

Transformations

A Student Research and Creativity Conference

**Online beginning
Wednesday, May 13, 2020**

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Transformations is made possible with support from the President's Office, Provost and Vice President for Academic Affairs Office and SUNY Cortland Auxiliary Services.

Design by Mike Morris, senior, graphic design and digital media major for ATS 440: Portfolio Practicum.

Preface

We are pleased to present the conference program for this year's *Transformations: A Student Research and Creativity Conference*. It contains 95 abstracts submitted by nearly 170 students who worked individually or in teams under the direction of their faculty mentors. Collectively, these students represent 38 different majors from the School of Arts and Sciences, the School of Education, and the School of Professional Studies.

The production of this program was well underway by the time that we made the difficult decision to cancel our traditional campus-based event that would have occurred on April 24. While our students did not have the opportunity to present their talks or posters in person, it is important to recognize the significant work that they completed in the months prior to this conference. It is our hope that these collected abstracts will provide at least a brief glimpse of the impressive accomplishments of our students.

Some of our students were able to submit digital copies of their papers, presentations and posters to Memorial Library's Digital Commons archive. These can be identified by the URLs that are included with the titles and abstracts in this booklet. In all, we received 31 submissions, which is a substantial number considering the many other challenges that our students had to face during this semester of sudden change, online learning, and social distancing. Please join us in congratulating all of the students who participated this year!

Acknowledgements

Support for *Transformations* has been provided by **Erik Bitterbaum**, President, and **Mark Prus**, Provost and Vice President for Academic Affairs.

Members of the Transformations Committee:

Martine Barnaby, Art and Art History
Connor Berg, Campus Activities
Kevin Dames, Kinesiology
Laura Eierman, Biological Sciences
Kaitlin Flannery, Psychology
Rhiannon Maton, Foundations and Social Advocacy
R. Bruce Mattingly, Arts and Sciences (Chair)
Erin Morris, Sport Management
Lisa Mostert, Campus Technology Services
Jill Murphy, Health
Kimberly Rombach, Childhood/Early Childhood Education
Meghan VanDeuson, Art and Sciences
Hilary Wong, Memorial Library

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Concurrent Session I
Presentation #1
Room 104

Moderator: Sebastian Purcell, Social Philosophy

Title:

Oil and Water? Modern Moral Reasoning in Plato's Republic

Abstract:

Contemporary ethical philosophy is premised on a dogma, namely that forms of modern moral reasoning are different in kind from pre-modern forms. Julia Annas, Alasdair McIntyre, Jürgen Habermas, Christine Korsgaard, Bernard Williams, and John Rawls are examples of contemporary philosophers who perpetuate this dogma. The purpose of this project is to challenge this belief by demonstrating that modern deontological reasoning can be found in Plato's Republic. Specifically, in the closing myth of Er, which can be shown to function identically to Kant's Categorical Imperative. The implications of this project would be far-reaching since it would accuse many modern moral philosophers of building entire careers on unsound ground.

Presenter:

Jonah Schumacher, Senior, Social Philosophy

Mentor:

Sebastian Purcell, Social Philosophy

Concurrent Session I
Presentation #2
Room 104

Moderator: Joshua Peck, Psychology

Title:

The Effects of Environmental Enrichment on Ethanol Consumption in Prenatally Exposed Adolescent Female Rats

Abstract:

Adolescent female alcohol abuse is a serious and growing epidemic with the rate of adolescent females abusing alcohol now surpassing adolescent males. Thus, the primary focus of this study was to investigate Environmental Enrichment (EE) as a potential treatment strategy that would support ethanol (ETOH) abstinence in prenatally exposed adolescent female rats. Environmental enrichment studies have been successful; however, it remains unknown whether prenatally alcohol exposed adolescent female rats will mimic these effects. We hypothesized that EE adolescent female rats prenatally exposed to alcohol will consume significantly less alcohol than non-enriched (NEE) prenatally exposed adolescent female rats. We found that EE significantly reduced ethanol consumption for prenatally and non-prenatally exposed adolescent female rats compared to prenatally and non-prenatally ethanol exposed female rats who were placed in the non-enriched environment. The current findings may have important implications concerning treatment strategies for prenatal alcohol exposure in adolescent females and alcohol abuse.

Presenter:

Natalie Lipari, Senior, Psychology

Mentor:

Joshua Peck, Psychology

Concurrent Session I
Presentation #3
Room 104

Moderator: Alexandru Balas, International Studies

Title:

Effects of COIL on Intercultural Sensitivity in a Cortland Class

Abstract:

In a class about International Topics in Sports Management at SUNY Cortland, 10 undergraduate and graduate students collaborated with a class from the Finnish JAMK University of Applied Sciences in Jyväskylä, Finland, and Heilbronn University of Applied Sciences in Heilbronn, Germany. Students were given Chen and Starosta's Intercultural Sensitivity Scale, a 24-question measure of various aspects of intercultural sensitivity, before and after the intervention. Additionally, students reflected on the experience before and after in a guided reflection paper. Data was then studied to determine the effect of the international intervention on the students' intercultural sensitivity. The class will be addressed in greater depth in the session and placed both in the context of new technologies designed to facilitate intercultural communication, and Cortland's instrumental role in pioneering this field in recent years.

Presenter:

Tristan Ross, Senior, International Studies

Mentor:

Alexandru Balas, International Studies

Concurrent Session I
Presentation #4
Room 104

Moderator: Alexandru Balas, International Studies

Title:

The Influence of Religion in the Far-Right Politics of the European Union

Abstract:

Far-right political parties have been on the rise throughout the European Union. Many of these parties use Christianity as a base for their ideology, and are either Anti-Semitic, Islamophobic, or both, however the relationship between political party and religion differs between each country. This study aims to identify the relationship between the 19 major far-right political parties in the European Union and religion, and asks: to what extent does religion influence the platforms of these far-right political parties? First, the election results of national general elections and European Parliament elections from 1999 to 2019 are analyzed in order to establish trends of the far-right movement in Europe. Then, the platforms of these 19 parties are discussed in terms of their references to religion in relation to policy and ideology, looking to the recent history of the involved countries to give insight into potential reasons for these relationships.

