study aids for exams. To improve scores the student may take these quizzes unlimited times. ULAs do an in-class review session before all exams. We use turning point clickers to allow the students to click in to answer questions that are taken from in class lectures and from the textbook. At the end of class we generate a report to gauge how well the students are doing in the course. Undergraduate learning assistants benefit courses because students may feel they can connect with a ULA on a more personal level.

## **Urban Planning and the LGBT Community**

**Michael Ratner**, HIS 400: Senior Seminar in History

Faculty Mentor: Professor Christienna Fryar, History and Social Studies Education

The investigation being carried out involves the intertwining of Urban Planning and the LGBT community in a given area. A relationship occurs in which a "minority" group are limited to certain areas of a city, which subsequently impacts the real estate of the area in either a positive or negative way depending on the area and population of LGBT members. Being a member of the LGBT community an interest was sparked in regards to how one can live in a city setting for their entire lifespan and be unaware of past urban plannings that shaped the current urban environment. Methods approached include reading past scholarly articles on the topic regarding Urban neighborhoods and the minority group being placed in said area. Although much further research is needed a direct correlation is not only visible but perhaps obvious to findings regarding how preliminary meeting locations of LGBT organizations and subsequent expansion of the "Gay community" and its implications to the Urban setting, which can be seen as not only a Buffalo, NY occurrence but throughout major cities in the United States. Presentation will include reports and mappings on LGBT neighborhoods and real estate value over time increasing near these areas for being known as rich with culture and a "safe zone" for all individuals regardless of sexual orientation.

### **Violent Crime Rates in America**

**Ryan Susca**, PSC 470: Senior Seminar

Faculty Mentor: Professor Patrick McGovern, Political Science

I am examining crime rates in the U.S. over the past 20 years and questioning whether there has been any change in violent crime rates due to new policing methods and the number of police deployed by municipalities; changes in unemployment rates; and average income per household in those cities. I believe that as the number of police officers deployed to the street rises, the number of violent crimes decreases. I also predict that as unemployment decreases so do violent crimes. When average income increases, violent crimes should decrease as well. One particular issue with this study are the recession years between 2008 and 2012. During these years, crime rates began to spike along with unemployment rates and average income began to decline. These years will be addressed by use of a dummy variable while running my regression analysis (Presence of recession? Yes/No). Cities included in the study are Detroit, New York City, Chicago, and Washington D.C to examine their crime and employments rates, income levels, and police deployment and techniques.

### **The War on Drugs and How it Affected the Queen City**

**Danielle Conie**, HIS 400: Senior Seminar in History

Faculty Mentor: Professor Christianna Fryar, History and Social Studies Education

The War on Drugs was a nationwide fight from many cities, and states large and small alike. Nixon declared that drugs were a “national threat” to the American people. The use of drugs were so common, Timothy Leary, a psychologist, writer and Harvard professor advocated for the usage of LSD. In 1969, 48 percent of Americans said that drugs were a massive problem in their neighborhoods. Drugs were being imported by various cartels, one of which was the Medellin cartel who housed the famous Pablo Escobar around the 1980s. Nixon formed the DEA, to combat the war but they were the only ones. Nancy Reagan, implement the Just Say No campaign to fight drugs with Americas youth. In Buffalo, NY there are a handful of government based rehabilitation centers and a varieties of churches that hold meetings along with youth organization such as the Boys and Girls Club of America. In the communities, the war was being fought by youth organizations, churches, and affected families but the drug rates in Buffalo are still high. Nearly 3 billion dollars to this day has been used to combat the war on drugs but have we seen the effects after 70 years? Did just say no programs help Buffalo's youth? Was this war a myth to use tax payers dollars? This essay will seek the truth of our home front's War on Drugs. I will discuss how the City of Buffalo was treated during the war on drugs.

### **Warm Memories: The Impact of Color Variation on Recognition of Distractor Images**

**Samantha Zak**, Psychology, **Cassandra Crimmen**, Psychology, **Torre Franz**, Psychology, **Leanna Kalinowski**, Psychology, **Michael Brunetto**, Psychology and **Sarah Holenstein**, Psychology

Faculty Mentor: Professor Stephanie Foraker, Psychology

Distracting visual information can sneak through our selective attention filter, even if we are not originally paying attention purposely (Beck et al., 2006). We examined which colors can increase memory unknowingly for a product. We also investigated whether higher visual-spatial working memory increases memory for colored distractors (Chun & Turk-Browne, 2007), or decreases it due to better inhibition of distractors during encoding (Laville, 2005). We also examined metamemory, or one's expected memory for information in the future (Schwartz & Ekklides, 2012), because we were curious to what degree a consumer's general metamemory positively predicts distractor memory. A total of 171 participants (38 male) first completed a visual search task of 18 complex scenes, each containing a critical distractor that was colored either red, yellow, or blue. Participants were given a word (e.g., Wrangler), and then shown a complex, naturally-existing scene (e.g., Times Square) where they were asked to search for and click on the word. A surprise recognition memory test directly followed, containing the 18 distractors and 18 new items, which was our dependent variable. Next, they completed a short metamemory questionnaire, measuring how good participants thought their memory was. Finally, participants completed the automated symmetry span task to measure visual spatial working memory. We found that blue items were recognized significantly less often, while yellow and red distractors were better recognized. Interestingly, higher visual-spatial working memory capacity increased recognition of just red distractor images. Lastly, metamemory judgments were negatively correlated with distractor recognition, reflecting an overconfidence in participants.

### **West Side Property Condition Inventory**

**Paula Jones**, Geography

Faculty Mentor: Professor Jason Knight, Geography and Planning

Buffalo's West Side is a neighborhood that has been undergoing changes as it begins to recover from decades of neglect following the decline of Buffalo's industrial economy and flight of middle class residents. For years, the West Side has been one of Buffalo's most impoverished areas, with low incomes and high rates of vacant and abandoned housing, and the area is becoming increasingly diverse as it experiences an influx of immigrants and refugees. Recently the area has begun to see an increase in investment as commercial tenants and higher-income

residents who are attracted to the urban amenities of the nearby Elmwood Village but are unwilling to pay rising Elmwood Village rents have sought out adjacent, lower-priced neighborhoods west of Richmond Avenue. Existing data present an incomplete picture of neighborhood housing conditions, and comprehensive parcel-level data on the condition of structures and the location of vacant properties and lots is necessary in order to answer relevant research questions such as where investment is occurring and where poor housing conditions may pose a threat to public health and welfare. The West Side Property Condition Inventory fills this data void by creating a parcel-level geographic database of property conditions. A mobile data collection and mapping application was developed in ArcGIS and each residential and non-residential property in the study area was surveyed in the field using iPads. Property use, exterior condition, and occupancy status were collected, and a photograph was taken of the front of each property. The Inventory follows the example of other cities that have undertaken large-scale property mapping projects to acquire data that drives public policy decisions, and the data will be used for further research on housing conditions and neighborhood change as well as serve as a tool to inform residents and community groups about the housing situation in their community.









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