GENESEO

THE THIRTEENTH ANNUAL

GREAT DAY

WEDNESDAY
APRIL 17TH, 2019

Geneseo Recognizing Excellence, Achievement, and Talent

Welcome to SUNY Geneseo's Thirteenth Annual GREAT Day!

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

http://www.geneseo.edu/great_day

4.17.19 GREAT DAY

Introducing…

The GREAT Day Passport

Attend GREAT Day activities – Win GREAT Day Swag

Collect a letter at each type:	To qualify for GREAT Day swag:
G – Session Presentation	**1** letter – Shopping Bag
R – Poster Session	**2** letters – Koozie
E – Music Fest	**3** letters – Mini Desktop Kit
A – Keynote	**4** letters – Laptop Sleeve
T – Art Exhibit/GIFF	**5** letters – Metal Water Bottle

To claim your swag, bring your passport to the GREAT Day table at Poster Session 2; or Erwin 202 on April 18 – 19, 10 am – 3 pm

Use this handy card to collect and track your letters

G	R	E	A	T

Throughout the day, when you post about GREAT Day on social media use #WeAreGREAT to be featured on GREAT Day social media!

GreatDayGeneseo

@GeneseoGREATDay

geneseo.edu/great_day

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Cover design by Joanna Walters '13

Sustainable GREAT Day

Look for the Leaf
Sustainability at Geneseo has selected GREAT Day presentations which include topics that promote sustainability and are designated by.

The badge holders are biodegradable and the lanyards are made from 100% recycled plastic.

Recycle your Namebadge/Lanyard
If you would like to recycle your namebadge/lanyard you can leave it at the GREAT Day Check-In Desk in the College Union, give it to a GREAT Day Volunteer or drop it off at Erwin 202.

SCHEDULE

8:00 – 8:50 AM **Opening Coffee Hour Honoring**
Milne 1st Floor **10 Year Supporters & 2018 Proceedings**

9:00 – 10:15 AM **Concurrent Presentations • Session 1**
Bailey, Doty, ISC, Milne, Newton, South, Welles

9:40 – 11:00 AM **Music Festival**
Doty Recital Hall

10:00 AM – 6:00 PM **GREAT Battle of the Artists Show**
CU Kinetic Gallery

10:30 – 11:45 AM **Concurrent Presentations • Session 2**
Bailey, Brodie, Doty, ISC, Newton, South, Welles

10:30 AM – 12:30 PM **GEO Dumpster Dive**
Between College Union and Mary Jemison

11:20 – 12:00 pm **Jazz Ensemble**
South Hall Quad (rain location, Wadsworth 21)

12:00 – 1:30 PM **Poster Presentations 1**
College Union Ballroom

12:00 PM **Geneseo String Band Performance**
College Union Balcony

12:30 PM **Buffet Luncheon**
College Union Lobby Sponsor in part: Geneseo Student Association

1:45 – 3:00 PM **Keynote: Dr. Stephanie Singer**
The Jack '76 and Carol '76 Kramer Endowed Lectureship
Alma Mater: **NICOLE ACQUAVELLA** with **MICHAEL MASETTA**
Wadsworth Auditorium

3:15 – 4:30 PM **Concurrent Presentations • Session 3**

3:15 – 4:30 PM **Music Festival Cabaret**
College Union Hunt Room

4:35 PM **Geneseo Winter Guard**
College Union Plaza

4:45 – 6:15 PM **Poster Presentations 2 & Reception**
College Union Ballroom **Keynote Speaker Book Signing**

5:30 PM **GREAT Battle of the Artists Awards**
CU Kinetic Gallery

6:30 PM reception, 7:00 PM screenings
Wadsworth Auditorium **Geneseo Insomnia Film Festival**

The GREAT Day Opening Coffee Hour
8:00 – 8:45 am, Milne Library
Honoring

Ten Year Sponsors

GREAT Day would not be possible without the dedicated faculty who work with students throughout the year on the projects that are presented annually. As we observe the 13th Annual GREAT Day, we would like to acknowledge the following faculty who, as of this year, have served as faculty sponsor for 10 GREAT Days:

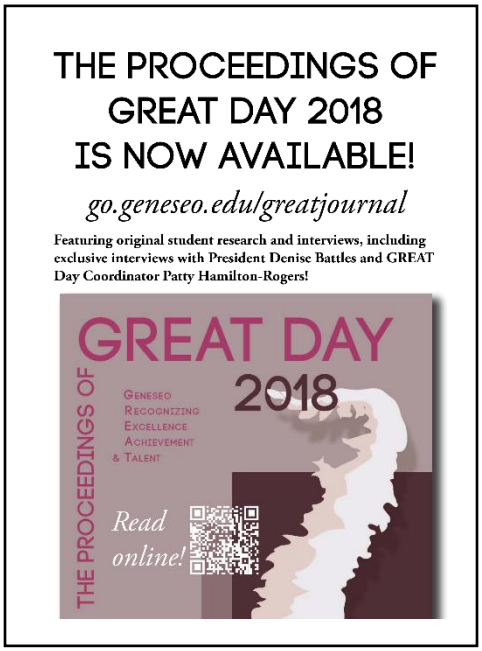
ENGLISH
Maria Lima

GEOLOGICAL SCIENCES
Amy Sheldon

HISTORY
Catherine Adams

SOCIOLOGY
Elaine Cleeton

Students and Faculty Mentors Published in the Proceedings of GREAT Day 2018:



STAFF: JONATHAN GRUNERT, ALISON BROWN
INTERNS: **NICOLE CALLAHAN, DIMITRI WING-PAUL**

COOKING CONFRONTATIONS À LA FRANCOPHONIE
SOPHIE BOKA
MARIA LIMA, ENGLISH

BLACK WOMEN BE KNOWING: DOUBLE CONSCIOUSNESS AND THE MAID'S TEAR IN GET OUT
ERIK BUCKINGHAM
LEE PIERCE, COMMUNICATION

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STEVEN KIRSH, PSYCHOLOGY

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SEXUAL VIOLENCE AND DC COMICS
KYLIE MATHIS
MELANIE BLOOD, WOMEN & GENDER STUDIES

MOSQUITO BITES
SANG WOOK NAM, LUC TURNIER
LEE PIERCE, COMMUNCATION

BYSTANDER RESPONSES TO WOMEN'S SEXUAL OR PHYSICAL ASSAULT: MODERATING EFFECTS OF PERSONAL VICTIMIZATION HISTORY
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INSPIRATION VS. APPROPRIATION: REPRESENTATION OF INDIGENOUS CULTURES IN WESTERN DANCE COMPANIES
SAMANTHA SCHMEER
JONETTE LANCOS, THEATER/DANCE

The Jack '76 and Carol '76 Kramer Endowed Lectureship

KEYNOTE ADDRESS

Wadsworth Auditorium • 1:45 – 3:00 PM

Introduction by Dr. Caroline Haddad, Professor and Chair of Mathematics

Dr. Stephanie Singer – "Democracy: Your Path to Power "

About Dr. Stephanie Singer, Data Strategist
Consultant - Verified Voting; Former Chair, Philadelphia County Board of Elections

Stephanie Singer has assembled, analyzed and explained data for private business, public agencies, campaigns and election oversight as an Elections and Government Data Expert. She serves as a consultant for Verified Voting, the only national not-for-profit, non-partisan voting integrity organization focused exclusively on the critical role technology plays in election administration, working on various projects, including creating web content and materials to promote sound post election audits. Her podcast "Defend Democracy!" is available on iTunes and Anchor.fm and on the Campaign Scientific webpage. In 2017 she served as Project Lead for Free & Fair, a new player in the election technology market bringing the best in computer security and high-assurance design to the voting process, on the development of a risk-limiting-audit system for the Colorado Department of State.

Singer studied math and computer science at Yale and Stanford, earned a Ph.D. from New York University. Her first career was in academia where she was on the faculty at Haverford College for eleven years, during which time she created and taught courses, wrote several research papers and her first book on symmetry in physics, and earned tenure in the Mathematics Department. After her departure she finished a second book on symmetry in quantum mechanics. Physicists like her books because they explain the mathematics in terms they understand; mathematicians like her books because they show the underlying connections between mathematics and physics. She then moved to her second career as a Data Strategist/Entrepreneur. Singer owned and ran two businesses, Campaign Scientific and Wise Acre Real Estate. One provided custom data work to political organizations and small businesses. The other provided education, support and research for real estate investors.

Many years of years of volunteer work on election-related issues led Singer to her third career as an elections and government data expert. Her efforts included prompting the Pennsylvania Department of State to lower its voter file price to $20 from $1340 and prompting the Philadelphia County Board of Elections to release its raw election results data in electronic form. From 2012-2016 she served on the Philadelphia County Board of Elections improving communication, modernizing processes, rooting out corruption and protecting voters' rights. She won the post by defeating a 36-year incumbent in a citywide election. Singer co-chaired the statewide Election Reform Committee of the County Commissioners Association of Pennsylvania and is an active member of the national Election Verification Network. Her work in office included playing a critical role in proving the unconstitutionality of Pennsylvania's Voter Photo ID law, which was enacted in 2012 but ruled unconstitutional in 2014. After leaving elected office in early 2016, Singer has worked on a variety of data strategy and election-related projects, including work with the City of San Francisco and the City of Jackson, MS, funded by the Knight Foundation. She worked on election verification projects in the for-profit (Free & Fair) nonprofit (Verified Voting and government (Orange County Registrar of Voters) sectors and is an active member of the national Election Verification Network.

There will be a book signing and reception in conjunction with the poster session in the College Union Ballroom at 4:45 pm. The bookstore will have copies of several books for sale. All are welcome.

CONCURRENT PRESENTATIONS 1 • 8:30 - 9:45AM

1A • ANTHROPOLOGY BAILEY 103
MEN AND MASCULINITIES

FACULTY SPONSOR & SESSION CHAIR: JAMES AIMERS, ANTHROPOLOGY

From Dapper to Dopey: An Historical Survey of TV Dads

KATHERINE PETER

Images displayed on television are unquestionable indicators of feelings across American culture at any given time. Fathers on TV fall into a number of categories; all tropes that have evolved dramatically. From the intellectual dad, to the goofy dad, to the gruff, working class dad, TV portrays family dynamics with which everyone can relate. By looking at depictions of fathers on television, I will analyze how perceptions of fatherhood have changed across time, and how this reflects American cultural perceptions of ideal masculinity.

Non-Threatening Masculinity and Female Fantasy: Fanfiction Authors' Use of Queer Men

RACHEL MCLAUCHLIN

This paper explores the constructions of masculinity present in fanfiction, primarily fanfiction written by and for straight women about queer men. While much of the existing literature on fanfiction studies the fanwork environment of fanfiction.net, I will instead focus on a newer site: Archive of Our Own (AO3). In order to study ideals of masculinity in fanfiction, I will combine a survey of existing literature on the topics of fanfiction and fan spaces from a variety of fields, and case studies of popular fanfictions on AO3. I selected three fandoms, differentiated by original media format and subject matter, and have chosen one popular work from each fandom to examine. And while the works differ in a variety of ways, the ways fan authors construct the masculinity of their male characters is strikingly similar. By considering the treatment of masculinity and queer men's sexuality in these recent fanworks in comparison to scholarship that focuses primarily on early- to mid-2000's fandom, I will explore fanfiction and fandom as a safe space for girls and women to explore their sexuality and interests, and how that environment's fetishization of queer men has potentially shifted over time.

Evaluation of Internalized Homophobia in Gay Men

DANIEL BRUSH

This paper considers the causes and effects of internalized homophobia in gay men. Contemporary views on homosexuality indicate that most gay men or men who have sex with men (MSM) exhibit some degree of internalized homophobia, defined as the adoption of negative or harmful ideas that exist in the broader community toward homosexuality. In a predominantly heterosexual society, gay men are often projected as a deviant sexual minority, causing one to experience shame. While heterosexual males can overcome this sense of shame in their childhood through developing a strong sense of self, gay men fall short of this realization and thus suffer a serious identity crisis that hinders self-realization and acceptance. The notion of internalized homophobia is thus seen as a barrier toward the formation of gay identity. The adoption of such ideology by gay men is associated with several negative effects, such as mental health disorders and participating in unsafe sexual practices. While much literature on the topic is focused on internalized homophobia as a symptom of generalized homosexuality, this survey will identify the roots of internalized homophobic thought in terms of identity ¬ as well as the problems associated with the adoption of such a harmful self-image.

Men, Women, and The Concept of Contraception: Its History and Our Future

LEAH CHRISTMAN

Birth control is hailed by western feminists as the harbinger of women's sexual and economic liberation. So common as to be referred to in the United States as simply "the Pill," many women take some form of contraception for pregnancy prevention or overall health every day; yet, despite reaping its many benefits, most women, and even more men, never consider birth control's contentious history based in gaining control of the female body. In this presentation, we will briefly explore the socially dynamic, gendered, and historic conception of contraception, including where men and masculinity have helped and/or hurt it's reception in western societies. We will also discuss where the future of contraception is headed for women and men in the 21st century.

1B • BIOLOGY ISC 115

SESSION CHAIR: JOSEPHINE REINHARDT, BIOLOGY

Can Signals of Adaptive Evolution be Detected in Genes Known to be Involved in Egg Traits within Schistosomes?

JAKE FORMAN

FACULTY SPONSORS: JOSEPHINE REINHARDT, BIOLOGY

SUSAN MUENCH BIOLOGY

Schistosomiasis is a debilitating disease, mostly found in tropical and subtropical regions. This disease is caused by infection with parasitic worms, and most of the symptoms are associated with the eggs, with different species exhibiting species-specific pathology associate with the differences in life history. Using genomic analysis I will determine what egg genes within schistosomes have changed as life history traits have evolved within schistosomes. Using two model organisms, *Drosophila melanogaster* and *Caenorhabditis elegans*, I was able to identify likely orthologs to egg genes within Schistosomes. Using this information I am able to create phylogenetic trees of these genes to determine where changes have occurred throughout life history in different species of schistosomes. This shows us where these differences have occurred over time to give each species it's specific selective advantage.

Immune Response and Sexual Ornamentation Trade-offs in *Teleopsis dalmanni*

AMY FARNHAM

FACULTY SPONSOR: JOSEPHINE REINHARDT, BIOLOGY

Teleopsis dalmanni, otherwise known as the stalk-eyed flies, are a unique insect known for their eyestalk projections on the sides on their heads. Males have longer eye stalks used as sexual ornamentation to attract females. The long stalks are a good example of an evolutionary trade-off. The resources required to produce these long stalks are costly and take away from other traits such as a greater immune defense. Our goal is to determine whether altering the presence of functioning immunology genes will result in longer eye stalks due to freed up energy resources according to the trade-off hypothesis or if those with a higher genetic quality will be resilient to change according to the handicap hypothesis. Previous work has demonstrated that certain genes involved in immunity also have female-biased gene expression in tissues of the developing eye. A female-bias in expression could indicate a trade-off between longer eye stalks in males and immune function. We choose 2 such genes for further analysis, CRISPR/Cas-9 will be used to create null mutations in the immunity genes.

Mutagenesis of *De novo* Genes in *Drosophila Melanogaster*

JULIA NICOSIA

FACULTY SPONSOR: JOSEPHINE REINHARDT, BIOLOGY

New genes have always been particularly interesting to biologists because they help explain how organisms have evolved to become increasingly complex over time. *De novo* genes are especially interesting because they arose from previously non-coding DNA. The *Drosophila de novo* genes we are studying are expressed mainly in the male testes, and previous work based on RNA interference showed these genes may be essential to male fertility and viability. However, we do not know whether these genes function as proteins, like most genes, or as functional RNAs. We are using CRISPR-Cas9, a gene modification tool, to create null mutations in *Drosophila melanogaster*'s *de novo* genes to answer this question. CRISPR-Cas9 works by inducing a frame-shift mutation in a gene, but it can also be used to delete a large section of the gene. With a frame-shift, the gene will still be coded into an RNA strand, but the protein translated will be nonfunctional: while the deletion will affect the function of the RNA and protein. By comparing phenotypic and genotypic outcomes of the frameshift and the deletion we can answer the question about how de novo genes perform their functions.

1C • BIOLOGY MATHEMATICS ISC 131

FACULTY SPONSOR & SESSION CHAIR: CHRISTOPHER LEARY, MATHEMATICS
FACULTY SPONSOR: GREGG HARTVIGSEN, BIOLOGY

The Effect of Community Structure on the Spread of Tuberculosis

LAURA WILLIAMS

Tuberculosis is an airborne disease most often caused by *Mycobacterium tuberculosis* which induces respiratory distress in its hosts. Despite its gradual decline in recent years, tuberculosis is a dangerous disease that can be fatal, and is particularly difficult to track due to its ability to remain latent within a human host for years without symptomatic presentation. Using graph theory, a model was created that combines the concepts of networks and SIR dynamics to demonstrate how population interactions alter the spread of tuberculosis in a community. Effects of household size, number of random interactions with other households, and probability of having latent tuberculosis within a given household were analyzed. In each instance, the number of individuals infected with tuberculosis was recorded over time. Results indicate that the more people that live in a given household and the greater amount of random connections there are, the more individuals become infected in a network. Understanding how community structure impacts the spread of disease may help to accelerate the decline of tuberculosis and may subsequently reduce economic strain and improve quality of life for many.

Modeling the Bioaccumulation of PBDE Contaminants in the Columbia River Ecosystem

KATELYNN WARNER, EMMA MCMAHON, ERIC KOESSLER

Polybrominated diphenyl ethers (PBDEs) are toxins regularly found in flame retardants and are used in a variety of electronics and textiles. PBDEs are known to bioaccumulate in aquatic ecosystem food webs and alter thyroid functions, reduce sperm counts, and delay sperm maturation in many vertebrates. We developed a model incorporating both predator-prey dynamics and toxin bioaccumulation to test the effects of PBDEs on the population dynamics of a Columbia River food web. A system of differential equations was used to model the effect of PBDEs on the population growth rate of a simple food web where macroinvertebrates are preyed upon by largescale suckers, which are preyed upon by osprey birds found in the Columbia River ecosystem. We find that at moderate toxin concentrations, the macroinvertebrate population thrives while the populations of the largescale suckers and osprey are reduced. Understanding the effects of PBDEs on stable populations will allow us to better predict how pollution management strategies will affect the ecosystem.

The Contributing Factors of Intelligence: An Evolutionary Approach

JOSHUA BOYER, OLIVIA CARD, JULIAN LEE

Intelligence is the ability to recognize stimuli and produce behavior of self-preservation in response. The intelligence model was designed to be applicable at the level of both organisms and species, with the objective of understanding which factors influence intelligent behavior to produce an evolutionarily successful outcome. The modeling approach operates in discrete time, where the agent makes a series of decisions which are each judged to raise or lower the survival score. The parameters affecting the survival score include rates of attempting to store memory, correct memory storage, and risk-taking behavior. We seek a specific set of parameters producing the most intelligent species. This model integrates the REM model of memory recall, serotonin-dependent learning, decision making and tradeoff models. The model shows that the largest contributing factor to the long-term success is the risk-taking probability; with a moderate risk-taking behavior producing the greatest success. However, risk-taking behavior influences survival score only in the long term. This finding shows which characteristics of an organism or species are most impactful in determining intelligence, leading to evolutionary success.

Modeling the Transmission of HIV Between Female Sex Workers and Senior Male Clients in China

CLAIRE PRUNIER, SARAH LOPRIENO, YITONG LIU

The spread of the human immunodeficiency virus (HIV) affects the Chinese population, and is largely influenced by the commercial sex industry between female sex workers and senior male clients. Mathematical modeling of HIV transmission allows us to test the impact of various factors surrounding the transmission of this disease. We use a differential equation model to test factors such as rates of entry of males and females into this industry, rate of transmission of the disease, and the rate of diagnosis of infected female sex workers. A bipartite network model also was constructed that allows us to test the effects of changing relationships between female sex workers and their male clients. The model shows that low entry rates, low transmission rates, and high diagnosis rate minimizes the total infected population in the system. Controlling the transmission rates allows us to find the best strategy to reduce the number of infected individuals in the Chinese commercial sex industry.

1D • BUSINESS SOUTH 233
BUSINESS MANAGEMENT: CHALLENGES AND OPPORTUNITIES

FACULTY SPONSOR & SESSION CHAIR: AVAN JASSAWALLA, BUSINESS

Importance of Psychological Contract Breach and Employees Engagement

KYMBERLY RUBINSTEIN, ERDE YILDIZ, RYAN KINKADE, ANDREW DIRNHOFER, LIAM RUSSELL

This study is an in-depth analysis of the relationship between psychological contract breach and employee engagement. Psychological contracts are common in the workplace and involve an unspoken set of rules or expectations between an employee and a manager. If a breach is to occur, the level of employee engagement will be drastically affected. The breach can be attributed to a lack of clarity and it can lead to a decrease in the level of trust. A potential breach can be avoided by increasing the level of psychological safety within the workplace, which in turn may lead to an increased level of organizational commitment for an employee. One way this can be achieved is through emotional intelligence training for both managers and employees.

Impact of Employee Participation in Decision-Making/Participative Management on Organizational Citizenship Behavior of Employees

JULIA FLOCCO, ANDREW CARLSON, DAVID AVALLONE, NIKOLETTE NREKAJ, TULSI PATEL

Organizations today are increasingly providing opportunities for employee involvement in decision-making for a variety of reasons. One of these reasons is the impact on organizational citizenship behaviors (OCB), i.e. when employees feel motivated to go above and beyond their job description to help their manager and coworkers in effectively achieving organizational goals. We found that participative management increases employee's sense of responsibility, goal-alignment, and trust, leading to higher OCB. Based on our findings, we developed recommendations for managers and organizations who are looking to effectively implement participative management resulting in increased levels of OCB from their employees. Our presentation will provide further details about our findings on this topic and recommendations to managers and organizations.

Ingratiation and How it Impacts Employee Performance

BRADLEY MCPHERSON

This presentation will cover the topic of ingratiation, or "brown nosing," and how it is impacts employees and the workplace.

1E • INTERDISCIPLINARY BAILEY 203
CHEMISTRY, PHYSICS

SESSION CHAIR: RABEKA ALAM, CHEMISTRY

Sustainable Energy Education through Demonstration (SEED)

SCOTT WILLIAMS, CATHERINE FEDOR, GRANT GRIEBLE

FACULTY SPONSOR: STEPHEN PADALINO, PHYSICS & ASTRONOMY

Sustainable Energy Education through Demonstration (SEED) is a ten-week program that educated students on the mechanics of renewable energy production and the value of these energies in combating climate change. The students garnered a better understanding of the issues of anthropogenic climate change and environmental degradation, how different forms of renewable energy function, and what sustainability initiatives look like in Livingston County. Through this program, students became more engaged in issues relating to sustainability, all the while creating a greater connection and sense of community between the college and the central school. This project funded by the Frank Vafier '74 Ambassador in Leadership

Synthesis and Subsequent Anion Exchange Reactions of Cesium Lead Halide Nanocubes

LUKE HOLTZMAN
FACULTY SPONSOR: RABEKA ALAM, CHEMISTRY

Metal halide perovskites are new materials of interest in the field of nanoscience due to the increased efficiency of solar cells containing them. Our work surrounds the synthesis of cesium lead bromide ($CsPbBr_3$) and subsequent halide exchanges to cesium lead chloride and iodide. By varying ratios of chloride and iodide ions in solution, homogeneous nanocrystals were created that were mixtures of the original parent compounds and the emission spectra showed maxima across the entire spectral region. The photoluminescence of all $CsPbX_3$ nanocrystals was characterized by absorbance and fluorescence spectroscopy, and crystal structure and size were determined by x-ray powder diffraction and transmission electron microscopy. Further studies into these materials are underway such as core/shell studies and extinction coefficient determination. Knowledge of the extinction coefficients is imperative for further studies on these materials, as precise concentrations are known. Also, the ability to easily tune the optical properties of the nanocrystals make these perovskites very appealing quantum dot semiconductors for solar cell use.

Fluorescence Quenching Mechanism by Amyloid Beta Peptide and Nano-gold Particle Interaction – now poster 131

BRIANNA PAULINO, STEPHANIE LEE
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The fluorescein attached Amyloid beta 1-40: FAβ was utilized to create a hydrophilic-charge interaction at the nano-scale interface of FAβ and gold nano-particle under DMSO (dimethyl sulfoxide) environment. As FAβ interacted with various sizes of gold nano-colloidal particles ranging in size between 10 nm and 100 nm in diameter, we observed intensive quenching of the fluorescence for majority of pH conditions. We hypothesize that the FAβ adsorbed over the nano-colloidal surface through the hydrophilic (N-terminal side) segments. Since the entire dynamical profile of fluorescein can be understood as a relative degree of interaction between a fluorescein and the gold nano-particle surface, observed quenching features must imply that fluorescein attached side (C-terminal) is very closely located to the nano-gold colloidal surface.

1F • EDGAR FELLOWS PANEL 1

WELLES 131

SESSION CHAIR: CARLY HEROLD, EDGAR FELLOWS

Using Changes in Expression of Notch Pathway Genes in the *gef* Mutant to Investigate the Functions of *chaf1b* in Retinal Development

SARA FEINLAND
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

Chaf1b is a subunit of chromatin assembly factor-1 (CAF-1), which is known to load histones as part of DNA replication and repair. It has also been postulated that Chaf1b may be involved in the switch from cellular proliferation to differentiation. The *good effort* (*gef*) mutant was identified by a mutagenesis screen in *Danio rerio* and is characterized by a small eye phenotype by 3 days post fertilization (dpf) and death by 7 dpf. This mutant has been found to have a three base pair deletion in the *chaf1b* gene. Two potentially CAF-1-stimulated genes, *notch1a* and *her15.1*, have been selected for *in situ* hybridization based on being downregulated globally in *gef* mutants compared to wild type embryos prior to observable morphological differences. Bioinformatics analysis through DAVID highlighted these genes as they are both part of the Notch signaling pathway, which is essential for vertebrate retinal development. The Notch signaling pathway is ideal for studying the hypothesized function of Chaf1b in regulating transcription involved in neuronal differentiation. In situ hybridization using *notch1a* and *her15.1* RNA probes will be used to look for downregulation in proliferating cells of the retinas of gef mutant embryos.

Exploration of Fox Den Family Dynamics Using Camera Trap Analyses

CHRISTINE SCHULTZ
FACULTY SPONSOR: JENNIFER APPLE, BIOLOGY

Vulpes vulpes (Red Fox) is an animal traditionally thought to live in solitude, hunting and living alone. Most research supports the idea that foxes live solitarily; however, there have been some studies that report communal denning among adult foxes. The present study uses camera trap images taken from 3 different cameras, all set to observe a single fox den in the Roemer Arboretum. We hypothesized that this den exhibits a case of communal denning in Red Foxes, because there appeared to be two different litters of pups living in the den in Spring 2018. Over 60,000 photos were analyzed in Digikam photo management software, which involved applying tags to categorize the foxes (adult, young vs. older pups) and their behavior captured in the images. These image metadata were then analyzed in R using the package camtrapR. CamtrapR is used to organize photos and produce activity plots of the foxes. Preliminary results suggest that there are at least two adult foxes using the den, perhaps three, and that there were at least 8 pups, likely from two different litters, in Spring 2018. We are searching for a greater understanding of how foxes interact with each other in communal dens.

Examination of *neurod4* in Retinogenesis

ALEXIS SAUNDERS
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

Zebrafish exhibit eye development similar to that of humans. The *neurod4* gene encodes a transcription factor that may be important in neuroretinal development. *neurod4* is also moderately conserved from zebrafish to humans, and might have an equally important function in the cell cycle. The transgene contains 2.1 kb of the upstream genomic sequence and includes the first exon of the *neurod4* gene, ending before the first intron. We generated a *neurod4* GFP transgene and compared the reporter gene expression with endogenous *neurod4* expression detected by in situ hybridization. Gross morphology analysis of the retina at 3dpf showed GFP expression from the *neurod4* GFP transgene closely matched *in situ* data already published, and indicated that the transgene displayed similar expression from the endogenous gene. Because *neurod4* is expressed in the retina during embryogenesis, we tested its requirement on cell proliferation in the retinal during the regeneration following constant intense light damage to photoreceptors. We electroporated zebrafish retinas with *neurod4*-morpholino to cause loss-of-Neurod4 expression and subjected them to light damage for three to four days. The results of these experiments suggest a requirement of the *neurod4* gene during zebrafish retinal regeneration..

Novel Identification of Natural Viral Infections in Zebrafish

PATRICK BUCKLEY
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

The zebrafish (*Danio rerio*) is a vertebrate that is being increasingly used as a model organism in biological studies due to its large clutch size, transparent embryos, and genetic similarity to humans. Investigations of other model organisms have established that viral infections have the potential to alter the results of biological studies. The potential confounding effect of viral infection makes the observation and elimination of viruses in a model organism colony of significant importance. Artificially-introduced viral infections of zebrafish have demonstrated this organism's susceptibility to viral infections, but only one naturally-occurring viral infection of zebrafish has been observed to date. This investigation aims to identify one of the first observed natural viral infections of zebrafish. Degenerate primers were used with PCR and RT-PCR to probe for the presence of viruses that are known to infect closely-related fish species such as carp and koi.

1G • EDGAR FELLOWS PANEL 2

WELLES 132

SESSION CHAIR: LISA MEYER, EDGAR FELLOWS

When Robots Talk: The Impact of Voice Clarity on the Production Effect

LUKE BAMBUROSKI
FACULTY SPONSOR: JASON OZUBKO, PSYCHOLOGY

The production effect is the finding that words read aloud are remembered better than words read silently. One proposed explanation for the production effect is that the act of reading aloud or hearing a word makes memories more distinctive than reading silently. If this account is correct, then hearing a more distinctive computer "voice" (such as a distorted voice) should result in a memory benefit. The present study examined the effect of auditory stimulus degradation on the production effect. In a set of three experiments, participants studied a list of words. In each experiment, participants read some words aloud, read others silently, listened to the computer "say" other

words, and read other words aloud with the computer. A memory test followed the study phase wherein participants were shown studied words intermixed with new words. Participants rated each word as either new or old. Across experiments, different levels of auditory distortion were used: high, low, and no distortion. Preliminary data shows that the computer "voice" impairs memory overall, with the high distortion and no distortion "voices" leading to the greatest impairment.

Shakespeare and Gender

MARIANNA SHEEDY
FACULTY SPONSOR: MELANIE BLOOD, ENGLISH

Because Shakespeare has been taught in classrooms for hundreds of years, it is important to understand the extent to which his works promote certain patriarchal views of women and gender. Therefore, this presentation examines the relationship between gender roles and the works of Shakespeare. The performative nature of gender, when expressed through Shakespeare's plays, has the effect of illustrating gender as a domain of agency or freedom. Although sometimes his works reinforce traditional, and oftentimes restrictive, gender roles, the cross-gendering aspects of his plays bring Shakespeare out of a universalist perspective of gender and instead transform his works into vehicles of social change. During the course of this project, I have researched and analyzed how cross-gendering within both Shakespeare's texts and performances (both in film and live theater) influences how his works are interpreted by a contemporary audience.

The Future of Automation in Accounting

SARA PROVENZANO
FACULTY SPONSOR: ELIZABETH FELSKI, BUSINESS

Accounting has always been the foundation of successful companies, and therefore a target for implementing technological innovation. The practice has recently seen major advancements in terms of automation, transitioning many previously repetitive, manual tasks into ones which can be completed more accurately and efficiently through the use of technology. In this presentation, I will explore the features and significance of the most popular types of accounting automation, including blockchain, robots and drones, artificial intelligence, and continuous data. Each section will include a brief discussion of the technical components of the respective technology, as well as advantages and disadvantages in terms of the area of accounting most relevant. I will conclude by discussing the potential future prospects involved with each area and their implications for the profession overall.

Analysis of Rhetorical Devices' Influence on Common Understanding of Satirical Written Works

ANNIE RENAUD
FACULTY SPONSOR: SARAH BROOKES, COMMUNICATION

In this series of two studies, the usage of specific rhetorical devices in written satirical works and their impact on individuals' common understanding of the satirical works was examined. In the first study, the rhetorical devices utilized in American and Russian written satirical works (two of each) from the early 1900's was analyzed. The frequency of rhetorical devices used in each piece was examined and compared. Some of the rhetorical devices evaluated include the specific category of satire (whether it is horatian, juvenalian, or mineppean) and whether there was situational irony, hyperbole, and understatement present. In the second study, participants read one of the satirical works and provided their reactions to the pieces. In this study, it was determined whether the rhetorical strategies analyzed in study 1 resulted in a similar or diverse interpretation of particular pieces and which rhetorical devices participants found most humorous. Afterwards, utilizing the rhetorical devices that participants found most humorous or produced a greater understanding, a satirical magazine with content focused on Geneseo was created to tailor the specific rhetorical devices previously studied to Geneseo students.

1H • EDGAR FELLOWS PANEL 3

WELLES 133

SESSION CHAIR: MICHAEL MILLS, EDGAR FELLOWS

Exploration of X-Ray Tomography Using a CCD Detector

LAUREN FARRELL
FACULTY SPONSORS: CLINTON CROSS, PHYSICS & ASTRONOMY
DAVID MEISEL PHYSICS & ASTRONOMY

Tomography is a technique used to visualize the interior of an object. Linear images of transmitted x-rays penetrating the sample are taken to reconstruct a series of planar cross-sectional images. These cross-sectional planes can be stacked into a 3D visualization of the sample's interior using special Mathematica programs. The x-ray source and detector will be stationary and the sample, roughly 12-15 mm2, will be placed in the x-ray beam and twisted around an axis perpendicular to the line between the CCD and x-ray. A stepper motor is programmed to turn the sample at precise angles so all images can be taken at the same exposure time. A rectangular container made of aluminum houses the sample holder assembly. Close fitted holes were drilled at opposite ends for inserting the x-ray source and CCD camera. The transmitted x-rays from the sample (theoretical resolution ~ 6.2 microns) will be picked up by the CCD for processing. Radiation scattered from the inside of the container hopefully can be removed later. A 6-micron thick aluminum foil covers the CCD to prevent stray visible light from the X-ray source being detected, but may cut down the final x-ray intensity requiring more extended exposure times.

Bowling Alleys of the Industrial Midwest

SAMUEL GALLIVAN
FACULTY SPONSOR: DARRELL NORRIS, GEOGRAPHY

The bowling alley is among the most prominent social recreational establishments of the industrial Midwest. Supported by bowling leagues which derived much of their membership from blue-collar unionized laborers, the bowling alley remains a visible cultural institution of what became known as the Rust Belt. In this project, the cultural and historical background of the bowling alley in American society is examined and contextualized. Next, the spatial patterns in the distribution of bowling centers across the industrial Midwest are examined, with a specific focus on three states: Ohio, Pennsylvania, and Illinois. Through the use of census records taken from the Economic Census of Selected Service Industries, regional spatial trends in the location of bowling alleys are discovered and examined over time. The extent by which the distribution of bowling alleys is affected by urban context is explored through comparisons between large urban centers, such as Cleveland and Columbus, and smaller cities. The decline of the bowling alley can therefore be treated as a symptom of broader Midwestern economic and socio-demographic trends.

Fan Violence in Soccer

RYAN THOMPSON
FACULTY SPONSOR: DARRELL NORRIS, GEOGRAPHY

Despite being the most popular sport in the world, the game of soccer has often been marred by violence and abuse among various fan bases. From racism, anti-Semitism, homophobia, vandalism, and more, the beautiful game continues to be negatively impacted by pervasive incidences of abuse worldwide. This paper seeks to anecdotally examine well-documented incidences of violence and abuse in the history of soccer, and seeks to explore possible commonalties. Various factors that may have led to these acts of violence and abuse will be evaluated, such as historical rivalries between teams, country and location of games, and the presence of alcohol, among others. When all incidences are viewed together in this context, this paper will theorize what factors or combinations of factors seem to represent causal qualities of violent incidents, while other factors are deemed unimportant or unrelated.

Cultivation Theory: A Lens for Modern Nationalism and Social Disunity

NOAH COATES
FACULTY SPONSOR: ATSUSHI TAJIMA, COMMUNICATION

This study seeks to reanimate George Gerbner's cultivation theory through an exploration of whether the nature of mass-mediated messaging has paralleled contemporary American political trends toward polarization and nationalism. An analysis of 399 nationally-broadcast presidential campaign advertisements, strictly commissioned by candidates themselves, will be conducted to determine whether recent trends toward political polarization and rising nationalist movements were matched by an increase of divisive and fearful messaging in widely-viewed television. The topic is explored via the following premises; first, that mediated messages are essential in the creation of a nation and the maintenance of a sense of national community, second, that televised media have a capacity to shape or cultivate realities, particularly fearful ones, for their viewers over time, and finally, that nationalist sentiments are predicated on fear.

1I • ENGLISH WELLES 216
CROSS-CULTURAL CONTACT IN MEDIEVAL LITERATURE

FACULTY SPONSOR & SESSION CHAIR: LYDIA KERTZ, ENGLISH

Patriotism and Violence in "The Song of the Cid"

LUKE EDELMAN

Just as we're plagued by propaganda and attempts to influence how we think, so too were the peoples of Medieval Spain. While surviving works such as "The Song of the Cid" are not unbiased in their author's sensibilities, we can use them like puzzle pieces to achieve a full picture about how the religious elite and those in power and wealth can use the written word to influence whole waves of thought and policy, and how often and easily normal people can be riled up to commit terrible atrocities. The pain experienced by people should always be something we're mindful of, no matter the time or circumstance. In the epic poem we see its author and his or her motivations clearly enough, but we can also see past them. On its surface, "The Song of the Cid" is about the archetypal Christian Warrior and what's expected of him, but in the subtext of the work we're shown the larger concepts of reclamation of land and coexistence of peoples. Whether this is the intention of its architect or not we can never know, but the interpretation of the work is its lasting influence.

Preaching Mysticism from the Margins: A Queer Analysis of Margery Kempe

SAKSHI KUMAR

The landscape of the European Middle Ages presents an explicitly gendered and social homogeneity. This is not to say that there were not figures who attempted to defy communal expectations. While drawing on scholarly research surrounding gender and sexuality in the Middle Ages, I argue that we can and should examine these deviating figures through both a historical and contemporary understanding of the term "queer," with consideration to the multitude of identities the term encompasses. This paper pays particular attention to the narrative of fifteenth-century female Christian mystic, Margery Kempe. The Book of Margery Kempe traces Kempe's journey as a mystic and prophet and the discord that this produces between her and the people and institutions she communicates with. By applying a broad understanding of 'queerness' to Kempe's character, we see how Kempe's identity as "this creature" becomes both what causes her social exile and simultaneously becomes a tool to legitimize herself.

How Romance Replaced War: from Song of Roland to Floris and Blancheflour

MERRIN SARDI

This essay explores the boundary between epic and romance by focusing on the narrative shift from conquest and grandeur of epics and military travel into amatory quests and marriage alliances. In a comparative reading of an Old French epic Song of Roland and a Middle English romances Floris and Blancheflour, this transformation becomes apparent. The grandeur that usually follows a military conquest of a land is replaced in Floris and Blancheflour by the cross-cultural and cross-continental love of the main hero and heroine. What once would have been a military conquest and then an alliance by Blancheflour's male relatives is now a love affair, complete with a religious conversion on the part of Floris' people and a wedding for the two 'countries'. Both texts center religious difference as an insurmountable conflict, resolved only through violence or conversion.

Woe of the Weeping Prophet

SYDNEY SCHMIDT

In this paper, I answer the question: "Does the Prophet Jeremiah express a deeper anguish than is expressed in the Psalms?" My answer is yes, for several conventions in Hebrew poetry and literary structure in general indicate that unlike the authors of the Psalms, Jeremiah expresses an adversarial relationship with God Himself. Rather than cast judgement this relationship, I show how Jeremiah struggles to make sense of it, and therein becomes a complex Biblical figure.

1J • ENGLISH WELLES 121
(UN)HEARD VOICES IN THE OLD TESTAMENT

FACULTY SPONSOR: GRAHAM DRAKE, ENGLISH
SESSION CHAIR: **OLIVIA BINDA**

Dinah and Tamar: Voiceless and Daring

BRIANNA RIGGIO

In Ancient Israel, as in many ancient societies, the social standing of a woman was directly tied to her marriageability and her ability to produce male heirs to continue the family line. Women who experienced barrenness, widowhood, or rape carried a constant mark of shame in social circles. Because of this cultural dynamic, many stories in the Old Testament center around the female desire to preserve her good name through marriage or through producing heirs, as well as the intensity of heartbreak that comes when a woman cannot live up to these standards. There are many examples of women going to extraordinary lengths to achieve them, leading to countless tales of rivalry, jealousy, and conniving in households. Two stories that present an especially interesting perspective on this dynamic are the stories of Dinah, a woman whose rape inspired a mass murder at the hands of her vengeful brothers, and Tamar, a woman who achieved her desire for a child through trickery and borderline incest. Side by side, the stories of these two women show both how powerless women often were in Israelite society and how strong and clever many women became to overcome this.

1K • ENGLISH BAILEY 202
THE SPEECH BUDDY EXPERIENCE

FACULTY SPONSOR & SESSION CHAIR: IRENE BELYAKOV-GOODMAN, ENGLISH

Returning the Favor: Teaching your Speech Buddy French

KECYNA LIATARD

What is a speech buddy? A speech buddy is a student trained to help International students to improve their English. One of the other goals of this program is to enable International students to become friends with an American student. For my part, unlike the other students, I am not American but I'm an exchange student from France. Throughout the semester, I am helping two American students to enhance their oral and written skills in French.
It is a very interesting and stimulating journey and It will be a real pleasure to share this experience with you.

Teaching Thais: Writing Buddy Edition

MACKENZIE GRIFFIN

Many college students would consider writing papers to be a daunting task; however, it seems even more intimidating for students whose first language is not English. My journey of working with Thais has included crafting and executing a plan to help her feel better equipped to tackle both her mandatory writing class and humanities class. This presentation showcases what we have accomplished and learned along the way as well as what we plan to do.

Jumping from Japan to Geneseo: A Speech Buddy Experience

HANNAH SULLIVAN

Being a first semester student is not easy for anyone, but it could be said that also being an international student also adds to this challenge. In efforts to make this transition to the States and Geneseo easier, the Speech Buddy program can be utilized to smoothen the adjustment period. My speech buddy, Ayaka, left Japan in hopes of finding an ideal university experience. My goal has been to make her experience at Geneseo easier, while offering her some language and cultural tips, too. Take a look at the journey we've gone on thus far, and feel free to learn a little bit about Ayaka and Japanese culture along the way.

My Speech Buddy Journey: A Experience to Change the Seoul

ABBY GRIFFIN

The Speech Buddies Program has allowed me to connect with a wonderful student Jae, who wishes to learn English so that he can be trilingual. Our journey involves learning more about the English language and its complexities, while also becoming friends. He has taught me a lot in return about the South Korean culture and language, because I would like to visit the country one day. This program provides a wonderful exchange of information and gives both the mentor and the speech buddy a way of gaining new and unique information. Come learn more about my experience, and the benefits of the Speech Buddies Program that the wonderful Professor Belyakov established!

1L • GEOLOGICAL SCIENCES ISC 136
HONORS THESIS

SESSION CHAIR: NICHOLAS WARNER, GEOLOGICAL SCIENCES

Anthropogenic Effects on Lacustrine Fidelity: A Study of Live-

Promotes sustainability

Dead Macroinvertebrate Assemblages in Conesus Lake, Lakeville, NY

JAKE OKUN
FACULTY SPONSOR: JACALYN WITTMER MALINOWSKI, GEOLOGICAL SCIENCES

Lacustrine ecosystems, impacted by anthropogenic activities, produce living assemblages less diverse than concurrent death assemblages. Macroinvertebrates respond within decades to changes in water quality and ecologic shifts, making them suitable for community assessment. This study focuses on live-dead ratios of macroinvertebrate assemblages in Conesus Lake, a Finger Lake located in Lakeville, NY. We hypothesize that the pre-fossil community is more abundant and diverse than the living community. The north and south ends of Conesus Lake were selected. The north is a park and beach that is anthropogenically controlled. The south is a marsh and fishing inlet. Data was collected in two phases. Phase 1: Surface sample collection at each site, followed by wet sieving, live-dead collection and counts, and grain size analysis. Phase 2: Coring ~20-40 cm of lake sediment, dry sieving, pre-fossil counts, and grain size analysis. The final aspect of this study includes quantitative analysis of the live and dead assemblages focusing on changes in diversity and dominance over time. These analyses could reveal an increased anthropogenic influence on the lake over the last few decades. The outcomes of this study will help support the conservation of Conesus Lake.

Degradation History of Impact Craters at the InSight Landing Site: Implications for the Origins of Homestead Hollow

ALYSSA DEMOTT
FACULTY SPONSOR: NICHOLAS WARNER, GEOLOGICAL SCIENCES

The InSight lander successfully landed in Homestead hollow on Elysium Planitia, Mars. Homestead hollow is a 20-30 m quasi-circular, sediment-filled topographic depression that may be a highly-degraded impact crater. The region surrounding Homestead hollow contains both young rocky ejecta craters (RECs) and more degraded, ancient non-rocky ejecta craters (NRECs). A crater ejecta and morphology-based classification scheme was established pre-landing for RECs, however, no classification scheme exists for Homestead hollow-like impact features or more degraded craters surrounding the landing site. Furthermore, the surface processes involved with the modification and preservation of these craters are poorly understood. Using 25 cm pixel-1 High Resolution Imaging Science Experiment (HiRISE) imagery and a 1m high-resolution digital elevation model (DEM), craters with diameters > 20 m were digitized in ArcGIS in the region surrounding Homestead hollow. Craters were classified based on crater rim degradation, crater floor morphology, bedform presence/location, depth-to-diameter ratios, and slope and curvature data. Eight different classifications have been established, including three new classifications for degraded NRECs. By analyzing crater morphology, and the size-frequency distribution of different crater classes, the degradation history and surface processes that modified Homestead hollow were determined.

Determining the Role of Taxa and Biovolume of Reef Buildup Stages in the Late Ordovician Kimmswick Limestone, East-Central Missouri

JOSEPHINE CHIARELLO
FACULTY SPONSOR: JACALYN WITTMER MALINOWSKI, GEOLOGICAL SCIENCES

The Kimmswick Formation of east-central Missouri is dominated by fossiliferous grainstones of Late Ordovician (Katian) age. The Kimmswick formed in a transitional shallow-water environment between the present-day Ozark Dome and the deep-water Sebree Trough. The Kimmswick Limestone is relatively homogeneous in faunal composition and lithology throughout the midwest. Here, however, we report on a unique mound-related paleocommunity of encrusting stromatoporoids, cyathocystid edrioasteroids, crinoids, paracrinoids, edrioblastoids, bryozoans, and corals, including many taxa that are rare elsewhere. Ongoing examination of the outcrop has identified that initial and main stabilization of this buildup consisted primarily of stromatoporoid boundstones with minor echinoderm components. The colonization and diversification of the buildup consisted of various encrusting echinoderms intergrown with stromatoporoids.. The purpose of this study is to assess faunal diversity and reef community structure at a bulk sample scale. Buildup diversity was evaluated at macroscale by conducting taxon point counts as well as estimating biovolume. Establishing a detailed narrative of the community dynamics of this reef-like mound provides a unique opportunity to assess the paleoenvironment and ecological interactions during the Late Ordovician and can potentially add to our knowledge of atypical modern reef systems dominated by taxa other than corals.

1M • HISTORY WELLES 123

SESSION CHAIR: CATHERINE ADAMS, HISTORY

Religion in American Slave Narratives

JAELYN GREEN
FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

Religion serves as the basis of hope and belief for many around the world. It has a theme of believing in something that cannot necessarily be seen and a higher power that provides hope and tranquility to many. In many American slave narratives, religion is a common theme throughout the books. Some slaves seemed to use religion as a way to get through slavery, it was something that enabled them to get through their limitless toils. In contrast, there were some slaves who saw religion as something questionable and did not see importance of religion in their suffering. Slave views on religion were not the only viewpoints emulated in these narratives. In many of the books the slave owners' point of view on religion was also explained and most of the time they would have their own definition religion and usually used it as a way to belittle slaves and keep themselves higher than slaves and free blacks alike.

Maurice Duplessis' Influence on the Creation of Modern Quebec

STEPHEN CARON
FACULTY SPONSOR: JOSEPH COPE, HISTORY

Prior to the Quiet Revolution, Quebec was heavily influenced by values as expressed by the Roman Catholic Church and traditional attitudes of family. Indeed, before the Quiet Revolution, many Quebecers were content with being a part of Canada and did not care much for separation. The apotheosis of Catholicism and social traditionalism was epitomized by the policies of Quebec's Premier Maurice Duplessis, a staunch Catholic and anti-communist who governed his native province from 1936 to 1939 and from 1944 to 1959. Yet when the ideas, principles, and aspirations of the supporters of the Liberal Party leader Jean Lesage won office in 1960, the old Christian Quebec was scrapped away, and replaced with a more modern, secular Quebec that was more attached to the ideas of separation, nationalism, and social democracy. This essay will examine the influence of the Church on Quebec politics. More specifically, it will prove Maurice Duplessis crusade against communism had as much to do with the Church's influence over the Quebec government as it had to do with hatred of communism. Lastly, the Quiet Revolution's impact of secularization and that of how separatism nearly caused Quebec to break up from Canada is addressed. ***Selected for presentation at Crossing Borders Conference, Lewiston, NY.***

The Disease of Capitalism: A Case Study following the impact of Capitalism on the Environment and Indigenous Communities

RYLAND FROST
FACULTY SPONSOR: JOVANA BABOVIC, HISTORY

This paper will discuss why capitalism drove European colonial expansion and how that expansion led to catastrophic environmental malpractice and the attempted erasure of indigenous culture and life. The focus is to bring in the voices of philosophers, economists, colonists and, indigenous peoples, to argue a context for the sheer magnitude of capitalism's role in perpetuating immoral behavior and the unchecked exhaustion of natural resources. In providing this context, alternative economic and social perspectives can stand on equal footing with the traditional western perspective which allows the reader to contemplate the history in its entirety. I identify capitalism as the chief catalyst for environmental destruction and indigenous culture loss, which has essentially set the stage for today's geopolitical world and our current climate crisis.

1N • LANGUAGES AND LITERATURES WELLES 138

SESSION CHAIR: KATHRYN FREDERICKS, LANGUAGES AND LITERATURES

Class and Social Mobility in Enlightenment Literature

EMILY CECALA
FACULTY SPONSOR: KATHRYN FREDERICKS, LANGUAGES AND LITERATURES

The Enlightenment was a time of change and critical thought. Throughout the 18th Century as French society moved towards the French Revolution of 1789, Enlightenment-era literature highlighted societal problems that would eventually lead towards widespread political unrest. In my paper I will discuss social mobility through the analysis of Marivaux's "Le Jeu de L'Amour et du Hasard" (1730) and Voltaire's "Candide" (1759). Both authors use a variety of literary tools such as symbolism and representations of travel to portray the difficulties which heavily permeated

eighteenth-century French society. I reference literary critics such as Roland Barthes to support the idea that Marivaux and Voltaire use their works as critical analyses of the rigid class structure that existed during this time. The theme of social class presented in these works remains relevant today, and both texts have made a lasting impact in global literature.

Re-visiting and Re-assessing Evolution and Language in Senegalese Educational System

EMILY CECALA
FACULTY SPONSOR: KODJO ADABRA, LANGUAGES AND LITERATURES

Throughout the world, education is known to provide opportunities for advancement and emancipation. This is especially true for countries that have broken the bonds of colonialism. Senegal is a nation that has improved extensively in education. Literacy rates in Senegal have grown substantially over the past few decades. Nonetheless, disparities in gender and location continue to exist. There is also an ongoing debate about the language of instruction. The language of education in Senegal and most former French colonies is French, but recently there is a massive amount of support for Mother Tongue Medium Education (MTME), namely in the Wolof language for Senegalese. In this presentation, I will analyze the evolution of the education system in Senegal and its continued growth to meet the demands of an increasingly global economy. Next, I will present the pedagogical advantages and disadvantages of using MTME in Senegalese classrooms in the wake of Wolof being the most widely spoken national language in the country, yet overshadowed in relevance by the school-imposed European languages inherited from the colonial era. Last, I will share my contextualized findings on the implications of pedagogy evolution for Senegalese students.

State of Desertification and Reforestation in the Western African Region: the Great Green Wall Implications

EMILY YOUNG
FACULTY SPONSOR: KODJO ADABRA, LANGUAGES AND LITERATURES

In addition to natural phenomena, such as decreases in precipitation, the over-exploitation of soils and the deforestation performed by humans have accentuated natural causes and effects of deforestation. In West Africa, the rapid spread of the desert is causing severe consequences for many of the people who live in the region. These consequences include deterioration of the environment, threats to soil integrity, and negative impacts on health. Due to the inability to grow food, poor soil quality can lead to economic poverty and hunger, which, in turn, can incite social tensions. One of the ways to combat these phenomena is by reforestation as promoted by the intervention of the United Nations Convention to Combat Desertification. I will emphasize the importance of reforestation, wherein lies the answer of the Great Green Wall. Building on first-hand research I conducted in summer 2018 during a study abroad in Dakar, Senegal, I will unveil the benefits that have emerged from the Great Green Wall initiative. Moreover, this paper will pinpoint the complex human dynamic on the rise within the potential beneficiaries of the project implementation. Finally, I will attempt to quantify the foreseeable long-term implications provided that funding be maintained. ***Selected for presentation at National Conference of Undergraduate Research, Kennesaw, GA.***

Translation of African Francophone Novels to English: Why Does It Matter?

HELEN WARFLE
FACULTY SPONSOR: KODJO ADABRA, LANGUAGES AND LITERATURES

This presentation will discuss the research outcomes of the 2018-2019 Gouvernet Ambassadorship Project. The focus of this presentation will be a discussion of translation of foreign language novels into English: what it means, the difficulties of translation, and the effect on readers through the lens of Une Si Longue Lettre, the work of Mariama Ba, a Senegalese feminist writer from the post-colonial period of African literature. A discussion of the research done in Senegal in order to do the cultural background research for the project will provide the lens through which an in-depth comparison of the English and French version took place. This study resulted in the discovery of three key trends: the inversion of sentence clauses, the addition or elimination of verbs from phrases, and differences in the way that Wolof words were handled in each version, each of which will be talked about in detail, and the presentation will conclude by showing how the results of this study prove that, when choosing to read a translation of a foreign-language work, it is important to do research on which one best preserves the original intent of the author.

1O • MATHEMATICS 1 SOUTH 336

SESSION CHAIR: ANTHONY MACULA, MATHEMATICS

Modeling of Diseases and the Effect Quarantine has on Transmission

AMANDA ENG
FACULTY SPONSORS: BERTRAN SEDAR NGOMA KOUMBA, MATHEMATICS
ANTHONY MACULA, MATHEMATICS

Modeling allows researchers to predict the outcomes of certain situations. One application of modeling is through the use of differential equations to predict the spread of diseases. In cases where vaccination is not always feasible, quarantine is an alternative option to fight the spread of infection. In this talk, we will discuss the importance of computational modeling and the research applications in relation to the spread of diseases along with analyzing the effects quarantine has on the population. Using real data, we will discuss the outcomes of quarantine and how it can be used to minimize the spread of infection.

History and the Applications of the Poisson Probability Distribution

WILLIAM BOYUAN CHEN
FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

The Poisson distribution was introduced by French mathematician Simeon- Denis Poisson in 1837. The distribution is helpful when creating a model for the number of times an event may occur within an interval of time or space. First, we shall discuss the notion of being random. Often, we do not experience complete randomness. Next, we shall introduce the basic characteristic of a few discrete probability distributions including Poisson. It should be noted that Poisson distribution's real world applications include time and space oriented situations, such as the numbers of customers entering a restaurant in a given certain hours, or the number of eagles nesting in a specific region. Lastly, we shall focus on how the Poisson distribution may model the number of hits by V-1 buzz bombs in WWII London.

The Birthday Problem

TESS COLLINS
FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

In this talk, we will discuss the Birthday Problem; a problem concerning the probability that, in a set of n random people, k of them will have the same birthday. The original problem is based on the assumption that the probability is equally likely for every day of the year, but research suggests that this is not true, and we will look at how this affects the problem. We will also look at the Inverse Birthday Problem; a number of people are surveyed, you are given the distribution of their birthdays, and asked to compute the number of people who were surveyed. This problem is one of the many illustrating that mathematics often fails to align with what we expect from reality.

What Is Your Life Expectancy? Buy a Term Life Insurance to Find Out

EKATERINA JONES
FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

A term life insurance is a safety net which provides a monetary benefit in the event of death during the set period. Premiums for a term life insurance vary based on life expectancy of an insuree. How an insurance company predicts life expectancy is unknown to a holder of a policy and the insurance company may not share this information with an insuree. However, a wise consumer can inversely compute life expectancy knowing a premium and a policy amount. In this talk, we will explain how we can inversely calculate life expectancy from the cost of an insurance policy.

1P • MATHEMATICS 2 SOUTH 328

SESSION CHAIR: SUSANNA RUBRIGHT, SPONSORED RESEARCH

The Advancement of Mechanical Calculations

ROBERT MARINO
FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

In this talk, we discuss the methods of mechanized calculations before modern computers and technology. To begin, the abacus is discussed as an early counter that was popularly used by merchants to take inventory of their goods. Next, Napier's bones will be discussed as a method of multiplication and division of larger integers before modern day calculators were invented. Continuing through the 17th century, the arithmetic machine will be discussed as the first calculator or more simply, the first adding machine invented before modern technology. Next, Ada Lovelace, often referred to as one of the first programmers, will be discussed as someone who looked at computers beyond mathematics and

Promotes sustainability

pushed social normalities for women in mathematics. Finally, we will discuss the invention of the first handheld pocket calculator by Texas Instruments that led to modern day mechanical calculations.

Regression Analysis: Predicting Suicide Rates by Country

GENA DRISCOLL BRANTLEY, KAYLA TRUONG
FACULTY SPONSOR: CHI-MING TANG, MATHEMATICS

The purpose of this study is to predict suicide rates, by country, using indicators such as poverty, alcoholism, unemployment, and mental illness. These have been identified by existing research as factors which contribute to a country's suicide rate. Through regression analysis, we will investigate the influence of these indicators on suicide rates. Suicide rates will be collected by country, for roughly 155 countries for the year 2016, from the World Health Organization. Indicators will be gathered from the World Health Organization and The World Bank. Through multi linear regression, we will generate several potential models using Minitab, a statistical software. We will then compare the models in order to identify the one that best fits the data. The results of this research will be valuable to policy makers seeking a better understanding of factors contributing to suicide rates.

Model of Truck Traffic Flow Through Geneseo

YEN LINH LE, TRANG PHAM
FACULTY SPONSOR: CHI-MING TANG, MATHEMATICS

Trucks that are going to Buffalo either take exit 7 (highway 390) through Geneseo or stay on the highway for exit 12. From the data, there are high volumes of truck traffic in Geneseo daily. Three schemes are examined, namely: the number of trucks passing through within 5 minutes, the time between the next truck passing through, and possible reason that could affect the event. After collecting real data, we have noticed that our data fits Poisson distribution and Exponential distribution. Therefore, we build and examine Poisson Distribution model and Exponential Distribution model from the real data and survey that we collected. Using Poisson Distribution we want to find the lambda, the average number of trucks that go through exit 7 every 5 minute intervals. Then we want to use the exponential distribution to model the time between trucks that pass through the village by taking exit 7. General findings indicate the impact of truck traffic flowing through Geneseo.

Taylor's Theorem

CIARA FARRINGTON
FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

Taylor's Theorem and Taylor's Series is a fundamental calculus concept that all mathematic students learn. This series is very important for more then solving complicated functions, integrals, and limits. It has many Numerical Analysis functions and helps computer approximate functions that otherwise would be insolvable. In this talk we will prove this theorem and talk of the historical background and importance of applications of the theorem. This theorem applies to many other subjects such as physics, chemistry, and finance. We will then show how this theorem is important to other areas through examples.

1Q • MATHEMATICS SOUTH 340
MATHEMATICS OF SYMMETRY I

FACULTY SPONSOR & SESSION CHAIR: JEFF JOHANNES, MATHEMATICS

How Diamonds Dazzle: A Symmetrical Analysis of Crystals

PRANISH SHRESTHA

Crystals extensively acquire symmetry in their structure. Symmetry governs the formation of crystal structures. This project studies symmetry in crystals and their mathematical representation. A crystal structure is formed by a primary building block called the lattice. A lattice is an arrangement of atoms or molecules in a definite order and orientation, which is repeated infinitely throughout the crystal structure. There are different types of lattices, and among them cubic lattices are the most common. In this project, different types of cubic lattices are discussed. Finally, the discussion leads to explaining the crystal structure of a diamond.

Exploring Polygons with Schläfli Symbols

ALLYSON GIBBONS

In this presentation we will be exploring a different way to represent polygons called Schläfli symbols. Schläfli symbols use letters to denote the faces and vertex figures of a polyhedron. We will progressively analyze more complex figures and answer how different aspects within the figure change the symbols representing them. This is a interesting way to symbolize three-dimensional objects, and after my talk will be able to find symbols for complicated polyhedra.