Presenter:

Kelsilyn Norman, Senior, International Studies

Mentor:

Alexandru Balas, International Studies

Concurrent Session I
URC Session
Room 105

Moderator: Jeffrey Werner, Chemistry

Title:

The metabolism of bacterial enrichments grown on hops extracts

Abstract:

Simple biofilms of *Pseudomonas* spp and *Sphingomonas* spp were found to have colonized *Humulus lupulus* (hops) flowers of nine different hops varieties on a single farm, based on 16S rRNA gene sequencing survey results. Hops produce terpenes, α -acids, β - acids and terpenoids that are hypothesized to be the primary carbon source for these bacteria. Growth of each enrichment on batch cultures was limited by the amount of hops extract. After monitoring enrichment cultures for 22 hours, it was evident that alpha and beta acids were not the initial food source. We are now aiming to identify the bioconversion products and the initial food source using GC-MS analyses.

Presenter:

Melissa Caruana, Senior, Geology

Mentor:

Jeffrey Werner, Chemistry

Concurrent Session I
URC Session
Room 105

Moderator: Erin Morris, Sport Management

Title:

Contrapower Sexual Harassment in Collegiate Athletic Administration

<https://digitalcommons.cortland.edu/slides/9/>

Abstract:

With the current climate of the #MeToo movement on Twitter, more and more individuals are speaking out about their experiences with sexual harassment. Given the male dominant culture of college athletics, there is a need now more than ever to examine how sexual harassment is occurring within collegiate athletic organizations. This study focuses specifically on contrapower sexual harassment, a type of harassment that occurs when a superior in an organizational hierarchy experiences sexual harassment by a subordinate. An online qualitative survey was sent out via email in a nationwide population study involving all NCAA, NJCAA and NAIA college athletic leagues. The survey was designed to reveal the nature of the sexual harassment, who were the most likely perpetrators, which individuals were most likely to experience the harassment, and how these situations would later impact career and life choices as well as overall mental health.

Presenter:

Nikki Coutsouros, Junior, Sport Management

Mentor:

Erin Morris, Sport Management

Concurrent Session I
URC Session
Room 105

Moderator: Jeff Bauer, Exercise Science

Title:

Musical shoes: A possible aid to improving gait for individuals with neurological disorders
<https://digitalcommons.cortland.edu/slides/1/>

Abstract:

This study focused on the application of a unique technology designed originally to supply biofeedback to dancers, but in this case was used to assist a child learning to walk while battling the effects of Cerebral Palsy. The music shoes, called "Electroskip", utilize a biofeedback system that generates different sounds/beats/songs when an individual is walking and placing pressure on their heel or toe. The study lasted six weeks with 2 sessions per week. While the Electroskip technology was worn for each session, it was only activated ever other session. Data indicated that at the end of the study the child was able to walk better based on a comparison of pre and post study scores from the Test of Gross Motor Development II (TGMD-II) evaluation instrument administered by the director of the SIMs Laboratory on campus.

Presenter:

Emma Madonna, Senior, Exercise Science

Mentor:

Jeff Bauer, Exercise Science

Concurrent Session I
URC Session
Room 105

Moderator: Steven Broyles, Biology

Title:

Is hybridization with common milkweed a conservation concern for purple milkweed in New York State

Abstract:

We investigated hybridization between common milkweed, *Asclepias syriaca* L, and rare purple milkweed, *Asclepias purpurascens* L., by examining pre and post-reproductive barriers. *Asclepias syriaca* is a widespread weed that invades the habitat of purple milkweed in eastern North America. Pollinator observations were conducted at Shawangunk Grassland National Wildlife Refuge where these species co-occur. Both milkweeds shared insect visitors that carried pollen between the two species. Interspecific hand-pollinations were successful by producing fruits with a full-set of F1 hybrid seeds. Eighteen morphological traits were measured on 88 plants at Shawangunk, revealing significant differences between the two parental species as well as 18 apparent hybrids. Altogether, the Shawangunk populations of *A. syriaca* and *A. purpurascens* are interfertile, capable of mating in the field, and have evidence of hybrid plant establishment. Hybridization is a conservation concern for *A. purpurascens* and may require widespread monitoring, and isolation of populations from the more common weedy *A. syriaca*.

Presenter:

Kiley Stoj, Senior, Biology

Mentor:

Steven Broyles, Biolog

Concurrent Session I

Room 204

Moderator: Laura Davies, Associate Professor, English;
Director, Writing Program

2019 Outstanding Writing Awards

Collin Anderson Memorial Awards

Out of the Box

Presenter: Keaona Gray-Outlaw, Junior, Professional Writing

Award: Collin Anderson Memorial Award in Fiction

Mentor: Heather Bartlett

Dancing on the Pavement

Presenter: Keaona Gray-Outlaw, Junior, Professional Writing

Award: Honorable Mention for the Collin Anderson Memorial Award in Fiction

Mentor: Heather Bartlett

Shotgun

Presenter: Sean Dunn, Graduate Student, Recreation

Award: Collin Anderson Memorial Award in Poetry

Mentor: Scott Moranda

Loving you from a Distance

Presenter: Leslie Mejia, Junior, Heath Education Certification K-12

Award: Honorable Mention for the Collin Anderson Memorial Award in Poetry

Mentor: Mario Hernandez

That Gold Foil Tho

Presenter: Kristina Petrella, Senior, Psychology

Award: Collin Anderson Memorial Award in Creative Nonfiction

Mentor: David Franke

Brooklyn: We Go HARD

Presenter: Keaona Gray-Outlaw, Junior, Professional Writing

Award: Honorable Mention for the Collin Anderson Memorial Award in Creative Nonfiction

Mentor: David Franke

Writing Across Curriculum Awards

A Look Into Jay Caspian Kang's Article 'Where Does Affirmative Action Leave Asian-Americans'

Presenter: McKenzie Paladine, Sophomore, Psychology

Award: Kathy Lattimore Prize in First-Year Writing

Mentor: Gailanne Mackenzie

An Examination of Trump Impeachment Arguments

Presenter: Miranda Kistner, Freshman, Adolescence Education

Award: Honorable Mention for the Kathy Lattimore Prize in First-Year Writing

Mentor: Gailanne Mackenzie

Why Does Critical Thinking Go Wrong?

Presenter: Cooper Wickham, Junior, Business Economics

Award: Honorable Mention for the Kathy Lattimore Prize in First-Year Writing

Mentor: Timothy Emerson

High Heels and Neckties: Gender Binaries in the Sims 4

Presenter: Sara Sampson, Senior, Professional Writing

Award: Academic Writing Award in the School of Arts and Sciences

Mentor: Kevin Rutherford

The Guano Age: How Bird Poop from Peru led to the Imperialistic Expansion of the United States

<https://digitalcommons.cortland.edu/slides/13/>

Presenter: Christina Barry, Junior, International Studies

Award: Honorable Mention for the Academic Writing Award in the School of Arts and Sciences

Mentor: Alexandru Balas

How HW Smith's Implementation of the Free Breakfast Program Affect Students

Presenter: Sarah Zick, Senior, Inclusive Childhood Education

Award: Academic Writing in the School of Education

Mentor: Rhiannon Maton

Positive Teacher Support of Students with Diverse Backgrounds

Presenter: Claire Fagan, Senior, Inclusive Childhood Education - Spanish

Award: Honorable Mention for the Academic Writing Award in the School of Education

Mentor: Rhiannon Maton

Decreasing Rates of Obesity in Onondaga County Among Older Adults

<https://digitalcommons.cortland.edu/programs/1>

Presenter: Julianna Duca, Senior, Community Health

Award: Academic Writing Award in the School of Professional Studies
Mentor: Donna Videto

Athletes and Biometric Data

Presenter: Clare Witham, Senior, Exercise Science
Award: Honorable Mention for the Academic Writing Award in the School of Professional Studies
Mentor: Kristine Newhall

Untitled

Presenter: Sean Dunn, Graduate
Award: Graduate Student - Winner
Mentor: Gigi Peterson

People as Places as People: Study Abroad and Placing the US History in a Global Context

Presenter: Jonathan Herr, Graduate
Award: Graduate Student – Honorable Mention
Mentor: Gigi Peterson

DISTINGUISHED VOICES IN LITERATURE CONTEST WINNERS

Moderator: Heather Bartlett

"Where I'm From" Contest, Spring 2019

Judged by visiting writer, Sapphire

Winner: "Alex" by Taylor Price, Junior, Professional Writing
Finalist: "Jay Street" by Alice Mitchell, Senior, English
Finalist: "Clean Up" by Hannah Fitzgerald, Junior, Biomedical Sciences

Short Story Contest, Fall 2019

Judged by visiting writer, Emily Fridlund

Winner: "Death in Four Parts" by Regan Ralston, Graduate Student, Adolescence Ed
Finalist: "Blue Elephants" by Sarah Daniels, Junior, Inclusive Childhood Ed

Concurrent Session I
Presentation #1
Room 304

Moderator: Andrea Davalos, Biology

Title:

Deer herbivory alters plant community dynamics in the Edwards Plateau

Abstract:

Ample research has been conducted on the impacts of historically high deer populations on plant communities in the Midwestern and Northeastern United States. However, it is unclear if these results are generalizable across North America. Additionally, much of this research has been biased toward aboveground components of plant communities. The goal of this study was to examine the impacts of overabundant deer on above and belowground components of plant communities in the Edwards Plateau ecoregion in Texas. I compared results from vegetation surveys, aboveground biomass assessments, and mycorrhizal colonization assessments between deer exclosures and paired open plots. I hypothesized that deer reduce plant diversity, biomass and mycorrhizal colonization. I found that while deer did not alter aboveground biomass or mycorrhizal colonization, deer decreased diversity and alter community composition. This research highlights the impacts of overabundant deer across the continent and different habitats and the need for holistic, long-term ecological research.

Presenter:

Jeremy Collings, Senior, Conservation Biology

Mentor:

Andrea Dávalos, Biology

Concurrent Session I
Presentation #2
Room 304

Moderator: Andrea Davalos, Biology

Title:

Effects of Pale swallowwort on Earthworm Fitness

Abstract:

Facilitation between non-native plant and earthworm species has been observed such that non-native plant species benefit in the presence of non-native earthworms (Nuzzo et al 2009; Roth et al 2015). During fall 2019, I performed a reciprocal mesocosm experiment to explore the effects of pale swallowwort (*Vincetoxicum rossicum*) invasion on earthworm fitness (*Amyntas/Metafire* spp.). Fitness was determined by assessing the change in earthworm biomass and leaf litter decomposition. We hypothesized the presence of PSW leaf litter would improve earthworm fitness, especially *Amyntas/Metafire* individuals compared to *Lumbricus terrestris*. *Amyntas/Metafire* survival across all treatments was lower than *Lumbricus terrestris*. Leaf litter decomposition was most pronounced in low PSW treatments (0-33%), with higher treatment conditions showing significant reductions (20-25%). Experimental data was coupled with paired field sampling to explore a possible difference in relative species abundance within PSW patches suggested by previous sampling. I sampled earthworms along transects ranging from outside large PSW patches to the center of the patch. The data indicates that there seems to be a negative association between *L. terrestris* fitness and PSW abundance, which conforms with field observations showing lower abundance of *Lumbricus terrestris* in invaded areas.