The Beautiful Symmetry of Voronoi Diagrams

GILLAN FAULKNER

The purpose of this study is to identify and analyze the different symmetries of Voronoi diagrams. The general n-dimensional case of Voronoi diagrams was defined and studied by Russian mathematician Georgy Fedosievych Voronoi in 1908. However, the informal use of Voronoi diagrams can be followed back to Descartes as early as 1644. A Voronoi diagram is a partitioning of the plane in which regions are formed based on distance to a point in the plane. These points of the plane which are the basis of the formation of the regions are decided of specified before the regions are created and are commonly known as seeds, sites, or generators. The regions are then created such that every seed has a region that consists of every point that is closer to that seed than any other seed. These regions are known as Voronoi cells. Voronoi diagrams have applications in many different fields including science, technology, and visual art.

1R • MATHEMATICS SOUTH 338
TOPICS IN THE HISTORY OF MATHEMATICS I

FACULTY SPONSOR & SESSION CHAIR: GARY TOWSLEY, MATHEMATICS

The Erasure of Women in Mathematics

TOM BENAMRAM

This is a brief history of the women who have been involved in the study of mathematics who have been erased. Starting in the 18th century, we will examine women who opened the doors to future female mathematicians, such as Emilie du Châtelet and Maria Gaetana Agnesi, who both studied the works of Newton and Liebnitz, Sofia Kovaleyskaya, the first woman to receive a doctorate in mathematics, and Ellen Amanda Hayes, an early professor of mathematics at Wellesley College. The purpose of this study is to bring forward the women who have not been studied extensively, credit them with the work they have done, and to talk about some of the causes behind the erasure of women in mathematics.

Archimedes Study of Pi

MOLLY DORAN

I will be focusing on the work by Archimedes of Syracuse. First, I will explain his early life and the work he did prior to experimenting with pi. Next, I will explain the method Archimedes used to determine pi, explaining that one can use previous calculated values of pi to find a new one. I will go in depth on the three propositions that he proved in *Measurement of a Circle*. I will finish by showing examples of finding pi, using his methods.

A History of the Concept of Infinity

ELENA BORGNA

This paper will discuss the origins of the concept of infinity. Infinity is a concept that has been explored extensively, and by several different people and groups, with a variety of focuses, which include mathematics, philosophy, and astronomy. The study of infinity began when the early Greeks discovered that not everything in nature could be represented rationally. This paper will look into the development of the concept of infinity, from the discoveries of the early Greeks to what we know today.

Algebra & Islam: A Hidden History

SYDNEY ALEXANDER

When one thinks of the word algebra, they may not necessarily tie it to the Islamic Society. In fact, the word algebra actually derives from the Arabic word meaning completion or "reunion of parts". During the late 15th to 16th century, during what was known as the Islamic Golden Age, many mathematical advances were made. I will focus on the individual responsible for solving the cubic equation: Umar al-Khayyam (1084 - 1131 CE). He came about towards the end of the Golden Age and was greatly influenced by scholars before his time. Umar al-Khayyam wrote the treatise on Demonstration of Problems of Algebra containing the systematic solution of cubic or third-order equations, going beyond the algebra of another scholar, al-Khwārizmī. Cubic equations are typically difficult to solve. This presentation will examine how Khayyám was able to arrive at twenty-five species of equations and the different methods he obtained to solve them. Khayyám's most notable discovery presented in his treatise is his solution to these equations by finding the intersection points of two conic sections. I will analyze how he was able to do so and highlight his main contributions to Algebra.

1S • POLITICAL SCIENCE & INTERNATIONAL RELATIONS 1 AND SOCIOLOGY

WELLES 119

SESSION CHAIR: JOANNA KIRK, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Responses to Domestic Violence in Western New York: A Study of Livingston and Monroe County

CAITLIN WILLIAMS

FACULTY SPONSOR: JOANNA KIRK, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The United States has been subject to significant criticism for its failure to provide sufficient remedies and services to domestic violence survivors. Because of this, the responsibility is placed on local governments and services, resulting in inconsistencies across counties in the quantity and quality of services provided. This presentation will discuss the response to domestic violence on a local level by comparing two counties in Western New York, Livingston (rural) and Monroe (urban). The inconsistencies in upholding the right to freedom from domestic violence that occur on a county-wide level becomes clear as some municipalities are faced with obstacles to providing services. This will be shown through a comparison of the levels of funding, available services, and legal responses to domestic violence within each county. ***Selected for presentation at International Scientific Conference: University of Holguin-Cuba, Holguin, Cuba.***

Sovereignty Redefined

ADAM HOSSAIN

FACULTY SPONSOR: RASLAN IBRAHIM, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Sovereignty can be regarded as a fluid social construct, and over the course of modern history we are able to observe how the norms and implications of state sovereignty have evolved due to changing ideology. The modern-day human rights efforts, for instance, have played a momentous role in redefining the implications of sovereignty, including a state's self-determination and supreme authority over its affairs. Whereas self-determination and non-intervention were heretofore unconditionally the status quo, states are now vulnerable to surrendering these privileges when the legitimacy of their actions becomes questionable. I argue that the global human rights regime has instituted an ostensible contingency where not only is intervention warranted, but it is a responsibility and duty of external actors. This newfound global norm has extraordinary implications as states will now actively change their behavior to avoid an obligatory intervention campaign. Indeed, this is quite significant as it indicates that not only are the norms of sovereignty redefined for states that violate human rights, but for all states. In my investigation, I analyze various cases of humanitarian intervention in the post-Cold War Era and eventually vindicate the deduction that the norms of sovereignty have certainly changed indelibly as a result.

1T • POLITICAL SCIENCE & INTERNATIONAL RELATIONS 2

WELLES 26

SESSION CHAIR: BETSY COLON, GRANTS MANAGEMENT

A Clash Between Psychiatry and the Law: James Holmes and the Colorado Theater Shooting

CAMILLE MONTALBANO, GAIL CABAHUG

FACULTY SPONSOR: JAMES MOOR, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Today, the world knows him as the Aurora movie theater shooter, but to his family, James Eagan Holmes has always just been their son. Having lived a seemingly normal and happy childhood, no one may have guessed the horrors Holmes was capable of committing. Yet, the signs were always there: a biological predisposition to schizophrenia and various social and academic upheavals capable of catalyzing mental illness. In this presentation, we will analyze Holmes' psychiatric health in relation to Colorado law. We will trace personal experiences from Holmes' childhood through college, drawing on statements from numerous psychiatrists, friends, and excerpts from his personal diary. After that fateful night when Holmes opened fire on an unsuspecting crowd, a legal battle pursued surrounding one key question: was James Holmes a competent, calculated killer, or was he simply insane? We will use both psychiatric and legal lenses to seek a more definitive understanding of the justice behind the resulting guilty verdict.

Explaining the Greek Financial Crisis using IR Theoretical Models

LINDA SINSKI

FACULTY SPONSOR: ROBERT GOECKEL, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

I will be researching the Greek crisis and explaining how the economic regime of Eurozone and the internal fiscal failures of the Greek state led to the crisis. I will use a liberal definition of "regime" in this case, to help flesh out the underlying political-economic policies of the community. This economic low resulted in the change of rules of the game in not only the Eurozone, but also the Global economy. I will begin my analysis in the late Cold War period, with the 1974 military coup that led Greece into its current democratic state. Through neorealist-liberal-constructivist approaches, I will analyze how the internal failures within the Greek state tested the resilience of the European Union as a regional integration institution; further, in the face of global financial crisis and weakness in one member, how the institutions are constrained against state sovereignty.

1U • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

WELLES 24

SUSTAINABILITY AND DEVELOPMENT

FACULTY SPONSOR & SESSION CHAIR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Indigenous Relationships with Sustainability: A Case Study of the Mapuche People

VICTORIA OZADOVSKY

The identity of indigenous peoples is linked to their connection with the land and environment around them. Very often, loss of land and resources is caused by a lack of adherence to native beliefs and practices. As with many indigenous groups, the sense of self felt by Mapuche people is not separate from the land itself. In fighting for their rights, Mapuche individuals have often been wrongly imprisoned while also being labeled as terrorists to their own country. This research will analyze the history of corrupt political institutions in nations with ongoing indigenous land conflict, along with the concept of democratic backsliding that causes even democratic states to fail to adequately grant recognition and resources to indigenous communities. I plan to examine the beliefs and cultural practices of various indigenous groups and how these values relate to sustainable development, and the concept of land ethicality. I plan to specifically narrow my scope by focusing on the Mapuche people of Chile and their longstanding conflict in relation to their beliefs of self and personhood. In doing so, I argue governments worldwide--democratic and otherwise--continue to place profit over the land and native communities of their countries.

Political Responses to Lead Pollution in Bangladesh

MADELINE WALKER

Lead Poisoning is a global environmental and political issue. Bangladesh is home to one of the most polluted cities worldwide and the effects of the lead pollution within the state are some of the worst in the world. The mean Blood Lead Level (BLL) in the average American is 1.2 ug/dL; children in Bangladesh suffer from upwards of 20 ug/dL of lead within their bodies. In 2015 alone, 27.5% of deaths in Bangladesh were attributed to environmental pollution risks, higher than the South Asian average of 25.9%. Lead pollution often affects those within Bangladesh's poorest communities, both urban and rural, at a drastic level. The Bangladeshi government and international community have not responded efficiently to mitigate the problem at hand. This study describes the gravity of lead pollution's environmental and health effects, how this issue exemplifies wealth disparities, how Bangladesh's political situation has affected the issue, and the lack of response of the international community and state to address this phenomenon. I will be utilizing various case studies and qualitative research to support my argument, relating the issue to the theory Southern Environmentalism.

Life in the Maquiladoras Post-NAFTA: The Environment and its Effects on Mexican Women

SHEILA BARABINO

In efforts to modernize Mexico's economy, NAFTA deregulated foreign direct investment and eliminated most tariffs. Using Gulia and Alier's theory of "The Environmentalism of the Poor," I argue that despite NAFTA's plan to eliminate the income gap between the US, Canada and Mexico, Mexico remains in an inferior position as poverty levels remain the same. While 85% of those employed in the maquiladoras are women, there

Promotes sustainability

continues to be wide wage disparities and access to resources between men and women. While NAFTA initiated side agreements on labor and environmental regulation, Mexico continues to lack enforcement on treatment of the disposal of toxic waste, labor unions, safe working conditions, and livable wages. This effect on some of Mexico's most vulnerable, maquiladora women, has led to increased autonomy and solidarity among them. I will use case studies, GDP per capita changes, and demographics of the maquiladoras in my research.

Land Rights and Regime Change: Trends in Mapuche Territorial Conflict from 1970 to Present in South-Central Chile

CECILIA BREY

The Mapuche people are an indigenous group located in the Southern Cone region of South America with a strong claim to their ancestral lands in south-central Chile, especially in the Araucanía region. Historically, relations between the Mapuche people and the Chilean government have been poor, marked by conflict relating to territorial claims, natural resource extraction, and violence against Mapuche activists. This presentation will examine both present-day and historical conflicts between the Mapuche people and the Chilean government since Salvador Allende's presidency in 1970. I will analyze how regime change and neoliberal economic policies have affected Mapuche mobilization strategies, the efficacy of these efforts, the government's handling of environmental conflict, and economic activity that has led to overexploitation and ecosystem damage in Mapuche lands.

1V • PSYCHOLOGY BAILEY 104
CULTURAL PERSPECTIVES ON SIBLING RELATIONSHIPS

FACULTY SPONSOR & SESSION CHAIR: GANIE DEHART, PSYCHOLOGY
FACULTY SPONSOR: NICHOLAS PALUMBO, PSYCHOLOGY

African Immigrant College Student's Concepts of Sibling Relationships

BRITTANY BEARSS, OUMOU WAGUE, NEHA PATIL, AWAB SHAWKAT

This work is an extension study of early research presented at GREAT Day 2018. The purpose of this extension study is to examine and contextualize the nature and relevance of African sibling relationships in emerging adulthood. Data collection and analysis has been done on participants, consisting of 14 African college students at SUNY Geneseo who are either immigrants themselves or the children of African immigrants. Participants were interviewed during focus groups to help us phenomenologically investigate the phenomena of interest. The results revealed salient themes of sibling influences and sibling parental roles. Emergent findings led to the understanding that older African college students influence their younger siblings in both academic and personal ways of life that shift over time across adolescence. This has lead to shared ideas of success and strong sibling comparisons due to the desire to be similar to the siblings that have set personal standards of achievement. This study allowed for a deeper understanding of how sibling relationships in non-western countries may form and develop over time. Future research, from different methodological traditions, should use these findings to develop new understandings about African sibling relationships and how they differ from sibling relationships of other cultures.

Chinese-American College Students' Concepts of Sibling Relationships

SABRINA CHAN, VIVIAN YE, XIAO JUN CHEN

The current study examined the distinct sibling relationships of Chinese-American college students and explored the unique characteristics of Chinese culture through qualitative inquiry. This phenomenological inquiry analyzed focus group data using thematic analysis (Braun & Clark, 2006). Emergent themes depict the role of sibling responsibilities, maternal influence, and age difference in the sibling relationships of Chinese-Americans.

Cooperation and Competition During Caribbean, Latinx, and Anglo Sibling Interactions

DOMINIQUE ELLIS, SABRINA CHAN, DIMITRI WING-PAUL, SABRINA BRAMWELL, KAMESHA MILLER

The present study focuses on the differences between Caribbean, Latino, and Anglo children's sibling interactions by analyzing their cooperative and competitive behaviors during a series of tasks. These tasks were given in the form of construction, free-play, and board games in order to elicit cooperative (construction), competitive (board game), and both kinds of behavior (free play).

Latinx College Students Concepts of Sibling Relationships

VANESSA CEPEDA, XIARA COLON, CAMILA DE VASCONCELOS, CARMEN MARTINEZ, DENIS MAZARIEGOS, CASSIDY GOUCHER

This research sought to analyze and better understand how earlier relationship quality influences relationships in emerging adulthood for Latinx college students. This phenomenological investigation analyzed focus group data using thematic analysis. The first emergent theme illustrated that participants' mothers assumed parental duties with their siblings at young age; parental practices were adopted in order to compensate for situational circumstances. The second emergent theme focuses on participants' perceptions of familial closeness. In answering questions about the quality of their sibling relationships and how it differed from their parents' sibling relationships, participants compared the closeness between themselves and their own siblings versus the participants' parents and their siblings. Participants considered how distance affected the closeness of their parents and their siblings. In such cases, participants' parents had siblings who lived in another country.The third emergent theme highlighted the role age played in their own sibling relationships, emphasizing how specific age gaps changed the nature of those relationships. Participants describe limited conversations and decreased closeness when age gap was large, whereas smaller age gaps were consistent with more intimacy within the relationship.The current study's results intend to offer new insight on a sparse segment of the literature on Latinx sibling relationships.

1W • THEATRE/DANCE BRODIE 152
CREATIVE CHOREOGRAPHIC PROJECTS AND PERFORMANCES

FACULTY SPONSOR: DEBORAH SCODESE-FRENCH, THEATRE/DANCE
SESSION CHAIR: JONETTE LANCOS, THEATRE/DANCE

Wavelength

JENNIFER CONFLITTI, KATHERINE COTTEN, KATHERINE ESTEP, SAMANTHA SCHMEER, KELSEY VILLONE, ALEXIS VINOLAS

Choreographer: Jennifer Conflitti. Wavelength is based on prisms and how they separate white light out into the visible light spectrum, which the human eye perceives as the colors of the rainbow. The piece draws on the choreographer's science and math background, incorporating the idea that each color of light has a different wavelength. Each dancer represents a different color of the rainbow, starting together as white light, before separating out into their individual colors. The piece aims to bridge the gap between the arts and sciences, encompassing what the liberal arts are all about.

Harbinger

SAMANTHA SCHMEER, COOPER BREED, JENNIFER CONFLITTI, REBECCA HOPPY, NATALIE KNOX, JORDAN WISSET

Choreographer: Samantha Schmeer. Harbinger: A person or thing that shows something is going to happen soon, especially something bad. In today's world and political climate, humans work toward their flawed perceptions of "progress" and "efficiency" with little to no regard as to how it affects the earth. Driven by selfishness and greed, humans destroy the planet's natural beauty. We take and take and take, but never give, and fail to realize eventually there will be nothing left. Simply put: we are killing the very thing that gives us life. The title acts on two different levels. First, one of the dancers acts as a literal harbinger within the piece, entering ominously and destroying the dancers representing nature. On a deeper level, the piece itself should be a harbinger, acting as a forewarning of what is to come if we, as humans, remain on our current path of destruction. "Only when the last tree has died, the last river been poisoned, and the last fish been caught will we realize we cannot eat money." - Cree Indian proverb

Origin

SYDNEY KLEIN, NICOLE ACIERNO, SAMANTHA BRUNO, EMMA HOLTZMAN

Choreographer: Sydney Klein. "Origin" highlights the idea that one can create a new life for oneself in any time or place. The piece showcases the experience of wariness and discomfort when starting anew, then expands by illustrating the process of adapting to an environment and culminating experiences as time goes on. Sydney drew inspiration from her time at Geneseo and her travels in Europe.

1X • THEATRE/DANCE ALICE AUSTIN THEATRE
HONOR'S THESIS IN THEATRE: A PROGRAM OF SMILES AND

LAUGHTER, JAPANESE AND JAPANESE-INSPIRED KYOGEN COMEDY (ALSO PRESENTED AT 3:15)

FACULTY SPONSOR: RANDY KAPLAN, THEATRE/DANCE
SESSION CHAIR: **LEEANN BRUETSCH**

LEEANN BRUETSCH
Following a brief presentation on the history of Japanese classical comedy, or kyogen, the audience will be treated to a classical kyogen ("Poison Sugar"), a modern kyogen ("Hole") and an original Geneseo kyogen ("A Higher Education") performed by an ensemble of four student actors.

1Y • WOMEN AND GENDER STUDIES FILMIC IDENTITIES WELLES 115

FACULTY SPONSOR & SESSION CHAIR: MELANIE BLOOD, WOMEN AND GENDER STUDIES

Whitewashing: The Erasure of Identities and Representation in Film

ABIGAIL ROCA SANCHES
Rocha looks at films where white actors are casted as characters who are originally people of color. Rather than casting actors who would fit the role, given the character's identity, these actors are denied opportunity, resulting in the erasure of identities and representation.

Analysis of Queer Films Across Gender and Race, Looking at Moonlight, Call Me By Your Name, and Blue is the Warmest Color

CLAIRE EDGINGTON
This project will compare and contrast the portrayal of queer relationships in these independent films, dissecting the influences of race and gender. It will also address criticism of these films and possible underlying meanings for the queer community that these storylines could hold.

A Decade of Heroics: Women in Superhero Movies

JEANMARIE RYAN
Ryan's presentation will be about the depictions of women in superhero films, with a focus on women-led superhero films. She will discuss how women are portrayed in these movies, and how the public reacted to said movies.

CONCURRENT PRESENTATIONS 2 • 10:30 AM – 11:45 AM

2A • ANTHROPOLOGY BAILEY 201 CUBAN CONNECTIONS: STUDENT RESEARCH ON CUBAN & AMERICAN STUDENT PERSPECTIVES, EXPERIENCES & IDENTITIES

FACULTY SPONSOR & SESSION CHAIR: MELANIE MEDEIROS, ANTHROPOLOGY

Language Barriers in International Academic Exchanges

MARISA SANQUINI, SHARON BECERRA PACHON, RAYAN RAMIREZ, NOAH MAZER
This paper highlights the language and cultural difficulties lived by a group of 10 students from three different SUNY universities that participated in an anthropology course in Cuba for 15 days. Additionally, it reflects on the capacity and manners in which the students overcame these difficulties at three different Spanish speaking levels. Furthermore, the paper creates a parallel with the experience lived by Cuban students from La Universidad de Holguín that accompanied the U.S. students during most of their time in Cuba. Finally, it presents additional data of the cultural experiences and language challenges experienced by other SUNY Geneseo students that have participated in Study Abroad programs. The aim of this paper is to reflect on how cultural challenges can be crucial for students when creating an honest engagement in learning new languages. Furthermore, it recognizes the importance of group support when overcoming difficulties in day-to-day life overseas. ***Selected for presentation at 9th Annual International Science Conference, Holguin, Cuba.***

Cubanidad and Community

KENNEDY HOUSTON, SYDNEY ALEXANDER, HILDA GOMEZ
Cubanidad, Cuban national identity, has been central in discussing the Cuban identity, as it has demonstrated the concept of Cuba as being a raceless nation. However, there is less discussion on how Cubanidad and community interact on a social/institutional level. Our presentation examines how Cubanidad and community interact on a social/institutional level through family, rhetoric, economics and spiritual practices. In our presentation, we will be conveying the intersection of Cubanidad and community through the use of transcripts, based on the interviews of Cuban students at the University of Holguin. Through our interviews, we observed that nearly everyone had the same idea of what it meant to be a part of the Cuban community. They all agreed that being Cuban meant being a part of a community in which everyone is seen as equal. There are claims of no racism in the Cuban community, even when there is such a mixture of people. This is the most common theme in Cubanidad. We argue that community is Cubanidad expressing itself on a social/institutional level through family, rhetoric, economics and spiritual practices. Thus, the presentation will discuss how community reinforces Cubanidad.

2B • BIOLOGY ISC 115

SESSION CHAIR: ELIZABETH HUTCHISON, BIOLOGY

Water Column Mixing and Internal Phosphorus Loading in Conesus and Silver Lake, NY

KATELYNN WARNER
FACULTY SPONSOR: ISIDRO BOSCH, BIOLOGY
Internal loading of phosphorus(P) from sediment is a major contributor of harmful algal blooms in lakes. We studied the amount of phosphorus build up on the bottom of Conesus and Silver lake to measure the magnitude of phosphorus inputs. Lake monitoring with temperature arrays and summer sampling of hypolimnetic P indicated that for Conesus Lake, the north basin is polymictic and rarely develops anoxic conditions promoting internal loading. The central basin is hypolimnetic and accounted for 11.6% of the internal phosphorus load. The southern basin is also hypolimnetic and contributed 88% of the internal load, though it did not mix fully until late October. Internal loading is even higher in Silver Lake, which historically has had a higher input of phosphorus due to agriculture. Understanding the spatial and temporal patterns of internal P loading is essential to planning phosphorus mitigation strategies in both lakes. ***Selected for presentation at International Association of Great Lakes Research, Brockport, NY.***

The Role of Serotonin-2B Receptor and TGFβ3- in Cardiac Development

ELENA KLEINHENZ
FACULTY SPONSOR: DUANE MCPHERSON, BIOLOGY
Serotonin (5-HT) is a monoamine neurotransmitter that is expressed especially in early embryogenesis in order to regulate cell proliferation and differentiation. The complexity of 5-HT's downstream effects is reflected by its 15 receptor subtypes. Specifically, the 5-HT2B receptor (5-HT2BR) has been shown to induce mitogenesis through the MAPK pathway as well as to trigger the endothelial to mesenchymal transition (EMT) through the TGF-β signaling pathway in cardiac embryonic development. The goal of this project is to explore the expression patterns of 5-HT2BR and TGF-β3 across different stages of quail heart development in order to see when these proteins become relevant and how they change as heart structures form. Since the 5-HT2B receptor acts through both the MAPK pathway and TGF-β, it should be prominent from early in embryogenesis through the complete septation-resulting in a four-chambered heart- and colocalize with TGF-β3 once the endothelial to mesenchymal transition is activated.

Characterization of *fsd-1* Mutant Alleles in *Neurospora crassa*

MARK SOTO
FACULTY SPONSOR: ELIZABETH HUTCHISON, BIOLOGY
NDT80 is a key meiotic transcription factor in *Saccharomyces cerevisiae*, and NDT80 homologs are present in filamentous fungi. *fsd-1*, a homolog of NDT80, has been identified as an integral regulator of sexual development in *Neurospora crassa*. *N. crassa*, a well-studied model organism, is a filamentous ascomycete fungus that can undergo asexual or sexual reproduction. To further understand the *fsd-1* gene and its role in *N. crassa*, we will construct mutant alleles of fsd-1 and assess whether these mutations

affect *fsd-1* function. In *S. cerevisiae*, several *Ndt80* loss-of-function mutations have been shown to cause a decrease in both DNA binding and sporulation. Our study focuses on mutating amino acid residues located in the DNA binding domain and the carboxyl terminus. To accomplish this, we designed primers and used them for double-joint polymerase chain reaction, a method used to construct alleles that target to the native locus without the need for subcloning. Along with the mutation is the green fluorescent protein tag for protein localization study and hygromycin resistance for selection purposes.

2C • BIOLOGY MATHEMATICS

ISC 131

FACULTY SPONSOR & SESSION CHAIR: GREGG HARTVIGSEN, BIOLOGY
FACULTY SPONSOR: CHRISTOPHER LEARY, MATHEMATICS

Predicting the Amount of Time Before an Ebola Outbreak

LUCAS SUTTON, JAMES CANNING, OMAR SURI

Throughout history, West Africa has experienced massive outbreaks of the Ebola virus. Due to lack of capital for disease prevention, it is vital that we understand ways to minimize costs while maximizing public benefit. This project investigates how Ebola spreads from a bat population into a human population. Using a differential equation model encompassing humans and fruit bats, we focus on finding human vaccination rates needed to prevent major outbreaks, while also analyzing costs of interventions. Additionally we test the duration of time humans have before outbreaks occur. With large initial bat populations, the results from our closed system model illustrate that the number of humans that will contract Ebola is not sensitive to changes in the bat population, but it is sensitive at smaller bat populations. Our results suggest that reducing the bat population can lead to fewer humans contracting Ebola. Our results also indicate an optimal rate of human vaccination that will prevent major outbreaks while also minimizing the cost of the intervention.

Modeling Feral Cat Population Control Practices to Combat Transmission of T. gondii to Hawaiian Monk Seals

MARC CHOI, PHOEBE HARTVIGSEN, COLIN WILCOX

The introduction of feral cats to the Hawaiian islands brought with it *Toxoplasma gondii*, a destructive protozoan parasite which reproduces solely within the digestive tract of cats. *T. gondii* readily threatens marine mammals through runoff of oocysts in cat feces into the marine ecosystem. This most notably occurs in the incidental infection of endangered Hawaiian monk seals. We developed a closed system of differential equations to illustrate the spread of *T. gondii* on and around the island of Oahu in order to test the effects of varying population control methods on feral cats. This model quantifies the resulting populations of mice, cats, and seals over time. Our preliminary results indicate that there would be a single equilibrium value at zero for the populations with the implementation of a complete spay/neuter or euthanasia program. If the parasite *T. gondii* remains unchecked in this system then the equilibrium value for susceptible monk seals will be at zero because the population will become extinct. These results indicate that a combination of spaying/neutering and euthanasia practices implemented on the cat population will be most effective in reducing this threat toward the endangered monk seal population. ***Selected for presentation at MMA Seaway Conference, Rochester, NY.***

Modeling the AIDS Epidemic in Southern Africa using an SEIID Model

EMEL ABID, LAURYN KRUPA, JOSEPH RUGOLO, KATY TOTH

Sub-Saharan Africa accounts for approximately 70% of all reported cases of HIV and 74% of all AIDS-related deaths worldwide. We created a compartment model utilizing a system of differential equations to simulate the spread of HIV through a population while varying the rate at which people are diagnosed and the rate at which people change their behavior. As an individual becomes aware of their condition, we are assuming that this individual will partake in safer behaviors to avoid spreading the disease. This simulates the implementation of a program allowing individuals to be diagnosed and informed of safer sexual behaviors in the Sub-Saharan community. We also use a preferential attachment network model to more realistically test the spread of HIV through a population of individuals with a varying number of connections to other individuals. Over time, the rate of people being infected decreases substantially. By varying the rate at which people are diagnosed over multiple iterations, the disease becomes less prevalent in the population as the rate of diagnosis is increased. This study should be helpful for organizations designing an intervention program to minimize HIV infection.

Modeling the Progression of Alzheimer's Disease to Discover the Most Influential Component in its Pathway

MEAGHAN PARKS, JACOB CONVERSE

Alzheimer's Disease is a neurodegenerative disorder that destroys cognitive ability within the patient and is the most common cause of dementia in the elderly population. The progression of the disease and cause of neuron death is attributed to the deposition of the misfolded protein, amyloid-β, creating plaque buildup within the brain. The resulting biochemical cascade has many different elements that further the disease and worsen the symptoms. We hypothesize that by slowing a single pathway within the biochemical cascade, the overall rate of neuron death will be slowed. A system of differential equations is used. The amyloid-β protein and other elements involved in the biochemical cascade are state variables. The model is based on a closed system which allowed for an analysis of the equilibria. A sensitivity analysis on the model identifies the most sensitive state variable. We found that the interactions between proteins, glial cells, and neurofibrillary tangles in the brain are key to progression of Alzheimer's Disease. By manipulating the model's parameters we can visualize each factor's effect on the rate of neuron death. Finding what part of the disease progression is most influential could help guide treatment options and lead in the direction of a cure.

2D • BUSINESS SOUTH 233

BUSINESS MANAGEMENT: INCREASING EMPLOYEE ENGAGEMENT & PERFORMANCE

SESSION CHAIR: AVAN JASSAWALLA, BUSINESS

Impact of Psychological Contract Violation on Employees' Organizational Commitment

JESSICA HABERLAND, CAROL CHANG

FACULTY SPONSOR: AVAN JASSAWALLA, BUSINESS

In today's society, employees have many values and expectations in regards to the workplace. A heavy emphasis is placed on individual values and what they expect from their superiors, as well as what is expected from them. These values may differ from person to person, and within each company, but it is important for the supervisors to be able to understand these differences. By better understanding these differences and values, managers can create a better work environment.

The Impact of Ingratiation on Employee Job Performance

JENNA KRESSE, LEXI BURGER, GEORGE STEELE

FACULTY SPONSOR: AVAN JASSAWALLA, BUSINESS

Our presentation will be focusing on the impact of ingratiation on employee job performance. More specifically, we will be discussing how upward ingratiation increases employee performance levels and creates desirability in the ingratiating employee, and how ingratiation has a positive impact on the development of organizational citizenship behavior values, thus leading to a positive effect on group effectiveness/employee performance within the workplace, and how downward ingratiation increases employee performance levels as well.

2E • COMMUNICATION BAILEY 103

SESSION CHAIR: KATIE BUCKLEY, NEW STUDENT PROGRAMS

Finding Passion and Discovery in College Radio Talk Show -- A "Geneseo Today" Experience

JESUS HERNANDEZ

FACULTY SPONSOR: MICHAEL SAFFRAN, COMMUNICATION

"Geneseo Today," an original weekly WGSU public-affairs program, features conversations with community and campus newsmakers about important issues, trends, and real world topics affecting the local community. WGSU's Assistant Operations Manager and Executive Producer and Host of Geneseo Today, Jesus Hernandez, will talk about about his background and role as program host during the academic year. He will talk about how he took on the opportunity, discovered and pursued his true talent, challenges along the way, and learning outcomes from being the program host.

In the Blink of an "I"

KELLEIGH LARSSON

FACULTY SPONSORS: LEAH HOUK, ACADEMIC PLANNING & ADVISING; ANDREW HERMAN COMMUNICATION

In the Blink of an "I" is an interactive presentation in which the presenter will engage the audience in order to assist them in obtaining an individualized perspective on Blindness, and what it means to 'Live in a Sighted World with V"I"sion'. Through living experiences, informational resources, and hands-on activities, such topics as identity, culture, communication, accessibility/ technology, accommodations/ accountability, and institutional/ organizational and psycho/social responsibility will be emphasized.

2F • INTERDISCIPLINARY STUDENT IMPACT

BAILEY 104

SESSION CHAIR: GARTH FREEMAN, CENTER FOR COMMUNITY

Did 1,088 SUNY Geneseo Students Have the Power to Flip a Seat in Congress?

PATRICK BUCKLEY

FACULTY SPONSOR: NICHOLAS PALUMBO, GOLD

In the 2018 midterm elections, eligible SUNY Geneseo students had the opportunity to vote for the Congressional representative of NY's 23rd district, where Geneseo and Livingston County are located. Data from a national survey of voter engagement on college campuses allows us to answer the question: Did the eligible Geneseo students who abstained from voting have the power to change the outcome of this election? Using this data, we will go beyond speculation and quantify the power of the vote for Geneseo students.

Caryn Camiolo Memorial Social Justice Internship at Habitat for Humanity of Westchester

ROBBIE ECONOMOU

FACULTY SPONSOR: GARTH FREEMAN, CENTER FOR COMMUNITY

Last summer I was accepted to SUNY Geneseo's Caryn Camiolo Memorial Social Justice Internship, which provides grants for Geneseo students to do a summer internship relating to social justice. For my internship, I chose to work at Habitat for Humanity of Westchester, which is a non-profit that works to build and help provide affordable housing for low-income people. I chose this organization in part because it is located in the city I grew up in, New Rochelle, and I wanted to give back to my hometown. I also chose it because I strongly believe in equality of opportunity, and that no person should be barred from a life of well-being because of their income level. I see increased access to affordable housing as part of this goal, and appreciate that Habitat is able to help provide this. At Habitat I worked in the family services department, where I helped needy families work through the Habitat program. In this internship I learned a lot about how non-profits work, gained knowledge about affordable housing issues, got to experience working with needy families, and got the chance to perform social justice work in my local area.

Give Kids The World Service Trip

HANNAH CHASE, SHANNON MARLATT, ANISSA WILKENS, DANIELLE LEVY, SEVEYN WHYTE, CAROLINE GILL, HEATHER WOOD, HANNAH JEWELL, JENNA GERAGHTY, LAUREN SAGGESE, MELISSA HERMAN, PATRICIA MCCASLAND

FACULTY SPONSOR: DAVID PARFITT, INSTITUTE FOR COMMUNITY WELL-BEING

Give Kids the World is a nonprofit village located in Kissimmee, Florida where children with life-threatening illnesses and their families can stay for a weeklong, cost-free vacation. For the past 10 years Dr. David Parfitt has taken a group of 12-13 Geneseo students down to the village to volunteer for a week. Students work one to two shifts per day and help with various activities including serving meals, operating the accessible rides, helping to run the evening activities, and doing service projects around the village. They help with weekly Village events such as the Winter Wonderland and Halloween party, scoop ice cream, serve breakfast and dinner at the Gingerbrea d house, and run the carousel. In this presentation, students will discuss the history of the Village, what it means to volunteer there, and their personal experiences. An emphasis will be placed on how the Village has affected each student and what they have gained from the trip, as well as on how others can be involved and help the cause.

2G • EDGAR FELLOWS PANEL 4

WELLES 131

SESSION CHAIR: LISA MEYER, EDGAR FELLOWS

Effects of a Ketogenic Diet on Stereotypic Behavior in Mice

MOLLY BRADY

FACULTY SPONSORS: ALLISON BECHARD, PSYCHOLOGY

TERENCE BAZZETT PSYCHOLOGY

Stereotypic behaviors are repetitive, invariant and purposeless actions resulting from central nervous system dysfunction. As one of the diagnostic criteria for autism, stereotypic mice have been used as a model for investigating mechanisms underlying autism. The ketogenic diet (KD) is a high fat, low carbohydrate diet that changes the body's main source of energy from glucose to ketones. It has been shown to have numerous beneficial effects, including reducing self-directed repetitive behavior and increasing sociability. In the current study, aged FVB/NJ mice were fed KD for seven weeksto assess its effects on stereotypic behavior and sociability. Home cage observations for stereotypic behaviors and a three-chamber social assay were used to evaluate behavior before and after KD administration. Brains were processed for immunohistochemistry of Delta-FosB, a transcription factor produced from chronic activation of striatal neurons. KD decreased stereotypy across the test period, however, social behavior did not change significantly. Immunohistochemistry of Delta-FosB in the nucleus accumbens is ongoing.

Dorsal Visual Processing and Object Recognition

MEGAN HILLIS

FACULTY SPONSOR: JEFFREY MOUNTS, PSYCHOLOGY

Visual stimuli are processed along two different pathways in the brain. The ventral stream facilitates object recognition while the dorsal stream processes information for object-related action, such as how the object might be grasped. Research by Almeida et al. (2008 & 2010) used a technique called Continuous Flash Suppression to present stimuli to the dorsal stream exclusively, and found evidence that the information processed by the dorsal stream aids object recognition only when the object is manipulable or "graspable". I conducted an experiment in Dr. Mounts' Visual Attention Lab to elaborate on this finding and determine whether the orientation of the object (whether it is "graspable" by the left or right hand) differentially influences the recognition of target objects of the same orientation.

Gender Imbalance: A Comparative Study of China, India, and South Korea

ASHLEY QUINLAN

FACULTY SPONSOR: LISA MEYER, EDGAR FELLOWS

My project is a comparative analysis of population policy and sex-ratio imbalance in China, India, and South Korea. China's one-child policy, India's mass sterilization campaign, and South Korea's family planning program are scrutinized in order to draw conclusions about the effects of a forced decline in fertility. The role of son preference in encouraging couples to engage in sex selection is also explored. Particular emphasis is placed on understanding the social and economic consequences of having too many men in a society.

Exploring Models of Disability to Protect a Future with Down Syndrome

SEAN WELCH

FACULTY SPONSOR: KELLY KEEGAN, EDUCATION

"Exploring Models of Disability to Protect a Future with Down Syndrome" provides explanations and solutions to the rising trend of the selective-abortion of fetuses diagnosed with an intellectual disability. My paper explores the primary societal model, medical, for viewing disability and how this model influences our thoughts on the disabled. While exploring the medical model's focus on normalizing and treating differences, I trace the rise of this model from Enlightenment thought. I then switch to examining an affirmative model of disability that seeks to celebrate the diverse life of the disabled child and redefine certain societal activities to enable individuals with intellectual disabilities to participate in their own way and claim dignity. After examining some challenges to the potential success of this model, I pitch one way I could incorporate the affirmative model of disability into my daily life: building a unit plan for the general education high school classroom that represents disability affirmatively and shapes potential future parents' views on disability and difference in the process. For me, allowing people of varying traits and abilities to live and to live with dignity is a statement that every human life, lived authentically, has brilliant potential.

2H • EDGAR FELLOWS PANEL 5

WELLES 132

SESSION CHAIR: MICHAEL MILLS, EDGAR FELLOWS

Finding Geneseo's Student Voice: A Historical Perspective

MALACHY DEMPSEY
FACULTY SPONSOR: GILLIAN PAKU, ENGLISH
What is the student voice at Geneseo? Has Geneseo been a place for protest? A community that seeks conciliation? When done well, a newspaper, a radio station, a TV show could provide the people of the community with a voice and with the sense that they know what the community is. For a college community—which constantly changes as students matriculate or graduate—the production of a publication ideally reflects what is unique to a moment as well as what stays true over time. This project analyzes student-led publications over the course of Geneseo's history as a liberal arts college. Specifically, using archives of The Lamron and other now-defunct student newspapers or productions, this project attempts to identify the character of Geneseo's student voice in contrast to other colleges.

Collecting Memory: Stories About Family

JENNIFER GALVAO
FACULTY SPONSOR: JESSICA FENN, ENGLISH
My project focuses on the process of constructing a history, considering the ways that stories are passed down within a family. Over the past year, I have conducted extensive interviews with my grandmother, a Portuguese immigrant caring for her husband with advanced Alzheimer's. From these interviews, I have written a creative-nonfiction essay which seeks to tell a story about my grandmother's response to the question: "When have you been most afraid?" I intend to read a portion of the finished story, while discussing what I learned from this process, from initial interviews to constructing the final story. My presentation will focus on the writing process and on the concepts of familial memory and inheritance. How are stories passed down through a family?

The Experience of Learning English at Geneseo

KELSEY KWANDRANS
FACULTY SPONSOR: IRENE BELYAKOV-GOODMAN, ENGLISH
While Geneseo certainly takes pride in its international community, it is important to examine (especially in this time of transition in Geneseo's ESOL program) what services are actually offered to those who are not native English speakers, and what could be done differently in order to help them with language acquisition and with life at an English-speaking college. I plan to identify the process of coming to Geneseo as a non-native English speaker and what opportunities for improving English skills are available. Next, I will establish, with input from this student population, what resources are currently being taken advantage of and what students wish to see in terms of learning/improving English. Finally, I will explore the practices of other institutions and recommendations from research in order to determine what could be improved at Geneseo for English language support and acquisition among non-native English speaking students.

Answering the "Meat Question:" Debating Conservation, Imperialism, and an American Standard of Living during the Progressive Era

ASHLEY LAW
FACULTY SPONSOR: KATHLEEN MAPES, HISTORY
In 1910, a bill, H.R. 23261, was introduced in Congress to appropriate $250,000 to import animals from Africa to increase and diversify our country's meat supply. The sponsor of H.R. 23261, Congressman Robert Broussard from Louisiana, intended to import hippopotamuses to his home state to be raised for meat. While the bill never passed, it garnered significant traction at the time, raising the question: Why did such a seemingly crazy idea seem plausible? In my paper, I address this question by analyzing primary source papers from the proponents behind the bill as well as a variety of media sources from the period. I highlight the disconnect between how the sponsors of the bill's motivations differed from the average public: the proponents of the bill were conservationists, driven by their desires to see an increased and diversified meat supply, whereas the average public viewed H.R. 23261 through their lens as consumers deeply troubled by the high cost of living. Further, the entire saga is filled with tensions of imperialism, race, and gender. I argue that the story of H.R. 23261 complicates the history of the Progressive Era by intertwining three typically separate areas of study: conservation, consumer issues, and imperialism.

2I • EDGAR FELLOWS PANEL 6

WELLES 133

SESSION CHAIR: AARON STEINHAUER, EDGAR FELLOWS

Dining Through the Decades: Bridging the Generation Gap

LEAH CHRISTMAN
FACULTY SPONSOR: JOSEPH COPE, HISTORY
"Dining Through the Decades: Bridging the Generation Gap" was a project for which I received a $3,500 grant from the Center for Integrative Learning as a John A. '87 and MaryGrace '84 Gleason Ambassador in Student Affairs. For these three intergenerational dinners, each with period-accurate food from the 1930s, 40s, and 50s, I brought together 20 to 30 community members over 50 years of age with college students in the name of fostering communication between polarized age groups through the universal medium: food! After the dinners were completed in Fall 2018, I used "Dining Through the Decades" as a case study in a greater span of research about the power of community dinners in community building, including the process, challenges, and successes of the project. Placing my own work into a greater context of efforts to foster diverse communication in the United States such as Robert Putnam's Bowling Alone, I analyze the pros and cons of modern efforts to build a community of interpersonal relationships through food and otherwise.

Magic, Superpowers, Romance: Depictions of Queer Women in Young Adult Literature

JEANMARIE RYAN
FACULTY SPONSOR: AMANDA ROTH, PHILOSOPHY
Although young adult literature is often dismissed as frivolous and poorly written, the genre provides teenagers with tools to deal with important life problems. For example, the number of young adult books with LGBT+ protagonists has increased in recent years. These books provide LGBT+ teens with protagonists they can identify with, and resources to help understand and deal with their sexuality in a heteronormative world. For this project, I examined several recent young adult books with queer female protagonists. These books tackle problems that LGBT+ teenagers face, sometimes in a metaphorical way, other times more literally. They all provide resources for LGBT+ teens, although some of these books succeeded at providing these resources more so than others.

Turning a Short Story into a Musical Composition

TIMOTHY SNYDER
FACULTY SPONSOR: MICHAEL MASCI, MUSIC
This project took the short story "And the Moon be Still as Bright" from *The Martian Chronicles* by Ray Bradbury and adapted the text and ideas contained within it for performance by a small ensemble of instrumentalists and vocalists. The project involved composing and orchestrating music based off of this story, as well as adapting the texts of those stories for performance by vocalists. Over the course of the year I analyzed the text to determine what ideas Bradbury was trying to communicate, then I explored how to best present those ideas in a musical adaption with a variety of compositional styles that still remained faithful to what Bradbury was saying in his story.

Evaluation of Geneseo Student Opinions on Computer Skill Education and Computer Resource Design Facilitating Genomic Research of *T. dalmanni*

RACHEL GUINTHER
FACULTY SPONSOR: JOSEPHINE REINHARDT, BIOLOGY
An ability to use computers is a growing top skill that employers seek in potential hires in the job market. Geneseo has committed to providing its students training in computer proficiency through computer based assignments, learning environments, and major specific training in various courses. However, the number of courses that teach practically applicable computer skills related to majors that the school provides are few and intermittently offered. Technical support for students interested in learning to code or use software programs exist, but it isn't well publicized at this school. This project evaluated the confidence Geneseo students had in their computer skills, and their interest in learning further skills related to their future career. These findings will be made available to administration. In addition, this project included a design of a web based resource meant to facilitate the study of *Teleopsis dalmanni* flies and the unique biological phenomenon of meiotic drive they represent. Few web based resources exist to explore this model organism. The python microframework Flask was used to design a gene finding application based on characterizing data that creates a more accessible way for the study of this genome.

2J • ENGLISH WELLES 123
PHILOSOPHY FOR THE CITY AND THE INDIVIDUAL: PERSPECTIVES FROM WESTERN HUMANITIES I

FACULTY SPONSOR: GRAHAM DRAKE, ENGLISH
SESSION CHAIR: **MATT FARAGO**

A Platonic Critique of Democracy
SCOTT ANDERSON

Plato reserved much of his staunchest critiques involving Athenian society for democratic institutions, which were still in their infancy. A distrust in the mentality of the voting body, led to Plato regarding democracy as a deeply flawed system of governance. He instead proposed the idea of the Kallipolis where a philosopher king reigned supreme over a populace too lustful, greedy, and corrupt to effectively lead. This paper debates Plato's critical stance on democracy by involving contemporary examples of freedom and liberty tied to an actively voting electorate. Through more expansive involvement in the democratic system, today's "free" nations enjoy a far greater quality of life among their citizens than Plato previously hypothesized. However, there remain flaws in the system many countries, including the United States, have come to cherish, many which Plato highlighted, helping to justify some of his doubts in this system.

The City of Ladies Today
BRIE DERELLA

My paper, titled "The City of Ladies Today", parallels Christine De Pizan's *The Book of the City of Ladies* and The New York Times' article "Anita Hill: How to Get the Kavanaugh Hearings Right." In my paper, I discuss Christine's revelation that women are severely oppressed and her mission to build a city where intellectual women can unite and defend themselves from men. I use points from Hill's article, that defends Dr. Christine Blasey Ford before she testified against Supreme Court Nominee Judge Brett Kavanaugh, to argue that women are still living in Christine's City of Ladies today. Anita Hill showed a unification of intellectual women by defending her fellow woman, who experienced sexual harassment and found herself in a similar situation as Ms. Hill only seventeen years later.

Lady Philosophy's Take on Hamlet's Melancholy
SEMEFA AGBOKOU

The paper focuses on the protagonist Hamlet and his recent experiences of feeling sad, melancholic, and angry about his father's death and the consequences (of this event) near after. Boethius' Lady Philosophy could offer some wisdom and insight to Hamlet's discomfort and possibly help his find ways to cope with his symptoms. Throughout Shakespeare's play, Hamlet goes through a series of trials and tribulations that affect his overall well-being. Lady Philosophy powerful words could reaffirm Hamlet in his abilities, give him a true understanding of his life, and a clear path to becoming someone wiser. She would teach him strength, courage, and awareness.

2K • ENGLISH WELLES 216
THE MEDIEVAL NOW: CONTEMPORARY USES AND MISAPPROPRIATIONS OF MEDIEVAL LITERATURE AND CULTURE

FACULTY SPONSOR & SESSION CHAIR: LYDIA KERTZ, ENGLISH

Indiana Jones as a Contemporary Crusader
HENRY LEVIN

Steven Spielberg's film *Indiana Jones and the Last Crusade* (1989) is the third adventure of the bold treasure hunter, Indiana Jones, and the one that epitomizes his role as a seeker of an American idealism, through the discovery of ruins and relics in foreign lands. In this film, Indiana Jones is up against the Third Reich in a quest to discover the immortality-granting Holy Grail. Indiana takes on the role of a Crusading knight, while the Nazis take on the role of the Islamic forces as the dehumanized enemy. As the title implies *Indiana Jones and the Last Crusade* is a contemporary return to the Medieval era. Indiana is an appropriate character to use to explore historical events like the Crusades and a worthy substitute for a knightly figure: like a historical Crusader Indiana is not always, morally, in the right.

The Middle Ages and White Nationalism: A Distorted Relationship
JAFFRE AETHER

Right-wing organizations have long appealed to a sense of romantic traditionalism, and often this appeal is attained through a rosy reimagining of historic events. The European Middle Ages is the far-right gold standard on how to use those rosy lenses effectively. The far-right has taken their understanding of medieval history and symbolism, and firmly attempted, and in some cases, succeeded, to tie their brand to medieval history. These links illustrate a European Middle Ages that is ripe for white nationalist picking, when in actuality, the European Middles Ages are being grossly manipulated into fitting the rhetorical framework of far right-wing movements. Consequently, far-right manipulations of medieval history have become the latest cultural battleground, and for good reason, as all of their interpretations of European Medieval history are either false or blatantly engineered. Within this essay, I will seek to utilize two frameworks, Geraldine Heng's definition of premodern race, and Paul Sturtevant's framework of Schrodinger's Medievalism to explain far right-wing appropriations of European medieval history, and how these appropriations are both wrong and damaging. As a concluding note, I will address the efforts made by the general population and scholars to stop the furthering of these alternative conceptualizations of medieval history.

Everyone Has a Role: Constructing Meaning and Building Community around the Marco Polo Dinner
MARY RUTIGLIANO

This paper explores the role of medievalism in the Geneseo Philanthropic Chefs' Marco Polo Dinner. The dinner has fed year-round residents and college students for about 30 years, familiarizing the campus and town communities with each other as much as with Marco Polo's diplomatic journeys. The paper examines the role of Marco Polo's "The Description of the World" in the dinner's creation and its subsequent iterations. The paper features interviews with current Geneseo faculty, professors emeriti and long-time contributors to the event's success who touch on labor, creating meaning, building community, and how contemporary communities interpret and enact medieval texts.

2L • ENGLISH WELLES 119
THE WORLD THAT NOVELS CREATE: ZADIE SMITH'S ON BEAUTY (2005)

FACULTY SPONSOR& SESSION CHAIR: MARIA LIMA, ENGLISH

Vee is for Voiceless
ABIGAIL RITZ

In *On Beauty*, Zadie Smith explores the nature of beauty in art, in academia, and in relation to ethnicity, revealing the myriad ways societal conceptions of beauty affect expressions of self. What does it mean then that the most canonically beautiful character in a novel focusing so explicitly on beauty and justice is not given her own voice? Eighteen-year-old Victoria Kipps is consistently objectified, stereotyped and sexualized throughout the narrative, both by the male gaze and by female judgment. Her objectification is reflective of the way society fetishizes the beauty found in women who are not white, and of a hegemonic stereotyping of her identity that separates her from her sense of self, thus rendering her unable to fully come to voice.

Remaking the University in On Beauty
SEAN MCANENY

A modern reworking of E.M. Forster's Howards *End*, Zadie Smith's *On Beauty* explores and expands on issues of moral behavior and privilege in the academy. Set on a campus resembling Harvard, Professors Kipps and Belsey entangle academics, students, and each other's families in scandals surrounding sex, art, and affirmative action. My paper seeks to illuminate the ways in which the novel combines and mixes perspectives about these topics in order to demonstrate how "outsiders"can both enrich and undermine the supposedly liberal project of higher education. Furthermore, I engage with the notions of beauty, aesthetics, and justice in an attempt to reframe them from the outside of a contained academic environment. From the novel, I then move into reflecting about my own experience at a liberal arts college and how the novel might actually work to inspire policy and action in its readers.

Erzukiki: Embodiments of the Loa
SABRINA BRAMWELL

In Zadie Smith's *On Beauty*, Kiki Belsey provides insight on the complexity of womanhood, particularly those aspects which are commonly overlooked or enforced by society despite their destructive tendencies. Close analysis of Kiki's character development before and after her introduction to Hyppolite's painting Maîtresse Erzulie allows for connections to be made between

Promotes sustainability

Kiki and the loa (goddess) Erzulie. In Haitian culture there exists variation in the purpose and functions of each manifestation of the loa Erzulie, three of which can be found in a similar pattern in Kiki Belsey's character i.e., Erzulie- Freda, Erzulie-Dantó and Erzulie-Lasirenn. *On Beauty* explores how Kiki comes to represent these manifestations of the loa Erzulie through her character's growth in areas like sexuality, self-love and motherhood with the purpose of shedding light on the unspoken realities of a black woman's life and identity struggle in a white university town.

2M • MATHEMATICS/ENGLISH BAILEY 202

NEUWRITE/EDU: PAIRING SCIENTISTS AND CREATIVE WRITERS

FACULTY SPONSOR & SESSION CHAIR: LYTTON SMITH, ENGLISH; FACULTY SPONSOR: OLYMPIA NICODEMI, MATHEMATICS

NeuWrite/Edu: Pairing Scientists and Creative Writers

MEGHAN FELLOWS, ALEXANDER WEBBER, JILLIAN TODD, ERIC PIATO, SARAH MANDANAS, MADELYN DEWEY, CASSANDRA TABER, DANIEL FLEISCHMAN

NeuWrite/Edu pairs Geneseo undergraduate creative writers and scientists who collaboratively produce rigorously-informed creative nonfiction essays about cutting-edge science research at Geneseo. This presentation explains the process behind NeuWrite/Edu, discusses the need for creative science writing, and shares parts of the essays produced by the students.

2N • HISTORY BAILEY 203

SESSION CHAIR: BILL HARRISON, OFFICE OF THE PROVOST

Mexican American History through Children's Literature of the 1990s and Early 2000s

SHANNON CURLEY

FACULTY SPONSOR: RYAN JONES, HISTORY

This paper focuses on the themes and messages found in Mexican-American children's literature written in English during the 1990s and early 2000s. I argue that these texts manage to showcase Mexican cultural heritage, reflect moments of migration history, and depict several versions of what it means to be a person of Mexican heritage in the United States. The main sources are a combination of picture books and chapter books such as Gloria Anzaldúa's Friends from the other side/Amigos del otro lado, Francisco Jiménez's The Circuit, Valerie Tripp's Meet Josefina and Pam Muñoz-Ryan's Esperanza Rising. To corroborate the themes present in the predominantly fictional texts, scholarly history publications, children's literature reviews, and first-hand accounts are set in dialogue with the books. By comparing the illustrations and plot lines of the children's books to relevant moments of Mexican-American history, I conclude that these texts introduce and reinforce symbols of Mexican identity, reflect a moment of increased migration to the United States, and provide commentary on what it means for Mexican citizens to become "American". ***Selected for presentation at Phi Alpha Theta Central/Western New York Regional Conference, Buffalo, NY.***

Public and Private: Ideologies of Angkor Wat

JORDAN DESROSIERS

FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

This presentation analyzes interviews conducted in Cambodia of tour guides; where they were asked questions regarding the national and cultural monument Angkor Wat, how Angkor Wat is viewed as central to Khmer (Cambodian) identity, and also how tour guides teach the guests and tourists that come to Angkor Wat. This presentation argues that as millions of international tourists visit Angkor Wat and use tour guides as a mode of education, the information that tour guides dispense is vitally important to understanding how the monument is perceived by the world. This presentation also argues that it is also equally important to understand these tour guides' views and opinions on those who come to learn about this monument. This presentation shows how the practices of informing the public both domestic and foreign about Angkor Wat are informed by ideologies of nationality, ethnicity, and history. ***Selected for presentation at Center for Khmer Studies, Siem Reap, Cambodia.***

2O • MATHEMATICS SOUTH 328 MATHEMATICS OF SYMMETRY II

FACULTY SPONSOR & SESSION CHAIR: JEFF JOHANNES, MATHEMATICS

Symmetries Through Fibonacci

LORENZO MAZZUCA

Discovered by the famous Italian mathematician, Leonardo of Pisa, the Fibonacci sequence has implications throughout various categories of mathematics. The sequence follows the pattern of adding the two previous numbers in the sequence, starting with 1 and 1 (i.e. 1, 1, 2, 3, 5, 8, 13, 21, …). Most known for its connections to the golden ratio, the dimensions that follow the sequence can create complex and intricate images. The well-known basic design looks similar to an exponentially growing spiral. More complex designs following the sequence can be created through computer programs. Through this project we will be analyzing various symmetries that come about in designs that follow the Fibonacci sequence. Many of the designs are non-Euclidean and have hyperbolic patterns. Other designs will follow circular patters in which the designs also contain gyration symmetry.

Analysis of Geometric Symmetries in the Islamic Architecture of the Alhambra

JUNIPER TREMPER

Due to the characteristics of Islamic architecture and the intersection of Islamic and Spanish history, the Alhambra in Granada, Spain is rich with geometric designs. The mosaics and friezes each have distinct, quantitative mirror lines and points by which the conceptual design was rotated, so the building as a whole is a collection of different types of symmetries with several key commonalities that distinguish those Islamic characteristics. Using the research of Blanco and Harris, each of these analyses is reproduced using the notation presented by Conway, Burgiel, and Goodman-Strauss, which also explains how the geometric symmetries change when each patter is re-evaluated within the context of color symmetries. ***Selected for presentation at Mathematical Association of America: Seaway Section, Rochester, NY.***

Standing in a Room of Mirrors

MOLLY MARSHALL

Imagine yourself standing in a room full of mirrors; each direction you look there are surrounding copies of you, following each movement. This is what it is like to stand in a platycosm. There are only ten varieties of this effect, and in this presentation we will discuss what each of them are, how they look, and how they are created. In addition we will show what it would be like to stand in one, as if in a room full of mirrors. Then we will conclude with speculation on the possibility that we live in a universe that is fundamentally just a room of mirrors. ***Selected for presentation at Mathematical Association of America: Seaway Section, Rochester, NY.***

Realizing the Symmetries of a Group

GREGORY VINAL

FACULTY SPONSOR: JEFF JOHANNES, MATHEMATICS

In this talk, we will explore the relationship between groups and the symmetries of a Euclidean object. In particular, it is known that the set of automorphisms on a given geometric object or graph form a group. During this talk, we will explore the inverse problem: given an arbitrary group G, is it necessarily true that there exists a Euclidean object whose group of symmetries is isomorphic to G? We will also ask if there is a systematic way to construct such an object, should one exist. Lastly, we will examine Frucht's Theorem, which answers this question for finite groups, and how his results were expanded upon with respect to infinite groups. ***Selected for presentation at Mathematics Association of America: Seaway Section, Rochester, NY.***

2P • MATHEMATICS SOUTH 338 Topics in the History Of Mathematics II

FACULTY SPONSOR & SESSION CHAIR: GARY TOWSLEY, MATHEMATICS

Mathematics to Melody

KYLEE O'HARA

The Pythagoreans in Greece began developing music theory and since then, many groups have used their ideas to further explain how music works. The Euclidean algorithm was applied as distance geometry to explain rhythms, and during the Renaissance, scholars such as Descartes and Rameau studied music as well. I will cover how music theory began, and how it continued to be studied and changed over the years.

Fermat and his Lasting Contributions to Modern Mathematics

MADELYN ROSSI

This presentation will be an in-depth account of the mathematical findings and impact of French lawyer, Pierre de Fermat. I will discuss Fermat's background as well as the possible motivations for his preoccupation with advanced mathematics. As for his mathematical impact, I will examine his contributions to modern-day calculus and geometry including his method of infinite descent, analytic geometry, his "Last Theorem," and his method of systematically finding the area under a curve.

The Golden Ratio

IMASHA SILVA

The Golden Ratio is an irrational number (sometimes called phi or tau). Also known as the golden cut, the golden mean, the golden section, the divine proportion, mean of Phidias, and the Fibonacci Number. The golden ratio distinguishes itself from its family of irrationals through its significant and unique properties. The Golden ratio is evident in structures of honeycombs, shell-patterns of nautilus, and arrangements of leaves. The golden ratio has been instrumental in achieving beauty and harmony of elements in fields of art, architecture, music, and poetry through out history. Today, its unique properties are additionally utilized in number theory, search algorithms, minimization of functions, network theory, atomic structure analyses, and growth of biological organisms.

Tunnell's Theorem on Congruent Numbers and its Connection to the Birch Swinnerton-Dyer Conjecture

IAN PARKS

Congruent numbers are natural numbers that are the areas of rational right triangles. The problem of determining what numbers are congruent is still an open problem. Fermat studied congruent numbers and made some progress on this problem. However, greater progress was made by Jerrold Tunnell in 1983. Tunnell's theorem relates the search for congruent numbers to finding the rank of elliptic curves, but for Tunnell's theorem to be a complete solution we must invoke the yet unproven Birch Swinnerton-Dyer conjecture. Proving the Birch Swinnerton-Dyer conjecture is considered to be one of the hardest questions in mathematics today. This talk will provide background on congruent numbers, then will dive into Tunnell's theorem and explain the relationship between elliptic curves, and the talk will conclude with an explanation of what the Birch Swinnerton-Dyer conjecture is and why it is necessary for Tunnell's theorem's full resolution of the congruent number problem.

2Q • MATHEMATICS 1 SOUTH 336

FACULTY SPONSOR & SESSION CHAIR: ANTHONY MACULA, MATHEMATICS

The Trigonometry of a Musical Note

MELISSA LUBEY

Applying trigonometry to basic musical notes and beats is a helpful way to visualize the music that we hear. It is also helpful in visualizing the difference in frequency of two notes and therefore can be an aid in tuning a musical instrument. There are many guitar tuners and tuning apps with a great range in price. An experiment will be run to gather data in an attempt to compare four different tuners. The data will be graphed and statistically analyzed. At the end of this experiment the question should be answered: Does an increase in price mean an increase in accuracy? In this talk the trigonometry and mathematics behind the standard six note guitar scale will be discussed in detail as well as an explanation of the experiment and observations of trends in the gathered data.