Presenter:

William Caston, Senior, Biology

Mentor:

Andrea Davalos, Biology

Concurrent Session I
Presentation #3
Room 304

Moderator: Christian Nelson, Biology

Title:

Independent tracking of JC polyomavirus capsid proteins in human glial cells

Abstract:

Though it affects the kidney cells of most healthy individuals, in patients with a weakened immune system, JCPyV is able to spread to the central nervous system where it may lead to a deadly neurodegenerative disorder. The major viral protein VP1 composes the virus' outer shell while an internal viral protein, VP2, is exposed following uptake into cells and is necessary for successful infection. The purpose of this study is to independently label VP1 and VP2 with fluorophores in order to facilitate independent tracking of these proteins during entry into human glial cells. Mutagenic insertion of the tetrapeptide FCPF to either VP1 or VP2 permits exclusive labeling of each subunit. Ultimately, we hope our findings will aid in the discovery of medications that could serve as preventative agents against the spread of JCV.

Presenter:

Derick Goff, Senior, Chemistry

Mentor:

Christian Nelson, Biology

Concurrent Session I
Presentation #4
Room 304

Moderator: Christian Nelson, Biology

Title:

Investigation of the Role of the Golgi Apparatus in JC Polyomavirus and Simian Virus 40 Infectious Cellular Entry.

Abstract:

Simian Virus 40 (SV40) is an important model to study cellular infection by polyomaviruses. Transport of SV40 to the endoplasmic reticulum (ER) is an important step in infection, yet remains poorly understood. SV40 has not been shown to enter the Golgi apparatus during infection, which is surprising given that all described retrograde transport pathways require transport through this organelle. Interestingly, cholera toxin binds to the same receptor as SV40 and clearly enters the Golgi during cellular intoxication. We hypothesize that the large size of SV40 compared to cholera toxin prevents Golgi transport. To study this, we will fluorescently label intact SV40 virions, smaller SV40 viral pentamers, and cholera toxin, and compare their transport. We expect to see robust colocalization between cholera toxin or SV40 pentamers with the Golgi, but no colocalization with the Golgi apparatus for the actual SV40 virus. These results will help to determine how polyomaviruses infect cells.

Presenter:

Adam Lamont, Sophomore, Biology

Mentor:

Christian Nelson, Biology

Concurrent Session I
Presentation #1
Room 305

Moderator: Jena Curtis, Community Health

Title:

CROSSROADS: A Practicum in Conversation Across Intersectional Identities

Abstract:

The opportunity to meet and learn from others whose lived experience differs from one's own is intertwined with the possibility of misunderstanding and miscommunications as students navigate brave conversations around deeply personal topics. CROSSROADS: A Practicum in Conversation Across Intersectional Identities(WGS329) is a course developed run concurrently with WGS 100 to foster such conversations. Students interested in further examining the topics covered in WGS100 and developing their communication skills engage with the members of the WGS100 class in small groups on a weekly basis. These WGS329 students receive additional training, constructive feedback, and ongoing supervision while examining their own beliefs and values from a more critical vantage point. WGS100 students benefit from critical conversation and application of the lecture content. This dual-delivery pilot program seeks to better equip students to challenge the status quo, understand others first, and navigate their world with empathy and compassion.

Presenter:

Kristina Petrella, Senior, Psychology

Mentor:

Jena Curtis, Community Health

Concurrent Session I
Presentation #2
Room 305

Moderator: Sharon Todd, Recreation, Parks and Leisure Studies

Title:

Capturing a Profile of Alumni to Help the Recreation, Parks and Leisure Studies Department's Strategic Planning Process

Abstract:

As part of its strategic planning and assessment process, SUNY Cortland's Recreation, Parks and Leisure Studies Department requested help from its graduate research methods class in capturing data from its alumni. The class designed and administered surveys to help the department better understand not only alumni's graduation outcomes, but also factors that impacted their education and college experience, core knowledge used in the field, involvement in professional development, and interest in future involvement with the department. The results of this study will help the RPLS Department make important strategic decisions while maintaining its accreditation with the Council on Accreditation of Parks, Recreation, Tourism and Related Professions.

Presenter:

William Bellingham, Graduate Student, Recreation
Morgan Costello, Graduate Student, Recreation
Paige Hess, Graduate Student, Recreation

Mentor:

Sharon Todd, Recreation, Parks and Leisure Studies

Concurrent Session I
Presentation #3
Room 305

Moderator: Rhiannon Maton, Inclusive Childhood Education

Title:

Looking at Incarceration Through Picture Books

Abstract:

Over 2.7 million American children currently have a parent who is incarcerated (Pew, 2010). Yet, the needs of this student population tend to be under-addressed and -acknowledged by teachers and schools. This presentation critically discusses how picture books might be employed as a means of reducing the shame and stigma associated with incarceration and used to better support children with incarcerated loved ones. This presentation identifies and critically engages with a range of picture books that address the topic of incarceration. Our presentation will provide participants with an understanding of what literature is available on this topic, and a discussion about what themes we found present in the books following our critical content analysis of this body of literature.

Presenter:

Emily Urias-Velasquez, Sophomore, Early Childhood and Childhood Education (birth-6)
Nicolette McKeon, Junior, Inclusive Childhood Education

Mentor:

Rhiannon Maton, Inclusive Childhood Education

Concurrent Session II

Room 105

Moderator: Katherine Bonafide, Psychology

Title of Full Session:

Examining Social Relationships Among Adolescents and Emerging Adults

Title #1:

Understanding Adolescent Friendships: An Analysis of the Role of Social Perspective-Taking in Friendship Dissolutions

<https://digitalcommons.cortland.edu/slides/4/>

Abstract #1:

Friendships are critical relationships in adolescence, however, many friendships dissolve. One construct that may play a role in how adolescents experience such dissolutions is social perspective-taking (SPT). To test this hypothesis, 354 middle-schoolers ($M_{age}=11.89$, $SD=0.86$; 53% female; 82% white) completed a self-report, online survey regarding a dissolution experience. Results from an independent samples t -test revealed that females ($M=2.45$, $SD=0.70$) displayed higher SPT than males ($M=2.09$, $SD=0.73$), $t(270)=-4.13$, $p<0.001$. A correlational analysis confirmed our hypothesis that adolescents who showed greater SPT would report higher quality friendships, $r(271)=0.593$, $p<0.001$. Contrary to our hypothesis, adolescents who displayed higher SPT were more likely to react with anger ($r(257)=0.16$, $p<0.001$), sadness ($r(252)=0.31$, $p=0.01$), loneliness ($r(253)=0.28$, $p<0.001$), and rumination ($r(252)=0.23$, $p<0.001$), and less likely to feel happy ($r(259)=-0.29$, $p<0.001$) and relieved ($r(255)=-0.26$, $p<0.001$) following a dissolution. These results aid in the understanding of social perspective-taking and its meaning in adolescent relationships and social development.

Presenter #1:

Joseph Stewart, Senior, Psychology

Mentor #1:

Kaitlin Flannery, Psychology

Katherine Bonafide, Psychology

Title #2:

Assessing the Associations Between Friendship Length, Friendship Quality, and Comfort Level Discussing Sexual Health

<https://digitalcommons.cortland.edu/slides/6/>

Abstract #2:

Sexual health communication has been linked to sexual health practices. Such research on

communication typically studies parent-child relationships. Therefore, this study sought to test whether friendship length and friendship quality are correlated with comfort level talking about sex among same-gender and cross-gender friends. We surveyed 187 young-adults ($M_{age}=20.10$, $SD=1.34$; 49.2% female; 75% White). Results indicated that there is a significant positive relationship between quality of friendship and comfort level ($r(184)=.39$, $p<.001$). However, there wasn't a significant relationship between length of friendship and comfort level ($r(184)=.101$, $p=.169$). When looking at the results in cross-gender friends, women showed a significant positive correlation between friendship quality and comfort level ($r(19)=.512$, $p=.018$), while men did not ($r(19)=.150$, $p=.528$). These results indicate that there may be a difference in comfort when discussing sexual health topics across genders.

Presenter #2:

Payton Charles, Junior, Psychology

Mentor #2:

Katherine Bonafide, Psychology

Kaitlin Flannery, Psychology

Title Presentation #3

Assessing the Differences Between Same-Gender and Cross-Gender Friendships in Sexual Health Communication

<https://digitalcommons.cortland.edu/slides/5/>

Abstract #3:

Researchers have long studied the connection between sexual health practices and sexual health communication. While current research has examined communication between same-gender friends, it is lacking between cross-gender friends. To test whether differences exist between same-gender and cross-gender friends in their frequency of communication and comfort discussing sexual health, 187 college-aged participants ($M_{age}=20.10$, $SD=1.34$; 49.2% female; 75% White) self-reported their experiences using a Qualtrics survey. Results from independent samples t-tests revealed that same-gender friends reported more frequent discussion of both non-sex-related issues ($M=2.53$, $SD=.51$) and sex-related issues ($M=1.20$, $SD=.73$) than cross-gender friends ($M=2.30$, $SD=.50$; $M=.95$, $SD=.70$ respectively), $t_{non-sex}(185)=-2.54$, $p=.012$; $t_{sex}(185)=-1.98$, $p=.049$. However, no significant differences were observed in the comfort levels between same-gender friends ($M=5.46$, $SD=.54$) and cross-gender friends ($M=5.37$, $SD=.62$) when discussing sexual health topics, $t(178)=.871$, $p=.385$. These findings illustrate the importance of understanding friendships in order to effectively promote sexual health behaviors among college populations.

Presenter #3:

Felicity Doddato, Senior, Psychology

Mentor #3:

Kaitlin Flannery, Psychology

Katherine Bonafide, Psychology

Title Presentation #4:

Describing Sexual Health Communication and Education of Non-Heterosexual Romantic Couples

<https://digitalcommons.cortland.edu/slides/11/>

Abstract #4:

STI rates are on the rise, especially among college-aged adults. Historically, there has been little research concerning LGBTQ+ couples and their communication and education regarding sexual health. To better understand this perspective, the current study utilized both self-report and observational data from five non-heterosexual couples ($N=10$; M age=21.90 years, $SD=2.92$; 60% female; 100% White). Results showed that, on average, participants talked about sexual health related topics for 9.46 out of ten possible minutes. Afterwards, participants reported feeling comfortable discussing these topics ($M=5.48$, $SD=0.73$ on a scale from 1-6). A common theme that emerged was the lack of sexual health education for LGBTQ+ individuals. This was supported by the finding that individuals reported their main sources of education were friends ($N=6$), and the internet ($N=5$). Future research should continue to examine sexual health communication within non-heterosexual couples. Such research can help contribute to education catering to members of the LGBTQ+ community.

Presenter #4:

Cami Allen, Senior, Psychology

Mentor #4:

Katherine Bonafide,
Psychology

Kaitlin Flannery, Psychology

Concurrent Session II

Room 106

Moderator: Alexandru Balas, International Studies

Title of Full Session:

International Perspectives: Botswana, Vietnam and Guano

Title #1:

The Lack of Diversity in Botswana's Economy Due to Diamonds

Abstract #1:

This panel will explore issues regarding resources in Botswana, education in Vietnam, and the role of guano in developing U.S.'s imperialistic foreign policy. Not even a century ago, Botswana was a traditional society under English rule and labeled by the United Nations as one of the world's least developed countries. Their independence from Great Britain came in 1966, and was shortly followed thereafter by their 1970s discovery of diamonds. The diamond industry brought economic success to the small country, which allowed for the take off in development. Since independence, Botswana has attempted and failed at diversifying their economy apart from diamond mining. Now the government of Botswana is struggling to find innovative ways to bring long term economic success to a nation that is entirely dependent on nonrenewable minerals. Botswana is one of the biggest success stories in development, but their inability to diversify their economy has inhibited them from reaching maturity as a developed nation.

Presenter #1:

Caleb Knapp, Junior, International Studies
Christina Barry, Junior, International Studies
Naomi Higgins, Junior, International Studies

Mentor #1:

Alexandru Balas, International Studies

Title #2:

Vietnam: Improving Living Conditions Through Education

Abstract #2:

Historically Vietnam has been one of the poorest countries in the world. Drastic economic and political reforms were launched in 1986 under the policy known as Đổi Mới with the goal of raising people out of poverty and establishing a socialist-oriented market economy. In recent years Vietnam has begun this transition from a low-income impoverished country into a middle-income country. In order to sustain such growth and remain competitive in the global market, quality education must be a top priority. The development of a quality education must include equal access extended to disenfranchised or underrepresented groups, updated and relevant curriculum, and properly trained teachers. These factors of an

education system must ultimately culminate in producing human capital that is ready to enter a skilled and diverse workforce. Beginning 7 years after the inception of the Đổi Mới policy, the World Bank has played a large role in the development of education with the creation of projects and goals, providing foreign aid, and reporting on such projects, goals and aid. However, the effects of the World Bank's aid must be analyzed with finer lenses to understand what Vietnam's education system truly needs and not misrepresent the results of the foreign aid projects.

Presenter #2:

Caleb Knapp, Junior, International Studies

Mentor #2:

Alexandru Balas, International Studies

Title Presentation #3

Did Peruvian Guano Contribute to the Imperialistic Expansion of the US in South America?

Abstract #3:

Peruvian Guano is a fertilizer, coveted for its high nitrogen and phosphorus content. Accumulated for centuries by Pacific sea birds who nest on rainless islands, guano was sacred to the Indigenous people of Pacific South America. In the second half of the 19th century, Peruvian guano held an important place in the world as the most effective remedy for soil depletion. Its abundant levels of uric acid made it a valuable source of fixed nitrogen, an element in high demand before the advent of chemical fertilizer. Between 1830 and 1870, Europe and North America both faced a major environmental crisis. Migration to urban areas, combined with intensive farming disrupted the natural metabolic process of waste returning to the soil as fertilizer. Thus, they started looking for different types of fertilizers, including guano from Peru.

Presenter #3:

Caleb Knapp, Junior, International Studies

Mentor #3:

Alexandru Balas, International Studies

Concurrent Session II

Room 204

Moderator: Seth N. Asumah, Africana Studies

Title of Full Session:

Sankofa: Revisiting, Rethinking, and Reconstructing Critical Perspectives on Black Diasporic Challenges

Abstract #1-4

Sankofa: Revisiting, Rethinking, and Reconstructing Critical Perspectives on Black Diasporic Challenges

Presenters: Shaneya Simmelkjaer, Martha Alvarez, Melanie Atkinson, and Miriam Hulede

In 1619, the first enslaved Africans landed in Jamestown, Virginia by force of the treacherous institution of slavery. In 2019-four hundred years later, the descendants and survivors of Maafa- the transatlantic slave trade, have embarked on a social, cultural, and spiritual journey back to the land of their ancestors. Yet, they still encounter racism, discrimination, oppression, and microaggression in the United States that perpetuates the state of dehumanization among people of the African diaspora. In this session, the four student presenters will examine the effect of the above-mentioned struggles on the lives of diasporic peoples. The hyper-criminalization of Black bodies, misogynoir against Black women, and Post Traumatic Slavery Disorder are indicative of the negative effects of white hegemonic power. In light of their suffering, many diasporic peoples are exploring their African roots and returning to the source.

Title #1:

The Politics of Mass Incarceration: Deconstructing the Prison Industrial Complex & its Enslavement of Black and Brown Bodies

Presenter #1:

Shaneya Simmelkjaer, Senior, Criminology/Africana Studies

Mentor #1:

Seth N. Asumah, Africana Studies

Title #2:

Womens' Worth

Presenter #2:

Martha Alvarez, Senior, International Studies

Abstract #2:

Sankofa: Revisiting, Rethinking, and Reconstructing Critical Perspectives on Black Diasporic Challenges

Mentor #2:

Seth N. Asumah, Africana Studies

Title Presentation #3

Post Traumatic Slave Disorder and Relationships: Revisiting Relations of Black Men and Woman

<https://digitalcommons.cortland.edu/slides/8/>

Presenter # 3:

Melannie Atkinson, Senior, Communication Studies/Africana Studies

Abstract #3:

A question that I have for people in the African American Community is; Why is it that many friendships seem to excel but when it comes to relationship status the connection between African American men and women is hard to come by? For hundreds of years we have seen the effect of Modern-day slavery to the people in the African American Community and this is one. Most African Americans have been stuck in a mindset that we should never and will never be connected as one mentally, emotionally and physically through love in society. In this paper I will argue that Most African American men and women are great friends, but they are not the best in relationships because the healing process was not taken place within this culture; which have led most men and women of the African American Community into The Post Traumatic Slavery Disorder (PTSD).

Mentor #3:

Seth N. Asumah, Africana Studies

Title Presentation #4:

Homecoming: Liberation, Reconciliation, and Restoration of the African Birth Right

Presenter # 4:

Miriam Hulede, Senior, International Studies/Africana Studies

Abstract #4:

Sankofa: Revisiting, Rethinking, and Reconstructing Critical Perspectives on Black Diasporic Challenges

Mentor #4:

Seth N. Asumah, Africana Studies

Current Session II

Room 305

Moderator: Scott Moranda, History

Title of Full Session: New York Central College - A Digital History

Abstract #1-3:

Several History majors in Fall 2019 took a class on digital tools for researching and writing history. For their class project, they collaborated with students from Dr. Faulkenbury's African-American History course to produce a digital history of Central College, a remarkable institution that held classes in nearby McGraw from 1849 to 1860. Founded by abolitionists, the college was unique at the time in enrolling men and women of all races. Students on this panel will share their work and debut the website to the public. Presenters helped create an interactive timeline that highlights the history of anti-slavery activism in Cortland County. They mapped student demographics. They also created interactive exhibits about African-American students at the College. Prominent abolitionists from Boston to Washington, DC contributed to this pioneering educational experiment by sending their children to rural New York.