Optimizing the Dealer Algorithm in Blackjack

ANDREW MCFAUL

Blackjack is a casino game in which a player and a dealer each attempt to get a hand total as close to 21 as possible without going over. In this game the dealer plays their hand according to a predetermined algorithm, while the player may vary their strategy. In general, the rules of blackjack are in the favor of the dealer, however, the game can be played in such a way that the player gains the advantage in the long run. We will look at methods used to beat blackjack and apply those strategies to different potential dealer algorithms to see if there is a more ideal way for the dealer to play to give the house the greatest edge against players who are set on beating the game.

The Monte Carlo Method and Its Applications

JENNIFER BRYK

The Monte Carlo method was invented by Stanislaw Ulam. The Monte Carlo method is a technique in which a large quantity of randomly generated numbers are studied using a probabilistic model to find an approximate solution to a numerical problem that would be too difficult to solve by other methods. It allows people to account for risk in quantitative analysis and decision making. In this talk we will discuss the Monte Carlo method and its real life applications. The Monte Carlo method is an important part of quantum physics, specifically for the scattering angle of an electron colliding with atoms, and in aerospace engineering, specifically to simulate aerothermodynamic characteristics during the reentry process of the Tiangong- 1. Additionally, the Monte Carlo method is being used in fantasy sports to quantify the relative roles of skill and chance in games.

The Math Behind Bluffing in Poker

CAMERON WEST

Poker is a game of measuring the probability that you are going to win the given "hand," generally involving monetary risk. Generally, the better hand you have the more money you are willing to risk. Bluffing where even with bad cards you bet a high amount of money to trick the other players into believing you have goods cards. This act is generally viewed more as an art or instinct but it can actually be quantified and measured. Therefore, determining the probability that someone has a good hand is key to succeeding at bluffing. Measuring both the number of players as well as the known cards can allow for various conditional probabilities to be found. In this talk, we will calculate these conditional probabilities as well as draw connections between poker and Information Theory, mainly conditional entropy.

2R • PHILOSOPHY BAILEY 102

PHILOSOPHY OUTREACH PROGRAM

FACULTY SPONSOR & SESSION CHAIR: DAVID LEVY, PHILOSOPHY

DANIELLE DALPORTO, LILA KLATZ, HOPE MELENDEZ, NICHOLAS RAUCHBAUER, LAUREN STERNBERG, MATTHEW WOLFE, HAYLEA ZIMRING

Students will discuss their experiences surrounding their involvement with the Philosophy Outreach Program, a program developed to integrate philosophy into local high school curriculums. Topics covered will include the inspiration behind the program as well as the goals it seeks to achieve, the development and execution of various lesson plans, and the challenges faced along the way. Students will also reflect on how their participation in the program expanded their understanding of philosophy, enriched their learning experience at SUNY Geneseo, and provided them with a skill-set that is not otherwise cultivated in a typical classroom setting.

2S • MATHEMATICS 2 WELLES 121

SESSION CHAIR: JULIE RAO, INSTITUTIONAL RESEARCH

Forecasting Ice Cream Production

DANIELLE NAPOLI

FACULTY SPONSOR: CHI-MING TANG, MATHEMATICS

In this presentation, I will introduce my data set from the federal reserve that marks monthly ice cream and frozen dessert production in the United States over a span of 552 months. This data set is useful in applying regression and time series techniques because it exhibits both seasonal fluctuation and a higher order secular trend. I will propose a handful of different models, address their strengths and weaknesses and attempt to build the most useful model possible for prediction. I will address the issue of auto-correlated residuals which almost certainly appear when using time series data, and I will propose different ways to account for this issue. Once I have found what I believe is the best model after comparing each of the proposed using a handful of different parameters, I will attempt to predict the future values for ice cream production using that respective model and assess how accurate the predictions are by seeing if the prediction lies within a 95% confidence interval (there are values available outside of the data set to use for this forecasting).

The Probability You Win a Tic-Tac-Toe Game Based on Your Starting Position

DAVID KIM

FACULTY SPONSOR: CHI-MING TANG, MATHEMATICS

Everyone knows what Tic-Tac-Toe is and has played before. X goes first, O goes second, and whoever gets three in a row wins. But what is the best starting position? Keep in mind that a standard game is played on a 3x3 board. After seeing different probabilities based on starting positions, we will look at an irregular 4x3 board, and a 4x4 board. Would winning chances

Promotes sustainability

for X, or O, increase or decrease depending on these board sizes?

The Great Escape: An Overview of Maze-Solving Algorithms and the Shortest Path Problem

SAMUEL COOPER

FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

Attempting to solve more and more complicated mazes has been a research question explored by mathematicians for over 150 years. This talk discusses, compares and contrasts a variety of prevailing maze-solving algorithms and identifies the best methods for solving a given maze structure, matching different types of mazes with their most efficient respective algorithms. Procedures that a human could conceivably implement while inside a maze are explored, as are more complicated algorithms used for finding the shortest possible path when there are multiple answers. Finally, real-life applications of shortest path algorithms are identified.

2T • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

FRASER 116

INTERNATIONAL RELATIONS HONORS THESES

FACULTY SPONSOR: GOVINDA BHATTARAI, POLITICAL SCIENCE & INTERNATIONAL RELATIONS
SESSION CHAIR: JEREMY GRACE, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

A War of Worldviews

MICHAEL CECERE

I will advance an argument of how we as citizens of western society should receive, perceive, and responsibly prepare for the way the Islamic belief system will continue to grow and expand across the globe in the decades to come. I will provide historical context on the relationship between the Islamic belief system, the Judeo-Christian, and the devoted secular worldview. A thorough and objective discussion of the history of these belief systems is intended to shed light on misperceptions of the relationship between Islam and the West today. Along with historical reference, this thesis will focus on current challenges imposed on society by the confrontation of these worldviews including, but not limited to, recent extremist attacks in Western Europe, the way the Sunni/Shi'a schism is still unleashing violence across the Muslim world, and elements of Islamic doctrine themselves that pose clear and present danger to the gains made by civil society. The argument will ultimately attempt to promote several strategies that might be pursued by both sides of this relationship in order to improve chances for understanding and stability across the Middle East as well as greater security for an increasingly connected global society.

An Exploration of the Link between Forced Repatriation of Refugees, Refugee Camps and Extremist Violence: The Case of Rohingya Muslims and Myanmar

ANNA CHARNY

By August of 2018, it was estimated that over 700,000 Rohingya refugees fled from Myanmar's Rakhine State to refugee camps in Bangladesh. By 2018, 15,000 more refugees followed suit. In Myanmar's Rakhine state, Rohingya Muslims' faced torture, mass murder, rape, the burning of their homes, and more violence. The Myanmar government has been accused of genocide after a United Nations report declared the military to be responsible for crimes against humanity. Within the refugee camps, Rohingyas fear for their lives daily—particularly women and children who are targeted for sex trafficking. This crisis has affected Bangladesh, which faces strains by housing so many refugees and reached a point where the Rohingya Muslims were going to be forced to repatriate. This has resulted in refugee suicides and murder of those who were forced to return to a place where they were not welcome. Forced repatriations have led to those that feel exiled by their communities turning to radicalization as well. While the violence within the refugee camps is unacceptable, forcing refugees to return home when the conditions are not safe only exacerbates the violence from both those in the home country and refugees.

Political Patronage in Putin's Russia

JOHN RIPA

This presentation is an analysis of the effects of political patronage on Putin's regime and the potential impact of political patronalism on democratic reform in Russia. Putin has established himself as a master player of patronal politics and the result of this has been a more centralized network of patronage. However, the oligarchs' fear of a destabilizing succession in 2008 shows that the stability of this network is tied to Putin, and this raises questions about how oligarchs will react to the end of Putin's term in 2024.

2U • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

WELLES 24

FACULTY SPONSOR: JAMES MOOR, POLITICAL SCIENCE & INTERNATIONAL RELATIONS
SESSION CHAIR: **KYLIE GRIFFITH**

On The Fringe: Alternative Sources for United States Foreign Policy

KYLIE GRIFFITH, EMILY PASCALE, ANNA DI FEDE, JACK TERWILLIGER, WILLIAM SNYDER

To many in the Western World, it seems as though the long-standing international liberal system is on the brink of collapse. Rising tides of nationalism, international terrorism, and populism have created uncertainty about what was thought to have been an immutable bulwark of peace. The United States, the primary constructor of this liberal order, is at a crossroads: continue with this broken system or develop a new strategy for international politics. This presentation argues through visionary lenses that rather than using liberal solutions to illiberal problems, the United States should seek to imagine more creative and unique methods of foreign policy to retain its global economic and political supremacy. Today's complex world requires leaders to think "outside of the box" and use alternative means of power to ensure international stability and a safer, more prosperous world for all. We realize that the implementation of these nontraditional policies has more questions than answers, but to come up with new solutions for new issues, requires the conception of an innovative and original idea.

2V • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

WELLES 26

ROOSEVELT INSTITUTE AT SUNY GENESEO

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

Public Transportation Access in Livingston County

HANNAH GARTY, EMILY YOUNG

Members from the Roosevelt Institute at SUNY Geneseo will be presenting their research on access to public transportation in the Livingston County area and what this means for employment, economic, educational, and healthcare opportunities across the region. Comparative research from demographically similar regions to Livingston County will also be examined in the analysis of implications of transportation access on local populations.

The Financialization of Higher Education in the SUNY System: Student Research Perspectives

SOREN JUNG, LIAM TANCHICK, KATRINA TILLAPAUGH, JULIA MULLER

Through a grant awarded from the Roosevelt Network to the Roosevelt Institute at SUNY Geneseo, student members conducted financial analyses on SUNY Geneseo's budgets from 2001-2016. They present their findings as well as their implications for the broad national trend of the financialization of higher education.

The Blindfold Law and Criminal Discovery Reform in New York State

HANNAH GARTY, KATRINA TILLAPAUGH, ABIGAIL SICKLES

New York State has some of the most restrictive laws on criminal discovery in the entire country. With legislation being introduced in the New York State Senate and Assembly, student members of the Roosevelt Institute at SUNY Geneseo provide insight into the proposed legislation as well as the advocacy that Geneseo's Roosevelt chapter has engaged in surrounding the "Repeal the Blindfold Coalition."

2W • THEATRE/DANCE BRODIE 154

INNOVATORS OF TWENTIETH CENTURY AMERICAN DANCE

FACULTY SPONSOR & SESSION CHAIR: JONETTE LANCOS, THEATRE/DANCE

The Life and Times of Isadora Duncan and Loie Fuller

SAMANTHA ANDOLINA

My paper discusses the impressive lives and careers of two well known dancers: Isadora Duncan and Loie Fuller. I compare and contrast the two, and talk about

the personal lives and backgrounds of both dancers. Most importantly, I discuss their accomplishments in the dancing world, and end with the impact they made on people's lives, and how they influenced generations of dancers to come.

American Modern Dance - Loie Fuller and Isadora Duncan

MADISON HARDING

Both Loie Fuller and Isadora Duncan paved the way for Modern Dance in America. Bringing new and individual elements, breaking previous stylistic restrictions, and changing the look of dance in America at the turn of the 20th century, these two women are considered the forerunners of American Modern Dance. With their free and natural movements, and as well as their dance clothing, they were also able to liberate the female form from standards previously faced by all women.

The Legacy of Paul Taylor: Trailblazer of Modern Dance

JESSICA CLAGNAZ

A brief discussion on the life and legacy of American Modern Dance Paul Taylor. The presentation will discuss his impact on the modern dance world as a dancer and choreographer. From his roots with Martha Graham, to his own personal search to look at modern dance from a new and different perspective, Paul Taylor has left a great impact on the dance world. In light of his recent passing, this presentation will discuss his amazing accomplishments and how he established himself as a prominent figure in this art form. It is a celebration of his commitment and determination to create and share his passion. It will also look into his vast lineage -- where he came from and who in turned learned from him and how his legacy will live on.

Loïe Fuller and Isadora Duncan's Impact on Modern Dance

EMMA HOLTZMAN

Modern dance is usually regarded as an American, twentieth-century art form. Even at its most expressive, modern dance is nonliteral, "creating abstractions and exaggerations of movement to generate an illusion in time-space through the use of force." Dancers everywhere know Modern dance for its wonderful rebelliousness from the classical ballet structure, but what people don't realize is that this aspect of modern dance originated in the works of Isadora Duncan and Loïe Fuller. At a time when women were denied access to education and jobs, these women lived a liberated life. They expressed a freedom in their art that relatively few other women possessed. In dance, Duncan and Fuller freed their bodies by discarding the conventions of Victorian society, seeking to synthesize movement and expression through individuality.

Dance and the New Deal: An Examination of Funding for Dance and the Arts

SAMANTHA SCHMEER

Throughout history, art has acted as an important factor in social change. Dance is no exception. Dancers and choreographers have frequently sought to challenge the status quo, whether by removing women's corsets and incorporating natural movements into pieces as Isadora Duncan did, or by creating dances with political subject matter, like in Kurt Jooss's The Green Table. Despite the clear importance of the arts, securing funding has always been and continues to be an uphill battle. The period of the Great Depression in the 1930s saw huge growth in many artistic spheres through the implementation of Franklin Delano Roosevelt's New Deal. The art projects and programs of the New Deal acted as a harbinger of the National Endowment for the Arts and laid the foundation for dance to be recognized as its own genre separate from theatre. This presentation will explore the history of dance and dance funding, beginning with and focusing on the Federal Theatre and Federal Dance Projects. It will go on to discuss the National Endowment for the Arts and engage with larger ideas about artistic funding.

2X • WOMEN AND GENDER STUDIES — WELLES 115

GENDER STUDIES IN MEDIA, MUSIC, AND LIBRARIANSHIP

FACULTY SPONSOR & SESSION CHAIR: MELANIE BLOOD, WOMEN AND GENDER STUDIES

How #MeToo Changed Media Coverage

ISABEL KEANE

A tweet produced in October of 2017 by actress Alyssa Milano brought light to the #MeToo movement, created by activist Tarana Burke over a decade earlier. The aftermath of this widespread battle cry from victims of sexual harassment and assault has changed how the media covers these topics. From The New York Times breaking the Harvey Weinstein scandal to The Indianapolis Star exposing Larry Nassar's abuse, not only are more stories of the #MeToo movement being covered, but they are being covered more diligently than ever before.

The Female History of Librarianship

MERRIN SARDI

Librarians are often the ones we turn to, to help find research material, and more than half of them are women. This is a look into how a librarianship became female oriented, was it always that way, and why? What factors effected the profession to have the slant in gender that it does today.

Popular Music Consumption by Preteen Girls

EMILY ARPINO

Arpino will examine the effects of popular music on the identity formation of preteen girls by applying media research to the work of five popular female recording artists. Her study is also being presented as a series of blog posts intended to engage girls and their families in discussions about the music girls are consuming.

2Y • EDUCATION — NEWTON 204

LIVES PRESENTATIONS

FACULTY SPONSOR & SESSION CHAIR: LEIGH O'BRIEN, EDUCATION

Our Strengths and Struggles: Similarities and Differences Between College Students with and without Disabilities

NICHOLE BOURGOINE, KAYLA BRADY, EMILY BRUSHAFER, HANNAH FINCH, KRISTEN GUYETT, TYLER HEIMAN, NICHOLAS KAHL, BRIANNE KUBALA, DOUG SCHLENKER, KAILIN FOOTER

The first-year students in the LIVES Program surveyed Geneseo college students to determine their strengths and struggles as college students. The LIVES students then compared/contrasted the college students' answers to their own strengths/struggles as first-year college students. The LIVES students found that the Geneseo college students had similar strengths and struggles thus helping the LIVES Program students understand that college students have similar experiences regardless of ability.

What is LIVES?: Inclusion

THOMAS COBURN, ALEX DALY, ALEXIS HERMAN, DYLAN MCCLURG, CHELSEA WATERS

The LIVES Program is one of 250 Inclusive Higher-Education Programs in the United States, so inclusion is a main goal for this program. Like any college student, the students in the LIVES Program hope to feel included in the college community. The sophomores and juniors of the LIVES Program will discuss their own definitions of inclusion and how inclusion, or lack thereof, has affected their lives. Through collaboration with Dr. Gillian Paku's English 427 class, the LIVES students gained new perspectives on the meaning of inclusion on the Geneseo campus.

What is LIVES?: Audit Classes and Internships

CHRISTINA LUONGO, LAURA NEWTON, LEAH RHOADS, ARIANA LEE

This presentation will focus on skills learned by the LIVES students while participating in non-paid internships on campus and in college courses that the students audit. The students will discuss how these skills generalize to life after school. Each student has different goals while attending audit classes and doing internships in order to help them succeed. The students are learning to work hard in the classroom and workplace, and they are learning about skills that are still in need of improvement as well as their strengths.

Our LIVES Experience

ELIZA COX, VIRGINIA ELEY, JORDON MCKINSEY, ALICIA TAUSCHER, JULIE JOHNSTON

This presentation will be a summary of the students' three to four years at Geneseo in the LIVES Program. Each student will describe the skills she/he has learned in the LIVES Program, in audit classes, while being involved in clubs/activities, and during internships, and discuss the development of their social skills and where the skills they have developed will lead them in the future.

2Z • ENGLISH — BAILEY 101

BUILDING A BRIDGE FOR LINGUISTIC DIVERSITY IN AMERICA

Promotes sustainability

FACULTY SPONSOR: IRENE BELYAKOV-GOODMAN, ENGLISH
SESSION CHAIR: **JOSE ROMERO**

The Influence of Linguistic Purism on Biases toward ESL Students in America

BRIANNA RIGGIO

Growing up in America, it is impossible to avoid encountering strong language ideologies about linguistic purism. It is not uncommon for those who speak a language other than SAE in public—whether that is a foreign language, a less common variety such as AAVE, or even an accented variety of SAE—to experience criticism such as "You're in America; speak English!" Those who speak a nonstandard variety of English or speak it with a foreign accent are likely to incur negative judgments about their intellectual capabilities, while those who speak a foreign language in public (whether out of necessity or choice) may be treated as if they were behaving offensively. I would like to examine the root of these attitudes and how they affect ESL learners, who are often negatively impacted by the gate keeping nature of America's devotion to linguistic purism.

No Child Left Behind: Benefits of Bilingual Education in America

JOSE ROMERO

In America, at least 350 languages are spoken in US Homes. But, what role does your native language play in school? This presentation focuses on answering the following questions: How effective can dual language education be in America for students whose first language is not English? What are the different processes that students with a second language go through in order to comprehend and articulate the English language? How are higher education institutions –specifically SUNY Geneseo– supporting students whose native language is not English become more proficient?

CONCURRENT PRESENTATIONS 3 • 3:15 – 4:30 PM

3A • ACADEMIC PLANNING & ADVISING BAILEY 102

DIVERSITY AND DISRUPTION – PUSHING KNOWLEDGE AND THEORY OF DIVERSITY AND INCLUSION THROUGH THEATRE

FACULTY SPONSORS: CELIA EASTON AND HEATHER WILHELM, ACADEMIC PLANNING & ADVISING
SESSION CHAIR: **MYA NAZAIRE, BARAK STOCKLER**

MYA NAZAIRE, BARAK STOCKLER, ROHAN BHUCHAR, EMILY CARROZZI, BAILEY CHAPIN, MEGAN CONNELLY, CONNOR CURLEY, SAMANTHA DEJESUS, VALERIE DESROSIERS, DINETRA GOWDIE, ALLISON GREENBERG, MELAYA HARRIETT, WILLIAM HECHT, KIANA HENDERSON-KIRNON, NICHOLAS KABATSKY, IAN KIRKPATRICK, CHRISTIAN LANZETTA, EMILY MATURA, EDWARD MURPHY, CHAUKIM PETERS, SHAYLEN PHILBERT, IAN RIEGER, JOSHUA RUDBART, LEAH SHERMAN, TAYLOR SICARD, JULIA SISTI, MOLLY ST. THOMAS, COREY WILKINSON, HANNAH ZIMMER

"Disruption and Diversity" is a course, a process, performance, analysis, theory, and practice. Starting from readings on diversity ranging from the Harvard Business Review to Chrystal Fleming's How to Be Less Stupid About Race, the spring 2019 INTD 251 class has used various forms of social justice theatre to learn and critique campus perspectives on diversity and equity. This session is a culmination not only of the class members ' theatre projects but also visible and invisible social justice theatre moments that bystanders in public spaces across Geneseo's campus may experience by interacting with class members throughout GREAT Day. During this session, class members will share an overview of what it means to disrupt what we think about diversity along with demonstrations of how theatre can bring that disruption about. Participation by spectators ("spect-actors") is encouraged but not required.

3B • INTERDISCIPLINARY BAILEY 104

ANTHROPOLOGY & EDUCATION

SESSION CHAIR: KRISTI KRUMRINE, ANTHROPOLOGY

Using Poetry to Enhance Literacy Skills of Students with Disabilities

ELIZABETH BRIERTON, EMILY FLAHERTY, ERIN MCQUADE

FACULTY SPONSOR: BRIAN MORGAN, EDUCATION

Poetry is a topic that is not always explored in the classroom, especially when working with students with disabilities. This presentation will act as a reflection on a semester-long poetry workshop that took place with students from the L.I.V.E.S. Program on campus. While some of the L.I.V.E.S. students were passionate about writing and had much experience with poetry, others were just experiencing poetry for the first time through these workshops. Throughout this presentation, the presenters will delve into the following topics: prior research about teaching poetry to students with disabilities, the need for differentiation within poetry instruction, students' pre and post perceptions of poetry, as well as sharing some works from the Literary Magazine created by the L.I.V.E.S. students throughout the workshop.

The Analysis of 19th Century Ceramics from Archaeological Sites Surrounding Hemlock Lake, NY

MARISA SANQUINI

FACULTY SPONSOR: KRISTI KRUMRINE, ANTHROPOLOGY

The content of this project will focus on the archaeological analysis of late 19th century ceramics found at various sites surrounding Hemlock Lake. Specifically, most of the artifacts were collected from the Rix House Site and will be the primary focus of the project. The analysis portion will allow for a better understanding of when the site was inhabited and how the ceramics played a role in everyday life for folks living around Hemlock Lake. Furthermore, the project also includes background research on historic ceramic during the 19th century, specifically on the East coast. A paper also accompanies the study that gives significant historical relevance to the artifacts that will be analyzed. It includes examples of other historic archaeological sites that provide essential comparisons in distinguishing and analyzing the ceramics correctly. In all, the project encompasses a study that will conclude the age of the ceramics that will aid in dating the site.

Traveling Towards Better Care: Transportation Barriers for Immigrant/Migrant Farmworkers Access to Healthcare

ABIGAIL GUISBOND

FACULTY SPONSOR: MELANIE MEDEIROS, ANTHROPOLOGY

The question of access to health care for immigrant and migrant farmworkers has been widely discussed in the public health field, as many struggle to find proper, consistent care. However, past studies have not adequately addressed the issue of im/migrant farmworkers' access to health. However, past studies have no adequately addressed transportation as a barrier to im/migrant farmworkers' health care utilization. My presentation addresses this issue with special attention to transportation as a barrier to accessing health care for immigrants and migrants working on dairy and fruit farms in Western and Central New York. Specifically, I will be looking at the effects of current policies that prohibit undocumented immigrants from obtaining drivers licenses, and the lack of programs that offer transportation to rural residents. I demonstrate how barriers still exist despite former interventions made by migrant centers and clinics. In conclusion, by closely examining the lives of the immigrant/migrant farmworkers in Western and Central New York, this project sheds new light on the little recognized issue of lack of transportation for the sake of the health of immigrant and migrant farmworkers.

3C • BIOLOGY ISC 115

FACULTY SPONSOR & SESSION CHAIR: JOSEPHINE REINHARDT, BIOLOGY

The Effect of Meiotic Drive on Aggression in Male Stalk-Eyed Flies

MACKENZIE HINTZE, AUSTIN AINSWORTH

This study examines whether or not aggression in territorial behavior exhibited by male Stalk-Eyed flies is impacted by meiotic drive. Meiotic drive is a natural phenomenon that increases the likelihood of some genes to be inherited more than others. Our presentation addresses whether or not an increased likelihood of female offspring due to

meiotic drive on the X chromosome could lead to a male becoming more or less aggressive when combating other males, ranking the intensity of his behaviors against his component and examining his genetic data. This study is a continuation of pilot data derived from the 2017-2018 academic year.

Impacts of Meiotic Drive on the Expression and Abundance of Transposable Elements

CHLOE LADIAS, MELANIE KIRK

This project aims to characterize the abundance and expression of transposable elements in the stalk-eyed fly genome, with particular focus on addressing whether the expression of meiotic drive in males leads to transposable element "release" via disruption of piRNA pathways. This project analyzes genomic sequencing data from standard and meiotic drive T. dalmanni males in order to determine if the abundance of major TE families on the meiotic drive X chromosome is different than the standard X chromosome, due to accumulation over evolutionary time. In addition, this project analyzes RNA sequencing (RNAseq) data from standard and meiotic drive males to determine if the expression of shared TE copies is higher in meiotic drive males. We are using PoPoolationTE2 to uncover the insertion frequencies and positions of TEs as well as a comparison of TE abundance between population samples; and transposome is used to estimate TE abundance and diversity. In addition, we will be performing statistical analyses to determine if the differences observed between samples are significant.

Aggregation Behavior of Sympatric Cryptic Species of Stalk-eyed Flies

CHRISTINA YI, SABRINA GENCARELLI, KRISTEN HALL

T. dalmanni sp 1 and *T.dalmanni* sp 2 are two species of *T. dalmanni* that coincide in similar environments and can interbreed, producing only sterile offspring. While this is evolutionarily unfavorable due to a post-zygotic barrier (sterility), it is unclear if pre-zygotic barriers also exist t o prevent unfavorable mating. Physically the two species appear identical, so this form of reproductive isolation must be caused by other means, such as active female choice, sperm precedence or male avoidance. We utilized an assay developed by Lorch et al. to assess female preference for conspecifics, which involved exposing female *T. dalmanni* sp 1 and *T. dalmanni* sp 2 flies to male flies of each species. The number and duration of matings that occurred within 30 minutes between the flies each morning were recorded. These recordings were analyzed through the program JWatcher, to assess the role of active female choice vs. other mechanisms. Additionally, the species identity of individuals in aggregations of field-caught flies was determined molecularly and genetically. These results provide insight into whether the females can differentiate between the two male species, establishing a mechanism for pre-zygotic isolation between the *T. dalmanni* sp 1 and the *T. dalmanni* sp 2 flies.

3D • BIOLOGY MATHEMATICS

ISC 131

FACULTY SPONSOR & SESSION CHAIR: CHRISTOPHER LEARY, MATHEMATICS
FACULTY SPONSOR: GREGG HARTVIGSEN, BIOLOGY

Limiting the Spread of Influenza in a Population that Cannot be Vaccinated

ERIN KESEL

Last year, the CDC reported 49 million symptomatic influenza cases and attributed 23 million medical visits, over 900,000 hospitalizations and 79,000 deaths to influenza but reported less than 40% vaccination coverage. Limited coverage may be due to vaccination refusal or for medical reasons. In this study, epidemiologic techniques and graph theory were used to characterize community structures prone to influenza epidemics, identify individuals likely to contract influenza, and explore ways to modify behavior to decrease influenza risk. A small world network model was built to represent a population that would not or could not receive the influenza vaccine. Based on the number of infectious individuals within a susceptible individual's neighborhood, the probability of contracting influenza was modified to simulate changes in this individual's behavior. The highest number of influenza cases occurred in communities with high clustering coefficients and short average path lengths. Individuals exhibiting high betweenness were more likely to get sick. Increasing the size of the neighborhood considered when modifying interactions with neighbors caused the total number of people infected to decrease. These results suggest influenza risk can be decreased by reducing interactions with immediate neighbors based on extent of influenza in a wider neighborhood.

Modeling Schistosomiasis in Ghana Using Modified Ross-Macdonald Differential Equations

SYDNEY NG
FACULTY SPONSOR: SUSAN MUENCH BIOLOGY

Schistosomiasis is a neglected tropical disease (NTD) caused by parasitic trematode worms of the genus *Schistosoma*. This chronic disease, with two main forms – urogenital and intestinal schistosomiasis –is transmitted through skin contact with free swimming cercariae in snail-infested freshwater in tropical and subtropical areas. Per conservative estimates, 230 million people are infected globally with 90% of cases in sub-Saharan Africa. In Ghana, it is mostly prevalent in poorer communities lacking improved water and sanitation. Although mortality rates are low, morbidity rates are high and considered underestimated, leading to important socioeconomic and public health implications. Therefore, modeling the dynamics of schistosomiasis prevalence and treatment can advise public health decision-making. I used a system of differential equations modified from the classical Ross-Macdonald equations to model the prevalence of both *S. haematobium* and S. mansoni in humans, and in *Bulinus truncatus* and *Biomphalaria pfeifferi* snails. Treatment via preventative chemotherapy was added to the model and a Fourier analysis using seasonal data was done to incorporate time-dependency for snail density during dry- and rainy-seasons, where rainfall is inversely related with snail density. The basic reproductive number R_0 and disease equilibrium dynamics governed by R_0 were calculated and examined.

Modeling Invasive Species Using a Stochastic Spatial Model

KATY TOTH

Invasive species often disrupt natural ecological processes by excluding native species and altering biodiversity across the globe.I test the conditions under which introduced species spread through ecosystems to understand how we might better control them. I developed a lattice model in R to test the spread of an invasive plant species through an area previously occupied by a native species. By varying a competition coefficient I identified the threshold at which the invasive species becomes dominant over the native species. The competition coefficient was calculated based on a number of characteristics a particular species may exhibit (e.g. seed dispersal, light harvesting ability, drought tolerance, etc). The results from this study could help researchers estimate the ability of an invasive species to out compete a native species. By characterizing the invasive species based on its competitive ability, my work suggests strategies for more effective management protocol for different invasive species.

3E • BUSINESS SOUTH 233

THE MACROECONOMY AND THE GREEN NEW DEAL: ECONOMIC ISSUES IN 2019, WITH THE FED CHALLENGE TEAM

FACULTY SPONSOR & SESSION CHAIR: LEONIE STONE, BUSINESS

The Macroeconomy and the Green New Deal: Economic Issues in 2019, with the Fed Challenge Team

EMMA HOLTZMAN, CALLAM KURTZ, DILLON MEDD, CONOR KIRBY, BEN SWISHER, JOSEF DIGIORGIO, ELI AVELLINO, TYEE MACDONNELL-MILLER, ABDUL SANDERSON, MATTHEW WEBSTER, MADALYN YOUNG, HANNAH UESHIRO, JOHANNA CORONEL, ROISIN O'NEILL, PAVLO HUDA, KIERSTEN COLVIN, KIGI MAEDA, FELICIA PONIKAU

The Fed Challenge team presents an overview of the macroeconomy and related issues including tax reform, trade, immigration, and the Green New Deal.

3F • BUSINESS DOTY TOWER ROOM

VENTUREWORKS INVESTOR PRESENTATIONS – SESSION TIME 3:50

FACULTY SPONSOR & SESSION CHAIR: JUDITH ALBERS, BUSINESS

KELLY ABRAMS, JAKE ARBEITMAN, MEGAN AVENIA, JEFF CALDERON, RACHEL CHOSET, HILDA GOMEZ, HARRISON HARMON, MARY HIGGINS, REBECCA HOPPY, BLAISE JACOBSON, SARAH LANGAN, CHRISTOPHER MALACHOWSKI, JAKE MILLER, MAI NGO, AUSTE NORVILA, EMMA PIESTER, TYLER RODRIGUEZ, SHOSHANA ROSENSTEIN, CHRISTOPHER RUDIN, RORY SCHNYDER, DAWUD SHAH, DILLON

SZMALA, ALIS URENA, EMILY VANDEREEMS, BROOKE MADRY, JUAN JIMENEZ

Students in Geneseo's VentureWorks entrepreneurship program will be competing again this year in the annual New York Business Plan Competition (NYBPC). The competition begins with regional semi-final rounds in each of New York's 10 Regional Economic Development Council zones: Capital Region, Central New York, North Country, Mohawk Valley, Finger Lakes, Western New York, Southern Tier, Mid-Hudson, NYC, and Long Island. The top teams from each of the 10 regions will then advance to the final round of the statewide competition, where they will go head-to-head for monetary prizes in Albany on April 26, 2019. Geneseo is in the Finger Lakes region and our student teams will be competing in the semi-final rounds on April 10th at the University of Rochester. GREAT Day is an opportunity for our Student Teams to deliver their Investor Presentations on campus. ***Selected for presentation at New York Business Plan Competition, Rochester and Albany, NY.***

3G • ISSUE'S REGARDING WOMEN

BAILEY 202

SESSION CHAIR: MONICA SCHNEIDER, PSYCHOLOGY

#MeToo, Immigration, & The Media: Symbolic and Realistic Threat as Mediators of System Justification and Attitudes

VANESSA CEPEDA, LESLIE TETTEH, CHALYNE BARROW

FACULTY SPONSOR: MONICA SCHNEIDER, PSYCHOLOGY

The MeToo Movement and the issue of immigration have received a significant amount of attention in the media, with some framing both issues as threats to various social systems. We examined the role of two types of intergroup threat, symbolic and realistic, in the relationship between system justification and attitudes toward MeToo and immigration.We examined how media exposure regarding MeToo and immigration were related to system justification, intergroup threat, and attitudes. Symbolic and realistic threat associated with feminists mediated the relationship between gender system justification and attitudes toward MeToo; symbolic and realistic threat associated with immigrants mediated the relationship between economic system justification and attitudes toward immigration. Perceived value differences and perceived conflict over power and resources between groups play a central role in understanding negative attitudes toward MeToo and immigration and help explain why people who are motivated to justify the legitimacy of gender and economic inequalities are more likely to endorse these attitudes. Exposure to more positive media about MeToo and agreement with those messages predicted less symbolic and realistic threat regarding feminists and more positive attitudes toward MeToo; agreement with media about immigrants (which were predominantly negative) predicted more realistic threat and negative attitudes toward immigration. ***Selected for presentation at Annual American Psychological Science, Washington, DC.***

Women's Hygiene and Self Care

THASFIA CHOWDHURY

FACULTY SPONSOR: GARTH FREEMAN, CENTER FOR INTEGRATIVE LEARNING

This presentation will discuss the success of my Caryn Camiolo Memorial Social Justice Summer Internship, centered around promoting self care and hygiene for young women in NYC in the summer of 2018.

Violence Against Women: An Epidemic

OLIVIA LECLERC

FACULTY SPONSOR: CATHERINE ADAMS, WOMEN AND GENDER STUDIES

This paper examines the violence against women in the United States. The violence women face is an all too common reality th[illegible]urther described. Heartbreaking stories [illegible] who have faced violence are expo[illegible]ws are questioned to help stop thi[illegible]s problem. This violence affects all o[illegible], and is not just a problem that women alone should be fighting to fix. In order to have real and lasting change, an extensive education program, which addresses the causes of violent behavior toward women, combined with creative solutions, is essential for progress to be made.

WITHDRAWN

3H • ENGLISH WELLES 131

POETIC CRAFT FROM MEDIEVAL LONDON TO MODERN CANADA

FACULTY SPONSOR: GRAHAM DRAKE, ENGLISH

SESSION CHAIR: **HENRY LEVIN**

Chaucer's Agency Through the Lyric Mode, Repetition, and the Envoy

LEAH CHRISTMAN

Caught between nobility and the peasant class, Chaucer was poised at the apex of two cultures, wielding agency in both yet welcome in neither. His ability to seamlessly traverse the boundary between classes proves particularly insightful in *The Canterbury Tales*, the work for which he is most famous. In this piece, he gives the reader a look into the cross section of a stratified social system: a unique ability he brings into his shorter lyrical pieces and ballades. Observing as a universal outsider, yet speaking through his works to open ears, he strategically makes use of this literary platform to display his opinions to those who hold power. Chaucer manipulates the emotions of the average reader by utilizing the personal, often dramatically metaphorical aspects characteristic of the lyric mode in "Troilus's Song,"as well as the repetitive metric scheme of the ballad in "Truth"and "Complaint to his Purse." In so doing, I argue that he simultaneously capitalizes on the persuasive stylistic choices of this mode and metrical effect, pairing them with an envoy and ultimately using all three poems to enact agency over figures of great influence under whom he writes.

On Leaping Over the Moon and Icarus: A Hopeful Perception of Human Nature

DAVID BEYEA

This paper expounds the differences between two pseudo-religious works, (John Milton's "On Leaping over the Moon" and Thomas Traherne's "On the Morning of Christ's Nativity") and discusses how the effectiveness of Milton's surreal work lies in its introspective tone. Milton's usage of symbolism and metaphor, particularly through his references to the Mythological tale of Icarus and Daedalus, cautions against human arrogance, pointing instead to a life of contented enjoyment. He frames these arguments in a dreamlike experience of his late brother. Milton believed one should enjoy the wonders of the world around them, to experience their faith in an empirical and naturalistic way. His poem is warm and human-like in a way that few other religious authors of the period were able to frame their works.

The Value of Silence in the Economy of Rage: The Inadequacy of Words in 'Silences'

SYDNEY SCHMIDT

In this paper, I analyze Canadian poet E.J. Pratt's piece "Silences" to demonstrate how his choices with imagery and structure suggest that human language falls short of describing sensation. In particular, by unpacking his comparisons between animal interactions and those between humans, I argue that Pratt reveals how language may not be as sophisticated as it is often made out to be.

3I • ENGLISH WELLES 132

SESSION CHAIR: ROBERT DOGGETT, ENGLISH

Visualizing Poetry Through StoryMaps

SARAH HOLSBERG

FACULTY SPONSOR: LYTTON SMITH, ENGLISH

This presentation will show how I used StoryMaps to help readers visualize the many contexts of a creative work, a book of poems by David Herd called *Through*, and I will share my own poems that were influenced by helping creating the collaborative StoryMap.

New Technologies in Tokyo 2020 Summer Olympics

KATSUNOBU OKAZAWA, NAO YOSHIKAWA

FACULTY SPONSOR: IRENE BELYAKOV-GOODMAN, ENGLISH

In 56 years ago, after finishing WWII, Tokyo held the Summer Olympics as the first place in Asia. A bullet train and highway were invented and developed with this 1964 Olympics. The Olympic games are one of the most important chances to introduce the host country to all over the world. 56 years later, in 2020, Tokyo will host the second summer olympic games in their history. We will talk about what kind of new technologies will appear with this upcoming olympics. In this presentation, we will focus on some most advanced technologies which will be used in this olympic games.

Glocalization of the Disney Parks and Resorts in the World

AYUMI KONO, YUKI MORITA

FACULTY SPONSOR: IRENE BELYAKOV-GOODMAN, ENGLISH

Presenters will talk about globalization and localization of the Disney theme parks around the world. There are currently 12 Disney parks in the following 6 different resorts: Florida, California, Tokyo, Paris, Hong Kong, and Shanghai. The wants and needs of guests vary widely depending on the location; therefore, each Disney resort has different characteristics such as the quality of guest service, parades and shows, and costumes. Such customizing is significant and indispensable not only to accommodate but also to respect cultural differences and showcase the local uniqueness. Presenters will explain the history of the Disney parks and resorts and how they make the experience of every single guest magical. They are also looking forward to sharing their own Disney experiences!

Exploring the Seven Woods with W. B. Yeats

KIRA BARAN, JOHN LATHROP, EMMA MEDINA

FACULTY SPONSOR: ROBERT DOGGETT, ENGLISH

For Dr. Robert Doggett's "ENGL 425: Enterprises: Editing Yeats" class, students Kira Baran, Hannah Fahy, Jack Lathrop, and Emma Medina created a website that digitized W. B. Yeats ' 1903 poetry volume, *In the Seven Woods*. We focused on helping the reader experience the volume in an unprecedented way, and kept both the casual reader and scholarly reader in mind. The casual reader can find biographical and contextual information about the poetry and woods that inspired it, or merely enjoy reading and listening to the poems online. The poems can be enjoyed aesthetically by their thematic grouping (i.e., by season) via an interactive map of the real-life Seven Woods in Coole Park, Ireland. A scholarly reader, however, has the option of finding notes, critical reviews, and citations to sources that would be helpful in any type of literary research project relating to Yeats and/or this specific poetry volume. The scholarly reader may be inclined to think more theoretically, while the casual reader might be pushed to enjoy the volume more aesthetically. But, ultimately, readers can choose the experience they want to have and broaden their own literary knowledge in the process.

3J • ENGLISH WELLES 133

SPOKEN WORD ON CANCER AWARENESS & BLACK HISTORY WITH CHRISTIAN & MOE

FACULTY SPONSOR: WESTON KENNISON, ENGLISH

SESSION CHAIR: **CHRISTIAN ALFIER**

Spoken Word on Cancer Awareness & Black History with Christian & Moe

CHRISTIAN ALFIERI, MOUHAMAD BERTE

Mouhamad Berte and I doing spoken words about 2 subjects then combine them. So Mouhamad Berte will talk about black history then I'll talk about cancer awareness and then we'll merge our spoken words.

3K • GEOGRAPHY BAILEY 201

FACULTY SPONSOR & SESSION CHAIR: DARRELL NORRIS, GEOGRAPHY

Japanese Brazilians in Japan: Challenges of Acculturation

GIOVANNA GIUA

This study covers migration history between Brazil and Japan. As Brazil has the largest population of Japanese outside of Asia and Japan has the largest number of Brazilians outside of Latin America, this has led to a special relationship between the two. This research focuses on Japanese Brazilian second and third generation descendants embedded in Japanese society. It reveals the geographical and social challenges of the Japanese Brazilians in Japan.

Scale and Propulsion in Armored Warships, 1860 – 1945

CONNOR HARGROVE

The era between 1860 and 1945 witnessed an unprecedented naval arms race between the major sea powers of Europe and Japan. Competition between these powers provided advancements in naval warship design at similarly unparalleled levels. However, the rate of advancement and strength varied greatly between powers, resulting in a wide array of design differences. One area in particular where contrasting approaches became apparent was in the field of warship scale and speed. Larger powers, primarily Great Britain but including others such as the United States, came to prefer constructing larger and heavier ships at the expense of sacrificing speed. Comparatively smaller powers, such as Italy, came to rely on increased propulsion as an attempted means of exploiting flaws in the scales of larger nations. While later analysis would come to show that a balanced approach between design characteristics is more preferable, competing ideologies of the era produced substantial examples of unique and noteworthy designs.

Power and Protection in Armored Warships, 1860 – 1945

LUCAS SMITH

History has repeatedly proven that one of the greatest catalysts to technological innovation is competition. When this competition is rooted in military technology, the effect is significantly increased. The naval arms race that occurred between the world's great powers between 1860 and 1945 stands as a prime example of such. This section of time spans the inception of the armored warship on to its peak as a weapons platform, and the developments that led from the former to the latter came at an unprecedented rate with this aforementioned international competition. As with any weapons platform, the goal now appreciated for it is the optimal balance between propulsion, protection, and power. While all the great naval powers were innovating, however, their decisions on which of these three elements deserved the most focus notably varied. An analysis of the ships produced within this time frame demonstrates the national differences, displaying how some nations devoted so much to producing extremely well-armed and extraordinarily well-armored warships.

Dashcam-based Analysis of Road Accident Contexts in Contemporary Russia

JULLANAR SUPRUNCHIK

Russia is known for foolhardy pedestrians, and aggressive drivers. Although the government strives to impose traffic regulations, chaos rules. YouTube and other popular sites provide countless compilation videos featuring traffic accidents captured on dashcams. What is it about Russia that makes it an epicenter of car and pedestrian accidents? For the longest time, drivers have been using dashcams to protect themselves from theft and false accusations. These videos provide data that can be extracted and categorized for analysis purposes. With a sample size of over 500 incidents, significant patterns are apparent. Circumstance, season, and geographical context are mediating factors in a commonplace milieu of excessive speed and high - risk behavior. ***Selected for presentation at Middle States Division of the Association of American Geographers, Montclair, NJ.***

3L • HISTORY WELLES 123

CONFLICTS OVER GENDER, NATION, IDENTITY, AND SYMBOLS IN THE CIVIL WAR ERA

FACULTY SPONSOR & SESSION CHAIR: JUSTIN BEHREND, HISTORY

Unmasking the Southern Belle & the Black Mammy: The Intertwined and Violent Nature of Southern Antebellum Womanhoods

KRISTA BORST

This essay aims to shed light on a topic that is not often talked about, mistress/female slave violence. The long and unchallenged ideology of paternalism only focuses on white men and lends itself to lumping together all human beings that weren't slaveholding men into one 'inferior' category, which suggests there were not extremely complex hierarchies at play. When studying the contours of womanhood and gender in the antebellum south, many historians revert to long held stereotypes and refuse to acknowledge that gender in this context is intimately tied to race relations and power that is often manifested through violence. Consistently brutalizing slaves was part and parcel of slave mistress' identity. Slavery was not left at the front door of plantation households, it was brought into the home; it cemented deeply ingrained racial and gender hierarchies that can be boiled down to the tension between back female slaves and their white mistresses. The power that mistresses could and did wield has to be acknowledged, and the seemingly insignificant ways that female slaves resisted was essential to claiming their identities as human beings and as women.

In Pursuit of Union: The Eleventh Pennsylvania Reserves and the Forging of Common Ground During the Civil War

WILLIAM MCLELLAN

This paper focuses on the lived experiences of the Eleventh Pennsylvania Reserves Regiment during the Civil War and how those experiences alter and inform their perceptions of the causes they were ostensibly fighting for as well as the notions of

Promotes sustainability

patriotism that often accompanied the decision to enlist. Throughout the paper, I make the argument that the regiment's experiences throughout the war helped to overcome the partisan divide present in Western Pennsylvania at the time and create a sense of unanimity and common cause amongst both the men of the regiment and their local communities in Western Pennsylvania, and that this experience was not unique but rather emblematic of some of the larger historical themes unfolding in the United States at the time. ***Selected for presentation at Phi Alpha Theta conference, Buffalo, NY.***

Cognitive Dissonance: Confederate Memorial Associations and the Confederate Flag

JEANMARIE RYAN

In the years following the Civil War, Confederate memorial associations, such as the United Daughters of the Confederacy, shaped the Confederate flag into the symbol it is today. They connected the flag to the deaths of Confederate soldiers. They also used the flag as part of their campaign to control the way that the history of the Civil War was taught, in part by depicting the Confederacy as an innocent, peaceful country that was unfairly attacked by the North. This history was steeped in racism and misinformation, as were the Confederate memorial associations themselves, and this racist history became inextricably tied to the Confederate flag. However, while the flag was steeped in racist ideology, Confederate memorial associations demonstrated a great deal of cognitive dissonance toward the flag, continuing to claim that the flag was an innocent symbol of heritage, even as it was used by organizations such as the Ku Klux Klan. The symbolic importance of the Confederate flag was created after the Civil War in a way that deliberately hearkened back to idolization of the Confederacy and was steeped in the idea that preserving slavery was a righteous goal. The flag cannot be divorced from that history. ***Selected for presentation at Phi Alpa Theta conference, Buffalo, NY.***

3M • HISTORY HONORS AND RESEARCH PANEL — WELLES 121

FACULTY SPONSOR: JOSEPH COPE, HISTORY
SESSION CHAIR: RYAN JONES, HISTORY

Michael Collins: Making A Martyr?

EAMON DANIEU

Historical memory of Michael Collins, the Irish revolutionary, has been contested since his death in 1922. Popular sentiment in Ireland has ranged from a willingness to leave his memory in relative obscurity to promoting him as a hero of almost mythic proportions who was cut down and betrayed in his prime, leaving a legacy unfulfilled and Ireland left off far worse for it. Upon his death, his life and achievements were celebrated. When his political rivals came to power in the 1930s however his memory became more veiled, the shroud only being lifted starting in the 1970s which began the phase of heroizing. Thus, the aim of this paper is to explore what social, economic, and political factors have led to these swings, to trace the course of Collins historiography, and to attempt to tease out broader themes of historical memory and commemoration in a contested past. Finally, the paper seeks to reconcile the numerous interpretations of the infinitely complex character of Michael Collins.

Queer Migrations: The Perceptions of Race, Gender, and Sexuality in Modern United States Immigration

ISABEL OWEN

Using a comparative national lens, this project seeks to understand and unravel the racialized, sexualized, and gender-based rhetoric embedded in U.S. immigration policy and the resulting reactions, focusing on the Mexican and Filipino immigrant communities. At the same time, it will chart the individual queer realities of immigration that persisted despite the meso- and federal-level impositions imposed on immigrants' movement and existence.

3N • LANGUAGES AND LITERATURES TOGETHER: THE CROSS-CULTURAL BRIDGE BETWEEN ENGLISH & SPANISH — WELLES 119

FACULTY SPONSOR & SESSION CHAIR: ROCIO VALLEJO-ALEGRE, LANGUAGES AND LITERATURES
FACULTY SPONSOR: **JENNIFER HAINES**

TOGETHER: The Cross-Cultural Bridge Between English and Spanish

JOSE ROMERO, EMILY CECALA, EMILY COOK, KATELYN SULLIVAN, LINSI OUYANG, MACIE SHUM, NEHA MAROLIA, TOMMY CASTRONOVA, ALICEN AMBROSIA, ISABELLE CIRULLI, MADELINE LOFASO, RACHEL HEYM, AMANDA LARA SOSA, KAREN CASWELL, ODALIS BRITO

TOGETHER has the objective of providing literacy education to ESOL families in our community. While their needs and outcomes all vary, the adults enroll in the program with the intent to develop English literacy skills--reading, writing and speaking. The children of these families are in need of academic and, in some cases, literacy support which will be provided through tutoring. This project was created to serve as a merging network between students who would like to tutor in Geneseo, and families who would like to learn. We'd like to share our experiences, passion, and thorough execution of this project with the Geneseo community.

3O • MATHEMATICS 1 — SOUTH 340

SESSION CHAIR: CESAR AGUILAR, MATHEMATICS

Spectral Characterization of Anti-Regular Graphs

JULIAN LEE

FACULTY SPONSOR: CESAR AGUILAR, MATHEMATICS

From the eigenvalue equation we obtained by using Chebyshev polynomial of the second kind, we deduce three functions in terms of Θ.Through analyzing the functions, we discovered that the interval $\Omega = [(-1-\sqrt{2})/2, (-1+\sqrt{2})/2]$ contains only the trivial eigenvalues 0 and -1. We also figured out that as n increases, the eigenvalues of A_n become almost symmetric about the number -1/2. Finally, we conjectured that the eigenvalue-free interval bound Ω does not contain an eigenvalues of any threshold graph other than 0 and -1, and that among all threshold graphs on n vertices, the anti-regular graph A_n has the eigenvalues closest to the boundary points of Ω.

Exploring Graph Theory: Preliminaries, Algebra, and an Introduction to the Eigenvalues of Anti-regular Graphs

ERIC PIATO

FACULTY SPONSOR: CESAR AGUILAR, MATHEMATICS

What do network engineering, biological systems, knots, and chemical bonding have in common? All four fall in the breadth of disciplines modeled using graph theory. We begin this talk by exploring the intuition, and some of the formalities, behind key components of graph theory. We move on to consider graphs from a linear-algebraic perspective, introducing the eigenvalues of graphs. We conclude this talk with an introduction to my summer research into anti-regular graphs.

A Mathematician's Perspective on Art

BRITTNEY BENNETT

FACULTY SPONSOR: OLYMPIA NICODEMI, MATHEMATICS

In this presentation, I will explain the underlying mathematics of perspective drawing. We will discover that there is an optimal position from which to view an artwork drawn in perspective and how to find it. The same mathematics can be used to find where a camera was when we look at a photo.

3P • MATHEMATICS 2 — SOUTH 338

SESSION CHAIR: AARON HEAP, MATHEMATICS

Credible Intervals vs Confidence Intervals

JONATHAN DECARLO

FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

Bayesian and Frequentist methods of constructing a precision interval around a parameter are philosophically and fundamentally different. A Bayesian credible interval holds the interval bounds as fixed and the parameter in question as a random variable. While a Frequentist confidence interval holds the parameter as fixed and the interval bounds as a random variable. This has implications on how to construct and interpret these intervals, yet students and even researchers misinterpret these intervals. In this talk, we will discuss the differences between these two intervals and their methods. Through examples involving different distributions will show how these intervals can be different or the same and why they are easily misinterpreted.

The Ellsberg Paradox

DALTON LOSON

FACULTY SPONSOR: ANTHONY MACULA, MATHEMATICS

In this talk, we will analyze a variation of a common experiment related to the Ellsberg paradox: Molina's Urns. In this version of the problem, there are many urns containing red balls and green balls. For one game, players pull from an urn where the proportion of red and green balls is split 50-50, and

in the other game, players will randomly select an urn where proportions range from 100-0 to 0-100, and then pull a ball. A player will pay $X, and if a player pulls a red ball out of an urn, that player wins $10. The Ellsberg paradox states that players are more likely to pay more to play the first game, even though the second game has the same expected payout. Assuming a person can only play one round of each game, how much money are they willing to pay to play each game?

Space-Efficient Knot Mosaics of Size 7

GREGORY VINAL
FACULTY SPONSORS: DOUGLAS BALDWIN, MATHEMATICS
AARON HEAP MATHEMATICS

In this talk, we will discuss knots, their projections, and representations of those projections. In particular, we will define knot mosaics, a more structured way to represent knots, and look at some rudimentary questions that this representation produces; namely, what is the smallest n such that a given knot can be represented on an n by n grid, and what is the smallest number of tiles that can be used to represent the knot. Lastly, we will look at my ongoing research into finding knots with mosaic number 7 and their space-efficient representations. ***Selected for presentation at Seaway, Rochester, NY.***

The Applications of the Quotient Topology

CHRISTOPHER NIELSEN
FACULTY SPONSOR: GARY TOWSLEY, MATHEMATICS

The quotient topology is a way of creating new topological spaces from already existing ones by partitioning the space via a function. The quotient topology can be used to create theoretical spaces, and it is an integral component of digital topology. The digital line models the pixels on a computer screen. In the quotient space the pixels become single-point open sets and the boundaries between each pixel become single-point closed sets.

3Q • MATHEMATICS 3 SOUTH 336

FACULTY SPONSOR & SESSION CHAIR: ANTHONY MACULA, MATHEMATICS

The Terrors of Inaccuracy

ROBERT JUDA

When is a test acceptable? At what point should a test be considered "good" enough for implementation? It is necessary for these questions to be answered in relation to all testing situations, regardless of significance. In order to search for solutions to these inquiries, one may turn to Bayesian statistics and the use of conditional probabilities. The existence of inaccuracy within testing experiments is largely due to their imperfect nature. In fact, it is common for rarer events to yield higher rates of false positive outcomes. The resulting error probabilities can be detrimental to the success of a given test, particularly when dealing with circumstances of greater consequence. Although often effective, using the findings of Thomas Bayes can lead to certain counter-intuitive results. We will examine a higher-stakes scenario involving Bayesian analysis. Suppose a testing system for recognizing terrorist trends in an airport. We will discuss how even a rather accurate test can fail disastrously when applied to large population sizes.

Mathematical Control Theory and Self-Driving Cars

HARRISON KLIPP

Control Theory is the branch of mathematics and engineering that helps how we design and implement control systems to operate and regulate dynamic environments. The primary goal is to apply the optimal control system to a problem that results in the most precise regulation of the system. In recent years self-driving cars have drastically improved but are still far from being perfect. One area in which automated vehicles are lacking is the ability to react to accident prone situations. An example where the self-driving car will fail is when an object enters the path of the car. The system must be able to distinguish between things it can go straight through such as a paper box or snow versus things it must avoid such as a person or a cinder-block. This talk and presentation will discuss what must be done for self-driving cars to overcome the trolley problem and whether the Stochastic model or the Robust model better suit these needs.

How Netflix, Pandora and Amazon Tailor Your Experience: An Overview of Recommender Algorithms

JACK MCALEVEY

In 2006, Netflix introduced a $1,000,000 prize for anyone who created an algorithm that could recommend movies to users 10% more accurately than their current algorithm. This prize pushed recommender algorithms into popularity, and now different types are present in many websites, with vast effects on how we consume media and purchase products online. With collaborative filtering, the user's ratings are put into an enormous matrix where techniques like K-nearest-neighbor are used to find similar users. Then, recommendations are generated from the ratings of similar users. With content-based approaches (such as Pandora), each item has a discrete set of attributes describing it, and recommendations are generated by comparing the attributes of items the user liked to other items. In this talk, we examine how these algorithms work, and the advantages and limitations of each type.

Order Statistics in Baseball

ALYSSA PERSICH

Does who is pitching impact who comes to a baseball game? In this talk, we will discuss how one can decide which attributes or combination of attributes of the pitcher is best correlated with attendance. The starting pitchers will first be assigned a ranking based off of their average attendance for the 2018 season. We will then look at different items such as earned run average (ERA), strikeouts, batting average against, wins, and other attributes of a pitcher and rank them. We will see which attribute or combination results in the lowest average difference in ranking.

3R • MATHEMATICS OPTIMIZATION & SUSTAINABILITY SOUTH 328

FACULTY SPONSOR & SESSION CHAIR: AHMAD ALMOMANI, MATHEMATICS

The Theory Behind the Lagrangian

GEORGE CLAPPER

For this talk, I will be exploring the different uses of the Lagrangian, named after the French mathematician Joseph-Lewis-Lagrange. The Lagrangian is often used to model various concepts of energy, and motion in physics. Some topics in Lagrangian mechanics include momentum, both angular and linear momentum. In this talk I will cover the following concepts: The double pendulum, problems in both angular, and linear momentum, the transfer of energy, and oscillations. In describing these phenomena, we will be exploring the following concepts: The Euler-Lagrange equations, Noether's Theorem, and various other models that quantify these, for example; The Atwood machine, moving plains, mass in a spring, cycloidal pendulum, and many others. In this talk, I will show derivations, and applications for these theorems, and equations. ***Selected for presentation at Mathematical Association of America Seaway Section Meeting, Rochester, NY.***

Modeling of the Implication of Edible Cutlery at SUNY Geneseo

BRIDGET BRUEN

In this talk, we will discuss the method for the gradual implication of edible or 100% degradable (should you choose not to eat them) cutlery. I will model this as a logistic model, to introduce a rate at which to initiate the purchase of proper cutlery, so it comes at no extra cost to SUNY Geneseo, and reduce the using of plastic cutlery. ***Selected for presentation at Mathematical Association of America Seaway Section Meeting, Rochester, NY.***

Hybridization of Particle Swam Optimization and Pattern Search Algorithms

ERIC KOESSLER

We test two methods of Hybrid Particle Swarm Optimization (HPSO) algorithms that hybridize Particle Swarm Optimization (PSO) and Pattern Search (PS) to improve the global minima and robustness. Both methods let PSO run first followed by PS. The first method lets PSO use a large number of particles for a limited number of iterations. The second method lets PSO run normally until a tolerance is reached. Numerical results using non-differentiable test functions reveal that both methods improve the global minima and robustness versus PSO. The first method uses fewer function evaluations than the second method. ***Selected for presentation at Mathematical Association of America Seaway Section Meeting, Rochester, NY.***

New Comparison Methods for Derivative-Free Optimization Algorithms

JONATHAN MCCART

For many situations, the function that best models a situation or data set can have a derivative that may be difficult or impossible to find. Thus, numerical methods for finding these important values without the direct involvement of the derivative have been developed to find the optimal value of the function. This is our motivation to use Derivative-free optimization (DFO) algorithms. In our analysis of these algorithms, we tested three global solvers: Genetic

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Algorithm (GA), Particle Swarm Optimization (PSO), and Simulating Annealing (SA) on a set of 25 problems of varying in convex/non-convex, separable/non-separable, differentiable/non-differentiable, and unimodal/multimodal. For each algorithm, we used the built-in code from MATLAB, unedited or revised. For all problems, we varied the number of dimensions, increasing from 2 dimensions to 100 dimensions. We introduce new criteria to compare DFO solver performance using certain generalized characteristics: speed, accuracy and efficiency. Numerical results proposed for most known standard benchmark problems. ***Selected for presentation at Mathematical Association of America Seaway Section Meeting, Rochester, NY.***

3S • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

FRASER 116

HONORS THESES

FACULTY SPONSOR & SESSION CHAIR: CARLY HEROLD, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The Evolution of Presidential Power

NICHOLAS RAUCHBAUER

It is presumed that the U.S. Constitution contains all of the answers to fundamental legal questions regarding the political structure of the polity and the functions of each branch of government. However, the Constitution is silent on several issues, one being the executive branch's implicit power of prerogative, especially during times of crisis or war. This paper examines the presidency and its powers (particularly those relating to war and prerogative), from the founding to the modern era. In effect, this will provide a comprehensive account of how the presidency has evolved and grasped more powers without significant pushback from either the legislature or the public. This project begins by looking to the founders for their insight into the justification for each of the executive's powers and how they relate to the other branches, particularly the legislature. It turns next to the Lincoln presidency, which exhibits the clearest uses of executive prerogative and its implications for future presidents during times of crisis. On this basis, the final section of the paper will consider the presidency of FDR during the Second World War and modern presidents such as Bush and Obama during the "War on Terror."