Title #1:

New York Central College - A Digital History - Pt.1

Presenter #1:

Robert Kleiman, Senior, History

Mentor #1:

Scott Moranda, History

Title #2:

New York Central College - A Digital History - Pt. 2

Presenter #2:

Holly Pianosi, Senior, History

Mentor #2:

Scott Moranda, History

Title Presentation #3

New York Central College - A Digital History Pt. 3

Presenter #3:

Chad Dunham, Senior, History

Mentor #3:

Scott Moranda, History

Concurrent Session II

Room 307

Moderator: Gigi Peterson, Adolescence Education, History

Title of Full Session:

Collaborating Across Continents: A COIL Course on Migration

Title #1:

Collaborating Across Continents: A COIL Course on Migration

Abstract #1:

Hear how SUNY Cortland students collaborated with students from four continents in order to research and develop resources about child migration. They will share their insights about Collaborative Online International Learning (COIL), what they learned from their partners, and how they brought insights about US migration history to this work. The students were pioneers in a virtual exchange project was conducted by researchers and instructors in Germany (University of Potsdam), Mexico (Universidad de Monterrey), South Africa (North-West University, Potchefstroom) and SUNY Cortland.

Presenter #1:

Michael Anderson, Senior, History
Zachary Clark, Junior, History
Nicholas Crans, Junior, History
Kyle Herguth, Junior, History
Austin Voorhees, Junior, History

Mentor #1:

Gigi Peterson, Adolescence Education, History

Concurrent Session III

Room 104

Moderator: Evan Faulkenbury, History

Title of Full Session:

Bones, Trucks, and Myths: Historians Explain Changes in the Twentieth Century World

Title #1:

Strikes on Central Ave: The Closure of Brockway Motor Trucks and the End of Huskietown, USA

<https://digitalcommons.cortland.edu/programs/9/>

Abstract #1:

This research discusses the closure of Brockway Motor Trucks in Cortland, New York in 1977 and explores both the internal and external factors that forced its shutdown. My paper uses period newspaper articles to argue that decisions and events on both the parts of Brockway and its parent company Mack contributed to the end of "the most rugged truck in the world." Several scholarly articles and books advance the argument that national, industry-wide trends of deindustrialization and consolidation also impacted the direction that Brockway went in the 1970s, resulting in its ultimate closure. This paper is a study on how a prominent small-town industry, known the world over, disappeared in a storm of confusion and controversy, and how Cortland has dealt with the death of Brockway's Huskie Dog, even decades after the factory closed.

Presenter #1:

Lucas Kaczynski, Junior, History

Mentor #1:

Evan Faulkenbury, History

Title #2:

Why a Woman Was Against Her Own Equality: Understanding Phyllis Schlafly's Multifaceted Opposition to the Equal Rights Amendment

<https://digitalcommons.cortland.edu/programs/5/>

Abstract #2:

This presentation analyzes right-wing women's resistance to the Equal Rights Amendment in the United States by using Phyllis Schlafly as a case study. It questions her reasoning, and by extension the anti-ERA women she represents, for opposing an amendment widely understood to make progress toward achieving gender equality. This analysis asserts that Schlafly denounced the amendment because she believed it would attack the rights of housewives, give the federal government excessive power, and hurt women already equal before the law in the ways that mattered. Books and articles about conservative women's stance against leftist women's movements and interviews where Schlafly discussed her anti-ERA agenda support this argument. With the ERA resurging in contemporary politics, echoes

of Phyllis Schlafly's sentiments from the 1970s can be heard. In understanding why a person might support agendas perceived to operate against them, historians can gain a deeper understanding of the past to better inform the present.

Presenter #2:

Bailey Iaccarino, Junior, History

Mentor #2:

Evan Faulkenbury, History

Title Presentation #3

The Bare Bones of Paleontology

<https://digitalcommons.cortland.edu/programs/2/>

Abstract #3:

When discussing an occupation such as paleontology, we imagine professional people with PhDs and a knack for getting a little dirty in the pursuit of discovery. Never do we imagine cutthroat tactics and destruction for the sake of discovery. The professionalism of paleontology has gone through both of these stages from its humble beginnings as early as the sixth century B.C.E. to the modern day. "The Bare Bones of Paleontology" examines how paleontology became a professional career with distinguished scientists rather than scientists who only wanted glory. This paper examines this change in professionalism with the backdrop of "The Bone Wars", a period in American History where cutthroat tactics were used by two scientists to ensure they would discover more fossils than the other. Without this era of paleontology, the profession would not be seen the way it is today.

Presenter #3:

Thomas Keely, Senior, History

Mentor #3:

Evan Faulkenbury, History

Title Presentation #4:

The People's Own Studio: DEFA and the Construction of the East German Mythos Through Film

Abstract #4:

My research focuses on East Germany from the years of 1949-1961, ending with the construction of the Berlin Wall. I focus on DEFA - the state-owned film production company and a large selection of feature films. I have the research separated into several smaller groups of time that revolve around major events in East German politics and culture - such as the 1953 Uprising, cultural thaws in 1956, the lead-up to the Berlin Wall, etc. In these sections, I choose two or three particularly poignant films that feature themes such as anti-fascism and discuss how the themes tie into the "creation myth" of East Germany. In other words, how did the films reflect how East Germany wants its citizens and the world to view the newfound nation. What I have found so far is that anti-fascism is a key theme that ties into practically every non- genre film - though the meaning of this theme has changed over time. To this extent, I focus on one film "The Murderers are Among Us." This is not only considered

possibly the most artistically and culturally important film to come out of East Germany, but also the first German film post- WWII. As such, this film was constantly hailed as a masterwork by the East German government. It, as well as its themes of anti-fascism, was used frequently by the East German government and its allied newspapers to evoke certain responses to politics in East Germany. As such, its meanings and supposed goals were changed to reflect current policy in the GDR.