Affordable Care Act's Implications on States' Health Measures

MARISSA HIGGINS

States adopting the Affordable Care Act and expanding Medicaid, regardless of partisanship, saw greater positive changes to their uninsured rate, infant mortality rate, and other relevant health and funding measures. In addition, democratic states saw greater access to and quality of care improvement than republican states in the years following the ACA. Eight states are deeply examined to explore the effect of ACA adoption or lack thereof. To measure the health condition of a state, infant mortality, premature death, low birth weight and preventable hospitalization will be considered. The uninsured rate, percentage of the population on Medicaid, percentage of the population enrolled in employer sponsored coverage, and each state's public health funding are considered as policy measures. To find a more comprehensive nationwide effect of the ACA all fifty states were considered in a regression analysis which considers Medicaid expansion, voting in the 2012 presidential election, partisanship of state legislature, infant mortality rates as a primary measure of access to quality health care, the uninsured rate, and state poverty rates as a control. The ACA, subsequent Supreme Court ruling, state expansion, and effects of will all be discussed and analyzed both qualitatively and quantitatively.

A Machiavellian Analysis of Vladimir Putin

MELISSA HARTLIPP

Niccolo Machiavelli is often considered one of the founders of realism. His political philosophy is often known for its unpopular observations about human nature and how that translates to political leadership. In modern times Vladimir Putin is known as the former KGB officer that managed to rise to power in the new democratic Russia and centralize authority for the last twenty years. Since coming to power, Putin has centralized his authority and changed the future of democracy in Russia as the Russian political system evolved after the fall of the Soviet Union. This paper analyzes Putin's political actions to understand the regime change as he came to power and possible theoretical explanations for his actions. First, I will start by looking to Machiavelli's *The Prince* to try to understand Putin's rise to power and leadership. I will then analyze modern international relations theory, such as structural realism and constructivism, to look for an explanation for Putin's actions to try to understand what framework provides the best explanation for his actions.

3T • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

WELLES 26

ECONOMIC AND POLITICAL DEVELOPMENT IN AFRICA

FACULTY SPONSOR & SESSION CHAIR: JEREMY GRACE, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Financial Development in Sub-Saharan Africa

ALEXANDRA BASILE

This paper will analyze the role of the financial sector in the economic development of sub-Saharan African countries. First, I will provide an industry analysis to delve into the competitiveness and concentration of the banking industry in sub-Saharan countries. The high barriers to entry and limited competition, lead to the problems of adverse selection and moral hazard. Next, the paper will delve into the policies necessary in order for a country to deepen its financial sector. By looking at a case study across several different countries, we will find that there is no set policy prescription that will necessarily destine a given financial market for success. Each case has many different external variables that all play important roles. In some cases, the inept government is the cause of market failure, and gradual liberalization can help to rebuild markets. However, if market failure is a result of something outside the government's hands, intervention may help to support and strengthen the markets. In the case of sub- Saharan Africa, many of the financial regulations are much more complex than their ability to enforce them, and thus, more relaxed regulations are needed.

China in Africa: The Role of Neocolonialism and Corporate Irresponsibility on State Weakness

HANNAH FROHM

This paper follows China's involvement in resource and foreign investment in Sub-Saharan Africa, which has been highly underregulated. Due to the subcontinent's rich supply of natural resources, it has become a hotspot for resource-based conflict and intervention by foreign actors interested in securing their own access. With a history of state fragility and violent conflict, Sub-Saharan African states currently struggle to find the balance between accepting foreign involvement and protecting their own interests due to the many strings attached to attractive foreign aid. A global manufacturing giant, China has come to the forefront as an investor in the continent, performing resource extraction operations on African soil to provide its domestic commercial empire with highly valued minerals, oil, and textiles for industry. Due to the lack of regulation of donor relationships, irresponsible Chinese corporate behavior has perpetuated economic instability and lack of diversity, human rights abuses, and the damaging effects of the 'resource curse.' While foreign direct investment in Sub-Saharan Africa has been influential for sustainable development and state strengthening, the case study of China's exploitative investment relationships illustrates the need for increased regulation and capacity building.

China in Africa: The Emergence of Economic Opportunity at the Crossroads of Global Change

ERIC ZENZEROVICH

Unequivocally, there is no denying that the development of the African continent via economic forces, both internal and external, will represent a substantial proportion of global economic growth in the upcoming century. By 2100, Africa is expected to have a population of about 3.5 billion, more than China and India combined. In 2014, China had a total trade of $215 billion with Africa, more than double the American figure for the same year. This figure is even more impressive when put into the context of time; since 2000 China was able to increase its trade with the African continent nearly twenty fold, a truly staggering change. In a 2017 report, researchers suggest that there are more than 10,000 Chinese-owned businesses on the African continent today. However, the same report estimates that 90% of Chinese companies in Africa are privately owned. Experts agree that these Chinese companies have "flown under the radar," and little data is available on their influence and importance to African countries. It is for this reason that a critical analysis of their dealings and operations will yield a new and revealing perspective of the emerging nature of China-Africa relations.

3U • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

TRUMP: 2020 WELLES 24

FACULTY SPONSOR & SESSION CHAIR: JAMES MOOR, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Trump: 2020 Success?

MAURA MACNEILL, ANNIBELL COOLICAN, JULIANA KURYLA

This presentation group will investigate whether or not Donald Trump can be successful
in his 2020 presidential campaign. In the 2016 presidential race between the two major party candidates, Democrat Hillary Clinton and Republican Donald Trump, many watched in shock as states predicted to swing Democrat turned Republican red, resulting in a stunning defeat for Clinton. By primarily appealing to white, blue-collar, rural populations, Donald Trump was able to attract the "forgotten" constituents of the United States, those that Hillary Clinton and the political establishment had abandoned. These flipped districts, where Democrats had previously won yet Trump managed to gain traction among voters, resulted in unexpected wins in several key swing states. Looking forward, the "Trump effect" analyzes how Trump has affected his party's popularity, as many states and counties are being pushed towards a "blue wave" of voters taking a stand against him. The panel will analyze the Senate voting history of Pennsylvania, Michigan, and West Virginia; and compare the current opinions of Trump 2016 voters. In doing this, we can begin to determine if President Trump's popularity will continue into 2020.

2020 Election: The "Trump Effect"

BRYCE KELLY, EMMA NUGENT

FACULTY SPONSOR: JAMES MOOR, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The fundamental question of this project is: Are the constituents seeking a candidate who will defend the position of President Trump, or are they looking for a candidate to oppose the Trump presidency and be an instrument of change for their respective district? To answer this question we first evaluated past voting histories of Senate, House, and Presidential elections in Minnesota 1 and Michigan 11. By focusing on these two districts that held what were deemed competitive House elections, we were able to make a more accurate judgment on the "Trump Effect." Because neither district had an incumbent, either party had a fair chance of being elected, clearly showing whether Trump still held favor in the respective district. Based on the results of these two House elections it is unclear how Trump will fare in the 2020 election; however it is clear that Trump has had a revolutionary effect on politics across the country.

3V • POLITICAL SCIENCE & INTERNATIONAL RELATIONS

BAILEY 203

MOCK TRIAL PRESENTS THE CASE OF THE YEAR: MIDLANDS TELEVISIONS STUDIO V. DANNY KOSACK

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

ALEA TIBERI, SAVANA CONRADE, AUDREY HOLLICK, JILLIAN O'CONNOR, RAINA SALVATORE, DANIELLE CROWLEY, LAURA KIRKPATRICK, ADRIENNE BRAICO, BETINA POPNIKOLOVA, ERIN CARLIN, MATTHEW BROWN, JOSEPH SALVATORE

On June 29, 2017, celebrity animal handler Danny Kosack was scheduled to appear on the highly-rated show Midlands After Dark with Alex Grace (produced by Midlands Television Studios) with one of Kosack's animals, Elias the chimpanzee. But a rehearsal before the show went terribly wrong: Elias the chimpanzee killed one of the Midlands After Dark writers! Now a person is dead, the show is cancelled, and Kosack's career is in shambles. Accusations are flying from all sides, and litigation looms....You, members of the jury, must determine if Midlands Television Studios or Danny Kosack is liable for this attack after hearing the testimony of a variety of witnesses. Presented by the Geneseo Mock Trial Team, a group dedicated to the pursuit of legal excellence. The Geneseo Mock Trial team competes in local and regional competitions throughout the year. The club develops members' public speaking, argumentative skills, and courtroom etiquette.

3W • INTERDISCIPLINARY BAILEY 103

BLACK STUDIES & SOCIOLOGY

SESSION CHAIR: WILLIAM LOFQUIST, SOCIOLOGY

Does Race Play a Factor in Wrongful Conviction cases?

AMANDA BLUVER

FACULTY SPONSOR: WILLIAM LOFQUIST, SOCIOLOGY

In my research I hope to conduct a thorough examination of race in the American criminal justice system and how it may play a role in sentencing. I hope to find whether or not there is a link between race and the number of wrongfully convicted felons in the system. While wrongful convictions have been a topic that scholars regularly discuss, I hope to dig deeper into these rates of wrongful convictions to see if I can find a pattern among them, specifically a racial one.

Sleep Paralysis in American Culture

REBECCA GEORGE

FACULTY SPONSOR: STEVE DERNE, SOCIOLOGY

Cassaniti and Luhrmann state that local cultural practices shift the pattern of spiritual experiences, even those such as sleep paralysis and out of body experiences that might be imagined in some ways as culture free. They also recognized that the more the spiritual experience is constrained by a specific physiology, the more the frequency of the event will be constrained by an individual's vulnerability to those experiences. This phenomenon is known as 'cultural kindling'. They say, "Sleep paralysis has a specific name among the Thai (Phi Am), but not among the Americans, and the Thai report it more often". Their studies showed that through the process of naming, some non- ordinary experiences are made common and given characteristics. Therefore, among Americans, sleep paralysis is not as common as it is in Thai culture, as it doesn't have a local name. Hence, my study focused on whether sleep paralysis is viewed as a spiritual experience by Americans though it is not named such as in Thai culture. Through examining the documentary, Nightmare, I found that many Americans do in fact view sleep paralysis as spiritual in nature.

3% is Still a Percent

MAIAH WALTON

FACULTY SPONSOR: MARIA LIMA, BLACK STUDIES

It is hard to see the issue that a culture faces when you have no experience interacting with people from that culture; it is even harder when you attend a predominantly white institution that does not focus on the issues these communities face. The media puts out an image of minorities, especially African American/Black, that allows for those in areas lacking such diversity to build up biases and rigid opinions about them. It is important to provide a course at Geneseo that exposes students to the harsh realities their African-American classmates may experience throughout their time here. The class will study how race is represented in media today vs. how it has been represented historically, and how that impacts society, highlighting the correlation of how racism and micro-aggressions are strengthened by media. To answer the question of how movies play a central role in how we understand race, racial categories, and ethnic/ cultural identities, I have been comparing the representations of African Americans when Barak Obama was president to representations now, to examine the ways these images speak to the history of the nation. elements of dance and equipment spinning in a show that is performed in competitions within the North East Color Guard Circuit. This is Sapphire Winter Guard's fifth year participating in competitions as well as GREAT Day. Sapphire invites you to a performance of whimsy and true love with our 2019 production, "Enchanted." Based on the Taylor Swift song of the same name, the show follows strangers who fall in love at first sight. But when the time comes, will that love be reciprocated?

3X • THEATRE/DANCE

SCHRADER 152

CHARACTER ANALYSIS AND CHOREOGRAPHIC INTERPRETATIONS

FACULTY SPONSOR & SESSION CHAIR: MARK BROOMFIELD, THEATRE/DANCE

Interpretations of Love Found, Love Lost

EMILY THAMM, MADISON HARDING

In the Africanist tradition of versioning, two different dancers will perform the new choreographic work Love Found, Love Lost, a solo danced to the music of Keith Jarrett's Blame It On My Youth/Meditation. Each dancer will share their approaches to researching the character of the dance and their individual interpretations of the choreography.

3Y • WOMEN AND GENDER STUDIES WELLES 115

LAW AND POLICY EFFECTING GENDER AND SEXUALITY

FACULTY SPONSOR & SESSION CHAIR: MELANIE BLOOD

Promotes sustainability

Livingston County Family Court Internship Experience

KATHERINE GRANT

Grant will discuss the overall experience that she had while observing cases at the Livingston County Family Court while also explaining some cases in which the courts may have let down individuals of marginalized groups and benefitted members of more privileged identities. She will use this presentation to help spread awareness about both the benefits and potential limitations of family court that she has observed while participating in her internship.

Planned Parenthood Clinic Escort

VICTORIA OZADOVSKY

Ozadovsky is currently serving as a clinic escort to ensure patients get safely into the Planned Parenthood building, while also serving as a distraction and buffer between them and anti-choice protesters. Every individual should be able to receive medical care without harassment, and, as a clinic escort, she works to help facilitate that. She has also been working to be as involved as possible in Planned Parenthood events and rallies such as the Planned Parenthood Albany Day of Action.

Prostitution Policy and the Impact on Feminism

ALEXANDRA LANE

The research presentation will cover how prostitution laws vary throughout the international community. What will be explored is four nations and their policies: two developed nations and two underdeveloped nations. Each category will examine one nation that deems prostitution legal and the other illegal. Finally, it will examine how this enforcement has an impact on feminism and women's lives.

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POSTER SESSION 1 • 12:00 pm – 1:30 pm

COLLEGE UNION BALLROOM DIAGRAM ON BACK COVER

ANTHROPOLOGY

209 • The Importance of Postmortem Biochemistry to Forensic Cases: A Biochemical Elemental Analysis and its Correlation to the Postmortem Interval

ALEXANDRA MASSEY

FACULTY SPONSOR: KRISTI KRUMRINE, ANTHROPOLOGY

"Biochemistry is the study of the structure, composition, and chemical reactions of substances in living systems" (ACS 2018). This field emerged as its own discipline when scientists decided to combine biology with physical, inorganic, and organic chemistry to begin to study how living things obtain energy from food, the chemical aspects of heredity, disease and the fundamental changes associated, and so on (ACS 2018). During forensic pathological investigations, case variations/postmortem interference can have a significant effect on the body postmortem causing need for topographic analysis (Madea 2009). Case variations that show up in biological profiles during autopsies can involve: "preexisting disorders, the cause of death, complications, survival period", etc. (Madea 2009:S46). Furthermore, potential postmortem interferences, such as status at time of death or cell leakage can result in the need for testing of topographic distribution (Madea 2009). When you take all of these factors into consideration, the newly emerging field of Postmortem Biochemistry may be able to aid in forensic case investigations in many ways. This field and its potential contributions to forensic investigation, specifically in determining the postmortem interval, will be evaluated via an elemental analysis of bodily fluids, in particular vitreous humor, used in biochemical analysis.

210 • Nutritional Illness and Disease in 19th and 20th Century Rochester

OLIVIA MANCABELLI

FACULTY SPONSOR: KRISTI KRUMRINE, ANTHROPOLOGY

Malnutrition has been defined as deficiencies, excesses, and even imbalances of macronutrients or micronutrients via a person's intake of energy and nutrients (WHO, 2016). In the 19th and early 20th century, malnutrition in children, and even older adults, was very common and seen as a serious threat to overall health and wellbeing. However, malnourishment was especially problematic in children due to its connection to proper growth and development. Illnesses including marasmus, inanition, worms, and anemia were severe diseases that ultimately led to death in children. The purpose of this study is to track and analyze the number of child deaths from nutritional illnesses, including the time period when they were most prevalent, sex and age incidence patterns, and how these illnesses have changed and developed over time. The death records examined for these nutritional diseases were collected from Mt. Hope Cemetery, Rochester Orphan Asylum, and the Monroe County Poorhouse.

211 • Language Barriers Impacting Children of Im/Migrant Farmworkers

JOHANA ROCHA

FACULTY SPONSOR: JENNIFER GUZMAN, ANTHROPOLOGY

Expected to speak Spanish at home and English outside of the home, children of im/migrant workers navigate a linguistic environment different to that of their monolingual peers. Children and young people with immigrant parents often act as the linguistic and cultural bridges between their families and American society. As a result of my personal experiences and my involvement with the local, Western New York im/migrant farmworker community and advocacy on the Greenlight NY: Driving Together campaign, I decided to ask the question; how do children of migrant farmworkers navigate language barriers between themselves and the adults in their lives? I sought to answer this question in regards to the young people's relationships with influential adults in their lives. By means of recorded interviews and short surveys, I looked deeper into the ways that first-generation youth navigate the language differences between their parents and their teachers. With this project, I hope to highlight the experiences and needs of immigrants and children located in the Western New York area. ***Selected for presentation at SUNY Undergraduate Research Conference, Sanborn, NY.***

212 • Clean Water Saves Lives: How the Introduction of Hemlock Lake Water Improved Health in 19th-Century Rochester

DREW O'NEIL

FACULTY SPONSOR: KRISTI KRUMRINE, ANTHROPOLOGY

Medical and scientific knowledge was scarce in the early 19th century, the beckoning of Rochester's existence. Without the understanding of causations of diseases, illnesses, and sicknesses, treatment and prevention remained nonexistent, leaving suffering and death frequent and inevitable. During this period, illness proved to be the most challenging hardship to overcome and survive. The emergence of health maladies, paired with a lack of sanitation, proper hygiene, and a clean and reliable water source, increased the incidence and effect of illnesses and diseases. Water-borne diseases, especially cholera, struck Rochester during numerous epidemics. However, without any knowledge of the disease, it was not dealt with in a proper fashion and death rates inflated. I looked at Mt. Hope Cemetery records from the University of Rochester's River Campus Libraries from 1837 to 1906 to observe trends in the incidence of waterborne diseases. I attribute the introduction of Hemlock Lake water to the City of Rochester in 1876 as the source of the decline in waterborne causes of death.

213 • Disease and Stillbirth of 19th Century Rochester

QUINN COUGHLIN

FACULTY SPONSOR: KRISTI KRUMRINE, ANTHROPOLOGY

The goal of this directed study was to explore health and disease in Rochester during the nineteenth and twentieth centuries. Research was conducted on the records of the Mt Hope Cemetery, where we transcribed death records from the 1800-1881 timeframe, recording names,

death dates, and specifically, the cause of death. The goal of my individual research was to determine whether there was a correlation between maternal health and disease, and stillbirth. Prior research has shown that there are many correlational effects between maternal health and stillbirth, including maternal age, weight, and socioeconomic status. While the identity of the mothers of stillborn babies were anonymous, my research goal was to determine if there were any months in particular that were high in stillbirths, and whether these months correlated to any particular disease that may impact a fetus' chances of living. Another research question was whether the residence of the stillbirths had any correlation with lower SES, and whether there was a specific gender that was more susceptible to stillbirths. And finally, I will be looking at whether cholera infantum and summer complaint have an effect on stillbirth and premature babies.

BIOCHEMISTRY

110 • Investigating Drug-DNA Interactions using Topoisomerase I DNA Unwinding Assays

CHRISTINA CHACKO, ANNIKA MOUNTS
FACULTY SPONSOR: RUEL MCKNIGHT, BIOCHEMISTRY

DNA is a common binding target for anticancer and antibiotic compounds, which bind non-covalently via two primary modes: intercalation or minor groove binding. Assessing the intercalative and/or minor groove binding properties of potentially therapeutic compounds may uncover novel, less toxic drugs for cancer treatment. Benzothiazoles are known to display anticancer, antimicrobial, anti-inflammatory, and antiviral activities. The McKnight lab seeks to examine the binding properties of synthetic benzothiazole/benzoquinone derivatives to DNA via noncovalent interactions. Preliminary studies on several benzothiazole/benzoquinone series were completed using an electrophoretic gel-based topoisomerase DNA unwinding assay. Our preliminary topoisomerase assay indicate that the compounds of this study do not adopt an intercalative mode of DNA binding. Given that fluorescent displacement assays on these same compounds showed strong DNA binding, we presume that the compounds adopt a DNA groove-binding mode. Some of the compounds were able to displace Hoescht33258, a known minor-groove binder, from its DNA binding site, arguing for them adopting a minor groove mode. While all compounds in this study contain fused ring systems, normally associated with DNA intercalation, added bulky substituents (such as -OMe) presumably precludes intercalation. These initial results are interesting and warrant further investigations.

BIOLOGY

150 • The Effects of 5-Azacytidine on the Long-term Stability of HLA Class I Upregulation

ADAM HANSEN
FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY

The epigenetic modifiers such as 5-Azacytidine (5-AzaC), a DNA methylation inhibitor, and Vorinostat, a histone deacetylase inhibitor, have been shown to increase human leukocyte antigen (HLA) expression. The expression of HLA is required for a T-cell response to detect tumor cells. A lack of HLA expression allows tumor cells to escape immune detection. It has been previously shown that 5-AzaC is able to upregulate HLA expression in the cell line MDA-MB-435. However, the long-term stability of increased HLA expression, following a transient absence of 5-AzaC, is not known. Two flasks of MDA-MB-435 cells, one being continually treated twice a week with 5-AzaC at 0.1 μg/mL, and the other, an untreated control flask are being propagated for long periods of time. Periodically the cells are harvested and incubated with control antibodies or the experimental antibodies, Anti-HLA-ABC and analyzed via flow cytometry. We observed a sustained upregulation of HLA expression in MDA-MB-435 cells following a two-week absence of drug. Understanding the long-term stability of HLA upregulation may prove to be beneficial and applicable to cancer immunotherapy, an expanding field of improved cancer treatments.

151 • Membrane Potential and Ion Channel Activity in Chara Cells Using the Two Electrode Voltage-Clamp Technique

SAMANTHA DORN, JENICA ACHETA
FACULTY SPONSOR: DUANE MCPHERSON, BIOLOGY

Cell membranes innately have a voltage potential as a result of varied charged species, called ions, within the cytoplasm and extracellular matrix. The transport of ions is maintained by voltage-gated ion channels, such as Ca^{2+} and K^{+} channels, from which directly coordinate the signal transduction of a cell through action potential. The voltage clamp technique involves impaling a membrane with two electrodes in order to complete an electrical circuit that will allow an applied current to hold the membrane potential at a desired value. The researchers of this study experimented on the internodal cells of *Chara* algae from which they manipulated their specific ion channel activities by applying current through electrodes. The Nernst potentials of specific ion species can be determined by depolarizing and hyperpolarizing the cell in steps of 20V increments. Varying the concentration of the cell bath solution can provide further insight on the functionality of the channels responsible. In future studies, the researchers hope to adjust concentration values to observe the effect on induced action potential to further analyze the kinetics of ion transport of the cell.

152 • Analysis of Sequence Variation in the *divIVA* Gene in the Giant Bacterium *Epulopiscium* Species

ERIN CLOUGH, WILLIAM BLANDING, CAMERON LINDSAY
FACULTY SPONSOR: ELIZABETH HUTCHISON, BIOLOGY

Epulopiscium spp. ("epulos") are the second largest bacteria known to date, and are gut symbionts of tropical surgeonfish. Epulos are extreme polyploids, harboring anywhere from hundreds to thousands of chromosome copies per cell. It is thought that the extreme number of genome copies contributes to their unique lifestyle dynamics and cell division mechanisms. The gene *divIVA* is a known key regulator of chromosome positioning and cell division in bacteria, as shown in previous research with *Bacillus subtilis*. We characterized sequence variation of the *divIVA* gene in epulos through PCR, sequencing, and subsequent nucleotide and protein alignments. Our data has revealed the presence of different alleles, several of which encode for amino acid changes. Sequence variations are more prevalent at the C terminus. We are continuing with further sampling of *divIVA* allele diversity. We also examined the genetic variation within single cells of epulos since little is known about allele diversity within single cells. We hypothesized that we would observe variations in both the nucleotide and protein alignment for single cells due to the extreme polyploidy of epulos.

161 • Characterization of the Expression of Female Sexual Development-1 (*fsd-1*) in the Fungus *Neurospora crassa*

KATHERINE COTTEN, MARGAUX HALES
FACULTY SPONSOR: ELIZABETH HUTCHISON, BIOLOGY

Neurospora crassa is a filamentous fungus that can undergo either asexual or sexual reproduction. Little is known about the signaling mechanisms that control reproduction in *N. crassa*, as compared to what is known about sexual reproduction of yeast (*Saccharomyces cerevisiae*). A key regulator of the sexual cycle in yeast is the transcription factor NDT80 of which *N. crassa* has a homolog called *fsd-1*. There are three different variants of the *fsd-1* gene which differ by the position of the transcriptional start codon and their 5' untranslated regions. qRT-PCR data has shown that the second transcript is most highly expressed. However, further experiments are needed to verify that the protein is expressed in *N. crassa*. Previous western blot data for FSD-1 was inconclusive due to the overall low abundance of the FSD-1 protein. We are currently in the process of constructing copies of the *fsd-1* gene with an overexpression promoter and a GFP tag at the N-terminal end, which will be targeted to the native location in the genome. These strains will not only allow us to study the phenotype of overexpression strains, but they will also be a valuable resource for protein expression.

162 • Does Phototaxis and Chemotaxis in Astrephomene Involve the Same Mechanism for Steering?

LEA CARINA RIVERA, STEPHAN HEDDON
FACULTY SPONSOR: HAROLD HOOPS, BIOLOGY

The volvocalean alga, *Astrephomene gubernaculifera*, accumulates in response to both chemicals (chemotaxis) and light (phototaxis), but the mechanism is unclear for both cases. In the closely-related *Volvox*, the kinetics of colonial rotation and flagellar activity together result in steering. Artificially changing the kinetics of rotation abolishes phototaxis (Drescher, et al., 2010, PNAS 107: 11171). We want to confirm this relationship in *Astrephomene* phototaxis and determine if it holds true for chemotaxis as well. Varying concentrations of methylcellulose (MC), a thickening agent, in algal media may result in less directed movement towards a light stimulus as the colony's rotational rate and thus its ability to scan the environment is hindered. We found that in 0% MC there was a strong phototactic response, a weakened response in 0.4% MC, and abolished in 0.6% and 0.8%

MC. To test for chemotaxis, we plan on submerging the algae in media lacking acetate—the algae's main source of carbon. Viscosity will be increased using MC and observed for algae accumulation patterns matching that of media without acetate, 0% MC. If changing viscosity abolishes one behavior without abolishing the other, then this is evidence that the mechanisms must differ between these two behavioral responses.

163 • Competition Interactions of Reef Corals with Chemically Protected vs. Non-Chemically Protected Sponge Species in San Salvador, Bahamas

LEAH RUSSO, JAMIE WHELPLEY, JULIAN WISUN, ALEXANDER CLAPSADL
FACULTY SPONSOR: ISIDRO BOSCH, BIOLOGY

The decline of coral reefs worldwide has been a concern since marine biologists began to notice biodiversity losses in the early 1970's. Besides the general effects of climate warming, eutrophication and other large-scale factors, corals are affected by competition for space with other reef species, particularly sponges. Sponges can produce toxins that deter predators, but also harm corals. Sponges that do not produce these toxins can invest more energy into fast growth but are vulnerable to predation by reef fishes, while chemically protected sponges can deter predators, but suffer a lower rate of tissue regeneration. Both types of sponges are abundant in Caribbean coral reefs. The goal of this project was to assess the intensity of competition between sponges and corals on patch reefs of San Salvador Island, Bahamas. The intensity of interactions and overgrowth of corals by palatable and non-palatable sponge species was examined to determine if the faster growing palatable species are the more successful competitors, especially in reefs where potential sponge predators have declined. The results of the study provide insights into the competitive balance of coral and sponge competition and indirect effects of overfishing on the biodiversity of corals in Caribbean reefs.

164 • Coral - Algae Relationship in Bahamian Coral Reefs

EVAN BURR, CHRISTINA ANGELIU, ERIN KANE, HAILIE SEARLES
FACULTY SPONSOR: ISIDRO BOSCH, BIOLOGY

Coral reefs are known for their great diversity of fishes and coral animals, their ecological complexity and their vast ecosystem monetary value. Unfortunately reefs worldwide are increasingly under threat as human-related forces such as climate warming, overfishing, and eutrophication degrade the reef environment. This trend is especially severe in the Caribbean biogeographic region where phase shifts can be seen as corals die off and algae occupy much of the reef space once dominated by colorful coral colonies. The relative percent substrate cover of coral and algae is indicative of reef health. Another indicator of reef health is the declining coral community biodiversity, as opportunistic, stress-tolerant corals like Mustard Hill (*Porites astreoides*), are becoming more dominant in the Caribbean. In this study we surveyed reefs around San Salvador Island, Bahamas, to determine the balance of coral-algae cover and to quantify the biodiversity and relative abundance of corals focusing on increasing *P. astreoides* composition. Transect data collection conducted by snorkelers and photographic surveys of reef cover are used as metrics of reef health. The 2019 data are compared to data from previous studies of these reefs to better understand long-term trajectories in coral cover and coral community biodiversity.

165 • Factors affecting infection rates of *Aspergillus Sydowii* in *G. ventalina* and *G. flabellum* in San Salvador Island, Bahamas

ADRIANA DELELLA, ALEXA SPARACIO, ALEXANDRA TATUSCH, GLORIA BENOIT
FACULTY SPONSOR: ISIDRO BOSCH, BIOLOGY

In recent decades, the spread of diseases affecting corals in the Caribbean have threatened the health of coral reef ecosystems. Sea fans, related to stony corals, have declined due to damage caused by aspergillosis, a disease resulting from the pathogenic fungus, *Aspergillus sydowii*. For this study, we investigated factors affecting rates of infection by *A. sydowii* in both common (*Gorgonia ventalina*) and venus (*Gorgonia flabellum*) sea fans living on patch reefs surrounding San Salvador Island, Bahamas. The factors examined included the size and age of the sea fan, as well as the location of the sea fan on the reef, specifically, whether located on the windward or leeward side of the reef, the edge or center of the sea fan assemblage, and closer or farther from shore. Data was collected by counting and photographing infected sea fans from different parts of several patch reefs and analyzing photographs for extent of damage using the image processing program, ImageJ. Comparisons of data from different sites served to assess the overall condition of the sea fan populations and provided insight into what factors impact the fungal infection rate. The results of this study can help in developing strategies to combat this infectious disease.

166 • Potential Role of Silver Lake (NY) Zooplankton in Reducing the Risk of Harmful Algal Blooms

KAYLA SCHUM
FACULTY SPONSOR: ISIDRO BOSCH, BIOLOGY

Silver Lake is a mesoeutrophic lake located in Perry, NY, that is primarily surrounded by agricultural land. The lake has experienced harmful algal blooms (HABs) dominated by toxic blue-green algae for more than a decade. Herbivorous zooplankton are filter feeders and the primary consumers of microalgae and cyanobacteria in freshwater communities. The filtration rate of herbivorous zooplankton increases with their size. Zooplankton have the potential to mitigate problems caused by overabundant phytoplankton. The extent of the blooms in Silver Lake is less severe than would be expected from the amount of phosphorus in the lake. We assessed the species composition, the size, and the potential filtration rate of the zooplankton community in Silver Lake to evaluate its potential to reduce HABs. Samples were collected during fall of 2018. We found that Silver lake supports a thriving herbivorous zooplankton community dominated by large species of Daphnia. The zooplankton community has the capacity to filter 75% of the lake water column per day compared to 1-25% filtration capacities of zooplankton in nearby lakes. Measures to protect the zooplankton from invasive planktivorous fish should be a priority for management of Silver Lake.

167 • Species Composition and Colony Abundance of Cyanobacteria in Harmful Algal Blooms of Silver Lake, NY

DAVID SHING SHUN LEUNG, DANA CEBULSKI
FACULTY SPONSOR: ISIDRO BOSCH, BIOLOGY

Cyanobacteria, commonly known as blue-green algae, are a phylum of photosynthetic bacteria that occur as small single cells or as conspicuous colonies of tens to thousands of cells. Due to their ability to produce harmful hepatotoxins and neurotoxin that pose a health hazard, threaten water supplies and hinder recreation, cyanobacteria are a concern in lakes worldwide. Blooms of cyanobacteria, referred to as harmful algal blooms, or HABs, tend to occur in lakes with high nutrient levels, such as Silver Lake, NY. During the fall, 2018, samples were collected in Silver Lake and analyzed to determine the composition and abundance of cyanobacteria colonies. Between September 6 and October 4, colony numbers increased from 77 to 509 per mL and all other metrics of bloom biomass increased accordingly. The dominant species were in the frequently toxic genera *Microcystis* and *Dolichospermum* (formerly *Anabaena*). Our project explores the factors that influence the growth of cyanobacteria, the species composition, and the concentration levels of cyanobacteria colonies.

168 • New Snake Fossils From the Fayum Region of Egypt Provide Evidence for an Extinction Event During the Oligocene

SARA MCKIERNAN
FACULTY SPONSOR: JACOB MCCARTNEY, BIOLOGY

During the middle Oligocene, there was an extinction event caused by global cooling that affected many vertebrate clades. Africa is a poorly sampled region, and nothing is known about the effect on reptile faunas at this time. New snake fossils from Egypt from before, during and after this extinction event allow us to gain new insight into changes in snake faunal composition due to this extinction. Seventeen snake fossils were analyzed for morphological differences in their vertebrae, such as the overall size and shape of each vertebral fossil. By observing these differences, the snake fossils were separated into their respective families. After further analysis of the similarities between structures, some vertebrae could be further grouped into species. The fossils also were categorized by their region along vertebral column into anterior, mid-, or posterior trunk vertebrae. Among the snake fossils, 8 boid and 2 tropidophiid species were found. These two families represent survivorship in this region. However, this sample of the Oligocene fauna lacked families previously seen in the older Egyptian locality BQ-2. This lack of snakes from the Colubroidea, Palaeophiidae and Gigantophis may be indicative of an extinction event in this region.

169 • The Relationship between Snake Vertebral Morphology and Ecology Using Linear and Two-Dimensional Geometric Morphometrics

KEVIN CARRERA
FACULTY SPONSOR: JACOB MCCARTNEY, BIOLOGY

In order to constrict, snakes need to be able to form strong, tight and twisting coils. Snakes differ in size and shape depending on their habitat. This study was performed to determine if a relationship was present between a snake's ability to constrict and their habitat. I measured the cotylar width (CW) of different snakes controlling for individual differences in size by making three width measurements on the vertebrae and dividing the CW by these measurements. I conducted tests of normality and homogeneity of variance of the data in the statistical software program R. After this, I tested for phylogenetic signal to determine how strongly the measured traits were influenced by the phylogenetic relationships between the species. The results indicated that some measured traits were influenced by phylogeny. I performed phylogenetic ANOVAs comparing cotylar width measurements to prey subjugation. Results from these analyses reveal no correlation between morphology and prey subjugation. Additionally, a two-dimensional morphometric analysis was performed to determine the relationship between morphology and ecology. Based on these results, I conclude that there is no relationship between ecology and a snake's ability to constrict.

170 • Clobetasol Propionate-Induced Quiescence in UMSCV-4 Vulvar Carcinoma Cells

ALEXIS TRAMONDO, NOLBERTO JARAMILLO
FACULTY SPONSOR: JANI LEWIS, BIOLOGY

Vulvar cancer is rare, mostly afflicting women aged 60 and older. The cancer is often preceded by a common vulvar rash, Lichen sclerosis, that is treated with the ultra-potent corticosteroid, clobetasol. There is some concern that clobetasol can promote carcinogenesis in vulvar tissue. We have found that treatment of the vulvar carcinoma cell line, UMSCV-4, results in cellular quiescence. Removal of clobetasol allows a subpopulation of the UMSCV-4 cells to reenter the cell cycle. This subpopulation continues to grow even when clobetasol is replaced in the medium. This highlights the potential for vulvar cancer cells to evade cancer treatments in the presence of clobetasol and may lead to selection for more aggressive subpopulations. Using BrdU, Ki67, and Trypan Blue analyses, we have characterized the dynamics of clobetasol induced quiescence of the UMSCV-4 cells.

171 • ESP Protein Characterization in *Brassica rapa*

OLIVIA CARD, MADELINE ESS, CHRISTINA WAITE
FACULTY SPONSOR: JANICE LOVETT, BIOLOGY

The ESP protein affects the pathway by which secondary metabolites form in *Brassica rapa*. This pathway is known as the myrosinase-glucosinolate pathway. Myrosinase, an enzyme, cleaves a specific bond in gluconapin, a glucosinolate derived from methionine; this results in the formation of secondary metabolites that function to defend the plant against herbivory. When ESP is present, it acts as a coenzyme of myrosinase, meaning it influences product formation. We are interested in defining exactly how the ESP protein does this. In order to determine the answer to our question, we harvest ESP protein from transformed E. coli bacteria for use in analytical assays. Interestingly, the transformed *E. coli* do not presently produce ESP. We have identified a possible cause of this problem and we are currently working to remedy it so that we may perform the aforementioned assays.

172 • Display Behaviors in Encounters Between Males of the Ant-Mimicking Spider *Myrmarachne formicaria*

JACQUELINE ZHOU
FACULTY SPONSOR: JENNIFER APPLE, BIOLOGY

Myrmarachne formicaria are ant-mimicking jumping spiders recently introduced to North America from Europe or Asia. These spiders exhibit behavior that mimics ants, tapping their front legs during pauses when walking, imitating antennae. When males encounter one another, they halt this behavior and initiate what we dubbed dueling displays, consisting of two males moving side-to-side head-on, raising their abdomens. Sometimes, when more aggressive, they unfold their chelicerae and raise their front legs. Duels usually end with one male winning while the other decamps. In other jumping spiders which exhibit forms of male-male display, it has been observed that confrontation winners gain access to females residing within the territory. Our goal is to investigate dueling displays to ascertain (1) does size has a significant role in determining who wins, & (2) if there are behavioral indicators for winners. Spiders were collected in Livingston County, NY. Close-up images were taken and body and chelicerae lengths measured using ImageJ. Spiders were then sorted into size classes and duels between pairs of spiders were observed and the apparent winners recorded. Ultimately, our research will aid in characterizing the mating behavior of these spiders, for which little natural history is known. ***Selected for presentation at Northeast Natural History Conference, Springfield, MA.***

173 • Herbivory and Arthropod Abundance on Native and Invasive Understory Shrubs

SAMANTHA MUSCAT
FACULTY SPONSOR: JENNIFER APPLE, BIOLOGY

This study focuses on the exploitation of native and invasive shrubs by herbivores and other arthropods. Previous work on the gray dogwood (*Cornus racemosa*) in the Roemer Arboretum showed that this native shrub is subject to higher rates of herbivory than invasive species like the Amur honeysuckle (*Lonicera maackii*) and autumn olive (*Elaeagnus umbellata*). This study expands on these results by targeting specialist herbivores that feed on the dogwood shrub, in particular, leaf-rolling caterpillars. Leaf rolls on randomly selected branches 30 gray dogwood shrubs were sampled to quantify leaf area lost to caterpillar herbivory and other forms of damage. Leaf-rolls were photographed and damage was quantified using ImageJ. To compare herbivory by higher trophic levels in addition to herbivores, samples of arthropods on 10 shrubs each of dogwood, Amur honeysuckle and autumn olive were collected using a beat sheet method to dislodge them onto a canvas. Although no significant correlation was found in damage per plant between the beginning and end of the summer, there was significantly higher herbivory in the beginning. These results contribute to our understanding of herbivory done by leaf-roll inducing caterpillars and highlight differences in how invasive vs. native species contribute to the local food web. ***Selected for presentation at Northeast Natural History Conference, Springfield, MA.***

174 • Relationship Between the Incidence of an Ant-mimicking Spider (*Myrmarachne formicaria*) and Ant Abundance and Diversity

ALANNA RICHMAN
FACULTY SPONSOR: JENNIFER APPLE, BIOLOGY

Myrmarachne formicaria is a non-native ant-mimicking spider that was first recorded in New York in 2006. Little is known about its natural history in its native range in Europe and Asia or in its newly colonized range in North America. Some spider species are Batesian mimics that resemble ants in order to avoid being eaten, because many potential predators will not prey on ants. The aim of this study was to investigate the relationship between the incidence of this ant-mimicking spider and ant abundance and diversity to determine if it is associated with ants. Ant specimens were collected in plots set up to monitor the incidence of *M. formicaria*. Eight different plots were sampled, some located in grassy habitats and some located in wooded habitats. Three different methods were used to collect ant specimens: pitfall traps, bait traps, and leaf litter sampling. Abundance and diversity data were collected and compared to the incidence of *M. formicaria* in the same plots. Ant collection methods were also compared. As *M. formicaria* is expanding its range, information about its habitat preferences and interactions with other species is critical to our ability to assess its potential ecological impacts. ***Selected for presentation at Northeast Natural History Conference, Springfield, MA.***

175 • Developmental Differences Throughout Spermatogenesis Among Different Ages of Stalk-Eyed Flies

MIRANDA CALARCO, ESHA PARIKH
FACULTY SPONSOR: JOSEPHINE REINHARDT, BIOLOGY

Heterochromatin Protein 1 (HP1) is a family of proteins that is commonly found in species with meiotic drive. Throughout the process of spermatogenesis, HP1's function is crucial in the condensation and reorganization of chromatin during each meiotic division. The importance of studying spermatogenesis is the first step to identifying the stage at which HP1 expression could be a strong candidate in preventing meiotic drive within the testes. This project focused on the differences between each developmental stage in spermatogenesis across different age groups of

Promotes sustainability

stalk-eyed flies (*Teleopsis dalmanni*) to better understand HP1 *in situ* hybridization. Here we have assessed the testes of male flies varying in age, within the species GOM12 and Td2a, through dissection and microscopic techniques. We intend to find that testes of younger male flies will not have gone through all stages of spermatogenesis, while as the testes of older male flies will be fully mature, exhibiting all stages of spermatogenesis ending with healthy, produced sperm. This may allude to younger male flies not expressing HP1 orthologs in the same way older male flies will.

176 • Immune Response and Sexual Ornamentation Trade-offs in *Teleposis dalmanni*

NICHOLAS SIDOU
FACULTY SPONSOR: JOSEPHINE REINHARDT, BIOLOGY

Teleopsis dalmanni, otherwise known as the stalk-eyed flies, are an insect known for the males having longer eye stalks used as sexual ornamentation to attract females. The long stalks are an example of an evolutionary trade-off. The resources required to produce these long stalks are costly and take away from other traits such as a greater immune defense. Our goal is to determine whether altering the presence of functioning immunology genes will result in longer eye stalks due to freed up energy resources according to the trade-off hypothesis or if those with higher genetic quality will be resilient to change according to the handicap hypothesis. We choose 2 such genes for further analysis. We will use CRISPR/Cas-9 to create a null mutation in the immunity genes. We will be using the Black gene as a control for our experiment. This gene is selected because it would cause a noticeable phenotypic change to the mutant. It will also serve as proof that that concept of CRISPR/Cas-9 works in stalk-eyed flies.

177 • Bacterial Expression of Chimeric *Escherichia coli* and *Trypanosoma brucei* DNA Methyltransferases

CASSANDRA TABER
FACULTY SPONSOR: KEVIN MILITELLO, BIOLOGY

Little is known about epigenetic information such as DNA methylation in microorganisms. One methyltransferase being studied at this time is a putative DNA methyltransferase (TbDmt) from *Trypanosoma brucei*. TbDmt strongly resembles bacterial DNA methyltransferases like DNA cytosine methyltransferase (EcDcm) from *E. coli*. To test our hypothesis that TbDmt is a DNA methyltransferase, we expressed TbDmt in bacteria and created chimeric protein sequences switching the DNA binding domain and enzymatic domain of EcDcm and TbDmt. Exchanging the domains of TbDmt with a known methyltransferase may help us discover the function of the enzyme and its target sequence. Plasmids were made containing sequences for EcDcm, TbDmt, and both chimeric proteins and they were introduced into *E. coli*. The plasmids were re-isolated and were then digested with various restriction enzymes blocked by methylation. All four proteins were produced at 20°C. EcDcm methylated at its expected site, 5'CCWGG3', but TbDmt showed no signs of methylation at any of the sites tested. It appears that the chimeric protein with the EcDcm DNA binding site and TbDmt enzymatic domain is methylating at 5'CCWGG3', the same site EcDcm methylates. This suggests TbDmt is a DNA methyltransferase, but the sequence it methylates is unique. ***Selected for presentation at Experimental Biology, Orlando, FL.***

178 • Identification of RNA Modification Enzymes in *Trypanosoma brucei*

WILL SCHULTZ, XIANE SMITH
FACULTY SPONSOR: KEVIN MILITELLO, BIOLOGY

RNA methylation is a type of posttranscriptional modification that contributes to gene expression control. The organism Trypanosoma brucei does not seem to have abundant promoter regions or transcriptional regulation machinery. Thus, RNA methylation may play an important role in regulating gene expression. We have identified seven putative cytosine RNA methyltransferase genes in *T. brucei*. Two of the putative CRMTs, CRMT4 and CRMT5, are required for maximum parasite growth. Although we suspect these genes to be RNA methyltransferases, we do not have evidence for RNA methyltransferase activity. CRMT4 was produced in *E. coli* but was difficult to purify. SDS-PAGE results for an N-terminal His-tagged protein indicate CRMT4 insolubility. CRMT5 was produced in *E. coli* with an N-terminal His-tag and was easily purified. Purified CRMT5 was used in a series of methyltransferase assays using luciferase activity as a readout. CRMT5 addition results in luciferase activity in the presence of cytosine-containing RNA. There was little luciferase activity observed using a mock purification or in the presence of cytosine-free RNA. Evidence for the presence of 5-methylcytosine and RNA methyltransferases indicates the presence of a process to create an epitranscriptome in *T. brucei*. ***Selected for presentation at Experimental Biology, Orlando, FL.***

179 • Epigenetic Modifiers and Their Effect on HLA and PD-L1 Expression in MCF-7 and MDA-MB-231 Cancer Cell Lines

ALEC TOUFEXIS, NIKHIL REDDY
FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY

Vorinostat is a histone deacetylase inhibitor with epigenetic effects. In previous research, it has been shown that this drug can result in an increase in gene expression. The goal of our experiments was to see if Vorinostat could upregulate HLA expression without upregulating PD-L1 expression. While an increase in HLA expression would be beneficial for immune cells to kill cancer cells, an increase in PD-L1 expression would be detrimental because it prevents the activation of T cells, thereby allowing cancer cells to evade the immune response. To demonstrate the effects of Vorinostat on cancer cells, we conducted flow cytometry experiments on the MCF-7 and MDA-MB-231 cancer cell lines, two breast cancer cell lines. The initial results indicated that HLA expression for both cancer cell lines unexpectedly decreased while the PD-L1 expression remained unchanged. Experiments are planned to modify the concentration of the drug used and to test other epigenetic modifiers of gene expression.

180 • The Effects of Epigenetic Modifiers on PD-L1 and HLA Class I Expression on Tumor Cells

TRISHA MAINI, LAUREN STERNBERG
FACULTY SPONSOR: ROBERT O'DONNELL, BIOLOGY

Expression of PD-L1 on various tumor cell lines leads to the inhibition of T cell cytotoxicity. When this takes place, the T cells are unable to combat the tumor cells and cancer persists. In the same regard, increased expression of human leukocyte antigen (HLA) allows tumor cells to be more easily detected by these T cells. In previous research, epigenetic modifiers including the DNA methylation inhibitor 5-Azacytidine (5-AzaC) and the histone deacetylase inhibitor vorinostat, were shown to increase HLA expression. However, epigenetic modifiers have also been shown by others to upregulate PD-L1 expression. We hope to elucidate whether or not PD-L1 expression is upregulated along with HLA expression upon exposure to these epigenetic modifiers. If this were to occur, then the effects of both PD-L1 and HLA would essentially negate each other. Two cell lines that are known to express PD-L1 are MCF-7 and MDA-MB-231. Our initial results confirm that PD-L1 is expressed on the MDA-MB-231 cell lines, as demonstrated by flow cytometry. Future experiments are planned to optimize the doses of 5-AzaC and vorinostat to maximize HLA expression while not increasing or inducing the expression of PD-L1. ***Selected for presentation at Experimental Biology, Orlando, FL.***

CENTER FOR INTEGRATIVE LEARNING

206 • Community Medicine: From Rainforest to Coast; Frank Vafier '74 Ambassador in Leadership Scholarship

ERIC MACALUSO
FACULTY SPONSOR: LYTTON SMITH, CENTER FOR INTEGRATIVE LEARNING

Through the ambassadorship program and the funds provided by the Frank Vafier '74 Ambassador in Leadership Scholarship I was able to take part in a global health program organized by Child Family Health International - an NGO with a focus on global health. With the scholarship I was able to go to Ecuador for a month over than 2018-2019 winter intersession. While in Ecuador I was able to travel around the country volunteering and shadowing in different local health clinics and hospitals as well as living with a tribe in the Amazon where I learned about medicinal plants and how different tribes approach health issues. The poster will focus on my personal experience and growth while in Ecuador and how it has affected my future aspiration to become a physician. This project funded by the Frank Vafier '74 Ambassador in Leadership.

CHEMISTRY

101 • Solar Vapor Generation using Gold Shell Silica Core Nanoparticles

CODY ESPOSITO
FACULTY SPONSOR: JEFFREY PETERSON, CHEMISTRY

Due to their plasmon resonance, metal nanoparticles are strong absorbers of a broad spectrum of light. When these particles are in solution the energy from absorbed light generates vapor without having to heat the entire liquid volume. As a result, metal nanoparticles have great solar energy applications. While absorbing sunlight gives more efficient vapor generation, this experiment instead focuses on photothermal vapor generation, with a laser being used as a light source. Surprisingly, photothermal vapor generation did occur and a 3 kPa pressure increase was recorded. A synthesis of gold shell silica core nanoparticles is also presented.

111 • Investigating the Effect of Precursor Chain Lengths on CdSe Nanoplatelets

EMILY VERHAEG, EMILY BAYHAN
FACULTY SPONSOR: JEFFREY PETERSON, CHEMISTRY
RABEKA ALAM, CHEMISTRY

The thickness of CdSe nanoplatelets is difficult to alter due to the lack of understanding of how they are formed. Cadmium precursor chain lengths have not been investigated thoroughly, and hold the potential for controlling nanoplatelet thicknesses. This is investigated by using cadmium oleate, myristate, and decanoate as precursors and cadmium acetate, propionate, and butyrate as postcursors. Each synthesis uses the same procedure, and the same molar amounts of each reagent. The relative abundance of the various thicknesses resulting from each synthesis was estimated using absorbance spectroscopy. It was determined that the combination of cadmium myristate with cadmium butyrate typically results in 96% six monolayer nanoplatelets and only 4% five monolayer nanoplatelets. This synthesis has been repeatable and shows that manipulating the carbon chain lengths on the cadmium reagents can control the thickness of nanoplatelets.

112 • Investigating the Promise of Rice Husks as Non-human Feedstock for Lignocellulosic Biofuels: Part II

ARIANNA SORIANO, SOFIA KOSTRINSKY
FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

The progressive demand for energy in the world and the increasing rise in pollution levels from the use of fossil fuels has led to a rapid demand for alternative sources of fuel. A number of alternatives being utilized require the use of food crops, which in turn has led to an increase in world food prices, especially in poor countries. In 2008, the world produced well over 130 million tons of rice husks; with almost all of it going to waste. With 1 in 8 people suffering from chronic undernourishment in 2010-2012, and so much biomass available that can be converted into biofuel, the pursuit of the efficient, non- polluting, and recyclable pretreatment system. In this study, ionic liquids (1-Butyl-3-methylimidazolium chloride) was used for the pretreatment of the rice husks to yield glucose. Glucose quantification methods applied include refractometry, and DNS analyses. and The results are presented and discussed.

113 • Alfalfa Hay as Non-human Feedstock for Second Generation Biofuels: Hope or Hoax?

SOFIA KOSTRINSKY, ARIANNA SORIANO
FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

Fossil fuels negatively impact the environment due to greenhouse gas emissions. Many are searching for ways to counterbalance the damage done to the Earth after years of greenhouse gas emissions. Alternatives to fossil fuels include biofuels, an underappreciated and overlooked source of cheap energy. Great efforts have been geared towards production of 1st generation biofuels which are fuels sourced from human food sources such as corn. The issue with 1st generation biofuels is that it has been linked to increasing price of food which greatly and negatively impacts many developing countries. This research focuses on the production of second generation biofuels, which rely on non-human food sources, specifically alfalfa hay. Second generation biomass such as alfalfa hay, are ideal as a biofuel feedstock, because they are cheap if not free, they have the power to curb greenhouse gas emissions while not taking away an important human food source or causing competition for new land. For this project, an ionic liquid (1-butyl-3-methylimidazolium chloride) was used for the pretreatment of the hay to yield glucose. Glucose quantification methods applied include refractometry, and DNS analyses. The results are presented and discussed within.

114 • Green Synthesis ofSsemicarbazones: A Comparison of Two Green Solvents

DANIEL BRUSH, CASSIDY MCGINN
FACULTY SPONSOR: ERIC HELMS, CHEMISTRY

Semicarbazones are small organic molecules that are frequently used in pharmaceuticals due to their anti-convulsant and anti-tumor biological activity. Previous synthesis of these molecules involved lengthy, high temperature reactions that used toxic and harmful reagents. The focus of this research was to demonstrate the use of a green chemical synthesis in creating these molecules, ultimately optimizing a reaction process for mass-scale production. Green chemistry involves chemical research that is carried out with safe, environmentally friendly reagents in low-energy conditions. Using novel green solvents, an array of semicarbazones were synthesized in an efficient and eco-friendly matter, satisfying green chemistry requirements. The reaction was optimized using two solvents – ethyl lactate and dimethyl isosorbide – both of which qualify as green and are found in cosmetic products. In these two sustainable solvents, we have demonstrated that the reaction can produce quantitative yields of product at room temperature in minutes. These reactions can now be investigated for industrial scale-up, while other small-scale syntheses in these solvents are being developed. The results of this study have promising implications for the development of other green routes to molecules of industrial importance under efficient, environmentally friendly conditions.

115 • Activation of Diffusion Monitoring System To Transfer Proteins from Calcium Phosphate Cements to Fractured Bone Site

PEMA SHERPA, SIMRAN SINGH
FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

Bone defects caused by trauma, tumors, and inherent genetic disorders require the use of grafting materials to facilitate bone regeneration at the affected site. However, the lack of bone supply and donor site morbidity associated with autografting pose significant challenges. A promising alternative approach to autograft is the use of bone cement prepared with calcium phosphate cement (CPC). An effective synthetic bone cement establishes an equilibrium between porosity, mechanical strength, and the rate of diffusion. The overall objective of this project is to design a diffusion monitoring system that can track the diffusion of proteins and other biological materials from CPCs to the site of fracture to aid in the bone repair process. The diffusion of copper sulfate from copper sulfate loaded CPCs is monitored using absorption spectroscopy over varying time intervals to assess the potential of the CPCs to deliver proteins to the fracture sites. The results are presented and discussed hereafter.

116 • Critical Bone Fracture Repair: Characterization of the Mechanical Properties in Calcium Phosphate Bioactive Cement

MARK SOTO, JUSTIN GAB*RIEL*
FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

Understanding the mechanical properties of bone is critical to the design of materials that are to be used in repair of bone fractures. In turn, the mechanical properties of the materials determine the behavior of the body under a load or force. This study compares the mechanical properties of Calcium Phosphate Cement (CPC) to pig bone with the aim of determining its suitability and applicability for use on load bearing bone fracture sites. CPC has been reported to be a bioactive and biodegradable material with potential resorbability and molding capabilities. CPC is composed of hydroxyapatite (HA), a major component of human bone, and a base constituent of the continuing efforts are geared toward addressing challenges of adequate mechanical strength of the cement to ensure compatibility to human bone. The cement was synthesized and characterized using published methods and the data obtained is presented and discussed herewith. ***Selected for presentation at American Chemical Society's 63rd Annual Undergraduate Research Symposium, Brockport, NY.***

117 • Optimizing Nitrogen Concentrations to Maximize Lipid Yields for Biodiesel Production

COLLEEN STEWARD, FELICIA PASCALE, WADY JACOBY
FACULTY SPONSOR: BARNABAS GIKONYO, CHEMISTRY

Third generation biofuels, which utilize algae as a renewable feedstock, have the potential to revolutionize the energy industry. In addition to reducing greenhouse gases by sequestering CO_2, growing under an assortment of conditions, and functioning as a mechanism of bioremediation, microalgae provide an alternative, cleaner energy source with the capacity to minimize our current dependence on fossil fuels. However, widespread marketability of biofuel derived from microalgae is currently hindered by the expense of production and inconsistency of lipid yields. Our research examined growth conditions intended to maximize lipid content within *Chlorella* algae cells. Nitrogen depletion in media has been shown to contribute to lipid optimization within the cell during late log phase. Bold's basal medium was supplemented to three established *Chlorella* cultures with varying sodium nitrate concentrations: 0 mg/mL, 0.25 mg/mL, and 1.0 mg/mL. Algal growth in these samples was monitored for 45 days. After harvesting the cells, non-polar lipids were extracted using a 2:1 chloroform-methanol ratio and lipid yields were calculated. IR spectroscopy was used to verify the isolation of lipids. The ratio of lipid mass per gram of algae was compared between samples grown in varying concentration of nitrogen. ***Selected for presentation at SUNY Undergraduate Research Conference, Sanborn, NY.***

118 • Bimetallic Catalysis for Energy Sustainability

AMANDA DANIELS, KALEIGH ROSS, JAYESH PATIL
FACULTY SPONSOR: BRANDON TATE, CHEMISTRY

The ability to store renewable energy in chemical fuels is crucial for the development of a sustainable global energy cycle. Hydrogen gas, produced by the electrolysis of water, is a clean renewable fuel, but has a very low energy density compared to conventional fuels. Our project aims to develop catalysts for the conversion of hydrogen gas to carbon-based liquid fuels with high energy density. Our approach involves bimetallic catalysts, supported by bifunctional ligands, which have the potential to break the symmetry of the hydrogen molecule. Oxidative addition of hydrogen across a metal-metal bond is expected to produce a metal hydride complex featuring both a hydridic metal hydride and an acidic metal hydride hydride. We anticipate metal dihydrides of this nature will be poised for the hydrogenation of a carbon source such as carbon dioxide. Here we report the synthesis and NMR characterization of key bifunctional ligand scaffolds and our plans for the preparation of metal complexes with the potential to act as catalysts for the conversion of hydrogen gas to liquid fuels.

119 • Biomimicry: Synthetic Models of an Organometallic Nickel Enzyme

SATNAM SINGH, JOHANNA PARSNICK
FACULTY SPONSOR: BRANDON TATE, CHEMISTRY

Lactate racemase is an enzyme whose active site features the only known example of a biological pincer complex. The enzyme catalyzes the interconversion of the two optical isomers of lactic acid. The cofactor of lactate racemase is an organometallic complex containing a nickel ion coordinated by a pincer ligand and a histidine residue. We are developing synthetic models of the lactate racemase active site in order to study their reactivity and improve our understanding of the mechanism of lactate racemization. We have synthesized key precursors to a series of related enzyme models and characterized the products by nuclear magnetic resonance (NMR) spectroscopy. We anticipate this project will shed light on the role of the unique organometallic cofactor of lactate racemase and may inform the design of biomimetic catalysts for related reactions, particularly reactions relevant to hydrogen storage and renewable fuels. ***Selected for presentation at SUNY Undergraduate Research Conference, Sanborn, NY and American Chemical Society Collegiate Research Symposium, Rochester, NY.***

120 • Creosol and Other Aromatic Inhibitors on the Effects of Myeloperoxidase

ERIC CHROSTOWSKI
FACULTY SPONSORS: DAVID JOHNSON, CHEMISTRY
ROBERT O'DONNELL, BIOLOGY

Myeloperoxidase (MPO) is an anti-microbial enzyme found in immune cells such as neutrophils, but there is evidence that MPO-derived oxidants can lead to tissue damage and inflammatory disease. Finding ways to help inhibit some of these negative effects of the enzyme have been a topic of research. Through the use of the Cayman Chemical Myeloperoxidase Inhibitor Screening Assay Kit and drugs synthesized by students in the chemistry department, I have been able to measure the activity of MPO in the presence of various drugs through a fluorescence assay. Furthermore, I was able to statistically measure the IC50, concentration of drug that cuts enzyme activity in half, of each of the drugs to determine which are better at inhibiting MPO. Out of the 5 drugs tested so far only 2 have had positive inhibitor results and they are Creosol and 4-aminoguiacol. I determined that Creasol has an IC50 of 4.53e-7 M, and 4-aminoguiacol has an IC50 of 9.47e-7 M. Furthermore if there is more time and experimentation on different drugs, these drugs can be seen as a precursor to a way of inhibiting current inflammatory diseases.

121 • Investigating Apocynin Derivatives for the Inhibition of Myeloperoxidase

ARIANNA OSGOOD, MICA PITCHER
FACULTY SPONSOR: DAVID JOHNSON, CHEMISTRY

Myeloperoxidase (MPO) is an enzyme involved in the production of reactive oxygen species (ROS) inside the body that are known to lead to many inflammatory diseases such as asthma, diabetic retinopathy, and atherosclerosis. Apocynin, an anti-inflammatory derived from natural plant sources, has been found to inhibit this process and treat these diseases, and it's dimer has been even more effective in inhibiting MPO. As a result of this, we are searching for the mechanism by which myeloperoxidase is inhibited and looking for derivatives of apocynin that could have the same effect in order to halt ROS production. 4-aminoguaiacol and 2-methoxy-4-methylphenol have been found to effectively inhibit MPO, and the synthesis of their dimers has been attempted. If more compounds are synthesized and inhibit myeloperoxidase, there are more compounds that have great potential to stop the production of reactive oxygen species in the body and treat a variety of inflammatory conditions. ***Selected for presentation at American Chemical Society Collegiate Research Symposium, Rochester, NY.***

122 • Anion Exchange Reactions and Phase Transfer of Cesium Lead Halide Nanocubes

LUKE HOLTZMAN, LAURA BARRECA, VICTORIA RIVERA
FACULTY SPONSOR: RABEKA ALAM, CHEMISTRY

Metal halide perovskites are new materials of interest in the field of nanoscience due to the increased efficiency of solar cells containing them. Our work surrounds the synthesis of cesium lead bromide (CsPbBr3) and subsequent halide exchanges to cesium lead chloride and iodide. By varying ratios of chloride and iodide ions in solution, homogeneous nanocrystals were created that were mixtures of the original parent compounds and the emission spectra showed maxima across the entire spectral region. The photoluminescence of all CsPbX3 nanocrystals was characterized by absorbance and fluorescence spectroscopy, and crystal structure and size were determined by x-ray powder diffraction and transmission electron microscopy. However, these particles are unable to be stable as a colloidal solution in water. As a solution to this problem, histidine-mediated phase transfer studies were explored. Further applications will these materials require aqueous solutions and the ability to easily tune the optical properties of the nanocrystals make these perovskites very appealing quantum dot semiconductors for solar cell use.

COMMUNICATION

100 • The Fear of Missing Out: Implications for Personal Relationships and Student Success

EMILY LAROCCA, RACHEL RENDERS, STEPHANIE RONEY, IRIS BENZ, CHRISTOPHER HAUCK
FACULTY SPONSOR: MEREDITH HARRIGAN, COMMUNICATION

This paper involves a qualitative investigation of the fear of missing out, colloquially known as FoMO. Using relational dialectics theory as a lens (Baxter, 2011), we analyzed 35 interview transcripts comprised of emerging adults talk about their experiences with FoMO. Findings indicate two relational-level contradictions: connection and disconnection and inclusion and exclusion. These tensions can be understood by examining a cultural level contradiction between the discourses of carpe diem and investment in the future. Implications of these findings related to physical health, emotion well being, and academic success are discussed.

107 • Shhh… We Swiped Right: Communicating About Long Term Romantic Relationships That Started on Dating Apps

KATHLEEN ROCK
FACULTY SPONSOR: MEREDITH HARRIGAN, COMMUNICATION

This study seeks to understand the experiences of individuals who used dating apps to create long-term romantic relationships. This research will focus on couples who have been exclusively involved in a romantic relationship for at least three months. Interview questions address the following topics: the way they choose to disclose information about how they met to their friends and family, the impact that meeting online has on their relationship, how they believe others see them, among other topics. Following the completion of interviews, I will engage in a qualitative thematic analysis to locate themes in the data. ***Selected for presentation at Eastern Communication Association, Providence, RI.***

GEOGRAPHY

200 • Patterns of and Motivations for Student Participation in Planning a College Town: Geneseo, NY

JULIA MINTZ

FACULTY SPONSOR: JENNIFER ROGALSKY, GEOGRAPHY

Public participation is integral to the urban planning process. Planning and community development may be the work of professional planners and consultants, but its purpose is to better the quality of life of a community. Thus, public engagement should come in the form of public meetings, advisory groups, and even citizens' research into current events and trends in their community. The functions and dynamics of public input have been heavily researched in academia; however, as communities are unique and complex, an important question arises: what specific factors within a community influence the nature of its citizens' participation in the planning process? This research answers this question among the student population of the State University of New York at Geneseo. Digital surveying was used to gather data on students' knowledge of the planning field, their participatory experience, and the factors that influence these practices. Supplemental data was collected through interviewing local planning professionals. Students are an important part of any college town and should be involved in planning its future. This research provides valuable insight into the motivations for and influences on student engagement in planning, and provides a basis for strategizing how to improve student participation, and ultimately town-gown relations. ***Selected for presentation at American Association of Geographers, Washington DC.***

201 • Environmental Change in Chimney Bluffs State Park

MICKAYLA BUISCH

FACULTY SPONSOR: STEPHEN TULOWIECKI, GEOGRAPHY

Chimney Bluffs State Park, on the southern shore of Lake Ontario in NY, is constantly undergoing environmental changes that contribute to its signature landscape. Using ArcGIS software and historic maps to research the area, the park's land cover and shoreline were mapped and analyzed from 1943 to 2015. Results showed that the park's shoreline eroded 2 feet per year, about twice the average for the entire lake. Forest cover increased from less than 25% to almost full coverage over the same time period. This research offers insight into the parks dynamic landscape that could potentially help rangers better manage the unpredictable grounds. ***Selected for presentation at Geographic Information Sharing/Special Interest Group, Rochester, NY.***

202 • Structural Racism and Urban Public Transportation, Seattle WA

BRADLEY BERRY

FACULTY SPONSOR: JENNIFER ROGALSKY, GEOGRAPHY

The existence of public transportation is instrumental in developing and maintaining healthy communities in urban areas of all sizes; however, it both reflects and facilitates structural racism. For example, the safety of bus stops has less consideration in minority neighborhoods than it does in white majority neighborhoods; noisy transportation hubs are also typically placed in lower-income minority neighborhoods. Differences in location of transit, demographics, policies, and public transit use can determine the successes or failures of public transportation systems, as well as the effects on the communities that they serve. Some cities have more successful public transportation systems; however, poor planning for public transit can worsen the effects of structural racism. For example, Seattle has recently created a successful bus system that is unique in that it encourages use by all people; they are also optimizing routes and expanding street cars and light rail. It has seen an increase in usage, while most other cities are seeing a decline. By examining Seattle's public transit system and its implementation, planners and policymakers can apply their strategies in other cities across the United States to encourage usage of public transportation and reduce the effects of structural racism.

214 • The Section 8 Housing Choice Voucher Program: Desegregation and Revitalization in Baltimore, MD

JEN MELFI

FACULTY SPONSOR: JENNIFER ROGALSKY, GEOGRAPHY

When the Section 8 Housing Choice Voucher Program was launched by the U.S. Department of Housing and Urban Development in 1974, the face of affordable housing was forever changed. By allowing a recipient to select appropriate housing for their family in a neighborhood of their choosing, Section 8 helps to disassociate the negative connotations of public and affordable housing. In Baltimore, Maryland, a city that today is plagued by racial prejudices and segregation, it is important that policymakers and citizens work toward a more integrated city. The Section 8 Housing Choice Voucher Program can help effectively desegregate Baltimore and rid the city of outdated discrimination. Although it will require increased government funding, the reopening of the Section 8 Housing Choice Voucher Program waiting list in Baltimore, a city with highly concentrated poverty and deep racial divides, will empower low income residents and promote a diversified city ready for revitalization.

215 • Analysis of Refugee Resettlement Patterns across the U.S.

MAX MORITZ

FACULTY SPONSOR: STEPHEN TULOWIECKI, GEOGRAPHY

In 2018 there were 22.5 million refugees displaced around the world. Of the 22.5 million refugees, the United States accepted roughly just over 21,000 in 2018. The goal of this project is to analyze refugee resettlement patterns for the most recent year resettlement data is available (2015) in order to determine where and why refugees are resettled in the United States. The many organizations that handle refugee resettlement in the United States consider family members, local economies, and provisional services when deciding where to resettle. Independent variables such as unemployment rate, poverty indicators, political affiliation, and other socio-economic factors for each state will be tested for correlation with refugee resettlement totals by state. The same test will be run to measure correlation between the selected independent variables and refugee resettlement per-capita by state. Data on refugee resettlement was collected from the Office of Refugee Resettlement website, and data for the independent variables was collected from the U.S. Census Bureau, U.S. Bureau of Economic Analysis, and CNN. ***Selected for presentation at American Association of Geographers, Washington, DC.***

216 • Assessing the Relative Influence of Past Native American Activity on Oak Distribution in Canawaugus, NY

LINA CLIFFORD

FACULTY SPONSOR: STEPHEN TULOWIECKI, GEOGRAPHY

Past Native American groups impacted the landscape through land use practices such as agriculture, and controlled burnings to clear land for hunting and travel. Studying past Native American impacts provides insight into traditional food systems, past human-environmental interactions, and historical perspectives on pre-European landscapes. This research assesses the relative influence of environment and Native American land use on forest composition at a hyper-local resolution using more detailed representations of land use. This study area is Canawaugus, New York State, 93 km east of modern-day Buffalo, once home 1,000 Seneca Iroquois as late as 1826. Interpolations of tree species abundance were made using witness-trees records from ca. 1806. Past Native American land use was mapped using archaeological and historical traveler accounts. Soil moisture and temperature GIS data were additionally collected. Quantitative models were developed in R to assess whether Native American land use or environmental attributes, were more correlated with nut-produced tree species. The results showed high abundances of nut-producing tree species near Canawaugus Native American activity, within approximately 7 km. High abundances were due to both Native American land use and environmental factors.

217 • Lake Ontario Flooding in the Greater Rochester Area

Promotes sustainability

SCOTT WILLIAMS
FACULTY SPONSOR: STEPHEN TULOWIECKI, GEOGRAPHY

In the spring and summer of 2017, widespread flooding occurred along the New York State Lake Ontario shoreline. Lake levels rose nearly one meter above normal levels, damaging key infrastructure and causing major damage to shoreline homes. The following year showed higher than average water levels in the lake, but little flooding. This project examines the effect of Lake Ontario's rising waters on the suburbs of Rochester, New York. In order to assess the cause of the 2017 flooding and the lack of 2018 flooding, a comparison of the projected water levels of Plan 1958DD and Plan 2014 was conducted, and International Joint Commission reports written pre- and-post flooding were analyzed. Through thematic mapping and 3D visualization using ArcGIS Pro, this project explores consequences of the flooding, community disaster resilience in the Greater Rochester Area, and examines outlooks for the future. ***Selected for presentation at American Association of Geographers, Washington, DC.***

218 • Predicting the Age of *Quercus rubra* and *Quercus alba* Trees Using Diameter and Environmental Variables

CHRISTINA MORROW
FACULTY SPONSOR: STEPHEN TULOWIECKI, GEOGRAPHY

Determining tree age is important in various research. While tree cores can accurately determine tree age, they are not always obtainable. As such, research has studied whether external predictors of tree age exist, including tree diameter or environmental conditions that would provide a non-invasive means of determining age. The purpose of this study was to create a regression model that predicts tree age based on external variables for red oak (*Quercus rubra*) and white oak (*Quercus alba*). Cores were obtained and counted from 62 trees in western New York State. Included in models as predictors were diameter at breast height (DBH), and environmental (e.g. soil, topographic) variables. Regression models were developed to predict tree age based on these diameter and environmental variables. Notable results include that *Quercus rubra* age is more correlated with diameter alone ($R2 = 0.486$, $p < 0.001$) than *Quercus alba* ($R2 = 0.785$, $p = 0.175$). DBH was the most significant independent variable in models that included additional environmental variables. Other soil variables showed little to no significance in additional models. Tree age remains difficult to predict using external variables but certain species (e.g. Quercus rubra) may show stronger relationships with DBH than others. ***Selected for presentation at American Association of Geographers, Washington, DC.***

219 • The Spatial Distribution of Negative Reviews of US National Parks

EMMA BARRETT
FACULTY SPONSOR: STEPHEN TULOWIECKI, GEOGRAPHY

This research analyzes spatial patterns in the content of negative reviews in US National Parks in the lower 48 states. A mean of 28 one- to two-star reviews for 18 parks were gathered from Yelp, TripAdvisor, and Google Reviews, and analyzed for themes such as traffic/parking, crowds, cost, and feeling underwhelmed. Data were collected and mapped using ArcGIS software. Results show that the aforementioned four themes showed the most spatial variation between western and eastern parks. Western parks experienced higher complaints regarding crowds and traffic/parking, where complaints about eastern parks were generally left by park-goers who felt underwhelmed by the physical landscape. This unique distribution of reviews is indicative of preconceived notions that people have about US National Parks, and the disappointment when their experience does not live up to these expectations. This research provides unique insight into dissatisfaction of US National Parks, and could help park administrators better manage parks in response to trends in negative reviews. ***Selected for presentation at Geographic Information Sharing/Special Interest Group, Rochester, NY.***

GEOLOGICAL SCIENCES

203 • Searching for Micro-Plastics in the Genesee River

THOMAS HAWLEY, ALEC MINAVIO, KEVIN THOMPSON
FACULTY SPONSOR: AMY SHELDON, GEOLOGICAL SCIENCES

Microplastics are an environmental hazard that inflicts damage to the local ecosystem through the food chain. Microplastics can be found in many household cleaning products and fleece clothing. When cleaning products are disposed of or fleece clothing is washed, microplastics are delivered into the sewer system. Unfortunately, wastewater treatment facilities lack the ability to filter out these small particles. Therefore, the wastewater acts as a major point source of environmental damage. The presence of microplastics is well documented in the Great Lakes. This project seeks to determine the presence of microplastics in the Genesee River, which contributes to Lake Ontario. If microplastics are found, the results with be shared with the Department of Environmental Conservation and the Monroe County Department of Health.

204 • Bedload Analysis of Wilkens Creek

JAKE SPINELLA
FACULTY SPONSOR: AMY SHELDON, GEOLOGICAL SCIENCES

Wilkins Creek is a significant source of sediment to Conesus Lake. Spring Creek is the largest tributary to Wilkins Creek and flows through the village of Livonia, whereas above the confluence Wilkins drains predominantly agricultural lands. This study seeks to evaluate the impact of land use on the sediment transport in the streams. Thirty gravel to cobble sized rocks were collected from the bed of Wilkins Creek. Their dimensions and mass were measured and then each rock was marked to be easily identifiable. Rocks were paired based on size, shape and mass, and then split into two roughly equal sets. One set was returned to Wilkins Creek and the other set to Spring Creek in a similar stream setting. The location of each rock was recorded. The movement of the rocks is being monitored after precipitation and meltwater events throughout the Spring. The total distance traveled by each rock is being recorded to determine if one stream moves sediment farther. The results of this study will ascertain if the developed Spring Creek watershed contributes more sediment to Conesus Lake than Wilkins Creek. Ideally, this study will help inform future Conesus Lake storm water management efforts.

205 • Conesus Lake Water Quality

GAVIN GLEASMAN
FACULTY SPONSOR: AMY SHELDON, GEOLOGICAL SCIENCES

Conesus Lake is one of the eleven Finger Lakes and is a tourism haven for residents of the city of Rochester. The lake serves as a water supply to approximately 15,000 residents. Within the past decade, the water quality of Conesus Lake has significantly deteriorated. The decrease in water quality is induced by a myriad of problems, including the combination of natural conditions and human activities. Anthropogenic effects on water quality are a result of pollutant runoff due to impermeable surfaces along the shoreline, nutrient loading of sediment from poor streambank, residential, and agriculture practices, and increase of water temperature due to climate change. As a result, water quality is likely to vary between the lake inlet and outlet. Water quality is tested in the field using field instruments for dissolved oxygen, pH, total dissolved solids, oxidation-reduction potential, phosphorus, nitrate, and temperature. Water samples are tested for hydrocarbons using gas chromatography-mass spectrometry following EPA guidelines. Testing of these analytes in shoreline and streambank environments will help quantify the human impact on the shoreline water quality of Conesus Lake. ***Selected for presentation at The Geological Society of America, Indianapolis, IN.***

220 • Gold in Salt Spring Hills

BRADY DERICK, SEAMUS KEARNEY
FACULTY SPONSOR: AMY SHELDON, GEOLOGICAL SCIENCES

Sediments were collected from the tailing piles of abandoned gold mines in the area of Salt Spring Hills, California in order to quantify the amount of gold remaining. The presence of gold was evaluated to determine whether the area is still an economically viable location to continue mining operations. A total of fifteen pounds of sediment was collected from four different tailings piles in the area. The sediments were processed by two methods: separating heavy materials from light materials, and thin section analysis. Two silt-sized flakes of gold were recovered through these efforts, indicating that the area is not economically viable for placer-type gold. Further analysis is necessary to determine if there is sufficient microscopic gold present to be profitable.

221 • Water Chemistry of Wilkins Creek and Spring Creek

CAROLINE HURLBURT, NANCY SHEMET
FACULTY SPONSOR: AMY SHELDON, GEOLOGICAL SCIENCES

Wilkins Creek and Spring Creek flow through different landscapes in Livonia, New York. Wilkins Creek flows primarily through residential and farm land, while Spring Creek, a tributary to Wilkins Creek, cuts through the village of Livonia. The resulting water chemistry may vary. Samples from

Wilkins Creek, Spring Creek, and the confluence of the two will be collected three times a week throughout the months of March and April. All samples will be tested for alkalinity, percent chlorides, phosphates, dissolved oxygen, and nitrate/phosphate ratio, and compared. In addition to potential differences caused by differing land use, variations caused by seasonal changes will also be considered. Measurements will be taken during and after periods of significant snow melt as well as rain events. The results will highlight how different land uses and seasonal fluctuations impact stream water quality.

222 • Alteration of Slag from Standish, NY

RACHEL KELK, MARIA LEONARD
FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

From the mid 1800's to the early 1900's there was an iron smelting industry in Standish, NY. During this time, a large amount of slag, a byproduct of smelting, was created. The slag is now found in a large, 60 ft tall pile that covers ~1 acre of land in the Adirondacks. The pile is left out in the open and is subject to both physical and chemical weathering. Within the Standish pile there is a wide variety of slag types that range from glassy to powdery. Our study focuses on how the different slag types weather. Samples of glassy, rocky, and chalky/powdery slag were placed outside for eight weeks. Rainwater that interacted with each slag sample was collected periodically over the testing time. After 8 weeks, samples were weighed to determine if material was lost due to weathering. The glassy and chalky slags lost the most weight. The weathering of slag is important in Standish because it has a chemical effect on both the water and soil in the surrounding area. Further chemical data was obtained from our water samples which should indicate the impact the slag weathering has on the local environment. ***Selected for presentation at The Geological Society of America, Phoenix, AZ.***

223 • Clay Composition in Soil on Flow F, Cima Volcanic Field, CA

ANGELICA CURTO
FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

The Cima volcanic field in southern California encompasses around 40 basaltic cinder cones and over 60 associated lava flows. Flow F is a 580,000-year-old a'a flow in the region with a 2 m thick soil overlying the flow. On the top of the soil rests a desert pavement, a tightly packed layer of basaltic cobbles. There are two main hypotheses for the formation of the desert pavement- the "born at the surface" hypothesis, and the upward migration hypothesis. The upward migration hypothesis requires the expansion and contraction of clay minerals such as smectites. To look for smectites in the soil, a sample was taken on flow F, and an XRD analysis was done to identify the clay minerals present. The dominant mineral phases are quartz, orthoclase, and potentially vermiculite. Due to a lack of smectite in the soil, the upward migration hypothesis is not supported by this data, and the "born at the surface" hypothesis is more likely the mode of desert pavement formation on the Cima volcanic flow F.

224 • Grain Size Analysis and Health Risks of Lava Creek Ash, Shoshone, CA

ELIZABETH SPIZUOCO
FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

This study was to determine the grain size distribution and respiratory health risks of a sample collected from the Lava Creek Ash bed in Shoshone, California. Wet sieving and pipet methods were used to separate and measure the amount of each grain size present in our sample. Next, a histogram was generated to display the range of grain sizes and it was determined that the majority of the sample fell between a ϕ of 3-4 (63-125 µm). This corresponds to very fine to fine sand-size particles. 99.57% of all the particles were larger than 10 µm. Airborne particles viewed as dangerous for lung health by the EPA and American Lung Association were those smaller than 10 µm. Because only 0.43% of our sample fell into this category, we have determined that the overall risk to lung health from inhaling the Lava Creek Ash from Shoshone, California is low.

225 • Mineralogy of the Salt Spring Hills Skarn

JONAH STINER, FRANCES BALLEW
FACULTY SPONSOR: DORI FARTHING, GEOLOGICAL SCIENCES

A rock sample from the Salt Spring Hills in San Bernardino County, California. This 13 cm in diameter sample represents the metamorphic boundary between the Carrara unit (limestone and shale) and the Salt Creek pluton. Our rock sample shows a mineralogical change from one side of the sample to the other. The side closer to the granitoid pluton is garnet-rich, and the side near the Carrara is more calcite-rich. To better describe the changes in the sample three thin sections were made. The sections were stained to show carbonate prominence. Calcite is the sole carbonate in each of the 3 samples. Using point counting mineral percentages were also calculated. The results showed that the Carrara side is 50% calcite, 31% pyroxene and 19% opaques, while the more granitoid side is composed of 7% calcite, 76% garnet and 17% pyroxene. In the section closer to the pluton, the calcite formed in pores and created veins within the garnet, this is indicative of secondary calcite growth, but there are also inclusions of calcite within the garnet which is indictive of primary calcite growth.

226 • Comparing Modern and Ancient Wind Regimes in Death Valley: GIS and Remote Sensing Analysis of the Mesquite Flat Sand Dunes

ANDREW SCHUYLER, CAMERON CUMMINGS
FACULTY SPONSOR: NICHOLAS WARNER, GEOLOGICAL SCIENCES

The spatial distribution of sand dunes and their morphologies in Death Valley's (DV) Mesquite Flat Sand Dunes were analyzed. Modern and ancient wind regimes influencing the dunefield were determined by mapping dunecrest orientations. Dunecrests are typically oriented perpendicular to prevailing winds. Additionally, dune mobility was characterized by analyzing the relative extent of vegetation cover within interdune deposits via spectral analysis. Overall, 1265 dunecrests were digitized and classified. 105 Barchan, 1066 Transverse Barchanoid, 77 Transverse, and 16 Star dunes were mapped. The relative azimuth values of each dunecrest orientation are given, respectively: 60° - 240°, 60° - 240°, 105° - 285°, 105° - 285°/75° - 255° (a slash denotes multiple wind directions). This data shows a primary wind direction traveling southeast to northwest through DV at an approximate orientation of 140° - 325° and a secondary wind traveling southwest to northeast at an approximate orientation of 15° - 195°. The presence of star dunes in the dunefield requires a third wind component. We hypothesize this may come from the north during abnormal winter wind conditions, but do not have sufficient orientation data to support this. Overall DV wind regimes are likely controlled mainly by topography as well as regional prevailing winds.

227 • Evaluation of Noachian-Age High Thermal Inertia Units on Mars: Implications for Early Mars Sedimentary and Volcanic History

LAUREN BURGESS, SARAH KEENAN
FACULTY SPONSOR: NICHOLAS WARNER, GEOLOGICAL SCIENCES

Regions on Mars that exhibit a high thermal inertia are of high interest for geologic exploration by landers and rovers. Thermal inertia is the measure of a materials resistance to changes in temperature. Surfaces covered in a regolith have a lower thermal inertia, while those that are exposed bedrock have a higher thermal inertia. One of these high thermal inertia areas of interest on Mars occurs within Noachian-age terrain (4.1 to 3.7 Ga) at 29.8° S, 124.4° E. This region was mapped using geomorphic characteristics to evaluate its geologic history and the local surface processes. A Hesperian-age (3.6 to 3.0 Ga), regolith-covered control region, centered at 29.7° S, 121.1° E, was also selected for mapping. Mapping indicates that the abundance of small craters is significantly higher in the low thermal inertia area than in the high thermal inertia area, suggesting that the surface of high thermal inertia experiences a higher erosion rate. This dissuades the previous notion that high thermal inertia bedrock terrains on Mars are effusive-volcanic in origin and supports a potential sedimentary origin. In contrast, the low thermal inertia area seems to be more competent and are likely regolith-covered lava plains.

228 • Near Surface Stratigraphy along Fracture Exposures in Western Elysium Planitia, Mars: Implications for the Regolith Beneath the InSight Lander

JONATHAN TEBOUL, MICHAEL CHABOREK
FACULTY SPONSOR: NICHOLAS WARNER, GEOLOGICAL SCIENCES

The objective of this research is to evaluate the near surface stratigraphy of Martian lava plains units in Geographic Information Systems (GIS) software to gain a better understanding of regolith properties beneath the InSight (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport) lander. Using high-resolution images of locations Hephaestus Fossae and Elysium Fossae captured by the Mars Reconnaissance Orbiter (MRO), it is possible to look

inside potential fractures and outflow channels exposing lava plains units previously mapped as Hesperian to Amazonian-age possibly interbedded with sedimentary materials. These units preserve varying degrees of weathering and resulting soil formation capped by aeolian dust deposits. Using GIS software, the stratigraphy is mapped and correlated according to rock-size disparities between layers of fine material, brecciated material, or large blocks. Thickness of examined units will be estimated using available digital elevation models and solar inclination methods. Estimated thickness variations in examined regolith units may also provide evidence for hypothesized previous modes of weathering in western Elysium Planitia.

229 • Remote Sensing Analysis of the Kelso, CA Region and Comparisons to Ground Truth Data

LILY PEDERSEN, JOANNA SYDOW
FACULTY SPONSOR: NICHOLAS WARNER, GEOLOGICAL SCIENCES

Advanced Space Thermal Emission and Reflection Radiometer (ASTER) multispectral data was used to evaluate the age relations of lava flows in the Cima Volcanic Field in southern California and the composition of strata near Kelso Dunes in Southern California. Age relationships for two basaltic lava flows at Cima were determined using band math to reveal weathering patterns and using a supervised classification with known regions of interest (ROI). The ROIs were visited and mapped in January, 2019. To determine lithology of rocks at Kelso, different band combinations with a decorrelation stretch method were used. It was determined that the supervised classification method was the most useful to determine age relationships of lava flows. This method was consistent with known ages for the lava flows, determined previously from radiogenic dating methods. No single band combination definitively showed all of the lithologies in the Kelso area, however, band combinations B7 B2 and B1 and B5 B4 and B2 proved to highlight different lithologies the best, when compared to field observations.

230 • Tracking the Migration of a River Meander using Drone Imagery and Photogrammetry within the Genesee River, Livingston County, NY

SARAH DYAL
FACULTY SPONSOR: NICHOLAS WARNER, GEOLOGICAL SCIENCES

A DJI Inspire 1 was used to collect images of a nearby meander to track the geomorphologic changes and migration along the Genesee River, 3 miles south of Mount Morris Dam. 291 images were taken by the drone and processed in Agisoft to create a digital elevation model by georeferencing the control points' latitude, longitude, and elevation. An orthomosaic was created by Agisoft correcting parallax from the overlapped drone imagery. ArcGIS was used to observe the orthomosaics and digital elevation model. The meander was found to be migrating at a non-uniform, unsteady rate by undercutting and scalping weak material along the cutbank. Historical data indicates that the meander migrated at least 65 meters in the past 25 years. Most of the migration occurred at a rapid rate within the late 1990's and declines significantly after the early 2000's.

LANGUAGES AND LITERATURES

257 • China's Changing Diet: Meat and Sustainability Within the Context of Culture

ALLY JONES, LAUREN PLEVY
FACULTY SPONSOR: JASMINE TANG, LANGUAGES AND LITERATURES

Rising incomes, urbanization, and changing palettes are all factors that have led to increased meat consumption in China. Historically, pork was the most commonly consumed meat in China but recently there has been a shift toward eating more beef and poultry. This change in preference poses a problem for sustainability as beef cultivation is the most energy and land intensive. There are sustainable alternatives to eating meat; plant-based "meats" and vegetarian diets have long been an option due to Buddhism's influence since the Han dynasty. We will be exploring the relationship between meat and China from the broad lenses of history, culture, and sustainability.

258 • A Linguistic Investigation About "El Voseo" / Una investigación lingüística sobre el voseo

OLIVIA ROBERTS, MACIE SHUM, KATIE POULSEN
FACULTY SPONSOR: SUSANA CASTILLO-RODRIGUEZ, LANGUAGES AND LITERATURES

This is an investigation on the socio-political factors related to the variable use of "voseo" in Argentina and Chile. In particular, we will analyze and compare its use in education as well as its prestige. In addition, we will analyze the Real Academia Española's position on the use of voseo in colloquial and professional terms. This presentation will be given in Spanish.

259 • Language and Nationalism in Catalonia / Lengua y nacionalismo en Cataluña

JULIA LANTIER, KIERNAN MCCARTHY, MARIA SANTIAGO
FACULTY SPONSOR: SUSANA CASTILLO-RODRIGUEZ, LANGUAGES AND LITERATURES

The Catalonia region of Spain has a longstanding history of fierce nationalist sentiment, which made news with the 2017 independence referendum. There is substantial support within the autonomous community for secession from Spain in order to establish an independent Catalonian state. The regional language, Catalan, is an important element of Catalonian identity. Catalan is an official language of the region alongside Castilian Spanish and is spoken by the majority of the population. How has Catalonia's regional language motivated the desire for autonomy and how has it been instrumentalized by nationalist movements to achieve their goals? This investigation, conducted in Spanish, will examine the connection between Catalan language and nationalism throughout history.

260 • Los efectos de ser hispanohablante en el campus de Geneseo (The Effects of Speaking Spanish on the Geneseo Campus)

ERIKA ROWLEY, WILLIAM SCIALES, ISABELLE CIRULLI
FACULTY SPONSOR: SUSANA CASTILLO-RODRIGUEZ, LANGUAGES AND LITERATURES

We will be studying the effects of Spanish bilingualism in the campus community by surveying and interviewing Spanish bilingual students across campus, asking them a series of questions in order to find answers regarding topics such as racism and identity. Our goal is to figure out what exactly it's like to be a Spanish speaker on campus.

261 • Política educación lingüística en Galicia/ Language Educational Policy in Galicia

EMILY WIDGER, ANA SALAZAR, JOSEPH BIENKO
FACULTY SPONSOR: SUSANA CASTILLO-RODRIGUEZ, LANGUAGES AND LITERATURES

This project will be an exploration of the language policies in the educational system of Galicia, including the the impact it has on the autonomous community and politics. To accommodate the rich language culture in Spain, each autonomous community has interpreted the national education law to their respective community. We will explore the origins of language policy in Galicia, as well as how it has affected Galicia.

262 • The Effects of Code Switching English and Spanish: Research on Immigrant Families in the USA/Los efectos del cambio del código inglés/español: una investigación entre las familias inmigrantes en EEUU

CHELSEA PARDES, EMILY PERUN, JIMMY CONNOLLY, ALICEN AMBROSIA
FACULTY SPONSOR: SUSANA CASTILLO-RODRIGUEZ, LANGUAGES AND LITERATURES

Code switching describes the natural phenomenon of someone switching between two or more languages while speaking. It can happen while using any language but specifically, we are focusing on code switching between English and Spanish, including the causes and types of code switching. We will explore the increased prevalence of code switching within immigrant areas and families within the United States. We can hypothesize that since these families are new to the culture, they use code switching from Spanish to English to begin integrating English into their life; however, they also use code switching from English to Spanish to express thoughts that they cannot use English for and to help unite them in a foreign country.

263 • Política educativa en Puerto Rico

FRANCESCA BOVE, JASMINE WEED, NICK FRENCH
FACULTY SPONSOR: SUSANA CASTILLO-RODRIGUEZ, LANGUAGES AND LITERATURES

This poster is about the educational policies in Puerto Rico. Spanish is the dominant language on the island, however, Spanish and English are both official languages. In the past few years, there has been a debate on whether English should be taught in schools or if Spanish should remain. The governor has been involved in this discussion and proposes there should be a move to an all-English

curriculum, but it is very difficult to accomplish this drastic change. This would eliminate the language barrier between the United States and Puerto Rico and it would also provide a lot more opportunities to children in schools. There are many factors that pertain to this topic and it continues to be discussed in Puerto Rico on a political level. Education is very important to the future of Puerto Rico and individuals are constantly thinking of ways to improve the educational system.

264 • Raciolinguistics and Latinx

MADELINE REILLY, ABBY GRIFFIN, CECILIA BREY, SARA STAWITZKY
FACULTY SPONSOR: SUSANA CASTILLO-RODRIGUEZ, LANGUAGES AND LITERATURES

Our research will focus on raciolinguistics within the Spanish language, as well as for Spanish speakers in the United States. Particularly, we will investigate the implications of being of Latinx heritage in the United States and how this affects social conditions within the educational and political sectors. In addition, we will analyze the relatively new word "Latinx" and the social movement created around the word as a dismissal of the gendered terms "Latino" and "Latina" typically used to categorize people from Latin America. We will also look at the subsequent countermovement against the term "Latinx". Finally, we will discuss how Spanish speakers' various identities, including race, sex, and gender, combine in society and contribute to their experiences.

MATHEMATICS

153 • Recovering a Time-dependent Inflow Rate in a Mixing Problem

TRENT LAING
FACULTY SPONSOR: BERTRAN SEDAR NGOMA KOUMBA, MATHEMATICS

A mixing problem is a problem in which we are given the volume of a vessel, the initial concentration of a solution in the vessel, and the rates of inflow and outflow of a solution into the vessel. A model of this problem can be solved using differential equations. Traditionally, the inflow and outflow rates are constant for problems that we solve, however we are interested in when the inflow and outflow rates are time-dependent and the outflow rate is known while the inflow rate is unknown. In order to approximate the time-dependent inflow rate, we will develop a numerical algorithm using the finite difference method. We will then compare our numerical results to an approximation through the use of Matlab.

154 • R-file Mapping Thistle Dispersal Converted into MatLab-file

IAN QUINN
FACULTY SPONSOR: AHMAD ALMOMANI, MATHEMATICS

The Biology Department at SUNY Geneseo has used a code in the programming platform R to analyses and record the dispersal patterns of an invasive thistle species. However, this code in R is about 10 years old and it is not as efficient as it could be. The department has expressed concerns that this code is too complicated for many undergraduate students to use or adjust to their needs. I intended on converting this code in R into a MatLab code. Using the notes from the previous two code writers, I recreated the code to be easier to find and change the variables to construct different scenarios. ***Selected for presentation at Mathematical Association of America Seaway Section Meeting, Rochester, NY.***

185 • Real Life Applications of Differential Equations

NIKAULY CASILLA, STEPHANIE ALVAREZ MERLOS
FACULTY SPONSOR: AHMAD ALMOMANI, MATHEMATICS

We will introduce models for first order, second order, linear and non-linear differential equations. We will show four different models and applications each relating to an aspect of sustainability. These applications can be utilized on campus and around Geneseo. Not only can these models show short-term improvement of supportable techniques to sustainability but the effects will also show in the long run.

186 • Identification of a Time-dependent Outflow Rate in a Mixing Problem

DANE GEORGE
FACULTY SPONSOR: BERTRAN SEDAR NGOMA KOUMBA, MATHEMATICS

We know through our time in Differential Equations that given the volume of a vessel, the initial concentration of a solution in said vessel, and the inflow and outflow rates of a solution into that vessel we can accurately predict the concentration of the solution in the vessel over time. Traditionally, we leave the inflow and outflow rates of the solution to be constant, however we are interested in the case when the inflow and outflow rates are time-dependent and the inflow rate is known while the outflow rate is unknown. We are also interested in developing a numerical algorithm using the finite difference method to approximate the time-dependent outflow rate. To show how accurate this approximation is we will compare numerical results with our approximation through the use of Matlab.

187 • New Criteria for Comparing Global Stochastic Derivative - Free Optimization Algorithms

JONATHAN MCCART
FACULTY SPONSOR: AHMAD ALMOMANI, MATHEMATICS

For many situations, the function that best models a situation or data set can have a derivative that may be difficult or impossible to find. Thus, numerical methods for finding these important values without the direct involvement of the derivative have been developed to find the optimal value of the function. This is our motivation to use Derivative-free optimization (DFO) algorithms. In our analysis of these algorithms, we tested three global solvers: Genetic Algorithm, Particle Swarm Optimization, and Simulating Annealing on a set of 25 problems of varying in convex/non-convex, separable/non-separable, differentiable/non-differentiable, and unimodal/multimodal. For each algorithm, we used the built-in code from MATLAB, unedited or revised. For all problems, we varied the number of dimensions, increasing from 2 dimensions to 100 dimensions. We introduce new criteria to compare DFO solver performance using certain generalized characteristics: Speed, Accuracy and Efficiency. Numerical results proposed for most known standard benchmark problems. ***Selected for presentation at Mathematical Association of America Seaway Section Meeting, Rochester, NY.***

OFFICE OF SUSTAINABILITY

108 • Composting at SUNY Geneseo: Potential Improvements and Investigations

VIZMA LEIMANIS
FACULTY SPONSOR: MEG REITZ, OFFICE OF SUSTAINABILITY

College campuses create a large amount of landfill-bound waste, which produces greenhouse gases. By reducing the waste that enters landfills, greenhouse gas production decreases. Composting is an easy, effective way to do so, because landscaping and food waste decomposes naturally with little added effort. SUNY Geneseo's composting program is relatively new. Its original goal is to prevent compostable waste from entering the landfills (rather than creating a specific finished product). Here, compostable materials like landscaping waste and pre-consumer food waste are deposited in piles, and the resulting product is currently used for landscaping fill as well as in the e-Garden. If we took the time to look more closely at our compost, we could do more than just reduce the waste entering landfills. By investigating the composition of the finished compost to determine its nutrient content, chemistry, biodiversity, or possible contaminants, we could contribute to healthier soil on campus, save money on landscaping, and possibly even make a profit by selling the finished product, if it is found to be desirable. With this project I will be setting up the possibilities for future research that I intend to carry out in the coming academic years.

109 • Increasing Accessibility to Environmentalism for Young Adults

MARGAUX CARMEL
FACULTY SPONSOR: MEG REITZ, OFFICE OF SUSTAINABILITY

Environmentalism is increasingly prevalent in today's world, but is often seen as inaccessible and expensive, particularly to young adults, and especially to those who are lower class and/or people of color. This research project will be exploring these differences, why they exist, and how we can make environmentally healthy decisions more economically accessible and promoted more. I found that young adults see environmentalism as important but inaccessible, particularly in terms of affordability. Sustainable alternatives on the market are too expensive and often promoted in ways that don't appeal to lower socioeconomic classes. The most effective way to reach out to young adults concerning the environment will be through environmental education in public schools and, as a starting point, promoting existing cheap alternatives instead of single-use items. Environmental education can take form in multiple ways; there can be a mandatory Environmental Studies class and/or a National Environmental Education Week, where schools are encouraged to share information about sustainability and plan events to promote environmentalism in their school and community.

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PHYSICS & ASTRONOMY

155 • Using Rutherford Backscattering Spectroscopy to Characterize Targets for MTW Laser at LLE

MATT KLEIN, GUNNAR BROWN, ANTHONY COOPER
FACULTY SPONSOR: CHARLES FREEMAN, PHYSICS & ASTRONOMY

Rutherford backscattering spectroscopy (RBS) is a useful technique for determining elemental composition and thickness of a target. In RBS, light ion beams from an accelerator are incident on the target to be studied. A surface barrier detector is used to study the energy spectrum of the scattered ions. The energy of the scattered ions depends on the elements in the target, and the width of each peak is related to the elemental layer thickness. The computer program SIMNRA is used to analyze the scattered ion spectra. RBS experiments have been performed using the 1.7 MV Pelletron accelerator at SUNY Geneseo to characterize samples from the Multi-Terawatt (MTW) laser at the Laboratory for Laser Energetics (LLE). Hydrogen and helium beams of several MeV were used determine the composition and thickness of aluminum (Al) and aluminum-iron (Al-Fe) foils, each backed by a plastic layer. We have been able to measure the layer thickness of each target, as well as determine the ratio of aluminum-to-iron in the Al-Fe target. The SIMNRA software also allows surface roughness effects to be included in the analysis. ***Selected for presentation at American Physical Society Division of Plasma Physics, Portland, OR.***

156 • WIYN Open Cluster Study: Photometry of the Open Cluster NGC 6603

SARAH POPP, DOMINIQUE CESARIO, LYDIA FILLHART
FACULTY SPONSOR: AARON STEINHAUER, PHYSICS & ASTRONOMY

The purpose of this study was to complete a photometric study of nearby open star cluster NGC 6603 using data from the WIYN (Wisconsin, Indiana, Yale, NOAO) 0.9m telescope at Kitt Peak National Observatory. These images were processed so that cluster parameters such as age, metallicity, reddening, and distance could be recorded. We ran scripts on each frame to detect the stars, measured the point-spread-function of the stellar light profile, and applied that function to measure the magnitude of each star in the frame. Stellar magnitudes were then combined and averaged within each of the five filters to create a single catalog for the cluster stars. Images of photometric standards were used to determine and apply transformations to the data set so as to set it on the standard scale. Finally, likely cluster members were isolated and compared with models to determine the cluster parameters. ***Selected for presentation at 233rd American Astronomical Society Meeting, Seattle, WA.***

181 • Neutron Time-of-Flight Measurements Initiated with 25-keV Deuterons

ETHAN SMITH, ETHAN NAGASING, KALLAH EDDY, COREY WILKINSON
FACULTY SPONSOR: KURTIS FLETCHER, PHYSICS & ASTRONOMY

Neutron time-of-flight (nTOF) measurements have been completed using d-d fusion reactions produced by 25 keV deuterons. Deuterons produced using the SUNY Geneseo 30 kV Peabody Scientific Duoplasmatron ion source are focussed onto thick deuterated polyethylene films producing fusion products. In the laboratory coordinate system, 2.566 MeV neutrons detected by a BC-412 plastic scintillator at 39° correspond to 0.699 MeV ^{3}He ions detected by a surface barrier detector (SBD) placed at 135°. At these low energies, the charged particle spectra have little to no background. Timing signals from the SBD preamplifier initiate a start signal and the associated timing signal from the photomultiplier tube initiates the stop signal. By placing the scintillator at various distances from the target, the time-of-flight spectra can be used to determine an experimental value for the neutron energy, and this provides confirmation of the method. Using this nTOF technique, the neutron response for different scintillation detectors can be determined. ***Selected for presentation at American Physical Society Division of Plasma Physics, Portland, OR.***

182 • Production of Deuterated Polymer Thin Films for Ion-Beam Fusion Experiments

KALLAH EDDY, ETHAN NAGASING, ETHAN SMITH
FACULTY SPONSOR: KURTIS FLETCHER, PHYSICS & ASTRONOMY

At ion-beam facilities such as the 1.7 MV Pelletron Accelerator and the 30 kV Duoplasmatron ion source at SUNY Geneseo, deuterated polyethylene thin films are bombarded by deuterons, producing fusion products to characterize inertial confinement fusion detection systems. A refurbished thin films deposition system is being commissioned to produce the deuterated polymer targets via thermal evaporation. The high vacuum system for the 18-in diameter bell jar includes a turbomolecular pump and associated valves and gauges. Deuterated polyethylene powder is placed in a tantalum boat located in the center of the bell jar and attached to high-current feedthroughs. Films are deposited on commercially obtained glass slides treated by a release agent and covered with 10 µg/cm2 carbon films; the slides are positioned above the deuterated polymer source on an octagonal mount uniquely designed to hold the slides 8 inches from the source, normal to the incoming material, and 30 degrees from the vertical. A rate deposition monitor is used to monitor the film thickness during deposition. After the desired thickness is obtained, the films can be mounted on target rings using the floating technique. ***Selected for presentation at American Physical Society Division of Plasma Physics, Portland, OR.***

183 • Characterizing Photoflash Curves in Scintillators using Cosmic Ray Muons

SARAH MANDANAS, MATTHEW SIGNOR, PRAVEEN WAKWELLA, KEVIN PALMISANO, EMILY VANDERBILT, HANNAH MCCLOW
FACULTY SPONSOR: STEPHEN PADALINO, PHYSICS & ASTRONOMY

Plastic scintillators are used in HEDP and ICF research to measure neutron energies using time of flight. The energy resolution and sensitivity of an nToF system is directly correlated to the scintillation decay time. To decrease the decay time, xylene scintillators are quenched with oxygen and consequentially become less efficient at producing light. The scintillator becomes oxygen deficient over a period of months which increases light production and the decay time. Mono-energetic calibration neutrons are unavailable at most HEDP and ICF facilities to monitor these increases. As a result, it is difficult to determine if oxygen concentration has decreased within these systems. Here, a possible method of calibrating xylene detectors in situ is presented. If the detectors response to cosmic ray muons is known, it can be used to determine the scintillation decay curve produced by a mono-energetic neutron. As a result, the need for the removal of the xylene detectors for offline analysis is eliminated. ***Selected for presentation at American Physical Society Division of Plasma Physics, Portland, OR.***

184 • The Statistics of the A to B Transition in Confined Superfluid Helium Three

JOHN WILSON
FACULTY SPONSOR: STEPHEN PADALINO, PHYSICS & ASTRONOMY

Helium 3 has two superfluid phases. The transition between these phases is first order, displaying hysteresis and supercooling. Here, the effects of confinement to a thin slab geometry on this phase transition are presented. A 1.1 µm channel connected two chambers filled with liquid helium 3. The first chamber, the heat exchange chamber, was heated and cooled via adiabatic nuclear magnetization. Quartz tuning forks being driven by an AC current were present in both chambers. The frequency and Q factor of these forks were directly measured. Phase transitions correspond to discontinuities within both the Q factor and the frequency of these forks, allowing for the state of the fluid to be inferred. Using this, the location of the A to B transition in the bulk regions were mapped. ***Selected for presentation at International Symposium on Quantum Fluids and Solids, Tokyo, Japan.***

188 • Asymmetric Light Deflection Near a Spinning Black Hole

BRADLEY MCCLUNG, PETER KAULFUSS
FACULTY SPONSOR: SAVITRI IYER, PHYSICS & ASTRONOMY

One of the classical tests supporting Einstein's general theory of relativity was the observation of starlight bent by the sun. This prediction was done under the weak deflection limit (WDL), meaning that the light ray was far from the sun itself. We wish to find an analytical prediction for the bending angle in the strong deflection limit (SDL), when the light ray is close to the gravitational source. We wish to derive analytical expressions for the deflection angle near a stationary black hole and a spinning black hole. To do this, we expand the exact solution as a series and use the leading terms to predict image positions and magnifications. We present in this poster a study of the deflection angle of light as it passes by a rotating black hole, comparing direct and retrograde sides of the spin axis. The bending angle is higher on the direct side

compared to the retrograde side. This results in an asymmetry in the positions of relativistic images on the sky.

POLITICAL SCIENCE & INTERNATIONAL RELATIONS

250 • The Environmental Benefits of Cash AID

QUINTON AUSTIN

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

My GREAT Day proposal will be focused on the benefits of donating cash directly to African countries rather than through U.S. programs that donate food to these same countries. While without a doubt beneficial, donating direct cash to poor African countries such as Uganda has a long-lasting impact on not only improving the nation, but also saving the environment. Privatized donation programs here in the U.S. focus on in-kind subsidies, such as the Heifer project. These donations rapidly increase domestic animal production such as cows, and fuel over a quarter of agriculture capitalism here in the U.S. People are so hesitant to give countries like Uganda and Kenya direct aid because of the preconceived notion that these undeveloped citizens have no responsibility or sense of budgeting when it comes to money. The Heifer project is a premise that sets African citizens up with the direct donation of a cow, even though cow ranches are the leading cause of environmental degradation and climate change, more than that of CDCs and car emissions combined. In fact, donating the $200 worth of a cow directly to these countries is significantly more impactful than an actual cow to a Ugandan citizen.

251 • A Polarized Society

MEGAN SCHWARTZ

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Political parties in the United States have become increasingly polarized, and a plethora of social changes have contributed to this great divide. This polarization refers to the increasing "ideological uniformity" (Suh, 2014) in both the Democratic and Republican platforms. These social changes include changes in American political culture, religiosity, socioeconomic inequality, elite domination of the media as a propaganda tool, and the general structure of the government. A deeper analysis of these changes allows for a greater understanding of how and why this polarization has rapidly emerged.

252 • A Puerto Rican Prisoner's Dilemma: What Lies Ahead for Puerto Rico as it Considers Statehood Again?

HARRISON ANGELINI

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

I will be looking at survey data provided by the Kaiser Family Foundation, and my own survey data conducted amongst the college campus to look at attitudes and misconceptions about disaster relief funding given to Puerto Rico following hurricane Maria. I will use this data to address the issue of Puerto Rico's status as a commonwealth territory, taking a Marxist Anthropological approach to discuss the outcomes of a future statehood referendum in the format of a non-iterated prisoner's dilemma, using news media cooperation as the dynamic between the United States and Puerto Rico. I will be discussing each option (status quo, statehood, or independence) and its relevant socio-economic factors and what they could mean for economic inequality on the island.

253 • Economic Inequality in the United States: Historical Trends and Policy Solutions

BEATRICE RULE

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This paper seeks to evaluate the clear and increasing economic inequality that exists among citizens of the United States. Incorporating research on the history of policies contributing to this inequality, as well as current data. This paper will also propose several policy solutions likely to reduce this marked wealth gap.

254 • Fighting for the Truth: An Assessment of How to Control the Spread of Misinformation in the Era of "Fake News"

SNOWDON VOSE

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In the past decade, the number of media outlets available to the public has grown exponentially. In trend with the increased polarization of the American electorate, many of these media outlets cater to the extreme ends of the political spectrum. Often, the content shared through these outlets is construed in a way that misleads the public and disseminates fake news. The rational ignorance of a large portion of American voters means that they rely heavily on cues such as the media to form their political opinions. The dependence on media sources that deliberately spread extreme views that are often un-factual, means voters are more susceptible than ever to being wrongly informed. The ability to control the spread of misinformation has become an area of growing concern in American political discourse. Doing this without infringing on the first amendment rights of citizens is a tricky endeavor. This project seeks to identify ways in which this objective might be accomplished.

255 • Identity Politics in the United States

HILDA GOMEZ

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Identity has become a central aspect of how politics is approached in today's world. Our current politics have become more divided because of the rise of identity politics, leading to the most polarized political climate in our history. In this poster presentation, I will examine why identity politics has been on the rise and the impact it has on current policies.

256 • Income Inequality: The Origins and Solutions

OLIVER CROSSMAN

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This paper/poster presentation will focus on the causes of income inequality in the United States, the impact it has had on citizens, and how to address it. It will examine the historical and political factors that led to income inequality since the 1980s, and the public policy positions the federal government should take to reduce the problem.

265 • Poisoned Rivers: Environmental Movements and Water Quality in Bangladesh

CECILIA BREY

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In developing nations, wastewater pollution remains a pressing threat to impoverished communities. Bangladesh, a densely populated nation with a large network of river systems, is especially susceptible to this problem. In Bangladesh, water pollution as a result of poorly managed industrial waste disposal, especially from garment factories, have poisoned the water supply and caused deadly health consequences in both rural and urban communities. I will try to explore the effects of industry on water quality in poor communities and what steps the government is taking to try to regulate pollution. Most importantly, I will explore grassroots efforts among the Bangladeshi communities themselves, investigating the main participants of these movements and whether or not they have succeeded in bringing awareness to environmental issues or successfully changing these companies' pollution patterns.

266 • Chernobyl's Impact Today

FRANCESCA BOVE

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The damaging effects of the catastrophic nuclear explosion at the Chernobyl Nuclear Power Plant in Ukraine have not ended, 33 years later. The environmental impacts of the radiation continue to have damaging effects on the livelihoods of the land and people in Ukraine, Belarus and Russia. At the time of the incident, multinational organizations banded together to address the aftermath of the explosion. Today, international governmental and non-governmental organizations are continuing to carry out plans to deal with the radiation that remains after the Chernobyl disaster and create preventative policies regarding the use of nuclear materials in the future. This poster addresses the current state of the environment surrounding the Chernobyl Nuclear Power Plant and the international policies that have been created because of the incident.

267 • Desertification of Africa

JACK LADD

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Vast amounts of land in Africa, previously suitable for crops, are turning into desert as we speak. The effects are profound and can be noted without question from satellite imagery. The desertification of soil on this continent has massive impacts on climate change and on regional stability. The tactics used over the years on the continent to fight the disappearance of soil have contributed greatly

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to carbon emissions. In addition, the same outdated tactics have actually further damaged the land. With the ideal soils disappearing at an alarming rate, regional factions are violently clashing over the small areas of land that have not been entirely destroyed. In the already violent Horn of Africa, this conflict is detrimental to political stability. However, recently, there have been solutions proposed and implemented to combat the soil crisis. Organized cattle grazing has shown significant results in essentially reconstructing the soil composition in areas that have suffered from desertification. This tactic has effectively shown that if we mimic nature by organizing the constant movement of cattle across these lands, as they once did, we can bring fertile soil back to the damaged areas.

268 • Yemen's Environmental Crisis

KYLIE GRIFFITH
FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In the current political atmosphere of the 21st century, the global community has had significant growth and innovation in the sectors of technology, the global market, and production. Unfortunately, the crisis of environmentalism has taken a back seat when nations and their political actors should have placed the environment as a top priority. One country in particular that has suffered severe degradation to their environment is Yemen. Despite many environmental issues, the water crisis proves to be the most damaging to the country due to the accelerated pace. Though the entire world is feeling the effects of climate change, Yemen's climate is extremely vulnerable because the atmosphere is growing hotter and dryer, resulting in prolonged droughts. On top of the climate vulnerability, a majority of the Yemen economy and the livelihood of citizens rely on agriculture that requires large amounts of water, further putting a strain on the already short supply of water. The current consumption of water in Yemen is unsustainable and is a source of conflict for the country. The resource scarcity has, in turn, weakened the state from preventing further depletion and has decreased its ability to put down violent conflicts and stop the civil war.

269 • Why Japan Refuses to Stop Whaling

MATTHEW EPP
FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Japan is one of the few countries that still actively hunts whales. In December, 2018, the Japanese government announced that it was leaving the International Whaling Commission. This is a political showdown between domestic politics and international politics. Japan plans to resume commercial whaling operations in its waters and exclusive economic zone in July, 2019. This is problematic because whales are highly intelligent creatures that should not be slaughtered. Prior to this, Japan hunted whales for what it claimed to be "scientific purposes." The Japanese government alleges that it was whaling for the purpose of collecting data so whale stocks could be maintained without instituting a complete ban. The Japanese government is disputing environmental ethics according to the "Significance of Life Theory." This theory raises the question of where humans are able to draw the line for which animals can be killed and which cannot. Japan sees whaling as part of their culture, and therefore believes no other country should view their acts as unacceptable. Japan also believes their actions are important in pushing back movements that want to place bans on fishing and restrict the use of marine resources in general.

270 • The Hamburger Connection, Deforestation of the Amazon

SHANNON LYNCH
FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Brazil is currently one of the leading beef producers in the world, second only to the United States. Today Brazil is home to over two-hundred million cattle and the beef industry represents about seven percent of the country's GDP annually. The industry is wreaking havoc on the global environment, and new research shows the impact on climate change is much greater than current estimates. One key driver in this climate change is the deforestation of the Brazilian Amazon. I will be looking into the link between the beef sector in Brazil and its role in deforestation and ultimately its role in climate change globally. The deforestation in the Amazon has become an issue of global concern, gaining significant attention and backlash. Changes to policy surrounding the Amazon could soon be a global topic of discussion and have multiple hands in protection. Eighty percent of the new deforestation in the Brazilian Amazon is directly caused by the conversion of forest to cattle pasture, therefore proving the direct causal of climate change. I will further research the global implications and next steps the world can take.

271 • The Electric Car Industry and Hidden Costs of Cobalt Mining

ALISHAH BHIMANI
FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Cobalt can be found in almost all our electronics, making it a valuable natural resource. Recently, there is a higher demand for it, in part because of the new electric car industry that requires cobalt for their rechargeable batteries. The Democratic Republic of the Congo (DRC) is responsible for 60 percent of the world's cobalt reserves, as it sits in the direct line of Central Africa's copper belt. The increased demand for cobalt has added more pressure for the DRC to produce, creating even more pressing environmental concerns. These mines have detrimental effects on the environment such as polluting rivers and drinking water as well as causing breathing problems for miners. Although most of it is mined with machinery, artisanal miners are responsible for 1/5 of the cobalt that leaves the country. These artisanal miners include child laborers, and there is a high correlation between birth defects and fathers who are miners.

272 • The Damage of Electronic Waste

DAWA SHERPA
FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Electronic waste is one of the rising problems that is contributing to environmental pollution such as air and soil pollution. E-waste is created when electronic products are discarded after its use. The rapid expansion of technology has led to the rise of global consumption of electronics as consumers are becoming technology-obsessed. The impact of this consumerism has led to the creation of significant e-waste, which has a substantial, long-lasting effect on the environment. I will be focusing on Agbogbloshie, Ghana, presumed to be one of the largest e-waste dumps in the world where developed countries ship their e-waste to be recycled. I seek to answer some important questions regarding e-waste in Ghana. How did this phenomenon occur and how does this affect the residents? Why did the Ghanian government let this happen? What is happening at the grassroots level? Are there any solutions to combat or reduce this problem of e-waste?

273 • Soybean Production in Brazil: From the Amazon to the Cerrado

GRACE WHITE
FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Brazil is the world's largest soybean exporter. For many years soybean production had led to deforestation of the Amazon Rainforest. International and national responses to deforestation in the past decade have decreased soybean production and land-clearing in the Amazon. Still, overall soybean production in Brazil grew. By limiting access to Amazonian land, agribusinesses moved southwest, to a part of Brazil known as the Cerrado. The Cerrado is an area of tropical savannas that are home to a diverse range of wildlife. Many of South America's major river systems also originated in the Cerrado. In the past ten years, over 100,000 square kilometers of land in the Cerrado has been lost to agriculture. The amount of international pressure to preserve the Amazon has been largely absent in the case of environmental destruction in the Cerrado. If Brazil, and the international community as a whole, don't begin to protect the Cerrado like they did the Amazon, there could be major ecological consequences for Brazil, South America, and even the world.

274 • Soil Erosion: A Threat to Global Livelihoods

CASEY DUNNE
FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

For Great Day I will present a poster that delves into the erosion crisis and examines the course of events from the middle of the 20th century up to the present day. Changes in land use and climate change are widely recognized as culpable for greatly accelerating soil erosion. I will further examine the Nigerian Gully crisis as well as a few documented cases of land mass disappearance on multiple islands that are cause for immediate concern and action. Along with this I will present a case for alternative options in battling this crisis, and consider the pros and cons of each for nations such as Nigeria and coalitions of small islands.

275 • Measuring the Effectiveness of Air Pollution Policy in South Korea

HUNG JIN JIN

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

South Korea's air pollution is a serious issue that threatens the nation's everyday life. While it is hard for Korea to avoid the influx of air pollutants from China, researchers say half the pollutants are generated domestically and can be tackled through regulations. The South Korean government has executed regulations to cut the air pollutants. However, even with the government's regulations to reduce the sources of air pollutants, it is getting worse over time. Korea's air pollution has exacerbated and it has raised a question whether it is the methods that are not effective or it is the government that is not enforcing the regulation enough. The presenter of this poster will answer the question by addressing the regulations in effect in Korea and evaluating the effectiveness of them.

276 • Loss of Biodiversity in India

ASHLEY GRISEWOOD

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

India has been a global biodiversity hotspot, but over time due to human interaction biodiversity has been disappearing. One reason for this is over population within areas of the country. The large population has led to habit loss for many animals and the removal of forest to make room for humans, which has caused consequences for plant growth. Humans are overusing natural resources; this is upsetting the natural ecosystem within the country. In India, the demand is growing faster than plants can grow and animals can repopulate. This is causing important parts of the ecosystem to become endangered. Another cause is that humans pollute the soil and water that these plants and animals need to survive. Much of the country's waste and garbage is disposed of in the river. This has caused problems with the creatures that use the river to live. The government of India has allowed this issue to develop into what is happening today. In this presentation I will uncover what is happening in India to hurt the biodiversity and discover what the government of India has done to allow this to happen.

277 • Impacts of Deforestation in Brazil

JACOB BORTH

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Brazil is a large developing country in South America that is experiencing massive deforestation in both the past and present. This is a major issue for Brazil and the entire world as many of us know it. While deforestation is a major issue there is no clear cut answer (pun intended) to deforestation in Brazil or deforestation in general. As a result, research is necessary to better understand deforestation in Brazil and deforestation as a whole. This poster will look at the background of deforestation in Brazil. Then the paper will delve into the different internal and external actors that have precipitated this environmental problem. Lastly, the paper will look at the outcomes of the deforestation in Brazil, both past and present.

278 • How Globalization and Free Trade are Causing Climate Change

JOHAN ZUNIGA

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Globalization and the notion that free trade is good for the global economy has dominated the narrative and has left the ecological effect on the back burner of many discussions. International institutions like the WTO serve to promote a market that is fair to all producers from all members, preventing favoritism of local business through incentives. Yes this is good for business, but it isn't ideal from a sustainability perspective. In many countries such as India free trade dominates the textile and other industries, but when favoritism is showed to local industries the WTO steps in to regulate. The import and export of goods increases carbon emissions across the globe because goods are being shipped from country to country in the name free trade, fair competition, and cheap prices. The production of goods in India when coupled with the free trade market, which increases transportation of goods and increase climate change, drastically increases the ecological impact. Therefore, in my presentation I will analyze the global institutions that govern India's free trade and demonstrate how the various industries in and around India are negatively impacting its climate due to free trade by global organizations.

279 • Environmental Justice and Grassroots Self-advocacy in Orangi Town Slum, Karachi, Pakistan

DREW ARNUM

FACULTY SPONSOR: KARLEEN WEST, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Orangi Town in Karachi, Pakistan is the largest slum in Asia, with a population of about 2.5 million. Muslim refugees fleeing the Indo-Pakistani War created this informal settlement in 1947; it already had a population of one million by the 1950s, due to Pakistani policy allowing refugees to settle on any vacant land. This policy lacked infrastructural backing, making Orangi Town a quasi-legal squatter settlement rapidly expanding without sewers, plumbing, roads, etc. Orangi Town's population swelled in the 1970s when Bangladesh gained its independence, intensifying preexisting environmental injustices. In the 1980s, Orangi began self-governing through the Orangi Pilot Project, organizing residents to build their own sewer network, which now reaches 96% of all households despite lacking government funding or recognition. These infrastructural improvements from within prompted the Pakistani government to incorporate Orangi Town as a municipality of Karachi in 2001, transforming the slum's infrastructural administration. Despite this transition, the Orangi Pilot Project still administers key services, including not just waste management, but also housing, health and family planning, education, and microfinancing. This paper will use the theoretical framework of environmentalism of the poor to explore Orangi Town's extralegal formation, grassroots administration, and the environmental justice consequences of incorporation.

280 • Women's Underrepresentation in American Politics

VANESSA VERDE

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

While there have been record-breaking numbers of women in elected office in recent years, women still have far from equal representation in these positions. Even if women were better represented, they still would be less likely than men to run for office. There are various significant barriers that women face when running for office. In my research I explore the systemic barriers that result in this gender disparity. It is imperative to close this gender gap in order to get full inclusion of women in politics.

281 • Women's Political Ambition

VANESSA VERDE

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

While there have been record-breaking numbers of women in elected office in recent years, women still remain far from equally represented in these positions. Even if women were better represented, they still would be less likely than men to run for office. There are various significant barriers that women face when running for office. In my research I explore the systemic barriers that result in this gender disparity. It is imperative to close this gender gap in order to get full inclusion of women in politics.

282 • The Personal is Political: How the Women's Liberation Movement Transformed Democracy

COURTNEY BANACH

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The second-wave of feminism, beginning in the 1960s, was a social movement that challenged aspects of inequality in women's everyday experiences. In the wake of winning suffrage emerged the Women's Liberation Movement, which had a profound impact on democracy in the United States by transforming the role women played in both society and politics. Problems faced by women, once viewed as private to the individuals, were now viewed as having systematic and political origins. The historical disregard of women and their rights led the movement to push for social, economic, political, and legal policy reforms as a way for the government to ameliorate these inequalities. Uniting under one identity, women were able to extend the quality of democracy in America by gaining a more representative voice in politics.

283 • The Intersectionality of Race and Gender in American Politics

JOCELYN STUTO

FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In a field that has been dominated by white males for decades, both women and minorities have struggled to navigate professions in politics. Here, I will analyze how women running for office have been perceived by American voters, and how that has impacted their careers. Furthermore, I will examine how the intersectionality of race along with gender has an effect on careers in politics.

Promotes sustainability

284 • The Case for Equal Voting Laws Across the United States

HANNAH LOWRY
FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In this poster, I will examine voting laws as they vary across the United States. In addition, I will examine who benefits and who is hindered by the different voting laws found in the United States. I expect that this data will show that younger generations, minorities, and those in lower socioeconomic classes will be negatively affected by restrictive voter laws; and therefore, turnout is lower in those states. Additionally, I expect to find that states with more easily accessible voting will experience higher turnout, particularly from younger generations, minorities, and those in lower socioeconomic classes. Overall, my argument will be that in order to have a more representative electorate and therefore, more representative legislative bodies, the United States should enact policy that mandates equal voting rights and access across all states.

285 • Public Opinion of Women in Politics

DANI ALT
FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Identity politics is a relatively new but an extremely important focus in political science. When it comes to public opinion, gender certainly plays a role in the public's perception and treatment of people in the political arena. It is safe to say that women are viewed very differently from men in politics. Within the demographic of women, there is even more disparity between different identities. For my presentation I will be examining and analyzing literature on women in politics and discussing how different identities influence the role of women and how the public sees them. I will study gender in general, as well as the intersection of different races, religions, socioeconomic status, and other identities .

286 • Public Opinion and Tax Policy

AMANDA RICE
FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Why do ordinary Americans support policies that guarantee large tax cuts for the rich? Public opinion polls show that, despite awareness of rising economic inequality, most ordinary Americans support tax policies that will worsen the problem of inequality among the rich and the poor.

287 • Political Polarization in Contemporary American Politics

REILLY O'BRIEN
FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Literature Review of political polarization in Contemporary American Politics:
Why we are seeing increased political polarization; Sources/causes of political polarization; If/How 2016 Election contributed to political polarization; Political, economic and demographic change/instability and polarization; Elite or general polarization?; Elite effect on polarization; Why are people divided by politics; Politics and identity

288 • Is the Supreme Court Becoming More Partisan?

TIMOTHY SNYDER
FACULTY SPONSOR: JEFFREY KOCH, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In the past few years, particularly after the nomination and confirmation of Justices Gorsuch and Kavanaugh, many have expressed concerns that the Republican Party is taking over the Supreme Court and making it more conservative. Looking at the cases that get the most media attention, such as those regarding abortion or the Affordable Care Act, one will see decisions written by the narrowest of majorities and the Court splitting along party lines. However, I argue that it is mainly on these issues that happen to have a lot of public attention where these partisan splits can be seen, and really the Robert's Court is just as unified if not more so than the Court has been in the past.

PSYCHOLOGY

102 • African College Students' Concepts of Sibling Relationships

BRITTANY BEARSS, OUMOU WAGUE, NEHA PATIL, ASSIA BUKURU
FACULTY SPONSORS: NICHOLAS PALUMBO, PSYCHOLOGY, GANIE DEHART, PSYCHOLOGY

This work is an extension study of early research presented at GREAT Day 2018. The purpose of this extension study is to examine and contextualize the nature and relevance of African sibling relationships in emerging adulthood. Data collection and analysis has been done on participants, consisting of 14 African college students at SUNY Geneseo who are either immigrants themselves or the children of African immigrants. Participants were interviewed during focus groups to help us phenomenologically investigate the phenomena of interest. The results revealed salient themes of sibling influences and sibling parental roles. Emergent findings led to the understanding that older African college students influence their younger siblings in both academic and personal ways of life that shift over time across adolescence. This has led to shared ideas of success and strong sibling comparisons due to the desire to be similar to the siblings that have set personal standards of achievement. This study allowed for a deeper understanding of how sibling relationships in non-western countries may form and develop over time. Future research, from different methodological traditions, should use these findings to develop new understandings about African sibling relationships and how they differ from sibling relationships of other cultures. ***Selected for presentation at Association of Psychological Science Conference, Washington, DC.***

103 • Observed Aggression and Rough-and-Tumble Play in Latinx and Anglo Children's Sibling Relationships

VANESSA CEPEDA, XIARA COLON, CAMILA DE VASCONCELOS, CARMEN MARTINEZ, DENIS MAZARIEGOS
FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY

The present study examined aggression and rough-and-tumble play (RTP) during sibling interactions of Latinx and Anglo children. Because of the importance placed on family harmony and obligations in Latinx culture, it expected that Latinx siblings might show less aggression and RTP than Anglo siblings, particularly considering that Latinx children are taught from an early age to get along with their siblings and respect each other. A comparison sample of Anglo sibling dyads, matched for age and gender composition, was drawn from an ongoing longitudinal study of sibling and friend interactions. Videotapes were transcribed and coded for instances of aggressive behaviors and RTP. Three different forms of aggression and RTP were coded for: relational, physical, and verbal. Latinx sibling dyads showed lower rates of aggressive behavior and much lower rates of RTP than the Anglo sibling dyads across the board. Nearly half of the Latinx sibling dyads showed no RTP at all. However, patterns of gender differences in RTP were similar for Latinx and Anglo dyads, with pairs of brothers producing more RTP with pairs of sisters or mixed-gender pairs. For both Anglo and Latinx dyads, pairs with older brothers had higher rates of aggressive behavior than those with older sisters. ***Selected for presentation at Society of Research in Child Development, Baltimore, MD.***

104 • Environmental Modification of Post-trauma Anxiety and Alcohol Use Disorders

KATHERINE KOMPANIJEC, KENNEDY PRIEST, GAVIN VAUGHAN, MELISSA HERMAN, HANNAH SESERMAN
FACULTY SPONSOR: ALLISON BECHARD, PSYCHOLOGY

Post-traumatic stress disorder (PTSD) is a trauma-induced anxiety disorder that affects millions every day. However, not all individuals that are exposed to trauma will develop PTSD, potentially due to differing environmental conditions. Those that develop PTSD are 3-5 times more likely to develop a substance abuse disorder, which suggests a link in their underlying neurobiology. Alcohol is the most commonly abused substance among individuals suffering from PTSD. To investigate effects of post-trauma environmental conditions, we are conducting a series of tests using a mouse model. Young C57BL6/J mice exposed to a predator odor were housed in either standard or enriched environments. Tests to assess anxiety levels were conducted using the Elevated Plus Maze, Light-Dark Box, and Conditioned Fear Extinction. At adolescence, mice will be tested for their preference to drink alcohol using the Intermittent Drinking in the Dark paradigm. Following a period of withdrawal, relapse induced by re-exposure to the alcohol associated context will be assessed. We hypothesize that subjects reared in the enriched environments will demonstrate lower levels of anxiety levels and alcohol use. Findings have the potential to demonstrate the environment as a developmental modifier of post-trauma anxiety and alcohol use disorders. ***Selected for presentation at SUNY Undergraduate Research Conference, Sanborn, NY.***

105 • The Role of GABA Interneurons in the VTA on Attenuation of Cocaine Relapse

VICTORIA KANTYMYR
FACULTY SPONSOR: ALLISON BECHARD, PSYCHOLOGY

Cocaine use disorder is characterized by a high likelihood of relapse. Chronic cocaine use is associated with changes in glutamate homeostasis that promote relapse. Ceftriaxone, a β-lactam antibiotic, has been shown in a rat model of self-administration of cocaine to attenuate relapse, as a function of its ability to restore glutamate homeostasis mechanisms in key brain areas, such as the ventral tegmental area (VTA). The VTA is well-known for its role in drug addiction due to having both glutamatergic and dopaminergic neurons, however, less is known about how local GABAergic terminals influence VTA activation. To investigate this intersection of GABA and glutamate, we used immunohistochemistry to co-label GAD67 (for GABA) and c-fos (for glutamate) in the VTA of rats that had previously self-administered cocaine and were then treated with ceftriaxone or saline. The total number of GAD positive cells and GAD/fos positive cells were counted and the percentage of GAD/fos positive cells then calculated. Although we hypothesized that rats treated with ceftriaxone would show a reduced percentage of co-labeled GAD/fos positive cells, we found no significant differences across groups. Findings do not suggest a role for GABAergic VTA interneurons in ceftriaxone-induced attenuation of cocaine relapse.

106 • Diurnal Patterns of Attention Bias

KENNEDY GARDNER, BRIE DERELLA
FACULTY SPONSOR: BRADLEY TABER-THOMAS, PSYCHOLOGY

Previous research has shown a correlation between anxiety and attentional bias to threat. For anxious individuals, attentional bias to threat has been shown to activate areas in the brain such as the amygdala, which controls the release of the stress hormone. This stress hormone, cortisol, follows a diurnal pattern which has been related to similar patterns of fluctuations with anxiety during varying times within a day. This pattern follows low levels of cortisol in the morning and during the evening with higher levels in the afternoon. Previous research has yet to study the diurnal patterns of attention bias to threat and its association with levels of anxiety. To address this gap, we examined whether attention biases to threat follows a similar pattern of daily fluctuations, and if the variation in that pattern relates to levels of anxiety. To assess this relationship, in an ongoing study, SUNY Geneseo students will complete the Dot-Probe paradigm, which is a commonly used method to measure attention to threat, at four time periods in one day. The hypothesis is that attentional biases will follow a similar diurnal pattern as seen with cortisol levels, and this pattern will be related to daily fluctuations in anxiety. ***Selected for presentation at SUNY Undergraduate Research Conference, Sanborn, NY.***

123 • College Students' Responses to Disparaging Humor About Intellectual Disabilities

DIMITRI WING-PAUL, KATHERINE ESTEP
FACULTY SPONSOR: JENNIFER KATZ, PSYCHOLOGY

Disparagement humor aims to "elicit amusement through the denigration, derogation, or belittlement of a given target" (Ferguson & Ford, 2008, p. 284). According to prejudiced norm theory, when delivered as a joke, prejudicial speech is seen as more acceptable (Ford & Ferguson, 2004). People who already hold negative attitudes towards a group disparaged by humor may respond with more tolerance for discrimination. To date, no studies of responses to humor disparaging people with intellectual disabilities (ID). This study investigated college students' confrontational responses to the disparagement of people with ID as related to type of speech (joke versus statement) and their pre-existing prejudicial attitudes about ID. Results showed that in the joking condition, intent to confront was significantly lower among participants who had more prejudicial attitudes about people with ID than those who had less prejudicial attitudes. In contrast, in the control condition, intent to confront was high regardless of participants' prejudicial attitudes. These findings provide further support for prejudicial norm theory as applied to an understudied population: people with ID.

124 • Cooperation and Competition During Caribbean, Latinx, and Anglo Sibling Interactions

DOMINIQUE ELLIS, SABRINA CHAN, DIMITRI WING-PAUL, SABRINA BRAMWELL, KAMESHA MILLER
FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY

The present study focuses on the differences between Caribbean, Latinx, and Anglo children's sibling interactions by analyzing their cooperative and competitive behaviors during a series of tasks. These tasks were given in the form of construction, free-play, and board games in order to elicit cooperative (construction), competitive (board game), and both kinds of behavior (free play). ***Selected for presentation at Association of Psychological Science Conference, San Francisco, CA.***

125 • Chinese-American College Students' Concepts of Sibling Relationships

SABRINA CHAN, VIVIAN YE, XIAO JUN CHEN
FACULTY SPONSORS: NICHOLAS PALUMBO, PSYCHOLOGY, GANIE DEHART, PSYCHOLOGY

WITHDRAWN

The current study examin[illegible] the distinct sibling relationships of Chin[illegible]n college students and explored t[illegible]aracteristics of Chinese culture t[illegible] qualitative inquiry. This phenomenol[illegible]gical inquiry analyzed focus group data using thematic analysis (Braun & Clark, 2006). Emergent themes depict the role of sibling responsibilities, maternal influence, and age difference in the sibling relationships of Chinese-Americans. ***Selected for presentation at Association of Psychological Science Conference, Washington, DC.***

126 • Literary Analysis of Turtles All The Way Down By John Green and Connections to the Research on Obsessive Compulsive Disorder

FRANCESCA BARLOWE, ALEXIS CAREY
FACULTY SPONSOR: BRADLEY TABER-THOMAS, PSYCHOLOGY

The portrayal of characters living with anxiety-based disorders is prevalent in both classical and contemporary works of literature, and the author has the option of making the condition of their characters explicit or inferential. In the novel *Turtles All The Way Down* by John Green, the anxieties of the main character, Aza Holmes, is an explicit focus for much of the text. Her experiences with Obsessive Compulsive Disorder are expressed in a literary manner, and this portrayal directly correlates with research in clinical psychology on OCD and related disorders. In this literary analysis, we examine the points of intersection between X and Y and analyze how the various aspects of a psychological disorder can be expressed through literature, and from a first-person narrative. For example, through literary techniques such as characterization, anecdotes, diction, and syntax, one can identify the examples of confirmation bias, avoidance, and the importance of peer acceptance within the text. This study utilizes these attributes from both disciplines to investigate the intertextuality that is contained in a English narrative.

127 • Gender Differences in Conflict Initiation in 17-Year-Old Sibling Interactions

NICOLE SPENCER, KAYLEIGH SCHNEEBERGER, RACHAEL THORP, LILLIANA PROE, ANAHI CHABLA, CLAIRE RODGERS, KATHLEEN HUANG
FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY

As a part of a longitudinal study of sibling and friend relationships, we examined 17-year-olds' conflicts with siblings during preparation of either pizza or brownies. Sibling dyads were one of four gender combinations (target female sibling female, target male sibling male, target female sibling male, target male sibling female) and were paired with a sibling either fifteen months older or younger. Characteristics of observed interactions, specifically target initiated conflicts, were coded for. Results suggest a unique difference between female-female dyads compared with the other three pairings. More specifically, in female-female dyads, older sibling targets initiated more conflicts than their younger sibling. Meanwhile, the opposite effect was observed for the other three groups of dyads, specifically, that the younger sibling initiated more conflicts. The implications of these results indicate there may be a behavioral difference between sisters, and brothers, or mixed-sex siblings.

128 • Gender, Valence, and Mitigation in 7-Year-Olds' Assertive and Affiliative Language with Siblings and Friends

MOLLY O'BRIEN, ELYSE FUERST, KAYLA CORDONE, LINDSEY KRIARIS, MIKAELA FREEMAN, NICHOLAS TRELINSKI
FACULTY SPONSOR: GANIE DEHART, PSYCHOLOGY

Promotes sustainability

Early childhood is a crucial time for understanding the social development of youth. As part of a longitudinal study that follows sibling and peer interactions at ages four, seven, and 17, we focused on the use of assertive and affiliative language at age seven. Children were taped during a free-play task with a same-age sibling and friend. Tapes were coded to examine gender differences in valence and use of mitigation within assertive and affiliative language. Significant interactions between partner, dyad gender, valence, and mitigation are discussed. ***Selected for presentation at Association of Psychological Science Conference, San Francisco, CA.***

129 • College Men's Willingness to be an LGBTQ+ Ally: Exploring Associations with Attitudes about Masculinity, Sexism, and Heterosexism

DOMINIQUE BROWN, MADELINE REICHLER
FACULTY SPONSOR: JENNIFER KATZ, PSYCHOLOGY

Normative male socialization experiences may foster attitudes about sexuality and gender that inhibit men's willingness to support people who identify as LGBTQ+. Three types of attitudes were hypothesized to be related to men's ally identification. Firstly, precarious manhood is the attitude that masculinity must be continuously guarded. Secondly, amnestic heterosexism is the attitude that people who are LGBTQ+ no longer experience discrimination. Thirdly, hostile sexism is the attitude that male power and dominance over women is justified. Sixty-two undergraduate men who identified as both heterosexual and non-trans completed measures of precarious manhood, amnestic heterosexism, hostile sexism, and LGBTQ+ allyship. Hostile sexism was found to be a unique predictor of ally behavior while precarious manhood and amnestic heterosexism were not. These results suggest that sexist attitudes about women were more significantly related to inhibited allyship than either the instability of masculinity or heterosexist attitudes among 18 to 25 year-olds. These results highlighting the importance of hostile attitudes about women may inform ongoing campus efforts aimed at increasing ally behavior.

130 • Do Bystanders Respond Differently to Physical versus Sexual Misconduct?

ELIZABETH MCCABE
FACULTY SPONSOR: JENNIFER KATZ, PSYCHOLOGY

This study examined bystander responses to different forms of intimate partner misconduct: physical (grabbing and imminent slapping) or sexual (groping and unwanted kissing). Undergraduates (N = 402) read and responded to dating conflict scenarios in which they witnessed a young man verbally insult a young woman while perpetrating either physical or sexual misconduct. Participants were asked to respond to an open-ended question, "what you think is happening and what you would do?" Responses were coded by undergraduate researchers blind to condition as to abuse identification, intent to directly help the victim, intent to confront the perpetrator, and intent to delegate/get outside help. Overall, 52% of participants randomly assigned to the physical misconduct condition identified abuse, whereas abuse was identified by only 32% of those assigned to the sexual misconduct condition. Similarly, intent to help the victim and intent to delegate were significantly greater among those assigned to the physical versus sexual misconduct condition. Educational interventions are needed to challenge the normalization of the full range of violence against women, with a particular emphasis on challenging the normalization of sexual violations. Challenging normalization could increase bystander recognition and intervention, as well as promote safer environments for women.

SOCIOLOGY

157 • Let's Talk About Sex (Education), Baby

BRIANNA KOPACZ
FACULTY SPONSOR: ELAINE CLEETON, SOCIOLOGY

This research looks at the lack of sex education that is being presented to the youth today. Many school systems are not keeping up with minimal requirements that are in place, and this research looks at the societal impacts and actions due to the lack of education. Students are not given information that is necessary to make decisions about sex, and when they try to get this information, it often comes from invalid sources.

158 • Over Prescription of Opioids and Barriers to Alternative Treatment Options for Patients with Spinal Cord Injuries

EMILY TOY
FACULTY SPONSOR: ELAINE CLEETON, SOCIOLOGY

The misuse of opioids is a serious public health crisis. This poster will explore how over prescription has contributed to the crisis and why alternative treatment options are not being more widely explored. Convinced by economically driven pharmaceutical companies that patients would not become addicted to prescription opioid pain relievers, healthcare providers began to prescribe them at greater rates. Despite the claims of pharmaceutical companies, these drugs proved to be highly addictive. As such, over prescribing opioids for chronic pain has become a key driver of America's epidemic. Spinal cord injuries (SCIs) are one of the most common sources of chronic pain and can cause significant quality of life issues. Although not as common as drug treatment, there are many non-pharmaceutical treatments for SCIs. However, the nuances of insurance company policies present major barriers to alternative therapies for SCIs. Several laws have been passed by the NYS Department of Health to address the epidemic, but to reach a true solution we must recognize that healthcare is much more than a money-making business.

159 • Pill Popping: The Changing Practice of Medicine in America

ANNA SPENCE
FACULTY SPONSOR: KURT CYLKE, SOCIOLOGY

The opioid epidemic in America has reached into every state, class, profession, race and family. The epidemic has spawned a dynamic environment in which all of the major players have had to change the way in which they engage with their patients. This paper explores the changing reactions of the American Dental Association and the American Medical Association in the context of the Center for Disease Control's policy recommendations.

160 • Laws About Transgender Equality: Is It Really Progress?

LILIA BRIGGS-MCEWEN, TORI FOX - ST. JACQUES
FACULTY SPONSOR: MICHAEL RESTIVO, SOCIOLOGY

From the year 2000 to 2016, there have been a multitude of court cases regarding the protection and rights of members of the LGBTQ+ community. While these legal approaches to achieving equality may appear to be a form of progress, laws may be used to hinder progress in the sense that they write legal discrimination and other forms of inequality into law. On the other hand, laws offer a way to protect LGBTQ+ rights in public accommodations, education, and employment. Another approach would be challenging the cultural acceptability of discrimination against transgender people. For there to be long lasting progress, should activists pursue a strategy of changing hearts and minds first, or should they press for legal protections with the hope that cultural changes will follow the progress made from winning legal battles?

STUDENT LIFE

207 • The Influences of the Nuremberg Trials on the international Criminal Court

JULIANA RAMOS OLIVA
FACULTY SPONSOR: MEG REITZ, STUDENT LIFE

At the end of World War II, the Allied powers (United Kingdom, United States, Soviet Union, and France), acknowledged the need in the international community to protect human beings and their rights, when the state or government officials failed to do so, as was the case in the Holocaust. This historically acclaimed event was known as the Nuremberg Trials, which laid out the concept of prosecuting crimes against humanity, genocide, and crimes against peace. Five decades later, after the Rwanda genocide and the ethnic cleansing of Former-Yugoslavia, the international community felt the need to once again take control of the protection of individuals, creating a more permanent body: The International Criminal Court. The rules and procedures of this court, in accordance with historical documents and the Rome Charter, was strongly influenced by the Nuremberg Trials. Both international tribunals represent a force of protection over individuals when there is none. The poster will establish the similarities and influences that the Nuremberg Trials' laws and procedures had over the International Criminal Court. I aim to provide information about these tribunals to educate people about the importance of these courts in protecting humanity.

208 • The Investigation of Modern Climate Change and its Effects on Marine Life

LEIBIN LI
FACULTY SPONSOR: MEG REITZ, STUDENT LIFE

Climate change is the result of altered chemistry in the atmosphere and oceans. It can be a natural process or human-induced. Data accumulated over

the years shows that current climate change has been induced by the rapid increase of greenhouse gases since the industrial revolution. Industrial, agricultural, and fossil fuel processes are the main culprits that release greenhouse gases into the atmosphere and oceans. Carbon dioxide, methane, nitrous oxide, and fluorine gases are greenhouse gases with global warming potentials (GWP). GWP rates how long these gases stay in the atmosphere and the amount of heat they can trap; a higher number meaning a greater impact on global warming. This affects the carbon cycle that exchanges carbon dioxide among the earth's atmosphere, oceans, and ecosystems. Tremendous stress is placed on marine life because the oceans absorb more heat and greenhouse gases from the atmosphere than any other reservoir on earth. Rising temperatures and changing ocean chemistries lead to acidification, sea level rise, and dead zones. In this project, I investigate how modern climate change have specific effects on marine life. A collective effort in reducing our carbon footprints can help mitigate these effects.

POSTER SESSION 2 • 4:45 – 6:15 PM

COLLEGE UNION BALLROOM DIAGRAM ON BACK COVER

ANTHROPOLOGY

406 • Healthcare in Bulgaria: an Ethnographic Approach on How Cost Impacts Care

LORENZO RODRIGUEZ
FACULTY SPONSOR: MELANIE MEDEIROS, ANTHROPOLOGY

While there is research examining Bulgaria's healthcare infrastructure and economic constraints, minimal anthropological research has discussed this topic. In this poster, I present my findings from an ethnographic research approach that demonstrates cost as a barrier to care for consumers. Geographic diversity, complex socioeconomic stratification, low funding for infrastructure, limited public resources, and the country's immigration makes Bulgaria the ideal country for an ethnographic study of healthcare. I argue that while most consumers have access to some clinic or hospital, direct and indirect cost operate as a barrier to care. This project funded by the Provost's Ambassador in Diversity. ***Selected for presentation at Society for Applied Anthropology, Portland, OR.***

407 • The Reaction of French Locals toward American Students of the French Language

JENNA HARBUS
FACULTY SPONSOR: MELANIE MEDEIROS, ANTHROPOLOGY

Literary research shows that when there is an unequal level of communicative competence between two speakers, the speakers will either avoid interaction or pursue
other strategies (Springer, 22). My research has found that the lower the level of French speaking skills an American student has, the more likely a French local of Montpellier, France is likely to switch over to English. This is mainly due to the locals either being impatient or wanting to help. The French locals typically had a positive reaction or no reaction when told the student is American. I argue that the attitudes and communicative competence levels of French locals will determine how they react and interact with American students of the French language.

408 • The Structural and Social Factors Impacting Im/migrant Farmworkers Psychosocial Health

RUTH AJIBOYE, CHALYNE BARROW
FACULTY SPONSOR: MELANIE MEDEIROS, ANTHROPOLOGY

Im/migrant Latino farmworkers face acculturative stress that often times can manifest into mental illness such as anxiety and depression. Our findings suggest that barriers faced by this community in accessing healthcare such as language barriers, and familial separation could foster these mental disorders. This research is an ethnographic study that consisted of participant observations, fieldnotes and interviews with service providers who worked at health centers that service this population. It makes a nascent attempt to fill this knowledge gap by analyzing data that summarizes the structural barriers immigrant farmworkers face in Western New York. Our findings also support previous evidence that high stressors could lead to development of mental disorders. We suggest that future research be conducted by looking at prevention and treatment plans that can be implemented and accessed by this population.

409 • Balthaser Bladelets

LIZA AMIRAULT
FACULTY SPONSOR: PAUL PACHECO, ANTHROPOLOGY

Bladelets are a diagnostic multi-purpose tool found prolifically in excavations at Ohio Hopewell sites. They represent a standardized small stone blade which is systematically manufactured and most often made out of high-quality Ohio chert types like Vanport (colloquially known as Flint Ridge). Excavations between 2014-2018 at the Balthaser Home Site, a small domestic Hopewell settlement located in Pickaway County, Ohio, have produced an assemblage of 293 whole and fragmented bladelets. The Balthaser Home Site has been plowed for over a hundred years, resulting in most bladelets being recovered out of the context of their features and in the plow zone. This poster describes the qualitative and quantitative attributes of the bladelet assemblage recovered from the Balthaser Home Site, in order to better understand the overall assemblage.

410 • Housing Shortage No More!

MADALYN BOWEN
FACULTY SPONSOR: PAUL PACHECO, ANTHROPOLOGY

The Adena and Ohio Hopewell people, dating to the Early and Middle Woodland periods @ 500 B.C. - A.D. 400, are known best for the impressive earthworks and artifact-laden mounds they left behind. These spectacular sites have drawn archaeologist's attention away from studying other aspects of these societies for generations. In particular, the existence of permanent structures, representing sedentary habitations, are poorly documented and few in number. The discovery of numerous post molds by Geneseo archaeologists working at the Pickaway County Balthaser Home Site since 2014, has provided key evidence for well documented permanent structures at a habitation with remains dating to both periods. In this poster, I will use GIS and Corel Draw to investigate the Adena and Hopewell post mold patterns discovered at Balthaser Home, displaying possible house designs and comparing them to other known Adena and Hopewell houses.

411 • The Balthaser Home Site Assemblage: Analysis of Stone Tool Technology in an Ohio Hopewell Site

ALICE LEE, GRACE BARSTOW- CHRISTOPHER, ELIZABETH KITE
FACULTY SPONSOR: PAUL PACHECO, ANTHROPOLOGY

This poster represents an analysis of the stone tool (lithic) assemblage from the Balthaser Home Site located in Pickaway County, Ohio. The assemblage was collected between 2014-2018 during the collaborative research efforts of the SUNY Geneseo and Bloomsburg University archaeological field schools. While the site was chosen because of its potential as a Ohio Hopewell habitation site. We have also identified an Early Woodland Adena component here as well. The analysis was conducted in an effort to determine the nature of the organization of stone tool technology used during the various occupations of the site. The analysis of the distribution and amount of chert (flint) by means of chert type and size class will allow us to interpret trends in core reduction and tool maintenance. We hope to identify patterns in the size and morphology of complete flakes by raw material type, spatial distribution, and any temporal associations which can be determined. By doing so we endeavor to determine the manner in which and what factors affected the way occupants organized their utilization of chert at this site.

BIOLOGY

351 • Ichnotaxon Determination of a Controversially-Named Reptile

Trackway from the Late Triassic Passaic Formation (Newark Supergroup) of Rockland County, New York, USA Using 2D Geometric Morphometrics

TIMOTHY CLARK
FACULTY SPONSOR: SARA BURCH, BIOLOGY

Geometric morphometrics are a useful tool for exploring the functional morphology of a structure as well as the ecology, taxa, and evolutionary relationships of an animal. A poorly-preserved three-toed reptile trackway specimen housed at the New York State Museum in Albany, New York has controversially been referred to as both *Atreipus* and *Grallator*. For years, the specimen has garnered attention as quite possibly the only dinosaur material ever found in New York State. In order to positively identify the ichnotaxon present on this trackway, a 2D morphometric analysis was carried out with *Atreipus*, *Grallator*, and the New York State Museum tracks. Preliminary data including digit III measurements, the results of a principal component analysis (PCA), and the absence of the *Grallator*-producing dinosaurs, such as *Coelophysis*, in strata from the time of deposition suggests that the ichnotaxon present in the New York State Museum slab is *Atreipus*, which is thought to have been produced by a quadrupedal silesaur. A positive identification of *Atreipus* would mean that the New York State Museum specimen was produced by an archosaur, and that no dinosaur material has ever been found New York State to date.

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352 • Prey Size Preference Determination of Modern and Fossil Cats Using Geometric Morphometrics

SOPHIA THOMPSON
FACULTY SPONSOR: SARA BURCH, BIOLOGY

Cats use their forelimbs as their primary mechanism when it comes to killing prey. Previous studies have shown that the prey size preference of cats can be distinguished based on the shape of the forelimb bones. We investigated this relationship using geometric morphometrics to landmark the same points on the forelimbs of 31 felid species. Results showed large and small prey specialists largely separated along the first principle component axis, while mixed prey specialists were scattered throughout the graph. This suggests that mixed prey specialists do not have a specific forelimb structure, while small and large prey specialists are distinguishable. Cats that hunt large prey had more robust forelimbs to aid in resisting struggling prey, whereas small prey specialists had long and slender forelimbs to aid in quick capture of the animal. We then investigated the classification of extinct cats. 11 fossil species were added to the data and a principle component analysis was performed. *Pseudaelurus*, the most basal of the 42 species, plotted in the middle of the first principle component axis. This suggests that this primitive cat was not a specific prey specialist and most likely hunted a variety of prey before other cats were derived. ***Selected for presentation at Society of Vertebrate Paleontology Conference, Albuquerque, NM.***

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360 • Effects of Anthropogenic Traffic Noise on Heart Rates of Painted Lady Butterfly, *Vanessa cardui*, Larvae and its Implications on Roadside Habitat Viability

ALEXANDER KAPLAN
FACULTY SPONSOR: KRISTINA HANNAM, BIOLOGY

In human-dominated landscapes, roadsides often provide unmanaged habitat for a variety of species including insect pollinators where they can find food and egg-laying sites. A downside of these habitats is they can be heavily impacted by anthropogenic noise. The effects of anthropogenic noise on insects have not been researched extensively, but a recent study of monarch butterfly caterpillars showed an increase in heart rate and subsequent increase in stress levels after acute exposure to traffic noise, and habituation and desensitization after chronic exposure. Is there evidence of similar physiological stress effects of anthropogenic noise in other species? I focused on the effects of traffic noise exposure on the heart rates of painted lady butterflies. Traffic recordings were obtained at the road alongside the Roemer Arboretum during rush hour. They were played to a group of caterpillars for 8 hours using the Audacity audio software. Heart rates of each caterpillar are taken at the start of the recording and every 2 hours afterwards. I will report on the differences in heart rates observed based on differing times of acute exposure and the relationship this data has with the implications of anthropogenic noise on butterfly populations.

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361 • Can You Hear Me Now? Changes to Winter Bird Vocalizations and Behaviors in Response to Anthropogenic Traffic Noise

LEEANN BRUETSCH
FACULTY SPONSOR: KRISTINA HANNAM, BIOLOGY

Bird calls function to communicate potential threats, and alert others to food sources. Local birds are found in natural habitats and those highly impacted by humans. Humans can impact habitats through anthropogenic noise, and traffic noise can disrupt bird activity and vocalizations. Effects of anthropogenic noise on winter behaviors and vocalizations have not been studied intensively, but we predict changes in call characteristics in response to anthropogenic noise. At five study sites: Roemer Arboretum, GVC Research Reserve, GVC Island Preserve, and one each in Rush and Livonia, bird feeders were set up before data collection. Autonomous recorders recorded 10 minutes/hour (6 am - 6 pm) for 48 hours at each site. These recordings were analyzed to assess relative traffic density, relative bird activity, and vocalizations. Next, we collected 1-hour audio recordings of Black-capped Chickadee and American Goldfinch vocalizations in the morning (6 am - 10 am) and afternoon (12 pm - 5 pm) while noting species identity and behavior during recordings. We used Raven Pro to measure maximum and minimum frequency of each vocalization, call length, and intervals between notes and between calls. We will report on differences between species and sites, and relationship of vocalization characteristics to anthropogenic noise.

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362 • Characterizing Soundscape Differences Across a Woodland Transect

STEPHEN LOCE, AUSTIN MANN
FACULTY SPONSOR: KRISTINA HANNAM, BIOLOGY

The world we live in is full of sound. These sounds can be categorized into those made by humans, anthrophonies, and those made by organisms in the natural environment, biophonies. Our research sought to understand how these categories of sounds contribute to the overall soundscape of a local woodland in autumn. The Indian Fort Nature Preserve is a sixty acre parcel of forested land in Geneseo with flora and fauna native to the Northeast United States. At this site, we recorded and compared levels of anthropogenic and biologic sounds at different times of day across an approximately 800m transect. We used Raven Lite, a sound analysis program, to identify which taxa were contributing to the biophony in the soundscape. Finally, we calculated the Acoustic Diversity Index across the transect. From these analyses, we determined the primary anthropogenic contributor to the soundscape to be automobiles driving on Route 390. This anthropogenic noise is most frequent around midmorning, and has the highest sound intensity at locations on the transect closest to the highway. Overall, there is little overlap between the anthropogenic and biophonic noise in the soundscape, yet future studies should be performed to identify any effects of this anthropogenic noise.

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363 • A Survey of Bat Species at SUNY Geneseo

AUSTIN MANN, STEPHEN LOCE
FACULTY SPONSOR: KRISTINA HANNAM, BIOLOGY

North America is home to a host of bat species, yet these organisms are often overlooked in scientific research because they are difficult to capture and monitor. Bats provide numerous ecosystem services such as insect control, pollination, and nutrient cycling. As a result, the presence or absence of bats can provide insight into the biodiversity and functioning of an ecosystem. This research asked: which bat species are present on SUNY Geneseo's campus and what locations do they use for foraging? During the late summer and early fall of 2018, we used an EchoMeter bat recorder to record the acoustic calls produced by bats during flight. Research sites included the College Green, Roemer Arboretum, and B-Lot. Analysis of the recordings allowed for the positive identification of big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), and hoary bat (*Lasiurus cinereus*) activity on campus. The bats' activity varied greatly depending on the time of night and location. All four species were recorded at all three locations, but the Arboretum had the highest level of activity. This research helps demonstrate that bats actively forage on campus, and point to several research questions for the future.

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364 • Competition for Seed Dispersers Between Native and Invasive Plant Species

EVAN BURR
FACULTY SPONSOR: SUANN YANG, BIOLOGY

In fruiting plants, competition for seed dispersers is an important factor in regeneration of the population.

Promotes sustainability

Partitioning niches across either disperser type or time facilitates the coexistence of plant species in a habitat filled with competing plants. An example of a habitat where invasive fruiting species are common are secondary successional forests such as SUNY Geneseo's Roemer Arboretum, with its variety of native and invasive fruiting species. We analyzed the fruit production over two fruiting seasons for a selection of invasive species, such as *Lonicera maackii* (Amur honeysuckle) and native species, such as *Parthenocissus quinquefolia* (Virginia creeper), to identify any partitioning of temporal niches and how this might influence the species interactions. For the same plants each week, we counted the number of fruit present in three stages (green, intermediate, and ripe) for two fruiting seasons. Our results show that multiple invasive species overlap in fruit production with native species, though between-year variation in phenology changes the degree of overlap. Thus we found evidence for competition between native and invasive species for fruit dispersers. This can cause potential stress on the native species population regeneration should they be outcompeted by an invasive counterpart. ***Selected for presentation at Northeast Natural History Conference, Springfield, MA.***

365 • Analysis of Soil Seed Bank for Secondary Successional Forest

DUSTIN LIEB, EVAN BURR
FACULTY SPONSOR: SUANN YANG, BIOLOGY

Soil seed banks serve as warehouses of genetic diversity for plant species, providing disturbed environments with an abundance of photosynthetic organisms ready to fill any available niche. A soil seed bank consists of the seeds that have dispersed from previous seasons and buried in the soil. In much of the world today, human disturbance has introduced non-native species into many natural soil seed banks, in turn leading to higher stress and competition for native plants. In the northeastern United States, non-native shrubs, such as *Lonicera morrowii* and *Elaegnus umbellata*, compete with native shrubs, such as *Cornus racemosa* and *Rubus occidentalis*. Because seed dispersers (such as birds) seem to show a preference towards non-native berries over native ones, the seed bank in the soil below native and non-native plants should show a higher abundance of non-native plants. Five soil samples taken under native shrubs and five soil samples taken under non-native shrubs were placed in trays and allowed to germinate. Results from the germination process suggest that soil plots under native plants produce higher proportion of native plants as well as higher plant densities compared to soil samples taken from under non-native plants.

366 • An Analysis on the Diversity of Success in a Cooperative Learning Community

ALLENA JAMISON
FACULTY SPONSOR: SUANN YANG, BIOLOGY

Research has shown that students will perform significantly higher when they partake in cooperative learning. One way to implement cooperative learning into the classroom is by the use of two-stage pyramid testing because it allows students evaluate their own and peer's knowledge during the experience. Two-stage pyramid testing allows for students to take an exam individually and again within a group setting. I asked if all students benefit similarly from a class where two-stage pyramid testing is employed. Final exams from previous semesters of BIOL 203: Principles of Ecology were evaluated on a question per question basis for the lowest and highest scoring students within each group. The individuals' exams were compared to their respective group's exam by subtracting the individuals' score on each question from their group's score, giving positive, negative, or zero differences. A positive difference between the two exams confirms effective cooperative testing, whereas a negative difference does not. No difference between the scores implies that cooperative learning is neither beneficial nor deleterious to the student. Preliminary results suggest that all students benefit from cooperative testing, regardless of how they scored on their individual exam.

367 • Using Camera Traps to Test Optimal Foraging Theory in Gray Squirrels

BRIANA SAMBUCHI
FACULTY SPONSOR: KRISTINA HANNAM, BIOLOGY

Foraging theory addresses decisions animals make while foraging for food, assuming they are trying to maximize food intake and minimize energy loss. One decision an animal makes is how long to spend at a food patch; they must forage there long enough to obtain an optimal food intake, but not past the point that intake rate declines. We can examine animals' decisions about how long to stay, and when to give up and find another food patch. We are using Eastern gray squirrels to develop a test of these foraging theory ideas. We set up a food tray and a camera trap to record the activity of the squirrels at the trays. We hypothesized that each organism would not stay at the tray until the food was completely depleted, but rather would only stay until they reached their optimal time foraging in that patch. We are determining whether camera trap footage can be used to testing the hypothesis that squirrels decide when to leave a patch by taking into account both their foraging time and energy intake. Using the technical advancements of camera traps, we are highlighting the foraging activities of Eastern gray squirrels and how they demonstrate foraging theory.

368 • Assessing the Role of Avian Seed Dispersal in the Spread of Invasive Plant Species

PHOEBE HARTVIGSEN, KIERSTEN COATES
FACULTY SPONSOR: SUANN YANG, BIOLOGY

Invasive plant species use a variety of ecological tactics in order to spread, often drastically changing the vegetative landscape. This alters fruiting phenology and therefore affects animal species such as pollinators and frugivores. Some plants use frugivores such as birds to enable more efficient dispersal of their seeds, which allow these plants to colonize a wider range with more viable seeds due to scarification provided by the birds' digestive enzymes. Our study took place in the Spencer J. Roemer Arboretum on the SUNY Geneseo campus. We collected data by walking along a set transect each week and collecting seeds dispersed by birds as both feces and regurgitations during the summer and fall of 2018. The data were analyzed using the programming language R. Our results indicate that birds do not preferentially spread invasive plant species but suggest that invasive *Lonicera maackii* seeds may possess chemicals that would inhibit the growth of co-dispersed native seeds. ***Selected for presentation at Northeast Natural History Conference, Springfield, MA.***

369 • Comparing Resource Allocation of Fruiting Native and Invasive Species

RHEANNA MEIER
FACULTY SPONSOR: SUANN YANG, BIOLOGY

The ability of invasive plant species to rapidly overtake native flora has become a growing problem in the Northeast US and elsewhere. A variety of mechanisms contribute to this ability, such as different strategies of resource allocation to fruit and flowers in native compared to invasive species. Life history theory suggests that fruit and flower size should be inversely related, since the plant has a finite number of resources. We hypothesize that there is a ratio of fruit to flower size that allow invasive species to quickly outcompete native species—a larger flower would allow for better pollination, but a larger fruit would allow for better dispersal. To test this hypothesis, we measured both fruit length and width, as well as flower area of multiple native and invasive species found in the Roemer Arboretum on campus. Preliminary results show that fruit size is similar across both native and invasive species. However, invasive species have much larger flowers. These findings suggest that invasive species have an advantage when it comes to reproduction. Additionally, these results may also indicate that fruit and flower size are not completely inversely related—perhaps the plant allocates resources to other areas, such as root production. ***Selected for presentation at Northeast Natural History Conference, Springfield, MA.***

370 • Invasive Plant Networks in New York Communities

JACOB WALTER, NOELLE STASO
FACULTY SPONSOR: SUANN YANG, BIOLOGY

A plant species in any given community may occupy an ecological niche that has developed within a network of species interactions over evolutionary time. When a plant species is introduced to another ecosystem and successfully naturalizes, it can alter the invaded ecosystem. The successful invasion of the first non-native species may facilitate the successful invasion of other species from its native community. Using vegetation survey data collected by the New York National Heritage Program we constructed network visualizations to understand the magnitude of non-native plant invasions. We constructed these networks for five communities throughout New York state: Whiteface Mountain, Pleasant Lake State Forest, Grass River Wild Forest, Otter Creek, and Stone Valley. These network visualizations will help to evaluate the extent at which plant species from the same community are invading communities in New York. Based on preliminary results, species found in the grasslands of nemoral forests in Northeastern Europe have been the most successful invaders. Identifying the extent of non-native species reassociation within a community may be useful to manage the introduction and further invasion of non-native species.

371 • Land Use and Tree Diversity

KAILA MCKIERNAN, CATHERINE KILADA
FACULTY SPONSOR: SUANN YANG, BIOLOGY

The decisions people make regarding tree choice has the ability to impact the environment on a large scale. A person's decision of planting a native or nonnative species has the ability to change biodiversity and impact the ecosystem of a given environment. Our research aims to analyze the reasons and choices people make regarding tree type in order to identify the impact these choices have on the environment. We distributed a paper version of our survey to the residents of the town of Geneseo and conducted an online survey with the Geneseo student body in order to determine if there is a common trend across New York State regarding tree choice and diversity. Our preliminary results conclude that the top three reasons one has for planting a tree are aesthetics, amount of shade, and the native status of the tree. We will also examine the link between the types of trees one chooses to plant and the person's reasoning. It is important for both the scientific community and the general public to be aware of how their tree choice can alter potentially harm the local ecosystem. ***Selected for presentation at Northeast Natural History Conference, Springfield, MA.***

372 • A Knowledge, Attitudes, and Practices Survey of Schistosomiasis in a Peri-urban Informal Community in Ghana

SARAH BRACY
FACULTY SPONSOR: SUSAN MUENCH, BIOLOGY

Schistosomiasis is a neglected tropical disease prevalent especially in sub-Saharan Africa. While there are five different types of schistosome species, this study focuses on *Schistosoma mansoni* and *Schistosoma haematobium* due to their high prevalence in Ghana, Africa. Because the schistosome parasite is transmitted through water contact, understanding water contact practices such as swimming, fishing, bathing, and washing is necessary to prevent infection. Poor sanitation (urination and defecation along the lake), results in infection of the obligate snail intermediate host. Every year, SUNY Geneseo students travel to Tomefa to gather information on schistosomiasis prevalence and reinfection rates, and to provide health education to the community. Using children's books, songs, and games, SUNY Geneseo students have attempted to raise awareness and increase knowledge about schistosomiasis, and using questionnaires, have investigated behaviors attitudes that increase the likelihood of infection. Unfortunately, reinfection rates remain high, and schistosomiasis remains prevalent.

373 • Health Behaviors and Schistosome Infection in Children in an Informal Periurban Community in Ghana

ASHLYN NARDI, JASON NIETZSCHMANN
FACULTY SPONSOR: SUSAN MUENCH, BIOLOGY

Schistosomiasis is a disease caused by flatworm parasites that affects more than 200 million people globally. Human hosts become infected through contact with water contaminated with human waste. Tomefa is an informal periurban community with a very high prevalence of schistosomiasis. Geneseo students have been studying schistosomiasis in the community since 2014, and have conducted a knowledge, attitudes and practice survey every year since 2016. A questionnaire was administered to children in the school to investigate familiarity with parasitic infections as well as their health-related behaviors and habits. Over the three years that the survey has been given, there was no decrease in lake water usage for swimming, cooking/cleaning, fetching water, fishing, and a minimal decrease in schistosomiasis infection. Fewer students reported urination near the lake but also in knowledge of schistosomiasis. Lack of change in health behaviors may reflect economic constraints on choices that villagers face as well as lack of infrastructure.

374 • Analysis of the Retinal Degeneration Pathway in *chaf1b* Zebrafish Mutants

LINDSEY DRESSLER
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

Zebrafish embryos homozygous for *chaf1b* loss-of-function alleles display a reduction in eye size compared to wild-type siblings. Many cells of the *chaf1b* mutants degenerate, leading to a failure of retinal and brain development, resulting in lethality of affected organisms. Embryos mutant for *chaf1b* where Tp53 was inhibited by morpholino knockdown showed decreased markers of apoptosis including expression of Tp53-target genes (Fischer et al.). Morpholino knockdown of Tp53 failed to prevent cell death in gef mutants assayed by Terminal deoxynucleotidyl transferase dUTP nick end labeling (TUNEL). Apoptosis in the central retinal of *gef* mutants, where Tp53 protein levels were downregulated, was still present. The difference seen in *gef* versus t24412 embryos could be explained by a failure to completely inhibit Tp53 protein expression. To test whether Tp53 is required for the cell death seen in *gef* embryos, we performed phenotypic analysis on embryos from an intercross of adults heterozygous for the *gef* mutation and loss-of-function allele of *tp53*, *zdf1*. Phenotypic analysis of these embryos failed to show rescue of apoptosis based on expected Mendelian ratios. To confirm the *tp53* genotype of embryos displaying the gef-mutant phenotype, small-eyed embryos from double heterozygous intercrosses were subjected to restriction fragment length polymorphism analysis. ***Selected for presentation at Northeastern Society of Developmental Biology, Woods Hole, MA.***

375 • Examination of Cell Signaling in *gef*-Mutant Zebrafish

WILLIAM MEYER
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

In recent years, zebrafish have grown in prominence as a model organism for complex, eukaryotic biological systems. Their high fecundity and relatively low cost make them useful in genetic studies and screens. This allows us to isolate many mutant phenotypes in zebrafish which resemble diseases in humans. In our experiment, we examine a particular mutation which results in abnormal development of the zebrafish retina which may give insight into retinal developmental. The *good effort* (*gef*) mutant zebrafish develop normally for two days but are unable to finish development of a functional retina and degenerate. The *gef* mutation causes retinal cells which would normally differentiate into the different cells of the retina to die in the later stages of their development. We hypothesis that this is the cause of faulty cell signaling in the Wnt and sonic hedgehog signaling pathways. To examine our hypothesis, we performed *in situ* hybridizations assaying select genes of each pathway to determine if their expression was impaired in *gef*-mutants as compared to normal zebrafish embryos.

376 • Evolution of Forelimb Size and Shape in Nonavian Theropod Dinosaurs

COREY STEIN
FACULTY SPONSOR: SARA BURCH, BIOLOGY

Nonavian theropod dinosaurs represents a diverse group of bipedal tetrapods. In this group, the relationship of forelimb length to body size can provide insight regarding the primary function of the forelimbs. This study used phylogenetic regressions and stepwise Ornstein-Uhlenbeck modeling to investigate large-scale trends in forelimb size and shape evolution across the 120 theropod taxa. Ornstein-Uhlenbeck modeling was used to detect convergence of relative forelimb size in theropod groups and test the likelihood of different hypothesis on forelimb evolution. Phylogenetic Least Squares regressions were used to identify correlations between the size and shape of forelimb, humerus, antebrachium and scapula across clades. Results of model-testing found strong support for three evolutionary regimes in the forelimb, humerus and antebrachium, whereas the scapula showed the greatest likelihood of only one regime. Tyrannosaurs and abelisaurs showed evidence of convergence towards a similar forelimb ratio. Results of the regression analysis found negative allometry in each bone analyzed. This indicates that as theropods got larger, their forelimbs were relatively smaller. These results suggest that forelimb evolution in nonavian theropod dinosaurs was complex and it is likely that functional constraints played an important role.

377 • Expression of Notch Pathway Genes in *gef* Mutant *Danio rerio*

AMANDA YOUNG, SARA FEINLAND
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

Good effort (*gef*) mutants were identified by a mutagenesis screening of *Danio rerio* (zebrafish) and are characterized by an underdeveloped retina by 3 days post fertilization (dpf) and lethality at 7 dpf. Subsequent research found a three base pair deletion in the *chaf1b* gene of *gef* mutants. Chaf1b is known to be part of a protein complex which loads histones on newly replicated DNA, and if mutated, failure to load histones properly could affect transcription of genes and be responsible for the small-eye phenotype in gef mutants. To investigate the effects of *chaf1b* mutation on retinal development, deep-RNA sequencing and DAVID bioinformatic analysis highlighted genes of shared pathways that are downregulated in *gef* mutants compared to wild type embryos. Two genes, *notch1a* and *her15.1*, were selected for further study. These genes are normally expressed in the spine, head, and retina and are part of the Notch signaling pathway, which is essential for retinal development. Loss-of-expression of these genes might contribute to the *gef*-mutant phenotype.We expect less expression of these two

genes in the retina. We compared expression of *notch1a* and *her15.1* by *in situ* hybridization in *gef*-mutant and wild-type embryos. ***Selected for presentation at Northeast Society of Developmental Biology, Woods Hole, MA.***

378 • Using PCR to find Endemic Viruses in Zebrafish

DAVID SHING SHUN LEUNG, KATIE HAN
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

Zebrafish has become a popular research model in the last years and several diseases affecting zebrafish research facilities have been reported. While there are numerous bacterial, protozoan, and metazoan diseases, there has only been one documented case of a naturally occuring viral infection in zebrafish. Viruses have the potential to alter the results of experimentation in ways that have been observed in other model organisms such as the mouse where viral infections have resulted in interference with the development of embryos. The lack of known natural viral infections of zebrafish is unlikely due to their absence, but is likely a result of the few investigations aiming to characterize these infections. Through the use of PCR viral infections can be characterized with a high degree of specificity. We used nested PCR with primers that were previously designed and validated in other closely related fish species that target the unique thymidine kinase gene of cryptid herpesvirus 3 (CyHV-3). Apart from CyHV-3, carp edema virus (CEV), and the spring viremia of carp virus were also investigated. As the spring viremia of carp virus is an RNA virus, RT-PCR was run on sickly fish in the Bailey laboratory vivarium.

379 • Examining the Transgene *neurod4*:GFP in Zebrafish Development

HALEY SAUNDERS
FACULTY SPONSOR: TRAVIS BAILEY, BIOLOGY

The proneural gene *neurod4* is expressed in the developing retina and olfactory neurons of the zebrafish embryo. Although a role in olfactory neuron differentiation is known with *neurog1*, little is known about its role in retinal development and regeneration. We generated a *neurod4* reporter transgene using the 2.1 kb 5' genomic DNA fused to the coding region of GFP. We have analyzed the expression pattern of this transgene and are comparing expression by hybridization chain reaction (HCR). Disruption of Neurod4 protein expression was inhibited by morpholino knockdown in light-damaged retinas, which allows us to understand that *neurod4* was involved in the cell cycle after tissue damage because there was more expression of *neurod4* after the 72 hours of light damage. During the spring of 2019, we have started the next generation of *in situ* hybridization (ISH), which is a hybridization chain reaction (HCR). The HCR is a new method that yields precise results without the length and error rate of the traditional ISH protocols. This method utilizes small RNA probes that are complementary to the mRNA in study, which allows a chain reaction in which charged and fluorescently labeled hairpins assemble to polymerize the probe amplifying even a weak signal. ***Selected for presentation at Central New York Zebrafish Meeting, Syracuse, NY.***

CENTER FOR COMMUNITY

358 • Fostering STEM Interest in Elementary School Students Through Neuroscience: A Look at Community Outreach in Geneseo's Rkids After-school Program

ANNA BELTRAMINI, ANNIKA MOUNTS, JACKSON PULIZZI
FACULTY SPONSORS: KATE REGNER, CENTER FOR COMMUNITY, TERENCE BAZZETT, NEUROSCIENCE

As a way to encourage community service and application-based learning NEUR 215: Applications in Neuroscience connects undergraduate students at Geneseo with underserved children in the surrounding community. As in previous semesters, children in 3rd-5th grade who participate in this enrichment program benefit from weekly tutoring sessions, but the goal of this course is to further engage them in interactive learning through neuroscience related activities. Additionally, the experience of being on campus and interacting within a college setting is used to stimulate a positive association with higher education. Sessions are designed with the intention of creating an enjoyable learning environment while providing exposure to STEM based lessons. Some activities include learning the anatomy and function of the brain, exploring communication between the brain and the heart, and touring various research facilities on campus. By providing early exposure to these neuroscience-related concepts, the children are encouraged to see STEM as an interesting and viable career path.

CHEMISTRY

301 • Establishment of Peptide Coverage Measurement

DAVID AKANONU, KAYLEE HAUSRATH, GUS FORMATO
FACULTY SPONSORS: KAZUSHIGE YOKOYAMA, CHEMISTRY

The adsorption of amyloidogenic peptides, amyloid beta 1-40 (Aβ1-40), alpha-synuclein (α-syn), and beta 2 microglobulin (β2M), was attempted over the surface of nano-gold colloidal particles, ranging from d =10 nm and 100 nm in diameter (d). The spectroscopic inspection between pH 2 and pH 12 successfully extracted the critical pH point (pHo) at which the color change of the amyloidogenic peptide coated nano-gold colloids occurred due to aggregation of the nano-gold colloids. The change in surface property caused by the degree of peptide coverage was hypothesized to reflect the difference of pHo between bare gold colloids and peptide coated gold colloids. The coverage ratio (Q) for all amyloidogenic peptides over gold colloid of different sizes was extracted by assuming Q = 0 when there is no pHo shift. Remarkably, Q was found to have a nano-gold colloidal size dependence, however, this nano-size dependence was not simply correlated with d.

312 • Determination of Nano-scale Adsorption Orientation of Peptide

AKANE ICHIKI, ISHAN DESHMUKH
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The geometric analysis and simulation was conducted by assuming a prolate shape of all amyloidogenic peptides. The simulation concluded that a spiking-out orientation of a prolate was required in order to reproduce the extracted peptide coverage ratio, Q. The involvement of a secondary layer was suggested; this secondary layer was considered to be due to the networking of the peptides. Both $A\beta_{1\text{-}40}$ and β2M are considered to have a partial charge (especially d+) distribution centering around the prolate axis. The α-syn, on the other hand, possesses a distorted charge distribution. For relatively lower Q (i.e., Q < 0.56), a prolate was assumed to conduct a gyration motion, maintaining the spiking-out orientation in order to fill in the unoccupied space with a tilting angle of approximately 25º. ***Selected for presentation at American Chemistry Conference, Albuquerque, NM.***

313 • Observation of Peptide "Coverage Shell " Over Nano-gold Surface

ISHAN DESHMUKH, ERIC KOESSLER
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The formation of peptide coverage shell was identified for the first time. The amyloid beta 1-40 ($A\beta_{1\text{-}40}$) was gradually added to the gold colloidal particles with the size of 20 nm. We discovered two concentration range exhibit the step-function like of response for gold aggregate formation. While the first step function implies the semi-aggregation of gold colloids, the second step function indicates the completion of gold colloid aggregates. Based on this observation, we are currently building up the aggregation model which possess certain threshold coverage at over that value the surface potential is set for the peptide–peptide networking.

314 • Investigation of Amyloid Beta Conformation at Nanoscale Interface

ERIC KOESSLER, GUS FORMATO
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The amyloid beta (Aβ) conformation at interfacial condition provides very critical information of peptide networking, which can lead to fibrillogenesis (a hallmark of Alzheimer's disease). Our group has discovered that Aβ peptide can conduct a reversible self-assembly process between folded (at pH 10) and unfolded (at pH 4) conformation over nano-gold particles. By using circular dichroism spectroscopy, we investigated the secondary structures of Aβ under differing pH conditions. Depending on the nanosize gold particles, the α-helical structure was either remained or destroyed. At relatively larger size of gold colloid, we observed more folding in peptides implying that nanoscale surface potential affect the conformation of peptide.

315 • Probing the Charged Surface Potential (Zeta-Potential) of Amyloid Beta Peptide Covered Gold Nanoparticles

GUS FORMATO, ERIC KOESSLER
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

While the amyloid beta (Aβ) peptides easily aggregate to form amyloid (fibril) under acidic condition, nano gold particles do not aggregate. Under Aβ coated over gold nano-colloidal surface,

gold colloids proceed aggregates easily. However, not so much information on surface potential have been investigated. We propose to directly measure the surface charged potential (ζ-potential) by using the direct light scattering method. While a bare gold colloid posses a negative surface potential, Aβ covered gold colloid showed a positive potential implying the surface condition was totally changed due to the attachment of peptides. The ζ-potential clearly exhibit the change in colloidal surface charge distribution reflecting coverage ratio or conformation of adsorbed peptides.

316 • Attempt of Raman Imaging Study for Amyloid Beta Coated Nano-gold Colloidal Particle

KAYLEE HAUSRATH, AKANE ICHIKI, GUS FORMATO
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The conformation of amyloid beta (Aβ) placed at nano-metal surface has been a great interest to identify the conformational change significant for both adsorption and networking. However, identification and detection of this conformation is extremely difficult due to no appropriate spectroscopic method which is suited for detecting the signal associated with interface environment only. The recent development of Raman imaging technique is exactly the method which uniquely detects the signal of peptide only at the interface area. The direct spectroscopic data will identify the mode (vibrational mode) associated with the structure of the peptide. We attempt to utilize available Raman Imaging system to test our sample to search for the possibility of using this instrument for our future project.

317 • Nanoscale Interfacial Interaction of Amyloid Beta Peptide 1-40 with ThT

JUSTIN SLOVAK, GUS FORMATO
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

Amyloid beta peptide 1-40 ($A\beta_{1\text{-}40}$) was prepared over nanogold colloidal surfaces together with thioflavin T (ThT) dye as a fluorophore. The fluorescence assay of ThT displayed two different types of fluorescence bands: 1) mainly originating from free-ThT and 2) ThT significantly interacted with $A\beta_{1\text{-}40}$. The ThT directly interacted with $A\beta_{1\text{-}40}$ adsorbed over the gold colloidal surface. A series of studies on fluorescence decay time were collected at various pHs ranging from pH 1 to pH 12, and with several gold colloidal sizes ranging from 10 nm to 100 nm. It was concluded that ThT attached to either 22-Glu or 23-Asp of the $A\beta_{1\text{-}40}$ through an electrostatic interaction between adjacent $A\beta_{1\text{-}40}$ monomers, as $A\beta_{1\text{-}40}$ proceeds a folding conformational change. The spacing between adjacent $A\beta_{1\text{-}40}$ monomers was increased for gold colloidal sizes of 50 nm and above. An identification of the ThT attachment site in $A\beta_{1\text{-}40}$ simultaneously confirmed that the hydrophobic segment of $A\beta_{1\text{-}40}$ was used in binding to the gold colloidal surface and the hydrophilic site of $A\beta_{1\text{-}40}$ is used in networking with the other $A\beta_{1\text{-}40}$ adsorbed on the gold colloidal surface.

318 • Disubstituted Naphthalene Diimides Binding to DNA G-Quadruplexes

JOSEPH KANLONG
FACULTY SPONSOR: RUEL MCKNIGHT, CHEMISTRY

We have carried out studies of a series of disubstituted naphthalene diimides (NDIs) binding to a human telomeric G-quadruplex (G4) DNA sequence [5'G3(T2AG3)3]. The G-rich sequences of DNA are able to form G-quadruplexes and are found in the telomeric regions at the ends of chromosomes, as well as near the promoter regions of oncogenes, implying they could have a role in the inhibition of telomerase and downregulation of oncogene expression, both of which should result in an inhibition of cancer growth and proliferation. Four unique NDIs have been studied using isothermal titration calorimetry (ITC), fluorescence displacement, and circular dichroism (CD), showing that they bind to and stabilize G4 DNA. Fluorescence displacement studies using thioflavin-T (a fluorogenic dye known to bind with G4 DNA) showed that the NDIs evicted the thioflavin-T from its binding site on the quadruplexes, demonstrating that they bind by intercalating or end-stacking with the quadruplexes. Thermodynamic binding parameters obtained from the ITC confirmed strong binding of the NDIs to G4 DNA. The binding of these disubstituted NDIs suggests promising potential as lead compounds for new therapeutic drugs.

319 • Binding of Telomeric DNA G-Quadruplexes by Abietane Diterpene Natural Products

JOSEPH KANLONG, SARAH OSTROWSKI
FACULTY SPONSOR: RUEL MCKNIGHT, CHEMISTRY

We have carried out studies on a homologous series of abietane diterpenes binding to a human telomeric G-quadruplex (G4) DNA sequence [5'G3(T2AG3)3]. These G4 DNA structures are found in G-rich telomeric regions at the ends of chromosomes and near promoter regions of oncogenes. Targeted stabilization of G-quadruplex DNA by drugs has been implicated in telomerase inhibition and downregulation of oncogenes, both of which should result in an inhibition of cancer growth. The abietane diterpenes are a class of natural products isolated from certain plants (e.g., *Hyptis verticillata*) known in many cultures for their anti-microbial, anti-inflammatory, and anti-cancer medicinal benefits. Binding characteristics were evaluated using circular dichroism (CD) spectroscopy, UV-thermal denaturation and fluorescence displacement studies. Overall, our studies show that the abietane diterpenes of this study bind to human telomeric G4 DNA, with selected compounds binding strongly. The binding of these abietane diterpenes to G4 DNA suggests promising therapeutic potential as lead compounds and warrants further investigation. ***Selected for presentation at Experimental Biology, Orlando, FL.***

320 • Investigating Oxidation of Alcohols with $(NH_4)_2Cr_2O_7$ in Washed Sand

EMILY TOY, JOHN LEPORE
FACULTY SPONSOR: ROBERT TORREGROSA, CHEMISTRY

The oxidation of alcohols to aldehydes and ketones is among the important class of reactions in organic chemistry. Classical methods used to oxidize primary and secondary alcohols into aldehydes and ketones utilize chromium-based reagents such as pyridinum chlorochromate (PCC) and sodium dichromate ($Na_2Cr_2O_7$). There has been an increasing interest throughout the years to use supported reagents in tandem with these reactions, particularly with silica gel. Despite the abundance of reported reactions carried out in silica gel in the literature, it is surprising that little is known about using sand as the medium for solid support, despite both have the same chemical formula (SiO_2), degree of crystallinity, and porosity but different price. Herein, we report some of our results regarding the oxidation of selected primary and secondary alcohols by co-grinding $(NH_4)_2Cr_2O_7$ with washed sand. Using toluene or acetonitrile, primary and secondary alcohols are oxidized cleanly into aldehydes and ketones respectively based on TLC monitoring and ^1H and ^{13}C-NMR of the crude material. Current progress focuses on preparing aldehydes and ketones using the developed reaction and comparison to silica gel-supported oxidation reactions. ***Selected for presentation at SUNY Undergrad Research Conference, Sanborn, NY.***

321 • Dynamical Investigation of Adsorption Orientation of Amyloid Beta Peptide 1-40 at Nano-scale Gold Surface Under Water Environment

SAKURA HAMAZAKI, STEPHANIE LEE
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The energy relaxation process of an electronically excited fluorescein dye embedded to the amyloid beta peptide 1-40 ($A\beta_{1\text{-}40}$; fluorescein attached amyloid beta 1-40, FAβ) was examined as FAβ interacted with various sizes of gold nano-colloidal particles ranging in size between 10 nm and 100 nm in diameter. The fluorescence profile accurately reflected which segment of $A\beta_{1\text{-}40}$ was used for the adsorption over the nano-gold surface. It was concluded that the FAβ adsorbed over the nano-colloidal surface through the hydrophobic (C-terminal side) in water. Further, the entire dynamical profile of fluorescein was successfully explained by a relative degree of interaction between a fluorescein and the gold nano-particle surface. Particular nano-size dependent dynamical features were observed at pH 10-12 (corresponding folded conformation of $A\beta_{1\text{-}40}$) in water and gave a high correlation with nano-size dependent coverage features of Aβ over the nano-gold colloidal surface. ***Selected for presentation at American Chemical Society, Rochester, NY.***

322 • Determination of Aggregate's Distance for Amyloidogenic Peptides at Nano-Scale Interface

STEPHANIE LEE
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

We successfully identified the layer of Beta-2-microglobulin (β2M) to be approximately 0.9 nm in width over gold colloid surface ranging between 10 nm to 100 nm. This layer is responsible for β2M to be coated over gold colloid particles. From geometric simulation, a monolayer is formed for adsorption of peptides, and a multi-layer is formed as peptides form networking. The layer's thickness

showed signs of being not dependent on the size of the gold colloid. We are currently investigating the segments responsible for adsorption and networking.

323 • Networking of of Amyloidogenic Peptides Over Nano-Gold Colloidal Particles' Surfaces.

JULIAN BARBER, STEPHANIE LEE
FACULTY SPONSOR: KAZUSHIGE YOKOYAMA, CHEMISTRY

The amyloidogenic peptide networking at nano-scale interfacial region was examined. An extracted average distance of networking between adjacent gold colloids supports the binding of peptides as if they are "entangled" and enclosed in an interfacial distance that was found to be approximately 2 nm. The complex nano-size dependence of Q was explained by the available spacing between adjacent prolates. When the secondary layer was formed, $A\beta_{1-40}$ and b2m possessed a higher affinity to a partially negative nano-gold colloidal surface. On the other hand, a-syn peptides tend to interact with each other. This difference was explained by the difference in partial charge distribution over a monomer. Both $A\beta_{1-40}$ and b2m are considered to have a partial charge (especially d+) distribution centering around the prolate axis.

COMPUTING & INFORMATION TECHNOLOGY

463 • Development of Video Monitoring Methods to Quantify Activity and Map Movement of an Ant-Mimicking Spider, *Myrmarachne formicaria*

CHLOE COTTONE
FACULTY SPONSORS: KIRK ANNE, COMPUTING & INFORMATION TECHNOLOGY; JENNIFER APPLE, BIOLOGY

The ant-mimicking spider *Myrmarachne formicaria* has recently been introduced to North America. In the Roemer Arboretum, we have encountered webbed shelters on vinyl pin flags used to mark ant nests. *M. formicaria* demonstrates mimicry through its ant-like physical appearance, and in behaviors like waving its front legs to look like antennae. Little is known of its natural history. This project aims at uncovering day-to-day activity patterns (i.e how much time is spent in silken shelters vs. foraging in the vicinity). Using two Raspberry Pi cameras that captured images every half second for 12-hour periods over multiple days, we developed image analysis methods that were able to recognize the spider housed in transparent enclosures. The activity of male, female, and immature spiders were compared. Motion of spiders was detected by comparing three images at a time with OpenCV, an open source computer vision library. The resulting image indicates motion as light pixels against a dark background. The pixel values were used to create graphical representations of activity patterns for each individual. Statistical analysis of the pixel values as well as visual interpretation of the gradient maps were used to compare activity budgets among individuals.

464 • Chromosomal Spatial Distribution in the Extremely Polyploid *Epulopiscium* sp. type B

ALLISON FERNANDEZ
FACULTY SPONSORS: KIRK ANNE, COMPUTING & INFORMATION TECHNOLOGY; ELIZABETH HUTCHISON, BIOLOGY; ANNE PELLERIN PHYSICS & ASTRONOMY

One of the most extreme examples of bacterial polyploidy known can be found in *Epulopiscium* sp. type B. This giant bacterium maintains thousands of copies of its genome and successfully manages its resources in the face of it's surface-area-to-volume ratio. We used interdisciplinary techniques to analyze the spatial distribution of chromosomes in the extremely polyploid intestinal symbiont *Epulopiscium* sp. type B. We have rendered computer-generated three-dimensional images of two localized chromosomal regions, labeled with either a green or red fluorescent probe. Upon analysis of the chromosome probes, we filtered them based on magnitude of fluorescence, and determined their X and Y positions using well-known astronomy analysis software. After applying the model to additional images of *Epulopiscium* sp. type B, we will use statistical analysis to predict whether the chromosomes appear randomly or non-randomly distributed within cells. If the chromosomes are not randomly distributed, this provides support that *Epulopiscium* sp. Type B is actively organizing its chromosomes.

ECONOMICS

462 • Prawn introduction in Ghana; Decreasing Schistosomiasis and Aiding in Economic Growth

LUCAS SUTTON
FACULTY SPONSORS: PALLAVI PANDA; ECONOMICS; SUSAN MUENCH, BIOLOGY

Schistosomiasis is a neglected tropical disease that affects 240 million people worldwide. The project will be looking at the impact of prawn introduction in a Ghana community on consumption, income, education, and health of individuals. Since this is a fishing community, we expect to see prawn introduction working via the channels of increasing incomes as well as decreasing schistosomiasis Impact to improve the health of individuals. Since the livelihoods of a large number of people are associated with prawn farming, the study will delve into this bio-economic nexus to analyze if this could have a long-term impact on the community. We will be collecting two rounds of survey data before and after the introduction of prawns on key economic variables like daily income, consumption patterns, and record of sick/healthy days. The survey will be run on household members of the community affected by the prawn introduction as well as a survey of the nearby market to record price data for seafood. This will give us insights into the mechanism and magnitude of success of the program.

EDUCATION

458 • The Impact of a Reggio Emilia-Inspired Summer Program on the Transitions of Students Affected By Childhood Trauma Back to the Academic Setting

MICHAEL MASETTA
FACULTY SPONSOR: ANNMARIE URSO, EDUCATION

The purpose of this study was to research the impact of the Soaring Stars Summer Program on the transitions of students affected by childhood trauma back to the academic setting. SUNY Geneseo's Soaring Stars Summer Program is an inclusive, Reggio Emilia-inspired summer enrichment learning program which serves economically disadvantaged students entering Grades 1 through 6. The Program provides students with inquiry-based learning experiences across a variety of disciplines in a low-risk setting. Students in the Program have increasingly endured adverse childhood experiences and are diagnosed with anxiety, depression, PTSD, reactive attachment disorder, and other conditions. This case study was conducted on three students affected by childhood trauma who attended the Program in the summer of 2018, and it investigated how the Program impacted their transitions back to school, how the Reggio Emilia-inspired aspects of the Program affected the students' development, and how the program can improve its practices and setting to be supportive for students affected by childhood trauma. Implications of this research may also be pertinent to schools, teachers, and other professionals in education looking for ways to integrate Reggio Emilia principles with practices which are responsive to students affected by adverse childhood experiences.

459 • Segregation in Public Schools in 1967-1968 Compared to Today

ANDREW NICCITTA
FACULTY SPONSOR: JANE MORSE, EDUCATION

This research compares racial segregation in public elementary schools in 1967-1968, to segregation in schools today, fifty-five years after Brown v. Board. I compared the results of a 1974 study on segregation by Farley and Taeuber to the results of my own research on segregation using recent data retrieved from greatschools.org. Farley and Taeuber measured the prevalence of racial segregation using a mathematical index of dissimilarity. According to Wikipedia, "the index of dissimilarity is a demographic measure of the evenness with which two groups are distributed across component geographic areas that make up a larger area." The dissimilarity index (12i=1N|aiA-biB|) calculates a score that states the proportion of non-white students that would need to leave in order to have an equal proportion of white and non-white students in a given area. A score of 0 means the area is fully integrated, while a score of 100 means the area is fully segregated. I calculated the index of dissimilarity for 10 of the schools in Farley and Taeuber's (1974) paper. This research supports the claim that racial segregation, ruled unconstitutional in 1954, still exists in America today.

460 • "How do I know which program best supports reading instruction?" A Comparative Analysis of Three Elementary Literacy Approaches

BRIDGET DONNELLAN
FACULTY SPONSOR: THEA YURKEWECZ, EDUCATION

There are a range of curriculum programs that focus on literacy instruction implemented in schools across the nation. The focus of this poster session presents the methods and research on how to evaluate school-based reading programs. Specifically, a comparative analysis on commercialized reading systems is presented to

Promotes sustainability

inform the education community on the strengths and areas of concerns in order to make recommendations for future research and implications for instruction. The process of analyzing current research and interviewing local practicing teachers determined the selection of three popular elementary reading systems: Lucy Calkins Units of Study for Reading, Daily CAFE Literacy System, and the Wilson Reading System. This poster will include charts that analyze the information regarding the contents of each reading system, feedback from practicing teachers, and conclusions drawn from the analysis to determine the effectiveness of each approach. From the conclusions drawn, an overall recommendation will be provided on which system would most benefit practicing and pre-service teachers literacy instruction. ***Selected for presentation at New York State Reading Association Conference, Albany, NY***

461 • Using Children's Literature to Promote Social Justice

CONOR LYNCH

FACULTY SPONSOR: CRYSTAL SIMMONS, EDUCATION

The world is ever changing and with that so are young children in elementary school and beyond. In a country where there is great divide we try and figure out ways to encourage children to begin the thought process of how they could start learning how to be a social justice advocate. Picture books serve as a mirror and window for students to understand themselves and others. It is imperative that we have challenging conversations with students about social justice as early as elementary school to ensure that our country and our world is just.Books are the gateway for students to envision what can be and will encourage all to fight for what they believe in. Current movements such as Black Lives Matter, LGBTQ and Women's rights are at the forefront of our history and students learning about these movements through literature will ensure that all will be treated with respect and empathy in the future. Our presentation will include children's literature books that speak to issues of diversity, inclusion and social justice. These books can be used for future educators as well as parents to guide conversations.

ENGLISH

450 • OpenValley: A Green New Deal

ABIGAIL RITZ, EMILY SPINA, BEN MICHALAK, JUSTIN ANDERSON, JOHN SERBALIK, ELIZABETH RAMSAY, JAY BANG

FACULTY SPONSOR: KEN COOPER, ENGLISH

The New Deal Gallery in Mount Morris, which operates under the Genesee Valley Council on the Arts, houses over two hundred works of art created by more than a hundred artists during the Great Depression. In this project, students in Geneseo's OpenValley course have developed several online exhibits using the Gallery's collection. "The Green New Deal," however, goes beyond simply researching and publicizing Federal Art Project paintings from the past. Students have re-framed these works using an ecological context in order to explore connections between climate anxieties experienced during Dust Bowl Days and those of our current environmental crisis. Through exploring ecological themes in these paintings of indirect witness, students have, among other things, revealed a myriad of ways the climate crisis of the 1930's serves not as a harbinger of the Anthropocene but already the beginning of it. The work of this class is a part of and based upon a project undertaken for the James Houston 2018 Ambassadorship in Innovation.

465 • Asian Skincare and Its Differences from American Skincare

HUNG JIN JIN, YUME IRIYAMA

FACULTY SPONSOR: IRENE BELYAKOV-GOODMAN, ENGLISH

Asian skincare has become a trend. To share knowledge about Asian skincare, two presenters from Japan and Korea have collaborated to work on this specific topic.They will talk about the differences between American and Asian skincare. Share some tips that Asian people have regarding skincare. Along with the tips, they will talk about trends in skincare.

GEOGRAPHY

400 • The Most Racist Town in America

FAITH CHOJAR

FACULTY SPONSOR: DARRELL NORRIS, GEOGRAPHY

Two Christian Identity churches, the Christian Revival Center and Kingdom Identity Ministries, and the mailing address for the National Director of the Knights of the Ku Klux Klan are located in Harrison, Arkansas. Christian Identity churches have been recognized as hate groups by the Southern Poverty Law Center and are centered around racist and anti-semitic ideologies. The Christian Revival Center is headed by Thomas Robb, who is also the National Director of the KKK. Kingdom Identity Ministries is the largest producer of Christian Identity propaganda in the country. There is considerable support for the town of Harrison to retain its reputation as a town steeped in hate from the community. On the contrary, there have been several anti-hate organizations formed in this region which function to denounce the current image of Harrison and promote diversity and change. The small town is now known as the most racist town in America, yet it is continuously at odds with itself. ***Selected for presentation at SUNY Undergrad Research Conference, Sanborn, NY.***

401 • Early Accommodation in the Indian Lake Region 1860-1930

KIRSTEN LOMNITZER

FACULTY SPONSOR: DARRELL NORRIS, GEOGRAPHY

Adirondack tourism, still viable after two centuries' development, has run a gamut from wilderness guides to Airbnb via areas associated with grand lodges, boarding houses, cottages, campgrounds and motels. Indian Lake in Hamilton County, NY, in the heart of the Adirondacks, affords an excellent perspective on each tourism era. Close scrutiny of this built heritage reveals patterns of growth and stagnation, and indeed disappearance in many instances as fire and time erased even the grandest of structures. My poster offers a user-friendly introduction to the legacy of the Indian Lake tourist facilities and their perspective on the Adirondacks' past.

412 • The Rise and Fall of Pachinko: A Geographical Perspective

CHIKA GAYTON

FACULTY SPONSOR: DARRELL NORRIS, GEOGRAPHY

After experiencing decades of booming popularity in Japan, pachinko (coined the "national pastime") began its trend of decline in the middle of the 1980s. Initial research showed that elderly population had a significant positive correlation with pachinko parlors per capita. This raised the question: with Japan experiencing a terrifyingly rapid increase in elderly population, why has pachinko continued to decline? This study investigated potential variables that could explain the discrepancy between elderly population and pachinko. Four variables retrieved from Japan-stats.com (agriculture working population, elderly population, population concentration, broadband contracts) were subjected to single and multiple regression analysis to uncover potential significant correlations with the dependent variable (Pachinko parlors per capita). After computing correlations for each independent variable, another test was run to determine potential positive and negative residuals. It is hypothesized that broadband connections, possibly in tandem with other independent variables, will have a significant correlation with pachinko parlors per capita, and that the potential residuals could explain other economic and social factors influencing this trend of decline.

413 • The Rise of Gourmet Eating in The New American South

JACOB KNOWLES

FACULTY SPONSOR: DARRELL NORRIS, GEOGRAPHY

This poster seeks to determine which areas of the South have embraced high-end Southern eating and what factors affect the culinary identity of those regions. This is done by examining the distribution and relative number of high-end Southern cuisine restaurants in the American South in contexts such as income, education, age, and obesity. Websites such as Tripadvisor.com present comprehensive listings of a city's restaurants. Data on the type, price point, and quality of restaurants were collected for 50 sample cities stratified by population and regional location. Graphing and statistical calculators were used to find a correlation between the occurrences of high-end southern restaurants and the census variable recorded. Results demonstrate a heterogeneous geography of the culinary South and its growing prestige as a restaurant cuisine. The relative presence of high-end Southern cuisine is tied to several mediating contexts such as income, the presence of young singles, and education of the population. The shift to this 'New South' cuisine has become most apparent in urban counties that exemplify one or more of these instigating factors. ***Selected for presentation at SUNY Undergrad Research Conference, Sanborn, NY.***

414 • Tudor Revival Homes in an Early Automobile Suburb: Brighton, NY 1916-1950

EVAN DASH

FACULTY SPONSOR: DARRELL NORRIS, GEOGRAPHY

As automobile ownership increased rapidly in the 1920s, so did suburban development. New homes mostly favored Dutch or New England colonial antecedents, but in some settings, for example Brighton NY, English Tudor Revival architecture was a popular alternative to colonial nostalgia. Commonly stuccoed and half-timbered, Tudor homes stand out in the early suburban streetscape. More than 250 Tudor Revival houses were built in Brighton, many concentrated on just a few streets, such as Avalon Drive. My work, based on field survey and real estate records, seeks to identity variants in Tudor forms, their chronology, their socio-economic associations, and their enduring value. ***Selected for presentation at SUNY Undergrad Research Conference, Sanborn, NY.***

415 • An Analysis of the Former New York, West Shore and Buffalo Railroad Track Bed for Rail Re-use

COLIN BUCKOWSKI

FACULTY SPONSOR: DAVID ROBERTSON, GEOGRAPHY

Track beds of countless defunct regional railroads are scattered across the US landscape. At various points in history, and for various reasons, these regional rail lines were abandoned as regional economies and populations shifted and transportation changed. The imprint of these relic track beds on the landscape, however, endures, providing routing opportunities for the possible re-establishment and revitalization of rail systems in the US. One example is the former New York, West Shore and Buffalo Railroad (N.Y.W.S.&B). Service discontinuations on the line began in the late 1950s and continued into the early 2000s when the last industrial spurs on the route were abandoned. Using historic railroad maps and interpretation of modern aerial imagery, this historical GIS analysis evaluates the feasibility of re-installing rail tracks on a 130-mile stretch of the historic N.Y.W.S.&B. track bed between Pattersonville and Syracuse, New York.This study shows that a high percentage of the historic track bed is feasible for rail redevelopment, but also identifies potential obstacles to reestablishing rail service, not only on portions of the N.Y.W.S.&B., but other relic track beds in the US. ***Selected for presentation at American Association of Geographers Annual Conference, Washington, DC***

416 • Mapping Inundation of Native American Cultural Sites by the Allegheny Reservoir, Cattaraugus County, New York

ELIJAH FREIMAN

FACULTY SPONSOR: DAVID ROBERTSON, GEOGRAPHY

A significant impact of dam construction in the US has been the flooding and destruction of Native American cultural sites. The purpose of this project is to map and quantitatively assess Native American cultural sites (e.g. archaeological sites) inundated by the Allegheny Reservoir following construction of the highly controversial Kinzua Dam, in 1965. The Kinzua Dam was built in Warren County, Pennsylvania and its reservoir flooded the Alleghany River northward into New York State, into the Allegany Indian Reservation occupied by the Seneca Nation of Indians (SNI). Although these lands were long occupied by indigenous people, and the reservoir is recognized to have inundated Native American cultural sites, these impacts have not been rigorously assessed. Historical New York State maps and archaeological site data from multiple sources were digitized and incorporated into a GIS. Focusing on Cattaraugus County, New York, this study documents the significant extent of Native American cultural site disturbance caused by the Kinzua Dam and Allegheny Reservoir. ***Selected for presentation at American Association of Geographers, Washington, DC.***

417 • Changing Historical Urban Landscapes and Political Landscapes in Valparaíso, Chile

MADELINE LOFASO

FACULTY SPONSOR: SETH CAVELLO, GEOGRAPHY

The city of Valparaíso is centrally located on the Chilean coast line, and is geographically divided between a bay and a series of 42 hills rising up to the coast line. Nominated as a World Heritage in 2003, clear efforts have been made by both the Chilean government and the municipal government of Valparaíso to preserve the city's historical urban landscape and promote tourism. Although a popular tourist destination, Valparaíso's suffering economy never quite recovered from the construction of the Panama Canal. Several large- scale development projects have been proposed and carried out by both public and private interests. In turn, these projects have sparked a wave of social movements that have denounced city development plans in the name of preserving the historical landscape. As grass-roots people's movements quickly gained momentum, the municipal government of Valparaíso saw an unprecedented shift in voting patterns. This shift is exemplified in the 2016 mayoral elections with the election of an independent candidate running in the name of the people's movements. This research examines the complexity of the cross-discipline analysis of urban planning and political science in efforts to demonstrate a relationship between changing urban and political landscapes. ***Selected for presentation at American Association of Geographers, Washington, DC.***

GEOLOGICAL SCIENCES

402 • Scale Model of Foreland-Fold-and-Thrust Belt Development

ARIELA MINKOVSKY

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

SUNY Geneseo has a set of sandbox fault models designed based on work by Castello and Cook (2008). These models are used in a Structural Geology class to illustrate the development of a foreland-fold-and-thrust belt, a zone of intense deformation that develops in response to the collision of continents. The first goal of this project was to determine the best method for setting up the sandbox model, including the proper sand grain size, angularity, color, substrate roughness, sieve size, and packing of grains. The second goal was to observe the difference in foreland trust belt development over different basal frictional components. Small rounded quartz grain sand and purple layers were determined to be the best material to show details within the thrust belt system. A rough basal layer caused steep, closely spaced faults. A smooth basal layer caused shallower faults with greater spacing. Extensional models will be studied using the same experimental set up and we anticipate that normal fault systems will yield similar results. The improved sandbox model guide and videos created as part of this project will be used to improve students' understanding of fault system evolution.

403 • Magnetic Fabric Analysis of Volcanic Tuff from the Charlie Brown Highway, Shoshone, CA

RICHARD KALER, EDUARD AGAYAN

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

Two tuff rocks were collected from an outcrop along the Charlie Brown Highway near Shoshone, California. Tuff is an igneous rock that forms from compacted volcanic debris after a pyroclastic flow ejection from one of the vents. The samples were sawed and cored for magnetic susceptibility analysis in an AGICO MFK1A Kappabridge. The orientation of the major axes (K1, K2, K3) and the shape (T-factor) were recorded. The data for K3 (short axis) received from the machine was plotted on the stereonet. It can be seen that most lineations plot on the center of the stereonet, indicating a flat plane, therefore a flat fabric. The values for K1 and K2 were not plotted because of the large spread of data on the stereonet. Furthermore, the T values from the data were positive, indicating a flat pancake shape of the tuff fabric. If a T value was negative, it would have been a rod instead. In conclusion, the physical fabric in the hand sample matches with the magnetic fabric measured. Unfortunately, the pancake shaped fabric gives no indication of the direction the pyroclastic flow was moving during deposition.

404 • Anisotropy of Magnetic Susceptibility Analysis Samples from the Pine Valley Mountain Laccolith, Southwestern Utah

REBECCA RICHARDS

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

Volcanic systems that fill quickly can be accompanied by devastating landslides. This occurred in the gigantic Miocene aged Pine Valley Mountain laccolith of southwestern Utah. Previous research suggests that rapid emplacement of the laccolith in the shallow crust (<<1 km) resulted in large-scale landslides of the overlying country rock. Our goal was to better understand the construction of the Pine Valley Mountain laccolith using the magnetic susceptibility of samples from the Pine Valley laccolith collected at regular intervals along the mountain face. Anisotropy of magnetic susceptibility (AMS) fabrics should show the flow direction of magma. If this is correct, then the AMS fabrics from the entire laccolith should originate and spread from the same location. Additionally, if the Pine Valley Mountains laccolith was assembled from a series of stacked magmatic sheets, we expect to see a pancake shaped magnetic fabric. However, the six samples collected are externally inconsistent with magnetic fabrics ranging in shape. If the magnetic fabric represents the flow fabric, then this suggests either

Promotes sustainability

the samples are located near the source of the magma or the emplacement theory must be modified. Future research is needed to come to a definitive conclusion. ***Selected for presentation at The Geological Society of America, Indianapolis, IN.***

418 • Geology of Mill Creek Preserve

PAIGE WALSH
FACULTY SPONSOR: JEFF OVER, GEOLOGICAL SCIENCES

The Genesee Valley Conservancy recently acquired a 50 acre wooded property that has two branches of the Mill Creek running through it near Wayland, NY. The purpose of this study is to asses the area and produce a geologic map, watershed map, soils map, and a stratigraphic column of the strata underlying the property. ArcGIS was used to analyze remote sensing data and create maps which were field verified. The stratigraphic column was created by analyzing outcrops found along the northerly branch of Mill Creek that runs through the conservancy property and the New York State geologic map.

419 • Magnetic Susceptibility of the Upper Devonian Frasnian-Famennian Boundary Interval in the Kettle Point Formation in Southwestern Ontario Canada.

SARAH HACKETT
FACULTY SPONSOR: JEFF OVER, GEOLOGICAL SCIENCES

The Upper Devonian Frasnian-Famennian boundary is one of the five major mass extinctions in the Phanerozoic. The boundary can be narrowly constrained by conodonts, the microscopic phosphatic teeth of a primitive eel-like vertebrate. The strata of the Kettle Point Formation in southwestern Ontario, Canada, consisting of interbedded black and lighter gray shales, was deposited in a shallow epicontinental sea, the sediments shed from the Acadian Orogeny to the east. This study will determine where the boundary is located using conodonts and magnetic susceptibility. Strata were sampled from a drill core at 5 cm increments for 4.6 meters that span the Frasnian-Famennian boundary. Shifts in bulk magnetic susceptibility are a proxy for sea level changes which have a higher resolution than conodont biozones. This will help constrain the boundary in between biostratigarphically useful conodonts. ***Selected for presentation at The Geological Society of America, Phoenix, AZ.***

420 • Microphotogrammetry Application: Palmatolepis punctata from the Shurtleff Concretion Horizon, Upper Cashaqua Shale, Sonyea Group, Frasnian, Upper Devonian, Appalachian Basin in Western New York State

EMILY HAUF
FACULTY SPONSOR: JEFF OVER, GEOLOGICAL SCIENCES

Previous research by Over and Sullivan in 2016 determined the Shurtleff Concretion Horizon in the upper Cashaqua Shale is Middle Frasnian (Upper Devonian) in age using conodont biostratigraphy. *Palmatolepis punctata*, one of the Frasnian Zone 5 (FZ 5) indicator conodonts in this bed, which is large in size and well preserved, was selected to be the trial element to be photographed and made into a digital three-dimensional model via photogrammetry techniques. With the development of this model conodont identification compared to three-dimensional models and the resultant biostratigraphic assignment will become more consistent.

421 • Texture and Sedimentary Structures of Lava Creek Ash, Shoshone, Southern California

YVONNE BENNETT, MADELINE ESS
FACULTY SPONSOR: JEFF OVER, GEOLOGICAL SCIENCES

The hotspot of Yellowstone in Wyoming has been the source of the largest three volcanic eruptions in recent Earth history. The latest eruption, occurring 0.63 million years ago, was the second largest and deposited a thin layer of ash, known as the Lava Creek Formation.The ash traveled up to two thousand kilometers in atmospheric winds across the western and central United States. In some depositional environments, like lakes and basins, the ash is from one to ten meters thick. A sample of the Lava Creek Formation was hand collected near Shoshone, California from Pleistocene Lake Tecopa. The ash particles exhibit hyalotuff texture, which is concordant with the explosive, phreatomagmatic style eruption of Yellowstone volcanism. A lack of fossils indicate Lake Tecopa, was alkaline and had a high salinity, which made it lacking in life, but sedimentary structures observed suggest that wave action was similar to that of a present day lake.

422 • Using Bulk Magnetic Susceptibility to Determine Small Scale Sea Level Cycles in the Middle Devonian Marcellus Subgroup, Western and Central New York

JOSEPH RUGGIERO, VINCENT FARRUGGIA
FACULTY SPONSOR: JEFF OVER, GEOLOGICAL SCIENCES

The Middle Devonian Marcellus subgroup of the Hamilton Group consists of black shale and carbonate strata in western New York State. The Marcellus, which is comprised of the Union Springs Formation and the Oatka Creek Formation, overlies the Seneca limestone of the Onondaga Formation and is overlain by the Skaneateles Group. Black shales and carbonates are found in offshore marine depositional environments. Magnetic susceptibility is the measure of the response of a material to induced magnetization. The magnetic response of sedimentary rocks is dependent on the presence of iron-bearing detritus. The outcome of this procedure is a curve of sea level change, with higher amount of iron detritus representing lower sea level. The curve will increase during sea level regression and will decrease during sea level aggradation. This study proposes to use magnetic susceptibility to test correlation of depositional packages of strata locally and regionally in central and western New York as well as determine patterns of sea level change in the Marcellus.

423 • An Analysis of the Success of an Aragonite Skeleton in the Cretaceous Calcite Seas

VINCENT FARRUGGIA
FACULTY SPONSOR: JACALYN WITTMER MALINOWSKI, GEOLOGICAL SCIENCES

The Western interior seaway was an inland sea that opened up during the Mesozoic period. This study focuses on the implications and effects the opening of the interior seaway had on invertebrate species, mainly mollusks. The concentration of $CaCO_3$ chemistry in the seaway changes throughout the Mesozoic. During the Cretaceous, the seaway is at its maximum size and fluctuates from aragonite to calcite chemistry. Aragonitic shell-producing organisms are at an ecological disadvantage in this calcite sea causing them to find alternative methods to compete and survive. The results indicate a relative abundance of aragonite to calcitic mollusks is 10:3, which is contrary to what was expected in a calcite-dominated sea. Ecological feeding, tiering, and mobility of aragonitic mollusks shows their ability to outcompete and have higher fitness than calcitic mollusks. The aragonitic mollusks were often more mobile but also lived in the substrate offering protection from predation. They were mostly suspension feeders or carnivorous, which gave them another edge in ecological fitness. Thus, the ecological characteristics of aragonitic organisms allowed them to spread geographically, produce more offspring, and adapt to new settings despite living in a calcite-dominated sea.

424 • Biological Preservation in Miocene Tufa from the Barstow Formation in Owl Canyon, Mojave Desert, California, USA

TAYLOR SMITHERS, SCOTT BOOTH
FACULTY SPONSOR: JACALYN WITTMER MALINOWSKI, GEOLOGICAL SCIENCES

Tufas are calcium-rich precipitates that can occur in association with lacustrine and fluvial environments. Here we demonstrate that tufas found in the Barstow Formation (mid-Miocene) in Owl Canyon, Mojave Desert, California, USA reveal stem structures of lacustrine plants. This tufa formed when a calcium-rich spring interacted with the alkaline lacustrine environment. The chemical interaction allowed the system to easily precipitate calcite in various growth patterns around the prehistoric plant life. From petrographic analysis, the organic remains of these ancient plants appear absent, but the stem structures have been preserved by calcite precipitation. The type of tufa represented at the Barstow Formation is a type of freshwater phytoherm. Phytoherms are typical plant communities that are preserved as tufas where the calcium precipitation preserves plant morphology in the form of stems and leaves. From this study, we show that the Barstow Formation was a lacustrine-rich environment with periods of spring-fed calcium precipitation preserving possible lake plant-life in southern California during the mid-Miocene.

425 • Biostratigraphy and Body Size Analysis of Zebra Mussels in Conesus Lake, Livingston County, NY

CARLY DELLIS, SYDNEY WELCH

FACULTY SPONSOR: JACALYN WITTMER MALINOWSKI, GEOLOGICAL SCIENCES

Conesus Lake is one of the finger lakes in western New York that is negatively impacted by human recreation and residence. These negative effects include a general decrease in biodiversity and the introduction of invasive species, such as zebra mussels. The introduction of zebra mussels has been documented since the mid-'90s, however, this impact can also be seen by examining the assemblages of past organisms in the lake sediments and how they respond over time. This study focuses on the stratigraphic introduction of zebra mussels and their modification of body size over time. This project examines two research areas of Conesus Lake zebra mussels; biostratigraphy and body size. Biostratigraphy of zebra mussels involves analysis of sediment cores to determine the timing of introduction and overall abundance over time. Body size of zebra mussels involved individual measurements and imaging using stereomicroscopy. With first appearance, abundance, and body size we will have a better estimate lake health and stability since the introduction of zebra mussels in Conesus Lake. From this data, we will be able to ascertain the health of the zebra mussels in the lake.

426 • Determination of Shear Strain in *Olenellus thompsoni* Trilobites, Emigrant Pass, CA

HUNTER ALLEN

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

The goal of this project was to determine the amount of shear strain *Olenellus thompsoni* trilobites from Emigrant Pass, California have experienced. These fossils occur in the Carrara formation, which is comprised of limestone and shale. In an unstrained specimen, the posterior border, or base of the cephalon should be perpendicular to the major/primary axis. In the specimens that were found, these features were not at 90° angles, and were instead slightly strained. To determine this angle, photos of nine trilobite samples were taken, and their angles were measured in Photoshop and Adobe Illustrator. This was done by drawing lines over the base of the cephalon and major axis's and using the ruler tool to measure the difference in angle. It was concluded that the trilobites were sheared from a range of 8 - 26 degrees with an average shear angle of 14.3 degrees. Because it was not possible to determine the orientation of the maximum stretching direction, we could not find an exact ratio of finite strain. The ratio of finite strain was instead found to range from 1.1 – 1.7.

427 • Fabric Analysis of a Pluton from Goler Canyon, California

ANTHONY MIRAGLIA, LUCAS AYERS

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

Rock samples gathered from a mafic pluton in Goler Canyon, California are characterized by layering of an unidentified origin. Layering in a pluton can be caused by magmatic and/or tectonic activity. A thin section was created from one of the samples in order to identify composition of the material as well as the likely origin of the fabric. The thin section showed abundant plagioclase as well as minor hornblende, biotite, and chlorite. The Michel-Levy method was applied to plagioclase grains and revealed the grains to be 62% anorthite, 38% albite. The overall mineralogy of the sample showed limited evidence of metamorphism of the igneous minerals. Plagioclase grains were euhedral to subhedral with no brittle deformation or fault planes present. The limited metamorphic mineralogy as well as the non-deformed fabric of the plagioclase grains points to a magmatic origin of the layering present.

428 • Metamorphism Along the Wood Canyon-Salt Creek Pluton Contact, Salt Springs Hills, California

PAULINA NEBIKER, SEAN BAILEY

FACULTY SPONSOR: SCOTT GIORGIS, GEOLOGICAL SCIENCES

In Salt Spring Hills, California, the Wood Canyon formation is intruded by the Salt Creek Pluton creating the conditions necessary for contact metamorphism. The Wood Canyon formation consists of siltstone, sandstone, and dolostone. The goal of this project was to constrain the temperature of metamorphism based on the mineralogy within the samples. The samples were collected from the surface at the baked contact between the sedimentary country rock and the intruding pluton. Samples were cut and made into three thin sections. Using a petrographic microscope the thin sections were examined and chlorite, quartz, tourmaline, and metamorphic biotite were identified. Based off of the first appearances of biotite and chlorite on a petrogenic grid it was determined that the Wood Canyon formation experienced contact metamorphism at or above 500 degrees Celsius.

HISTORY

300 • Protection for Women Means Sober Men

EMILY ZANDY, NATE KABEL, ELENA CUASCUT, MICHAELA FIATO, MORGAN WEST, TAIKI SATOH

FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

This project will examine the efforts of women resisting violence through the means of support and participation in the Temperance/Prohibition Movement. We will reference the Abolition Movement as the foundation for our study and examine the key influencers of the movement. The purpose of this study is to examine the ramifications of alcohol and its influence on campaigns to prevent violence against women in the nineteenth century. Our conclusions will be based on our research and analysis of a wide variety of contemporary documents including scholarly articles, newspaper clippings, editorial cartoons, illustrations, and letters.

307 • We are More than Slaves...

MARIE MOREN, AMANDA SULLIVAN, ORIANNE SIMON , BRIAN SOUSIS, EMILY PERUN

FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

African American women had a much greater impact on the reproductive health movement in the United States than people realize. Throughout history, African American women have been seen as nothing more than an object or a slave to the white agenda. The problem is, no one listens to their voices and their opinions have been shoved aside to make way for the ideas of white women. In order to make change for the reproductive health movement, white women and African American women needed to work together to achieve the goal of reproductive rights for all women. African American women were able to truly find their voices while advocating for the reproductive health movement, and people listened to them in a way previously not seen before. They showed the American public that they were far more than just slaves.

308 • It's More Than Just a Pill

GABRIELLE SOUSA, MADELEINE GALLINA, MICHAEL KLEINLERCHER, CRAIG CAMPBELL, ALEXANDRA KENNEDY

FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

This study seeks to show that in the past, the control a woman had over her body was restricted. Although many women today are able to access a variety of contraceptive methods, this was not always the case. Throughout much of the 19th and 20th centuries, women lacked both the knowledge and the means to prevent pregnancy. This is in part due to the Comstock Law, which made the distribution of information about contraception illegal from 1873 to 1936. Women participated in rallies and marches, distributed pamphlets, and sacrificed their freedom in order to spread awareness about "birth control." For many women, the fight was about more than just a pill; it was about control, and the right to make their own decisions about female reproductive health. This project will use both primary and secondary sources to examine a comprehensive history of the Birth Control Movement. Although the project will focus primarily on the challenges associated with the campaign, significance will be placed on the individual voices of the movement.

309 • Why Birth Control Matters

CARLY NUNNEKER, ANNA MALLIA, JANIQUA MORRIS

FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

In this collaborative project, we use research-based analysis to show people why birth control matters. We dive into the history of the Birth Control Movement of the early 1900s using a variety of primary source documents to give people an idea of how the issue came to light and how it evolved into what it is today. We use fact-based opinion to explain why we as a group believe this issue matters. Then we dive into modern connections, citing current day issues surrounding birth control, including the fight to defund Planned Parenthood and how the Affordable Care Act has helped in the current day birth control movement.

310 • The History of the Birth Control Movement

ALLEGRA LEARN, NATALIE SCHUSTER, NATALIE CHOJNACKI, ALEXANDER SKEZAS

FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

Establishing reliable means of obtaining birth control was an imperative step in the struggle for women's rights. Through the conviction of key figures, such as Margaret Sanger and Mary Ware Dennett, the birth control movement spread a revolutionary message, despite the push-back and opposition from individuals and organizations. The history of the movement is relevant in modern times, as it applies to one of the central freedoms

women fight for today – the right to decide what happens to their bodies. The motivation behind the fight for birth control was not solely sexual freedom, but to allow families of various socioeconomic statuses to limit the financial stress of raising children they couldn't afford. Our primary sources tell the story of the Birth Control movement, in particular, the relentless hard work of Sanger and Dennett. The letters exchanged by these two leaders show how invested they were in their cause. Even though they sometimes disagreed on certain aspects of how the movement should be run, they agreed on the same basic concepts — the need for education of the masses about female reproductive health and increased availability of birth control nationwide. The birth control movement of the early 20th century was prominent in its era and it served as an inspiration for future reproductive rights movements.

311 • The Ladder to Liberation

KELLY KULAKOWSKI, HEATHER DREYER, ALLIE JUDGE, ZACHARY GOODRICH
FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

This project examines the beginnings of the lesbian women's movement via the organization Daughters of Bilitis in the 1950s and 1960s, continuing on through the modern gay rights movements seen today. The project focuses on *The Ladder,* the organization's magazine, that aimed to "raise all women to full human status, with all of the rights and responsibilities this entails; to include all women, whether Lesbian or heterosexual." Considering women, sexual identity, and social movements, our research is intersectional in nature and yields interesting societal and historical conclusions regarding the origins of the push for LGBTQ+ rights.

332 • How Resistance to Cherokee Removal Fueled Women's Activism in Later Movements

MEGAN WILLISON, LAURA BENJAMIN, EAMON DANIEU
FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

In this project we are going to discuss the impact of the Removal of the Cherokee Nation from Georgia on women's activism in the North between 1817 and 1838. We found that this marked the first involvement of women in politics that is recorded in the United States, setting a precedent for women to become more involved in social movements in the future. As many of the missionaries directly involved in working with the Cherokee were women, women were effectively at the forefront of the cultural interchange between the Cherokee and the United States. This position rendered them to be particularly empathic to the plight of the Cherokee as they were dispossessed of their ancestral homes. In response, the missionaries ignited a popular resistance movement against removal of the Cherokee, a movement largely carried onward by women in the northeast by way of petitions and letters to elected officials. To convey the full scope of both the government policy enacted and the women's response to it, this project consults various types of primary sources ranging from maps and letters, to petitions, Supreme Court decisions, and government decrees. To better understand issues today, a proper understanding of history is necessary.

333 • To Breathe or Not to Breathe? How and Why 19th Century Dress Reform Liberated Women

MERRANDA SWITZER, BETHANY FISHER, TIARA MEADE, CASSIDY KAMEAN
FACULTY SPONSOR: CATHERINE ADAMS, HISTORY

The topic of Dress Reform in the 19th century can be divided into three sub categories based upon the reasoning activists were advocating for change: personal comfort, physical safety, and equal rights for women. Using documents such as "Letters to the People on Health and Happiness" by Catherine Beecher, "Correspondence" by Melissa Kaetny and Melissa Doak, "An Eye Sore" by Theodosia Gilbert, "Woman's Dress" by Rachel Brooks Gleason, "A Parody" by Mattie, and "Our Costume" by Elizabeth Cady Stanton. The question Elizabeth Cady Stanton asks when she asks, "is being born a woman so criminal an offense that we must be doomed to everlasting bondage?" The dress issue faced a lot of backlash at the time, mostly from men and women who were still clinging to the culture that they had been raised in and the ideals that they had been brainwashed to retain. The project is designed to highlight the dilemmas that woman faced due to expectations of their gender's dress in the 19th century and how much impact certain restrictions and customs had on women's physical and mental well-being. This topic is important because women were literally sacrificing their health in order to maintain certain cultural expectations; therefore reform was absolutely necessary to protect women's safety and basic, natural rights as human beings. Some of these concepts can clearly be seen in modern times and the reform itself was the foundation for women's fashion, beginning the very long journey for society to deem it acceptable for women to freely express themselves and dress in the way that they choose.

355 • INTD 220: Geology's Oldest Question: How Old is the Earth?

AUSTIN FELDMAN, GAVIN HOEY, KEIRA MCCLELLAND
FACULTY SPONSORS: JOSEPH COPE, HISTORY
GARY TOWSLEY, MATHEMATICS, JAMES MCLEAN PHYSICS & ASTRONOMY

James Hutton was the first geologist to use uniformitarianism to determine that the Earth is much older than originally thought. Archbishop Usher was the first clergymen to determine the age of the Earth using genealogy from the Bible, estimating the age to be 6000 years old. Hutton believed that this age was too young based on how slow most processes on Earth occur. Our poster will show the differences between two approaches used to determine the age of the earth. Usher used deductive reasoning with the bible as the literal truth. Hutton utilized inductive reasoning using his own field observations.

MATHEMATICS

353 • Animating a Model of Harmonic Motion using HTML5, CSS, and JavaScript

SALVADOR GALARZA, JACK TRUCKENMILLER
FACULTY SPONSOR: DOUGLAS BALDWIN, MATHEMATICS

We have created a web application which aids students in visualizing a second order differential equation representing a model of harmonic motion as well as finding solutions to this equation. To this end, we have used HTML5, CSS, and JavaScript to construct an algorithm which solves a differential equation based on parameters input by the user. Our application not only solves a differential equation and presents the user with the solution, it also provides the user a visualization of the motion by graphing the solution and through an animated spring we have created which oscillates corresponding to the solution. Our application serves as an improved version of another application, created ten years ago by a now Geneseo alumnus, which was built using internet technologies that have become out-of-date. In addition to creating similar and improved functionality to the previous application, we have added the ability to display the step-by-step process for solving the second order differential equation as well as the symbolic solution. The internet technologies of our application enables users to access it through all modern web browsers.

354 • Inverse Problems Related to the Heat Equation and Designing Ballistic Missiles

HARRISON HIPOLITO
FACULTY SPONSOR: ANDRZEJ KEDZIERAWSKI, MATHEMATICS

Many mathematical problems in science, technology and medicine can be viewed as inverse problems and expressed by differential equations. In particular, we present the inverse problem related to the heat equation; the backward heat conduction problem of calculating the initial temperature from the measurement of the final temperature. The backward heat conduction problem is difficult to solve since it is severally ill-posed. We solve this by converting the problem into the Fredholm integral equation of the first kind which we solve using Tikhonov's regularization method. We illustrate our theoretical method with numerical examples. Using this technique is essential in many real world applications. Historically, many military ICBM encountered many issues with rocket design and heat integrity.

384 • Describing Convex Polyhedral Growth

BETHANNA JONES
FACULTY SPONSOR: DOUGLAS BALDWIN, MATHEMATICS

We outline a method of describing convex polyhedra in computer graphics, using both algorithmic and mathematical models. Each polyhedron is described in our method with a unique set of planes that define the polyhedron's faces. These planes thereby define the polyhedron's shape, extent, and orientation. This definition allows for a computationally easy discrete growth process in which a polyhedron grows in directions perpendicular to some or all of its faces, preserving orientation and morphology. In future work, this method can potentially be applied to the realistic modeling of individual crystal growth and group aggregation on a substrate.

386 • INTD 220: Galileo: Science and Power in Seventeenth Century Europe

WILLIAM REICHMAN, JOSEPH BIENKO, DOMINIQUE CESARIO
FACULTY SPONSORS: GARY TOWSLEY, MATHEMATICS, JAMES MCLEAN, PHYSICS & ASTRONOMY, JOSEPH COPE HISTORY
Galileo Galilei was a revolutionary astronomer and mathematician, whose popularity stemmed from his various patrons. In Florence, he was supported by the Medici family: a stable, political dynasty, who in return for funding Galileo's research, were guaranteed his loyalty and praise. In this relationship, the Galileo dedicated many of his famous works to the Medici, in order to cement his place in the court. Arguably, without Medici support, Galileo and his scientific work would not have been as prominent. In contrast to Florence, the Roman court was unstable. If the patron's beliefs weren't reflected in the works of the courtier, the courtier might be expelled from the court. As Galileo's patrons from the Roman court perished, the backing for his heliocentric model dwindled, culminating in him being tried for heresy. Our poster will highlight how the wealthy nobility of the time led Galileo to flourish, linking scientific research with the politics of the era. More specifically, we will focus on how Galileo was able to raise his status in Florence (a more stable patronage system), while his failure to navigate the complexities of the Roman court led to his downfall.

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451 • Library Tutorial Usability Testing

BRIANNE BRIGGMANN, EMMA MEDINA
FACULTY SPONSOR: BRANDON WEST, MILNE LIBRARY
We are two library interns who developed online tutorials about how to cite information and use IDS services in a software called LibWizard. After developing the tutorials, we were tasked with conducting usability tests in order to make the tutorials more user friendly. We developed two usability tests: a qualitative test was conducted to determine the overall ease of going through the tutorials--the structure, grammatical issues, design format, and general troubleshooting; and a quantitative test was conducted to determine the educational results, such as tutorial effectiveness and the students' understanding of the concepts. Both of these tests were conducted with a sample of 8 undergraduates at various stages of their academic careers. The results allowed us to indicate the areas of the tutorials that need improvement, which we can use not only to enhance the tutorials that were used in this testing process, but to also aid in the development of future tutorials.

452 • The Making of The Proceedings of GREAT Day

DIMITRI WING-PAUL, NICOLE CALLAHAN
FACULTY SPONSOR: JONATHAN GRUNERT, MILNE LIBRARY
The Proceedings of GREAT Day is a journal that compiles and publishes the work of faculty-nominated student presentations from SUNY Geneseo's GREAT Day symposium. The journal seeks to champion the rigorous, multidisciplinary undergraduate research that takes place here at Geneseo. The creation of this journal requires a lot of work from the student editors, library faculty and professional supervisors, the student authors, the faculty sponsors, and from other people throughout the staff and student body at Geneseo. This poster examines the different elements of the jobs of the student editors, as well as the process of publishing an academic journal. We evaluate submissions, suggest developmental and copy edits, and communicate with student authors throughout the process to refine their work. Student editors also conduct interviews with the authors and their sponsors. We created a journal that truly displays Geneseo's vibrant culture of undergraduate research and the close relationships student and faculty can develop. The poster examines the elements of editing, interviewing, and producing to create a work that reflects the quality of work present at GREAT Day.

NEUROSCIENCE

357 • "Captain Brainiac": Educating and Encouraging Neuroscience and STEM-related Interests Through Local Afterschool Program

ERIC MACALUSO, MAGGIE ALDRICH
FACULTY SPONSOR: TERENCE BAZZETT, NEUROSCIENCE
As part of our class, Applications in Neuroscience (NEUR 215), we worked with the RKids After-School Program, which is supported by the Center for Community through an AmeriCorps VISTA. This program supports local underserved youth by encouraging enrichment. We attended five sessions of the program and worked with about eight 4th-6th graders. One or two of the students had attended the program previously and thus, were familiar with the idea of neuroscience. Our efforts were centered around educating and encouraging children to become aware and enthusiastic about Neuroscience and STEM-related education. We aimed to design and compose interactive activities to deeply engage the students in the material.

359 • Sex differences and Motor Degeneration in Aging Mice: A Preliminary Study

ANNA BELTRAMINI, MOLLY BRADY, JOSHUA BOYER, ANDREW GUIDO, ELLAYNA FREDERICKS, TAYLOR BROPHY
FACULTY SPONSOR: TERENCE BAZZETT, NEUROSCIENCE
With an ever-increasing average human lifespan, a growing area of research is concerned with debilitating neurodegenerative diseases. Huntington's disease (HD) is an autosomal dominant inherited neurodegenerative disorder in which degradation of basal ganglion cells is observed. Destruction of these cells is characterized by a complex symptomatology that includes motor impairment, cognitive deficits, and social dysfunction. The development of useful and sensitive measures of motor coordination in animal models is paramount in advancing basic research in HD. In this preliminary study, C57/BLJ mice were tested in novel paw reaching chambers used to evaluate fine motor coordination. These same animals were also tested in a grip-strength apparatus, a well-established device designed to measure muscle strength. Measures from both tests will then be correlated to determine differences in performance between males and females in these two tasks as the mice age. Future research will use these same tasks to evaluate changes in transgenic knock-in models of HD compared to the established baseline of motor degeneration.

PHYSICS & ASTRONOMY

356 • INTD220: On the Controversy of Newton and Hooke on Optical Physics

JOSEPH KULIKOWSKI, BRADLEY MCCLUNG, KURT DAWSON
FACULTY SPONSORS: JAMES MCLEAN, PHYSICS & ASTRONOMY; JOSEPH COPE, HISTORY, GARY TOWSLEY MATHEMATICS
We will investigate the feud between Newton and Hooke on the priority of discovery of optical principles. Hooke claimed that he had already established the same principles and results as Newton in his book *Micrographia*. We plan to give a physics-based perspective of whether Hooke's claims were legitimate. We will also investigate the role that status played in the relations between the mechanically trained Robert Hooke and the aristocratic philosopher Newton. In the times of their correspondence, the "hands on," craftsman class of society was looked down upon by academia. Newton and Hooke's relationship reflects larger societal values at the time. Our approach was to study their correspondence through their mutual letters.

380 • Evaluating An Atmospheric Muon Production Model for Ultra Low Energy Primary Cosmic Rays

KULASEKHAR MAGANTI
FACULTY SPONSOR: DAVID MEISEL, PHYSICS & ASTRONOMY
In a recent study Meisel et al. (2019), a number of statistical properties of muons were established for different seasons but a lot of data remains to be analyzed. Indications are that the muons detected with our particular device are at the lower energy end of the ground level muon spectrum and as a consequence most cosmic ray models are not directly applicable. But rather than develop a theoretical model *ab initio*, an existing model describing muon production (Apel et al., 2011) has been scaled down to very low cosmic ray primary energies and used without further modification in studies presented as posters by Miller (2019) and Nichols (2019). I will discuss briefly what a muon is, and why is it important as an atmospheric probe. As true with many such CR model representations, the Apel et al. Model incorporates several numerical assumptions that imply relatively large calculation uncertainties. A traditional error sensitivity analysis will be presented indicating where the main theoretical limitations occur. The preliminary theoretical work leading to this study was supported with a NY NASA Space Grant during 2018.

381 • Geomagnetic and Solar Correlations with Cosmic Ray Muons

JAKE MILLER

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FACULTY SPONSOR: DAVID MEISEL, PHYSICS & ASTRONOMY

In this experiment, muon data was collected and analyzed for correlations regarding geomagnetic data, solar flares, auroras and turbulence. Using a teach spin muon detector, muons were counted over a one second interval as they passed through the detector, while decay times for both charged muons were also recorded. Using data provided from the ACE or Advanced Composition Explorer Satellite, data from the detector was analyzed to find correlations with interstellar and solar events. It was concluded that there is a cross correlation of muon flux with the ACE tangential magnetic field. There are peaks in the cross correlation in the order of minutes due to the presence of magnetic flux ropes of high magnetic flux density that are produced by intermittent solar wind turbulence. High frequency Fourier spectra provide evidence for solar and geomagnetic influence on muon flux and decay in the atmosphere as both long-time scales and short-time scales correlated with ACE spacecraft data. It is significant to study muons because they are constantly coming through the air and have extreme energies. This project was funded by the NASA Space Grant.

382 • Local Contribution of Windmill Turbulence to Observed Muon Fluctuations

ISAAC BURMINGHAM

FACULTY SPONSOR: DAVID MEISEL, PHYSICS & ASTRONOMY

In a recent study Meisel et al. (2019), a strong Gaussian signature was found at the highest detectable frequencies in the Fourier spectra of muon flux received at Geneseo. Due to atmospheric attenuation, if these frequencies are purely acoustical they must be locally derived. One possible explanation for this local implication are two nearby windmill farms, in Dunkirk and Perry-Warsaw, New York. That these windmills radiate acoustical or turbulent energy is suggested by the "steady-state plumes" constantly seen on the Buffalo weather radar. A simple model of turbulence generation from the tips of the windmill rotors will be applied to the muon situation to evaluate the size of a local contribution to the observed muon fluctuation. This research was supported with a NY NASA Space Grant during 2018.

383 • Machine Learning Analysis of Extinction Spectra

SAMUEL OLIN

FACULTY SPONSOR: GEORGE MARCUS, PHYSICS & ASTRONOMY

Scattering and absorption due to atmospheric aerosols play a role in global climate. To better understand this role, it is necessary to have good measurements of the optical characteristics of these aerosols. Given knowledge of these optical characteristics, it is straightforward to calculate extinction using MIE scattering theory. The inverse problem of finding optical parameters from extinction is computationally expensive. To solve this problem, several GPU accelerable multi-target neural networks were built, and their resulting accuracies and speeds were compared. The process is as follows; several ideal extinction spectra training sets were created using a variety of optical parameters such as the peak absorption wavelengths, absorption widths, and scales. These training sets, and the parameters that created them were used as inputs to a neural network. The network then generated weights and biases to predict the optical parameters based on the extinction spectrum. Finally, the network is made to predict on optical parameters from extinction spectra not in the training, as a measure of its ability to generalize.

385 • INTD 220: The Conflict Between Newton and Leibniz over Calculus and its Impact on Scientific Peer Review

ALENNA STREETER, BRITTNEY HEROLD

FACULTY SPONSORS: JAMES MCLEAN, PHYSICS & ASTRONOMY, JOSEPH COPE, HISTORY, GARY TOWSLEY MATHEMATICS

The concurrent creation of calculus by physicist Isaac Newton and mathematician Gottfried Wilhelm Leibniz led to direct personal conflict between them which in turn influenced the scientific community. Through analyzing each scientist's correspondence with the other as well as their publications, one can relate Newton and Leibniz's narrative with the overarching theme of the development of science. Peer review, scientific journals, and ease of communication are integral aspects to the organization of scientific research today, all of which were influenced by the conflict present in the development of calculus. This is part of the poster group from INTD 220: History of Physical Sciences

387 • Detections Above Muon Zone - Muon Production Mechanisms

KATARINA NICHOLS

FACULTY SPONSOR: DAVID MEISEL, PHYSICS & ASTRONOMY

The apparent detection of muons above the canonical 10-40km atmospheric height range was a surprising discovery in the 2018 Geneseo Muon Tomography project. This project was funded by the NASA Space Grant. A further observational study using the muon production models from Apel et al. *Astroparticle Physics, 34,* 476–485, (2011) was conducted to determine the height dependence of the primaries on muon production. This project aims to modulate the primary particle energies in the upper atmosphere and determine if there is a correspondence in the analytical model energy distribution of the muons at the ground level. Different energy modulations and different energy levels off the cosmic rays were used to determine the correlation and imprint of the primary particle energies in the muon energy.

POLITICAL SCIENCE & INTERNATIONAL RELATIONS

453 • Breaking the Chain: America's Incarceration Prevention of Young Urban Minorities

ANALIESE VASCIANNIE

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This research will address the detrimental system of America's Criminal Justice System by viewing the behavior of marginalized youth in metropolitan areas. 75% of the young urban minorities imprisoned grew up in difficult circumstances where they lack equal opportunities, such as decent schooling/education, jobs, housing structures, and other societally-improving activities. Not only does the environment of the inner-city affect their life decisions, but there's also a certain racial bias that is evident in the data as well. Some questions posed around this are "Why do U.S. prisons hold 1 in 3 black men, compared to 1 in 17 white men?" and "How is it that 79% of black and Latino individuals compared to 10% of white individuals are be convicted when charged with of the same drug crime?" Politically speaking, the effect of the War on Drugs' over-policing in disadvantaged communities has caused generational damages we see today. Currently, there are social reform initiatives, such as the Drug Policy Alliance and Youth Government organizations, that are aiding in reducing the number of young blacks and Latinos from getting caught up in the "school-to-prison pipeline" trap.

454 • Aiding the Rural Disabled and Chronically Ill: Reforms for New York's Consumer-Directed Personal Assistance Program and Public Transportation Systems

OLIVIA MURRAY

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This research examines the access and quality of care for the chronically ill and disabled living in rural New York. The market fails to adequately provide the services that this population needs according to the rationales of natural monopoly and equity. The target population in this research faces unique barriers to healthcare and living assistance because of their combined remoteness and mobility challenges.

This research explores two existing programs, public transportation and the Consumer Directed Personal Assistance Program (CDPAP), and suggests specific reforms to each in order to better provide services to the population and decrease rates of waste, fraud, and abuse in the current systems. CDPAP is type of direct delivery system, wherein the service or benefit is made available to people who meet eligibility standards. Uniquely, CDPAP allots federal funds to the patient consumer but leaves the choice of how and by whom their care is carried out. CDPAP should offer higher pay to attract caretakers with higher qualifications, adopt an online time-sheet system, and increase oversight of caretakers to ensure the safety of the patient and feasance of paid work. Public transportation reforms would offer intermediate transport for the target population to access normal bussing routes.

455 • The Able-Bodied Housing Policy

MICHAEL PERRINO

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

With over 78,000 citizens without homes, New York has a larger homeless population than any other city in the United States by a staggering margin. In attempt to mitigate this crisis, I found it appropriate to pinpoint a demographic of the homeless population that could provide a self-sufficient program aided by the government and

corporate America. The target audience within the homeless population would be able-bodied individuals who are apt and in the appropriate condition (sober) to work as a steady employee. Too often the skills and desire for some individuals in need of a job are overlooked by their lack of accomplishment and or unmarketable resume. This remains true despite the great value that they could provide to the community and employers alike. In a partnership with the government and various corporate bodies, the goal of the able-bodied housing program would be to grant those who are willing to work hard and perform appropriately with an opportunity to earn a nice form of housing as well as a fair allowance.

456 • The End of Recidivism: Federal Funding and Incarcerated Mentally Ill Americans

SELENNAH GONZALEZ
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This poster is intended to propose a solution to recidivism and crime in relation to the target population of mentally ill incarcerated Americans. Upon the observation of incarceration institutions throughout the United States, there lies a vast discrepancy in the rates found between those plagued by mental illnesses and those treated and housed in mental health institutions. This research serves to explain that the target population of mentally ill incarcerated Americans have failed to receive proper care and treatment. Moreover, in identifying the crisis found in the lack of adequate housing within mental health institutions for inmates as a 'public policy issue', government intervention is necessary because said inmates are expected to return to American society. Without proper health and psychiatric care that allows mentally ill inmates to recognize their disabilities, mentally ill inmates are left at a standstill in regards to progression in terms of health and normalcy. It is only with the support of improved adequate psychiatric care and funding that said inmates will grow and progress into productive, ethical, and lawful members of American society.

457 • Women's Reproduction is Not a Right: Abortion Prevention Through Education, Insurance Expansion, and Foster Reform

GREGOR MALKASIAN
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This research explains how increased aid to low income mothers and preventative measures will help the policy to ban abortions. A ban on abortions is necessary because approximately 880,000 babies are killed every year and one of government's roles is to protect life. Educational programs in schools will be a comprehensive, safe sex focus as opposed to abstinence teaching, as it is more effective in reducing teen pregnancy rates. There will also be mandatory religious teaching in schools. The local government can choose which belief system to promote in schools in their districts. In the event of a pregnancy, Medicaid for pregnant women will be nationalized and eligibility placed at 185 percent of the federal poverty level, and the child will be eligible for Medicaid. For the mothers that are not eligible for Medicaid, CHIP would be placed at 250 percent of the federal poverty line. The states will maintain in control of the allocation of funds for CHIP. If the mother still feels that the expansion of the insurance program will not help them monetarily enough, a reworked foster system would make it easier for adoptions to take place by easing restrictions that limit potential adopters.

466 • Combating Police Violence Against the Deaf and Hard-of-Hearing in the United States

SOPHIA GENIER
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

There are numerous problems facing the deaf and hard-of-hearing in America, but by far the most concerning is the prevalence of violence by police officers due to issues in communication. Numerous acts of violence and excessive force against deaf people doing nothing wrong have been perpetrated by police officers across the country. Additionally, conflicts between those with hearing impairments and police officers have escalated because no interpreter was present to aid in communication, despite the requirement by the Americans with Disabilities Act that police provide one. When interacting with the deaf or hard-of-hearing, police officers may interpret attempts at communication as violent or aggressive actions. Further training of police officers to be knowledgeable of the deaf and hard-of-hearing community is needed.

467 • Dinners to Diplomas: After-School Aid for Homeless Youth in the Rochester City School District

CAROLINE GILL
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In 2017, 8.8% of students in the Rochester City School District (RCSD) were homeless. Homeless students are four times more likely to drop out of high school than non-homeless students, a result of numerous factors, including the lack of supplies and environment needed to complete homework. When homeless students fail to graduate, they perpetuate the cycle of poverty because they are less likely to hold a high paying job in the future. Providing homeless students with the necessary tools to graduate will help to end the cycle of poverty. This proposal focuses on the implementation of an after-school program within the RCSD that would provide a safe environment for students to complete their homework and have access to needed supplies. Dinner would be served as an incentive for parents to attend this program. This reliable source of food would benefit the entire family, and students would receive the guidance and mentorship of a parent while working on homework. Targeting food insecurity and the barriers to completing homework that homeless students face would aid in academic success and would increase the graduation rate and in the RCSD.

468 • Carbon Tax: An Option for American Environmental Policy

DEVIN MCMANUS
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Climate change will be the largest threat that humanity will face over the next century. Action is needed to address the causes of a changing climate, and public policy must be put forward in order to have a sustainable future. A carbon tax is a type of Pigouvian tax designed to disincentivize the release of uncontrolled greenhouse gas emissions into the environment. Carbon dioxide emissions are currently contributing to a global energy, food, and safety crisis. These greenhouse gas emissions are a threat to the well-being and economic prosperity for all Americans. A tax on carbon dioxide emissions must be implemented in order to reduce the amount of carbon dioxide pollution in the environment.

469 • Renewable Energy Initiatives v. Income

KELLY KULAKOWSKI
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Most of the developed world have relied on the source for vehicles, industry, electricity, and more. The mass burning of fossil fuels for energy has resulted in immense consequences for the environment. Global climate change has caused glacial ice to melt, plant and animal ranges to shift, trees to flower sooner, sea levels to rise, stronger heat waves to occur across the planet and more. There is consensus among scientists about the connection between fossil fuels and global climate change. Renewable energy is an alternative to reliance on fossil fuels, the primary cause of climate change. Initial costs of renewable energy initiatives, including wind and solar power are significant, but end up decreasing environmental effects and energy costs in the long run. Because many cannot afford the original cost, I hypothesize that states with less financial capacity for energy programs will not adopt renewable energy. In this study, the link between state finances and lack of renewable energy is explored. In addition, neighboring states and associated political parties are proposed as other factors in a state's' decision to adopt renewable energy standards. Subsidizing renewable energy projects is proposed to make renewable energy policy adoption more appealing to states.

470 • Disenfranchised Since Birth: A Look at the LGBTQ+ Community

JENNIFER JOSEPH
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This research examines how discrimination is a major factor in our daily lives that continues to affect individuals such as the minority LGBTQ+ community. The minority LGBTQ+ community suffers from being underrepresented in the government since they are a subset of society and lack political power. These individuals have been historically disenfranchised based on their sex and race. Up until the latter portion of the twentieth century, the United States government refused to acknowledge the LGBTQ+ community's rights. There had been no federal laws set in place so they can engage inequality or freedoms such as housing, education, adoption, employment, and so on. By the same token, state sodomy laws were placed on these individuals in order to restrict their

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rights in the past. As an attempt to resolve some of these problematic issues, some states have acknowledged civil unions or have conceded to same-sex marriage. Discrimination is a major factor in our daily lives that continues to affect individuals such as the minority LGBTQ+ community. If we continue to categorize them as outsiders or as defying "the status quo" and do not hold ourselves accountable, then the hatchet of being an "American citizen" will be drawn further.

471 • Disabled Veterans and Homelessness: The Search for Viable Solutions

MARIANNA SHEEDY
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This poster details the struggles encountered by disabled veterans in the United States who are facing homelessness as a result of their disabilities. When most people think of disabilities, they often think of physical forms such as amputations or long-term injuries. However, many veterans deal with invisible disabilities such as PTSD, mental illnesses, and substance abuse. More than half of the homeless veteran population live with disabilities, thus placing them at a significantly increased risk of homelessness compared to the rest of the population. Because of veterans' military service, they are at higher risks of experiencing traumatic injuries and developing lifelong disabilities, all of which may affect their ability to work and reintegrate into civilian life. Over half the population of homeless veterans in the United States suffer from disabilities or have serious mental illnesses, and over 70% suffer substance abuse issues. Federal and state governments play roles in providing benefits to veterans returning home; however, securing these benefits and services can oftentimes involve complicated legal procedures that many cannot navigate on their own. My project will discuss whether the current administration is providing disabled veterans with resources that are catered to their diverse needs.

472 • Experiential Learning in Low Income Education

BRIAN HERMAN
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The federal education policy will focus on mending the socioeconomic divide in the United States amongst youth. Students who attend high school in a low income urban or rural area during their senior year would participate during two school periods an internship of their choosing within a blue or white collar industry. High school seniors, in this specific demographic, are not as well-resourced compared to suburban communities when preparing for their future endeavors in the fields of skill setting, opportunity awareness, and career interest. Students who are exposed to internships in high school are offered opportunities to enhance classroom participation, create a difference between curriculum and academic rigor, and apply real-world problem-solving. In the past decade, similar programs like this have successfully worked on the local level in this specific demographic. Localities notice the positive effect it has on their communities. The three components of this policy focus on why implementation of internships should occur, the effects internships have on dropout rates, as well as college acceptance rates, and the career paths students take when they overcome market failures and public and private institutions that are the base to the entire policy.

473 • Fixing a Broken System: Redefining Native American Education

MADELYN STORMS
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Within the United States, Native Americans have a significantly lower graduation rate in comparison to the general public, with only 70 percent of Indigenous People graduating from high school and only 13 percent of Native Americans holding a college degree. By fixing the education system for Native Americans, indigenous people will be more likely to get higher paying jobs and end the cycle of poverty that's prevalent in Native American communities. By improving Native American education rates, it is more likely that the disparity in many sectors of achievement will be narrowed.
A current program that has been utilized has been the Bureau of Indian Education. While this program has good intentions in creating schools that are separate entities and cater to the specific cultural needs of its students, it is underfunded and the schools have lower graduation rates than those in traditional school. That's why it is instead more useful to focus the issue of the low graduation rate by creating mentors within the community of the same tribe who have completed high school. In addition, it would be a better idea to integrate tribal cultures into the already existing public schools than to create new schools.

474 • Healing Broken Families: How to Alleviate the Negative Effects of Divorce and Parental Bereavement on School-Aged Children

RACHEL WALLISKY
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

According to various studies, children and teens with divorced or bereaved parents are more likely to experience physical injury and develop health problems than those with married two-parent families. These problems require government intervention because the problem of broken families is widespread, but resources are not easily accessible in all places. The mental health, growth, and stability of children depends on the stability of the relationships that they have with their parents. If the relationship is broken, then the child suffers. It is important to provide support and advocacy to children who may not come from backgrounds that are able to provide services for them, whether due to animosity between parents, lack of a parent, or financial troubles. By implementing a government supported and mandated program, we can promote the health and well-being of children living in broken homes, thereby increasing their coping methods and self-esteem issues, and allowing them to lead a healthier, more normal lifestyle.

475 • Helping Homeless Veterans: Public Policy For the People

JAMES TUBRIDY
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

No homeless person sleeps on the streets for the same exact reasons, veterans included in that statement. Homeless veterans are in this condition for a variety of reasons. From drug abuse to overwhelming psychological trauma due to wartime deployment, no two cases are identical. Veterans have the extra added stress of having given their time and risking their safety and sanity to defend our country, time that could have been spent elsewhere in their respective lives. Fortunately, because some make this sacrifice not every citizen has to be burdened with enlistment. Military personnel aid the government in its domestic and foreign policy enforcement; if this results in long term negative repercussions to a veteran's life, leaving them absent of a home, the United States government must guarantee its soldiers the peace and respect they deserve. This, therefore, is the reason homeless veterans require far more public intervention and governmental policy aid than what is currently given. While programs are in place now, not enough is being done to help. No veteran should have to sleep on the streets and live a life in squalor.

476 • Higher Education as a Right, Not Just an Option, for the Middle Class

OLIVIA HILT
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

The following research explores why middle-class Americans continue to suffer under college debt and how to help resolve the issue; the middle class is not wealthy enough to fully pay for tuition but at the same time, earn too much income to qualify for a majority of need-based loans. This trend creates a "barbell" effect, with middle-income students taking the brunt of the economic burden (Selingo, 2017). Students who are unable to attend college start their early adult life several steps behind their peers. The effect that the young middle class has on an economy is invaluable, and the loss of purchasing power due to debt is dangerous to the economy. Several states have embraced policies to allow for more affordable higher education, including New York State. Many countries offer an inexpensive or free option for secondary education. Universities are heavily subsidized by their governments because they see the use of taxpayer money as an investment for the whole country. In Germany, public universities are virtually free, as education is seen as the responsibility of the state, not the individual. If the U.S. adopted this mindset, while also allowing for private institutions, it would help mitigate the negative effects for the middle class that arise with student debt.

477 • When Does Gender Trump Your Child's Health and Happiness?: A Framework to LGBTQ issues in Public Schooling

ROBERT DEDONA

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Transgender students in the United States face two major issues in schools, the inability to use the facilities of which they identify and the lack of education on LGBTQ topics. An important step in accepting these students so they do not feel like outsiders is to begin the conversation about LGBTQ topics at an early age, with not just the students but with parents as well. Currently, laws in 7 states prohibit the "promotion of homosexuality," meaning that teachers of health/sexuality are forbidden from discussing lesbian, gay, or bisexual people or topics in a positive light, if any at all. Students are also not provided safe environments where they can discuss their sexuality or have access to resources. In regards to the facilities, students who do not identify with the binary norm of male or female do not have a comfortable place to use the restroom or change in a locker room. Federal action taken by the U.S. Department of Education in order to protect students from discrimination in regard to sexual identity. Despite this ruling, nineteen states are still forcing students to use the facility of their sex at birth, as opposed to their gender identity.

478 • Homeless Veterans Care Program: Providing Care and Assistance to Our Nation's Heroes Most in Need

JARED DINICOLANTONIO

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

An important social welfare issue currently facing the nation is homeless veterans. Brave men and women fight overseas in wars defending our homeland, and often times fall on hard circumstances after returning home. Veteran homelessness can be caused by many different factors, including the inability to find work, as well as post-traumatic stress disorder and other mental illnesses. In addition, often times there are homeless veterans who were wounded during their tours and cannot adequately care for themselves. Veterans deserve adequate healthcare, a warm place to stay, access to hygiene products, and three meals a day. I propose to build YMCA like government institutions where homeless veterans can stay, no questions asked for as long as they need. The veterans would be able to shower, have a hot meal, exercise, and obtain clean clothes. There would also be a medical center to treat the veterans for physical, as well as mental ailments. The veterans would be able to stay as long as they need until they can get back on their feet, or get transferred to another government institution that could more adequately provide the care they need.

479 • Honoring the Sacrifice: Giving Homes to our Homeless Vets

ANDREW HANIFIN

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

One of the groups in the United States society that is in need of improved welfare policy is the homeless veterans of the military. The men and women who fight for our country should have the peace of mind knowing that they will be able to live out their lives in the comfort of a home and will not be forgotten living on the streets. The United States government needs to honor the sacrifice that their soldiers have given, and make sure that they never have to live on the streets. There is estimated to be over 40,000 homeless veterans in the United States, which is a number that can vary each day. Many of these veterans suffer from physical and mental disabilities that require proper care from health services. Something that I propose to help the homeless veterans of our military is to provide them with housing on military bases, where they can also be given jobs to help the bases such as custodial work, cooking, or any other jobs that could help them get back on their feet and provide them with proper housing as well as some income.

480 • Learning Disabilities and Issues in Higher Education

JULIA SHEA

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

My research consists of reviewing and correcting the current policies involving higher education and individuals with learning disabilities.In the United States, one in five children born will be diagnosed with some sort of learning disability in their lifetime. In public policy making, categories of disabilities have been misrepresented and neglected by policy makers. Today, institutions of higher education are mandated to follow Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA). However, interpretation of these policies by colleges and universities are often broad and they do not all carry out the same accommodations for students with disabilities. Due to this, only 17% of students with disabilities receive proper services and accommodations. One huge change that would benefit those with learning disabilities would be federal mandate requiring technological help and tutoring centers. Colleges that have taken the leap to providing these resources have seen a larger graduation rate and academic success in their students. With changes to Section 504, guidelines to properly aid students in higher education would provide students with all the tools they need to succeed and earn their degree.

481 • Malnutrition in Low-income Youth: Do Schools Have to Feed Students Dinner Too?

ELIZABETH BELL

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This research explains the effects that malnutrition has on low-income youth in the United States. Children facing hunger are more likely to repeat a grade, experience developmental impairments, and have more social and behavioral problems. To solve this problem, many low-income students are given a free or reduced price lunch and/or breakfast through federal and state social welfare programs. Despite these efforts to satisfy children's hunger, many children still remain malnourished. I propose that students should be fed dinner after school in addition to breakfast and lunch to solve the problem of undernourishment.

482 • Minimum Wage's Impact on Food Stamp Recipients

AUSTIN CUTLER

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Recent scholars have failed to address one potential consequence of increasing minimum wage: the loss of benefits for those using Food Stamps. The hypothesis presented in this project is that having an above average minimum wage will have a stronger relationship with reducing the amount of people economically qualified for food stamps than it will on those who are below the poverty line. A study on 30 cities is done to examine what the consequences are on food stamp recipients. Different aspects of the minimum wages of these cities are accounted for, including whether their minimum wage is above the state average, and whether or not it is above the sample average itself in order to account for the higher city wages. After running a linear regression on the relationship between the percent of people at or below the federal poverty line and the minimum wage, and the relationship between the percent of people qualified for food stamps and the minimum wage, this study shows that the relationship between having an above the city average minimum wage and both the poverty line and the amount of people qualified for food stamps is nearly identical.

483 • Reducing Recidivism with Welfare Policy

KATRINA TILLAPAUGH

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This poster presentation will explore the benefits of giving rental and income assistance to individuals being released from incarceration. Within five years of being released from prison, 76.6% are rearrested and 56.7% are arrested within just one year. One of the biggest contributing factors to recidivism is poor economic conditions that reduce one's ability to reintegrate themselves in society without turning to crime. While in the prison system incarcerated individuals are unable to earn an income and rarely have access to opportunities that will better their economic status upon release from prison. This is why public policy that specifically targets these populations is necessary. By providing rental and income assistance to those being released from prison the government reduces the risk of incarceration by allowing individuals the ability to receive higher education or job training, which will increase their economic status and therefore lower recidivism rates.

484 • Textbooks and Guns: Gun Violence Too Close for Comfort

MAURA MACNEILL

FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This research will explore what policies we can implement into the United States society in order to help prevent gun violence in and around our schools. Children who attend grades K-12 need to become a priority of our government, for them to thrive for generations. The US has private guns with outdated laws and mental health issues going undiagnosed. Both issues are contributing to the increase in mass school-shootings we have seen in recent years. Over the past 19 years, more people have died in mass school shootings than in the entire 20th century. There is an imperative issue between technology advances in defense and our gun control laws. The mental health issue is ever

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rising in the US, along with the stigma, which is creating a pressing situation between our society and its safety against ourselves and one another. We need to find a way to effectively limit the use of guns in ways that will positively affect our society. Students should be using their textbooks to learn, not trying to stop a bullet.

485 • The Burden of Childcare Costs on Single Parents

CHASE MCCAULEY
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

In this research, I will show the negative effects of the rising cost of childcare for single parents. Due to rising costs, parents are opting to stay home and care for their children rather than enter the workforce. This has created an employment barrier for single parents, and a lack of single parents entering the workforce. This lack of single parents in the workforce results in their families needing additional support from the government. In addition, the childcare that single parents can afford is not always the best quality. In order to ensure that every child receives a proper education before entering elementary school, I will propose that a social welfare policy of free childcare through the age of five be granted to all single parents in order to lessen their financial burdens. This program would ensure that all children are given a fair chance to attend a preschool that has the same standards as their two parent counterparts. Additionally, this would give single parents the opportunity to enter the workforce, have a salary, and this would make them less likely to need other welfare assistance programs in the future.

486 • The United States and Health Care: An Unnecessary Crisis

JENNA MARCUS
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Depletion of life savings, consideration of divorce or unemployment to meet eligibility for oftentimes poor care, inability to pay mortgage and foreclosure: in America, the land of choice, citizens get to make the choice of either death or life-altering sacrifice. We pride ourselves on being the land of opportunity and freedom, yet these ideals often times can only be claimed by those born with privilege. In order to live up to the ideals of the American Dream--equal chances for all--every American must have fair access to health care. Those without the ability to treat illness and live well will always remain unfairly disadvantaged, leading to lost opportunities and furthering the cycle of poverty, fear, and stress. The for-profit nature of the United States healthcare system has resulted in less than one-third of its funds vested in patient care. Instead, most is diverted toward profits for the healthcare industry such as high costs of hospital care and devices, excessive administrative bureaucracy and regulations, and high salaries and bonuses to health care associates. Until we accept that healthcare and the equal opportunity it engenders is a right to all, millions of Americans will continue to suffer.

487 • The Variation of Abortion Accessibility by State

CEARA GILMARTIN-DONOHUE
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Abortion access in the United States varies widely by state. The existence of Roe v. Wade ensures that this procedure remains legal. However, Roe v. Wade does not ensure that it is accessible. In assessing accessibility and why it is high or low it is important to look at states. A state government's specific partisanship can help to show us how abortion accessibility is directly connected and affected by a state government.There were six states that are used as samples and geographically diverse. In looking at how a state government affects abortion accessibility in their state there are three specific variables to observe. These variables include governor ideology, state legislature composition, and the number of legal restrictions that the state has on abortion. The data collected essentially shows that the more conservative a state is, the lower the accessibility of abortion score is.

488 • Treating Mental Health as a Common Investment

JAMES MACALUSO
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

This poster seeks to explore a proposed government project that would allow for easier screening, treatment, and other resources to be available for mental health issues on a national level. The target population for this proposal would be those with mental health issues and those with the potential for mental health issues in communities that have not been traditionally been able to afford often vital mental health care (therapy, medicine). As opposed to putting people through the criminal justice system after they commit crimes, become addicted to drugs or alcohol, or display other maladaptive behaviors, preemptive mental health care may help stop these crimes from happening in the first place. Not only that, a robust public mental health care system will allow for families and individuals to better help handle social/economic stress and challenges, leading to better outcomes in dealing with these sources of distress. Specifically, this proposal would allow for schools to refer at-risk students to mental health workers and allow for these same resources to be available for free to any person who is concerned with their own mental health.

489 • Why Paid Leave is Essential

CHRISTOPHER ROTTLER
FACULTY SPONSOR: EUNJU KANG, POLITICAL SCIENCE & INTERNATIONAL RELATIONS

Currently less than 15% of the American workforce has access to paid family/medical leave. Federally, there is no law that requires employees get paid leave. Who is the targeted population for this type of policy? For this type of policy, it would be for the 120 million people that are full time workers. Employees should not be forced to either get paid at their job or take time off to help an ill family member. With nearly 80% of Americans living paycheck to paycheck, it is crucial that people don't miss a paycheck. A missing a single paycheck could result in some families' houses and or cars being taken away from them. This is a public policy issue because issuing paid family/medical leave is beneficial to the public health. Limiting stress during stressful times could result in more rational decisions. I will also look at mental health in the work place, because working excessive hour can deteriorate one's health.

PSYCHOLOGY

302 • Effects of Perinatal Tetrahydrocannabinol Exposure on Somatosensory Thresholds and Motor Functions in Rats

JULIAN DAVID-DRORI, KENNEDY PRIEST, CHARLENE CANALE, KATHERINE COLI, LAURA COLI, NIKI LAM, KIRSTEN MOZIAK
FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

Epidemiological studies have shown that prenatal cannabinoid exposure leads to motor tremors and exaggerated startle responses in infants. Research with animal models has shown that cannabinoid receptors in the brain regulate the development of motor activity. Thus, while early cannabinoid exposure appears to produce motor deficits, their effects on somatosensory function have not been studied. Consequently, the current study used a rat model to examine motor reflex development, strength, and somatosensory detection of a nociceptive stimulus following perinatal exposure to tetrahydrocannabinol (THC). Female rats received a daily oral dose of 0, 2, 5 or 10mg/kg THC in sesame oil throughout their gestation and lactation periods. Righting reflexes were examined in juvenile animals. Fore- and hindlimb strength were examined with a digital grip strength meter. Somatosensory thresholds were examined with a tail flick apparatus. The initial results from this work in progress suggest that THC produces sex-specific changes in strength and somatosensory functions.

303 • Neonatal Exposure to the Flame Retardant, Decabromodiphenyl Ether, Reduces Astrocyte Density in Hippocampal Subregions

JULIAN DAVID-DRORI, CHARLENE CANALE
FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

Decabromodiphenyl ether (decaBDE) is a brominated flame retardant chemical that was applied to many consumer products. Unfortunately, it has become a prevalent environmental contaminant that can reduce thyroid hormone levels. Thyroid hormone is important for healthy brain development. Among its many effects, thyroid hormone promotes astrocyte differentiation; cells that help form the blood-brain barrier and transport nutrients and other important chemicals, including thyroid hormone, from the blood to neurons in the brain. This study hypothesizes that decaBDE exposure reduces astrocyte density in specific regions of the hippocampus including the hilus and subgranular zone. To investigate, immature mice were exposed to 20 mg/kg/day decaBDE from postnatal day 1-21. Brain samples were removed on day 22, sectioned, stained, and imaged at 20x magnification. NIH ImageJ software was used to measure hippocampal areas and obtain cell counts. Initial

results from this work in progress indicate that decaBDE exposure significantly reduced the number of astrocytes but did not change the volume of key subregions in the hippocampus.

304 • The Role of Post-Encoding Retrieval on Cognitive Representations of Spatial Environments

BROOKE DEMETRI
FACULTY SPONSOR: JASON OZUBKO, PSYCHOLOGY

Spatial memory is an important ability for navigating around one's surrounding environment. However, due to the challenges of developing experimental paradigms that utilize large scale, real-world environments, little research has analyzed, in detail, the development of cognitive maps over time. Past research in rodents has shown that hippocampal place-cells replay during periods of quiet wakefulness, suggesting that mental replay of recent spatial experiences is tied to the development of cognitive maps. In humans, we hypothesize that the development of cognitive maps could therefore be manipulated by having participants selectively recall recent navigational experiences. We analyzed the development of cognitive maps for novel, real-world spatial environments over a period of 2 weeks using Google Street View software. Though all participants experienced the environments in the same way, after navigating through the environment participants' spatial memories were tested with either rote retrieval or spatial sequencing recognition tests. Both groups showed effective navigation on learned routes, however, the sequencing group was more successful in finding alternate routes around blockages and shortcuts between routes, suggesting more flexible cognitive maps. These findings are the first to demonstrate that the way in which navigational experiences are recalled can directly influence the development of mental maps. ***Selected for presentation at SUNY Undergrad Research Conference, Sanborn, NY.***

305 • Evidence that Personal Threat Mediates the Relation Between Environmental Threat and Environmentally Friendly Behavior

NICOLE SPENCER, ALEXANDRIA BARLOWE, EMILY TOWNSEND
FACULTY SPONSOR: JAMES ALLEN, PSYCHOLOGY

Previous research connects environmental threat and environmentally friendly behavior (Schmitt et al., 2017). However, potential mediational pathways linking these two variables has not yet been investigated. The current study examined how both personal threat and environmental threat contribute to environmentally friendly behavior through two mediational models. The first pathway linked personal threat and environmentally friendly behavior through environmental threat. Meanwhile, the second pathway linked environmental threat and environmentally friendly behavior through personal threat at a mediator. Results indicated personal threat as a mediator. These results suggest that personal threat may have an important effect on environmentally friendly behaviors.

306 • The Relationship Between Environmental Threat and Environmentally Friendly Behavior: A Mediational Pathway

SOMMER MCMANUS, OTTO JUNIOR
FACULTY SPONSOR: JAMES ALLEN, PSYCHOLOGY

Research has linked perceptions of environmental threat to environmentally friendly behavior (Schmitt et al, 2017). We expanded on this research by examining the origins of environmental threat in competing mediational models. We were specifically interested in the role of altruism, as measured by dispositional empathy, in the origins of environmental threat. One possible mediational model hypothesizes that the relationship between environmental threat and environmentally friendly behavior would be mediated by empathic concern. The second mediational pathway hypothesizes that environmental threat is the mediator between empathic concern and environmentally friendly behavior. Results supported the environmental threat/empathic concern/environmentally friendly behavior model. There was no support for the alternative model using environmental threat as the mediator.

324 • Perinatal Exposure to Tetrahydrocannabinol Alters Social Behavior in Adult Rats

HARPER COLEMAN, CHRISTINA ANGELIU, LAUREN PLEVY, KATHERINE COLI, KENNEDY PRIEST, DREW SCOTT
FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

The public is increasingly accepting of the potential medical benefits of some cannabinoids and attitudes toward recreational marijuana are softening. Many young adults of reproductive age regard marijuana as a benign substance, an attitude that suggests increased risk for future prenatal exposures. Several animal studies have found that perinatal cannabinoid exposure can disrupt social functioning, either as a direct effect of exposure or as a secondary consequence of cognitive impairments. However, many of these animal studies are limited in that they have examined only young adult male animals. The current study used a rat model to examine social behaviors following perinatal exposure to tetrahydrocannabinol (THC). Female rats received a daily oral dose of 0, 2, 5 or 10mg/kg THC in sesame oil throughout their gestation and lactation periods. A three-chambered sociability apparatus and EthoVisionXT video-tracking software were used to examine social novelty preference, social memory, and social conditioned place preference in male and female offspring. The initial results from this work in progress suggest that THC produces sex-specific changes in social behavior.

325 • Association Between Resting-State Neural Activity and Physiological Reactivity During Decision Making

BRIANNA SCHIBLEY LAIRD, LIAM MCMAHON, ALICIA ROTH
FACULTY SPONSOR: MICHAEL LYNCH, PSYCHOLOGY

This study investigated resting-state changes in blood oxygenation across the dorsolateral prefrontal cortex (dLPFC) relative to the galvanic skin response (GSR) as participants completed the Iowa gambling task (IGT). The IGT assesses decision-making based on anticipation of risk and reward. Functional near-infrared spectroscopy (fNIRS) was used to measure resting-state changes in blood oxygenation across 16 locations on the dLPFC. GSR reflected physiological arousal, and was used to generate underactive, overactive, or variable "profiles" during the IGT task using cluster analysis. Cluster analysis was also used with the fNIRS data and revealed two distinct patterns of resting-state activity (activated and non-activated). It is hypothesized that activated fNIRS profiles during resting-state will be correlated with "overactive" GSR profiles during the IGT task.

326 • Correlations Between Risky Decision Making and Substance Use

CHRISTIANA SILVA, ZARMEEN ZAHID, MAYA COTTONE, BRIANNA SCHIBLEY LAIRD, LIAM MCMAHON, KATHERINE KELLER, ALICIA ROTH, MAGGIE ALDRICH, SAMUEL CAPONI
FACULTY SPONSOR: MICHAEL LYNCH, PSYCHOLOGY

The Iowa Gambling Task (IGT) assesses decision making based on anticipation of risk and reward. Participants are instructed to pick one card from four decks over the course of 100 trials. Two decks are considered advantageous because they contain smaller short-term rewards but result in greater gains over time, and two decks are considered disadvantageous because they contain larger short-term rewards but result in greater losses over time. Task performance is based on the relative proportion of disadvantageous card choices and advantageous card choices across the full set of 100 trials as well as across blocks of 25 trials. Risky decision making is characterized by more disadvantageous deck choices since they result in temporary large rewards but also greater accumulation of penalties over time. Participants were instructed to complete the IGT as well as complete a survey measuring various forms of symptomatology, including engagement with alcohol and other substances. It is hypothesized that consistent alcohol and substance use correlates with risky behavior, which can be assessed through IGT performance. It is expected that IGT performance will correlate with substance use.

327 • Correlations Among Decision Making, Physiological Response, and Psychopathology

MAGGIE ALDRICH, KATHERINE KELLER, SAMUEL CAPONI
FACULTY SPONSOR: MICHAEL LYNCH, PSYCHOLOGY

The current study examined relationships among self-reported symptoms of anxiety-related disorders and depression, galvanic skin response (GSR), and performance on the Iowa Gambling Task (IGT). The IGT is a cognitive task which assesses decision-making under conditions of uncertainty. GSR was used to assess physiological reactivity, and was examined for patterns of underactivity, overactivity, and variability. Participants (N = 130) from a small liberal arts college in the Northeastern United States

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completed the IGT while being monitored by GSR sensors, and subsequently completed a survey which assessed indicators of anxiety disorders and depression. It is expected that the different GSR profiles will correspond to reports of anxious and depressive symptomatology, as well as performance on the IGT.

328 • Personality and Environmental Attitudes

SOMMER MCMANUS, NICOLE SPENCER, ALEXANDRIA BARLOWE, EMILY TOWNSEND, KRYSTA KELLNER, OTTO JUNIOR, SAMANTHA BAUTISTA
FACULTY SPONSOR: JAMES ALLEN, PSYCHOLOGY

This research examined the relation between altruistic personality characteristics and environmental values. We hypothesized and found that these altruistic personality characteristics predicted environmental values after controlling for materialism, perceptions of environmental threat, and other egoistic motives. Future and ongoing research will examine potential mediational pathways linking altruism and environmental values.

329 • Prayer Experience Questionnaire

EMILY TOWNSEND, SAMANTHA BAUTISTA, KRYSTA KELLNER, ALEXANDRIA BARLOWE, NICOLE SPENCER, SOMMER MCMANUS, OTTO JUNIOR
FACULTY SPONSOR: JAMES ALLEN, PSYCHOLOGY

This study examined the relation between body posture and prayer experiences. Participants reported how they normally prayed, the type of prayer they normally gave, and the topic of their prayers. We hypothesized and found that body posture during prayer was related to prayer topics. Personality characteristics were also associated with body posture during prayer and with prayer topics.

330 • Warm Glow as a Mediator to Promote Environmentally Friendly Behavior

OTTO JUNIOR, SOMMER MCMANUS, SAMANTHA BAUTISTA, KRYSTA KELLNER, NICOLE SPENCER, ALEXANDRIA BARLOWE, EMILY TOWNSEND
FACULTY SPONSOR: JAMES ALLEN, PSYCHOLOGY

"Warm Glow," positive feelings resulting from socially responsible behaviors, is one antecedent to environmentally friendly behavior (Hartmann et al. 2017). Although this finding suggests an altruistic path to environmentalism, research has not fully investigated this possibility. We tested a mediational model positing that Warm Glow mediated the relation between social altruistic values and biospheric concerns for the environment. Results suggest that altruism and Warm Glow play important roles in promoting environmentally responsible behaviors.

331 • Perinatal Exposure to Tetrahydrocannabinol Produces Long-Term Learning Impairments

CAELEY SHEEHAN, KIRSTEN MOZIAK, LAUREN PLEVY, KENNEDY PRIEST, JAYME ELSTON, DOMINICK LEONARDI, PETER NAJDZIONEK, KATHERINE COLI, LAURA COLI, QUINN COUGHLIN, CHARLENE CANALE, DREW SCOTT
FACULTY SPONSOR: VINCENT MARKOWSKI, PSYCHOLOGY

Exposure to suspected toxicants such as the cannabinoids contained in marijuana, even for discrete periods, can perturb brain development and produce permanent behavioral impairments. Emerging clinical evidence suggests that prenatal cannabinoid exposure produces attention deficits and other executive function disruptions in children. Well-designed animal models offer the opportunity to control many of the variables (age at exposure, dose, duration, medical history, etc.) that blur the cause-effect relationships in epidemiological studies. The current study used a rat model to examine long-term cognitive deficits following perinatal exposure to tetrahydrocannabinol (THC). Female rats received a daily oral dose of 0, 2, 5 or 10mg/kg THC in sesame oil throughout their gestation and lactation periods. When their offspring reached adulthood, they were trained to press a lever in an operant chamber for food reinforcement. Trained offspring were then tested with a series of increasingly complex operant schedules that included random ratio and delayed spatial alternation. The initial results from this work in progress suggest that perinatal THC produces subtle dose- and sex-specific impairments of operant behavior.

350 • The Science Café Model is Effective at Increasing Trust in Science and Scientists

PATRICK BUCKLEY
FACULTY SPONSORS: NICHOLAS PALUMBO, CENTER FOR COMMUNITY; DAVID PARFITT, CENTER FOR INTEGRATIVE LEARNING

The Science Café model is an increasingly common model used by scientists to connect with members of the public. Science Café event formats can vary significantly, but the model is defined by the informal nature of the events and the interpersonal connections promoted between members of the public and scientists. Additionally, trust in science and scientists has been implicated as a major component of an individual's willingness to believe in scientific theories and support science-based policies. A ten question survey was utilized to analyze the Geneseo-based Discovery Cafe event series, created using the Science Café model, to determine if Science Café events are effective at increasing individuals' trust in science and scientists. Results of this investigation provide evidence that the Science Café model is an effective event format to increase public trust in science and scientists.

GREAT DAY MUSIC FESTIVAL

DOTY RECITAL HALL

9:40 AM – 9:55 AM

Mendelssohn

***String Octet in E-flat major, Op. 20 - I. Allegro moderato ma con fuoco* by Felix Mendelssohn**

EVELYN WELCH, ERIC WANG, KRISTEN NALECZ, GRANT MCELHENY, BRIDGETTE SROKA, JENNA MELDRUM, SHOTARO TOYODA, CALLY ISSIDORIDIS, RYAN LEE

FACULTY SPONSORS: ANDREW BERGEVIN, MUSIC; AN-CHI LIN, MUSIC; DANA HUYGE, MUSIC

10:05 AM – 10:50 AM ACAPELLA HOUR

Exit 8

COLIN SUGRUE, CHRISTOPHER MILLER, EMILIOS PAPAS, EMILY CATALDO, ISAIAH KELLY, KATHERINE KELLER, MADALYN BOWEN, MALLORY MROZINSKI, MARIA RUIZ LUNA, MARY SCHUCHMAN, MICHAEL MASETTA, NICOLE ACQUAVELLA, SAIGE HORVATH, SAMANTHA HARRIS, SARA RAPUZZI, SEAN RYAN, THOMAS VANGELLOW

Between The Lines

DESTINY PARSONS, EVAN BURR, ERIC LEARY, GABRIELLE OWEN, GRACE PONIATOWSKI, JOSEF DIGIORGIO, KYLE CASTER, MEGAN KENNEY, MELISSA FRANK, NICHOLAS SANTORA, RAPHAEL ELMASRI, RYAN ZIPPER, SARA DEVOE, SARAH CHANNELS, TAYLER NGUYEN, TREVOR GRECO, VINCENT MECCARIELLO

Hips and Harmony

CAMERYN SCALI, EMMA MCMAHON, ERIN HOGAN, HALEIGH KIRK, HANA SMITH, HANNAH GRIFFIN, HANNAH VAN WERT, ISABELLA HIGGINS, JILLIAN VANLEER, LAUREN LABARGE, MADELINE REILLY, MARIANNE MAYSUCH, MARISSA MARASH, MEGAN ANDERS, MEGAN O'MALLEY, MELODY CHOI, MIKA SWANSON, RACHAEL THORP, SARAH PLOOF, SHANNON KNAPP, SYDNEY SHERIDAN

Southside Boys

ANDREW WEBER, ANDREW KEMLER, BENJAMIN SHEAR, BRETT HAMMES, CALEB WILDER, ELADIO MARTINEZ, EVAN PANZER, GEORGE PERDOMO, JACK GRANT, JACK SWANSON, JACOB GOLDBERG, OWEN MONTEFERRANTE, ROCKY NARDONE, TYLER GERBSCH

Emmelodics

ALEXANDER WEBBER, BETHANY LIANO, CAITLEN EPPERSON, CLAIRE PRUNIER, DENIS HARTNETT, GAGE MATYASOVSZKY, JEREMY DAVIES, JONAH GOLDSTEIN, JACK MCALEVEY, KENNETH COLE, KELLY KULAKOWSKI, KAILA MCKIERNAN, LYNDSAY TUDMAN, MACKENZIE HINTZE, TOMMY CASTRONOVA, TALIA ITZCOWITZ, WILLIAM BLANDING

11:00 AM – 11:15 AM

Geneseo Flute Choir

SARAH MANDANAS, DYLAN FICHERA, MADELINE YOUSEY, BRITTANY SULLIVAN, KATHERINE COTTEN, LAUREN LAMBIE, ANALIESE VASCIANNIE, JENNA MARCUS, CHRISTINA WAITE

FACULTY SPONSOR: KATHRYN SCARBROUGH, MUSIC

SOUTH HALL QUAD (rain location Wads 21)

11:20 AM – 12:00 PM

SUNY GENESEO JAZZ ENSEMBLE

SAMUEL DOLE, ROBERT MARINO, BRIAN VARGAS, JOSEF DIGIORGIO, CESAR FLORES, CODY ESPOSITO, DOMINIC FLORIO, JAMES AMBALAVANAR, JONATHAN PASTORE, MADISON RODGERS, PAUL OLEYOURRYK JR., THOMAS AMBALAVANAR, BEN MICHALAK, TYLER TIEDE, OWEN STEVENS, WILLIAM DORFNER, DYLAN WALGATE, CALEB WILDER, DEVIN HOGAN, EMILY REDA, JOSEPH BIENKO, JACOB HOUSEKNECHT, LUCAS SMITH, SOPHIE YEOMANS, BENJAMIN HOUSEMAN

FACULTY SPONSOR: WILLIAM TIBERIO, MUSIC

COLLEGE UNION BALCONY

12:00 PM

The Geneseo String Band

LEEANN BRUETSCH, GRACE BUECHNER, LINA CLIFFORD, TAYLOR FRITZ, HANNAH GARTY, ABRAHAM HAUSER, ADAM KOVLER, BRIDGET PITRE, BENJAMIN ROBINSON, KAYLA SCHUM, ERIKA SKINNER, SAMUEL SMITH, MOLLY SQUIRES, BRIDGETTE SROKA, JAMES TUBRIDY

FACULTY SPONSOR: JAMES KIMBALL, MUSIC

THE GREAT BATTLE OF THE ARTISTS

MACVITTIE COLLEGE UNION KINETIC GALLERY 10:00 AM – 6:00 PM

The GREAT Battle of the Artists is a multi-media art contest that is a partnership between GREAT Day, GCAB Arts & Exhibits and Nassau Hall. Winners were selected by a panel of faculty staff and student judges and will be announced at 5:30 pm.

KATHERINE ANDERSEN

1745-1760 Women's Travel Jacket and Matching Skirt, with Underpinnings: Full outfit (including corset, shift, bum roll, petticoats, and fichu) constructed of period-appropriate fabrics and construction techniques, including hand sewing, tailored to fit student, after pattern in Janet Arnold's Patterns of Fashion 1. Created under supervision of Bonita Stubblefield for THEA 199-02, Advanced Costume Construction.

HEATHER AIKEN

Black Panther: Acrylic paint on canvas. 2018

Mackenzie Blackwood: Pencil on paper. 2015

Charlie Coyle: Pencil on paper. 2016

ALISON BRIGGS

Koi in a pond on a fall afternoon: This picture of a Koi was taken at a pond in Geneseo in the fall.

JACQUELINE ZHOU

Hunger: Photograph. Taken in the Spring of 2017, in the Geneseo Arboretum, of a bee gathering nectar from a cherry tree.

GENEVIEVE TRIPOLI

The Light: This piece is a self-portrait. It highlights the henna that I had done on my arm earlier that week. It is a piece that explores many emotions; for the viewer to explore. This is an oil on canvas piece.

High Fives and Good Vibes: This piece is a body portrait. It is a fun and colorful piece with a lot of personality. It promotes positive emotions and memories, including body positivity and self-love. This is a colored pencil piece.

Happy: I have worked at a daycare for over two years now, and I have noticed that the silliest things can make children happy. In this piece, one of my students was wearing a dress up skirt and tossing plastic toy balls around the classroom. I wanted to capture the pure emotion of happiness. I thought it would be very important to capture this image with bright alluring colors and fun twisting lines. This is a water color and pen piece.

HOPE ARTIS

Impressionist: Thick, laminated paper crafted rose made with six layers of said paper. The colors are red, green, yellow, white, and purple. About the size of the palm of your hand, it looks like a painting done by an impressionist painter. While I have always considered the paper roses I made to be art, this one has hit me as an actual work of art. The paper was thick enough that I was afraid it would not bend into the flower I wanted it to be, but it is. It is a painting made three-dimensional and accessible.

Holo Wealth: Medium weight paper with art-deco style gems printed on it with holographic lining, cut and shaped into a rose. Colors are purple, green, and blue. This rose sparked joy as soon as I created it and held it in my hands. As soon as I had access to the paper, I knew it would become a beautiful rose. It reminded me of the joy when I first began making paper flowers: that this is something I have a talent for and relaxes me.

AL TEJERA

Disassociated Muses (1/3): (2019) Painted in Procreate (v. 4.2.5) on iPad Pro, Printed on art board, 14 in x 11 in. His hand is pressed to the side of the board as if he could feel another soul longing, reaching for any skin-to-skin contact. His own desires burn his eyes and tear at him, eating at his last drop of hope. He aches for release from his own self. Moments ago, he discovered his true love for men and not as a brother. I wanted to share the pain that love causes, especially those who had to suffer throughout history. I had to bring in the feeling of shame and remorse—which I feel is best conveyed through art. And, thus the series begins. Contrast was one of the most important things when I began this work. I wanted to capture flow of his deep black hair against the stark vermilion of his hiyoku. I added a small spark of that stark orange in his eyes to capture the feeling of being scorched inside.

Disassociated Muses (2/3): (2019) Painted in Procreate (v. 4.2.5) on iPad Pro, Printed on art board, 14 in x 11 in/ He feels foolish, playing with the hearts of aristocratic men who he could never truly be with. Feeling the high off of his own pride, he declares his love to a friend. It had been nothing but fun, a silly game they would play. Now, he wants comfort for his rejection. He breaks himself down for dreaming of the impossible. In the second piece, I wanted to capture the Rococo aesthetic while bringing in elements of darkness to tie it in with the others. The black tears are an obvious example of it. His poshness is something I am truly proud of since I accentuated his lips so they matched his pupils. I wanted to give an aura of being absolutely love-stricken while being filled with resentment.

Disassociated Muses (3/3): (2019) Painted in Procreate (v. 4.2.5) on iPad Pro, Printed on art board, 14 in x 11 in. He reaches out to feel something soothing. Expectation grinds at the back of his skull and pounds incessantly as he tries to escape his own body. How can he be pharaoh when he does not desire the warmth of a woman? Fingertips pinned to the wall, he drowns in his own thoughts of baring successors and giving the empire what it needs. He cannot bring himself to accept his passions. I present the final piece in this collection. In this last period piece, I took great inspiration from the feeling of being trapped in a position of a role-model in which everyone counts on you, looks up to you, but you don't want to disappoint them. I used teal and gold to capture the feeling of the desert and Nile. I wanted to capture the seriousness and sternness of being a ruler while adding the softness of the tears as his emotions finally broke free from that well-locked cage.

CALEB BOLHA

Sleeping in the Library: Twilight Sparkle is passionate about historical research. Although, sometimes she can get carried away. Books aren't as comfortable as they appear to sleep on; I can attest to this. This piece was completed in May of 2018 after my first two semesters at Geneseo. Medium – #2 pencil on printer paper.

Castle of the Two Sisters: The Castle of the Two Sisters was once the home of Princess Luna and Princess Celestia. After Luna's banishment to the moon, Celestia abandoned the castle and took the throne in Canterlot. Since Luna's return, Celestia and Luna have mended their relationship, yet the castle still remains in ruins. This piece was completed during August of 2018 and serves as the album artwork for my melodic ambient track "Melodies of Sun and Moon" (https://youtu.be/KxhslD31BwE). Medium – #2 pencil on sketchbook paper.

A Walk in Nature: Fluttershy's fascination with nature and introverted personality often leads her to exploring the countryside. This piece was completed in January of 2019 and will serve as the album artwork for my remix to Cola Euphoria's track "Fluttershy's Rhapsody" (https://youtu.be/aoO9meFHQic). Unfortunately, the remix is still incomplete after 6 years, but I am close! Medium – #2 pencil on printer paper.

MARGUERITE BOSCO

Blue Rose: This is a detailed colored pencil drawing of a blue rose. I made this piece in memory of my grandmother. Her favorite color was blue and she had a strong admiration for flowers. I wanted this piece to be simple and delicate while also being unique and extraordinary, just like my grandmother was.

Melting lips: This piece was painted with acrylic paint on a 5 by 7 canvas. It is a realistic painting of lips, but also incorporates surrealism because of the drips added to the bottom. I used abstract calligraphy strokes to give it spontaneity while looking realistic as a whole.

The Foggy Road Ahead: This piece is a watercolor landscape painting done on stretched water color paper. It incorporates wet on wet wash technique with detailed and spontaneous calligraphy strokes. It depicts a road that fades into the distance on a foggy and rainy day. I was inspired to paint this gloomy piece to represent the foggy and unclear path that lies ahead of me as graduation comes closer and closer.

AIDEN BUDINSKI

Eclipse: Ink and acrylic painting of a total solar eclipse.

Wolf Creek: Photo was taken at Letchworth State Park in Fall 2018.

Emmeline: Photo of the iconic Geneseo bear fountain on Main Street.

GEORGIA SCHNORE

Cosmic Witch: A portrait of the most powerful being in the universe. 11" × 14"

Revolution Lovers: Mira in her summer dress preparing to go out with her husband. 8.5" × 11"

SPECIAL PRESENTATIONS

GEO Dumpster Dive

10:30 am – 12:30 pm Between MCU and Mary Jemison

SHEILA BARABINO, JANE AULD, CARA O'SHEA, MEREDITH SAUCCI, KYLE HIGGS, MIRANDA BLAAUBOER, JILLIAN TODD, TESS LAVIGNE, NOAH MATTICE, KATIE SINGLETON

FACULTY SPONSOR: DAVE ROBERTSON, GEOGRAPHY

Each year, GEO investigates waste management on campus. This live installation involves sorting through one bag of trash from each residence hall and academic building on campus to determine how much of that waste could have been recycled. The sorting process will be open to audience participation, and proper protective gear such as gloves, goggles and protective suits will be provided to anyone who wishes to participate. The bags will first be weighed as-is, and then reweighed once all the items in the bag have been properly sorted as landfill, paper, or glass/plastic/metal. This performance will be transformed into a video which exemplifies how much "trash" could have been recycled in our sample selection. This data analysis is not intended to be a highly accurate or scientific process, but rather the objective of this interactive art performance is to create a visual impact of consumption and waste at Geneseo. By doing so we seek to promote positive environmental action on an individual level by encouraging students and faculty to reevaluate their personal consumption and recycling habits. This video is will be shared with the campus community in order to encourage proper waste disposal actions.

Sapphire Winter Guard at Geneseo Presents Enchanted

4:40 pm College Union Plaza (Outside)

KAYLAN RUIZ, SHELBY SCHMIGEL, SOPHIE HOLCOMB, REBECCA BARTLETT, MARGAUX CARMEL, KAREN CASWELL, CAYLEY DICKENS, JAYNEE OSBORNE

FACULTY SPONSOR: LISA SMITH, MATHEMATICS

Sapphire Winter Guard at Geneseo is completely student-run and is under the direction of captains Kaylan Ruiz, Shelby Schmigel, and Sophie Holcomb. It incorporates elements of dance and equipment spinning in a show that is performed in competitions within the North East Color Guard Circuit. This is Sapphire Winter Guard's fifth year participating in competitions as well as GREAT Day. Sapphire invites you to a performance of whimsy and true love with our 2019 production, "Enchanted." Based on the Taylor Swift song of the same name, the show follows strangers who fall in love at first sight. But when the time comes, will that love be reciprocated?

Geneseo Insomnia Film Festival

6:30 PM reception, 7:00 PM screenings Wadsworth Auditorium

The Eighth Annual Geneseo Insomnia Film Festival took place on March 29/30. Participants had 24 hours to write, shoot, edit, and post a video no longer than 3-minutes in duration using a set of elements provided. Teams competed for prizes against other SUNY Geneseo students in an attempt to create the wittiest, most interesting, and creative video. This was a chance for students of all talents to flex their creative muscles and demonstrate their skills, as writers, actors, videographers, or editors. Submissions were judged by a panel of Geneseo faculty and staff. Now we're inviting you to come see the videos during this special GREAT Day screening and awards ceremony! The event is open to all Geneseo community members and we encourage you to bring family, colleagues, and friends as we recognize the excellence, achievements and talent of our 2019 Insomniacs!

GIFF Teams and Participants

Newton's Knights
NICK LAURELLI
CODY ESPOSITO
IAN COSTLEY

Newton's Queens
PHOEBE MAXWELL
KAITLYN LATORRE

Big Mammal Hand Transplanters
NATALIE HAYES
MARTIN BENZINGER
DONG WON OH
LINDSEY KRIARIS

GOONSQUAD
EDWAR RAMIREZ
BRANDON SCHERHAUFER
GERALD PADLO

The Outsiders
EMILY REDA
KATHERYNE HIBBERT-NELSON
ANUSHKA BHATT

악마 друг ("Demon Friend")
ANGEL GONZALEZ
AARON RODDY
BILLY RICHMAN

B34R Clan
ROBERT ZICKL
VINCENT LEMA
ADAM TAYLOR

The Supreme Meme Team
BRIDGET KELLEY
SAMUEL CAPONI
GRACE SELLERS
EMMA SHORT

Quiet Hours
NICKOLAS SCHUESSLER
ZACHARY GOODRICH
MITCHELL PACE

Glastonbury CT
ANNIE RENAUD
TREVOR GRECO
RACHEL MOLINO
JAMES MACALUSO

The Revelation
HUNTER COWLES
JAMES CURRAN
ERIC KOESSLER

Flowmotion
COREY WIRTH
ALYSSA VADALA

Stink Tank
ROBERT PIASCIK
HARRISON HARMON
GREGORY GUSTAFSON
GUS FORMATO

Sleepy Crows
EMILIO GARCIA
WALTER HOAG
AIDEN BUDINSKI

The MANDEM
LUC TURNIER
RAYAN RAMIREZ
DENIS MAZARIEGOS
BRENDEN NAVARRO

Pecan Sandies
STEPHEN CARON
TSHERING SHERPA
STEPHEN ROCHESTER
OUSMANE SAM

lamron.photo@photo.com + Catherine [sic]
ANNALEE BAINNSON
JOSEPHINE KWAN
CATHERINE WHITE
HUNGANTOTA DON UDESHI SENEVIRATNE

Golf Digest
JONATHAN CHAO
ANTHONY MIRAGLIA
OTTO JUNIOR

Team BeFried
TROY SEEFRIED
DAVID BEYEA

Index of Student Presenters and Faculty/Staff Sponsors

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Thank You for contributions that make GREAT Day possible: Brian Bennett, Laura Canfield, CAS Catering, Joe Dolce, Stephen Dresbach, Facilities Services, Laurie Fox, John Haley, Jeremy Hall, Troy Hallahan, Adam Klinges, Minhhang Huynh, Enrico Johnson, SA Tech Services, Sue Rubright

Thanks to over 50 GREAT Day Student Volunteers for helping to promote, set-up, staff buildings, take-down and make GREAT Day all it can be!

Special Thank You:

President Denise Battles and **Provost Stacey Robertson** for their support of GREAT Day.
Jack and Carol Kramer for their support of Geneseo and the Keynote address.
Stephanie Singer for delivering the Keynote address.
Student Association for sponsoring the luncheon.
Campus Auxiliary Services for sponsoring luncheon beverages.
Daniel Ross, Jonathan Grunert and the Milne Library Staff for hosting the Coffee Hour and overseeing the proceedings.
Patty Hamilton-Rodgers, Anne Baldwin, Andrea Klein, Tammy Hill for their special expertise and many hours devoted to planning this event.

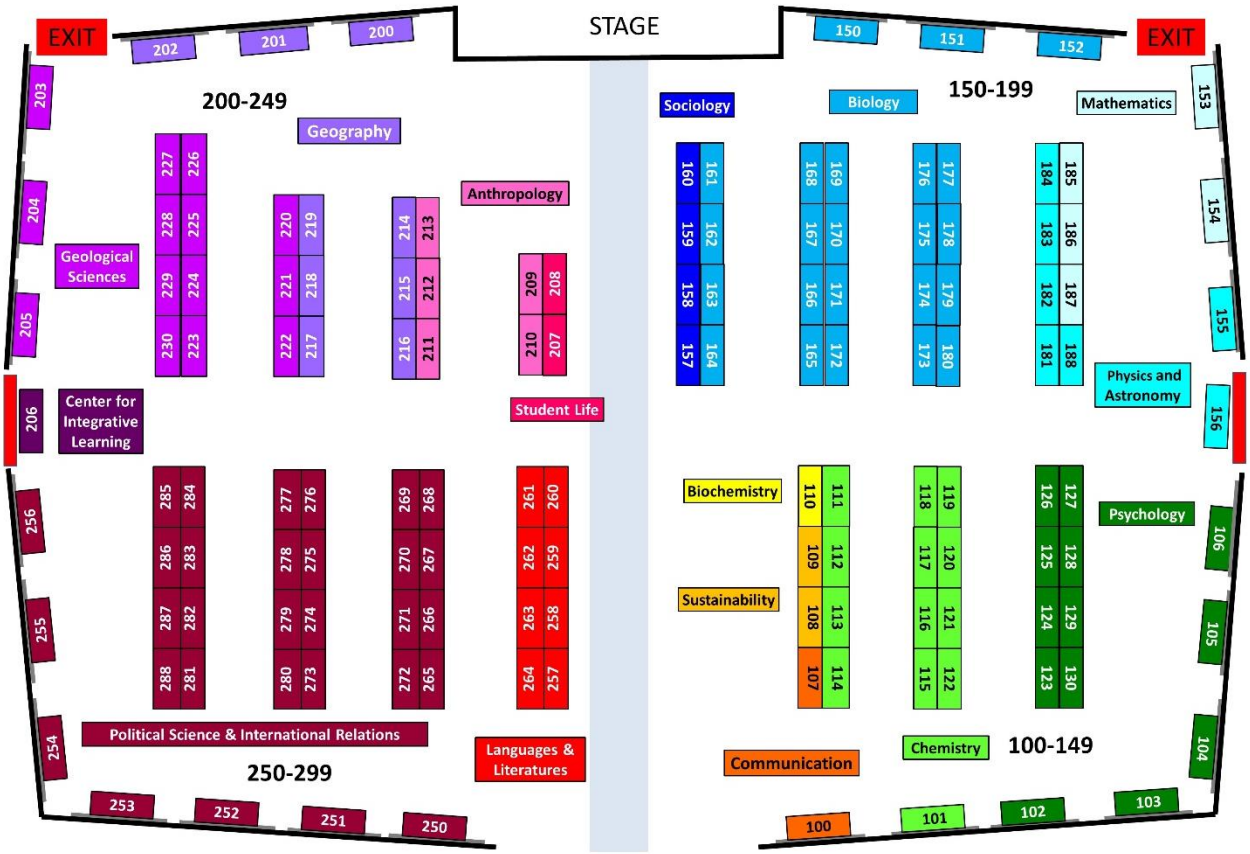
GREAT Day is funded by the Office of the Provost, the Student Association, Campus Auxiliary Services and the Jack '76 and Carol '76 Kramer Endowed Lectureship.

http://www.geneseo.edu/great_day

GREAT Day would like to acknowledge our partners:

GREAT Day 2019 Poster Locations Session 1

Session 1
12 – 1:30 pm



GREAT Day 2019 Poster Locations Session 2

Session 2
4:45 – 6:15 pm