Presenter #4:

Jonathan Herr, Graduate Student, History

Mentor #4:

Evan Faulkenbury, History

Concurrent Session III

Room 204

Moderator: John Suarez, Institute for Civic Engagement

Title of Full Session: Not Your Average Internship

Title #1:

Learn-by-Doing

Abstract #1:

This is an atypical, student led internship experience. The interns work collaboratively on 8 different projects with students, faculty, and Greater Cortland Community in a service learning fashion. Allows the members of the internship to be hands-on, learning real life skills that they can carry over into future careers. This isn't just an office job where you just file paperwork and shred documents; this is an authentic experience of what it's like outside of college.

Presenter #1:

Alexandra Galus, Senior, International Studies
Bridget Spiddle, Senior, English
Ryann Hudson, Senior, Political Science
Matthew Milano, Sophomore, Physical Education
Sabrina Morici, Senior, Political Science

Mentor #1:

John Suarez, Institute for Civic Engagement

Title #2:

Cortland Votes

Abstract #2:

The Cortland Votes team was formed to facilitate informed and civil discussions about hot button issues with members of both the campus and greater Cortland community. These deliberative dialogues were guided discussions on these major issues with the end goal of making commitments to begin to work towards solutions within the Cortland community. From these discussions, many of the other teams within the Action Team have stemmed from these dialogues. Since its start, Cortland Votes has also played a role in engaging students in politics, both national and local, by promoting voter registration across campus during the Midterm election season and this past local election season. The Cortland Votes team has been dedicated to encouraging student participation in all forms of politics, and to make them more informed voters.

Presenter #2:

Alexandra Galus, Senior, International Studies
Ryann Hudson, Senior, Political Science
Sabrina Morici, Senior, Political Science

Mentor #2:

John Suarez, Institute for Civic Engagement

Title Presentation #3

Generation Vote

Abstract #3:

Generation Votes has been working over the past year to create a student opinion platform to be presented and hopefully adopted by legislations or community leaders. The first semester we crafted a student opinions poll. With this poll we gathered data on the issues students feel strongly about and want to see changed in their local community. The second semester we worked to bring local officials on to campus to talk with students and start a dialogue and we hope to have one of those invited officials develop a platform based on the students' opinions that we worked to create based on the data from our student opinion poll.

Presenter #3:

Alexandra Galus, Senior, International Studies
Ryann Hudson, Senior, Political Science

Mentor #3:

John Suarez, Institute for Civic Engagement

Title Presentation #4:

Environmental Sustainability

Abstract #4:

This portion of the Action Team focuses on environmental issues faced by Cortland campus and the surrounding community. Partnering with groups such as the Clean Water Coalition, NYPRIG, Campus Energy Management, and SUNY Cortland Green Reps., the fight against plastic water bottles is being addressed. By advocating for the ban of single-use plastic bottles as well as creating a sustainable map on campus is on the agenda for the team. In addition to the on-campus fight against climate change, the Climate Smart Committee Task Force has been resurrected through deliberative dialogue between Cortland citizens, local government officials, and college students. Through this partnership, the Action Team hopes to bridge the gap between the college and city residents to create a more sustainable city. The interdisciplinary collaboration of the Institute with city organizations provides students with a hands-on opportunity to apply their studies.

Presenter #4:

Matthew Milano, Sophomore, Physical
Education Bridget Spiddle, Senior, English
Raquel Berman, Sophomore, Adolescence Education

Mentor #4:

John Suarez, Institute for Civic Engagement

Concurrent Session III
URC Session
Room 105

Moderator: Frank Rossi, Chemistry

Title:

Synthesizing a pH Sensitive Probe to Selectively Track a Virus as it Moves Through a Cell

Abstract:

The goal of this research was to synthesize a probe that helps identify the distinct path the JC polyomavirus takes through a cell. Labeling a virus with a probe that changes fluorescence with pH is a way to track the location of the virus. Fluorescent dyes can be attached to cysteine residues, however, proteins contain many cysteines. The problem with this method is the label will randomly bind to the different cysteines since they are all equivalent (Frei, Johnsson, Salim & Wang, 2018). To solve this problem, the Pentelute lab has developed a sequence of amino acids, which they call the pi-clamp, that can be selectively labeled. The probe that we synthesized consisted of three groups the biphenyl, the linker, and the label/dye, each component vital in selectively labeling the virus

Presenter:

Madeline Berry, Senior, Chemistry

Mentor:

Frank Rossi, Chemistry

Concurrent Session III
URC Session
Room 105

Moderator: Rhiannon Maton, Inclusive Childhood Education

Title:

Restorative Practices

<https://digitalcommons.cortland.edu/programs/8/>

Abstract:

Research consistently shows that suspensions are ineffective in addressing the root causes for behavior. Students of color, students from low socioeconomic backgrounds, and students with dis/abilities disproportionately receive exclusionary punishments for their behaviors. In response to such inequitable statistics, a school district implemented Restorative Practices, an alternative discipline policy. This policy encourages students to collaboratively address their behavior with those within their school community and discuss ways that they can restore relationships with each other. By interviewing faculty at an elementary school, salient information emerged on the definitions, implementation procedures, and critiques of Restorative Practices.

Presenter:

Asha Faith Goldberg, Senior, Early Childhood and Childhood Education (birth-6)

Mentor:

Rhiannon Maton, Inclusive Childhood Education

Concurrent Session III
URC Session
Room 105

Moderator: Laura Eierman, Biology

Title:

Reproductive Gene Expression Response of Oysters to Plastic

Abstract:

Xenoestrogens disrupt endocrine processes resulting in detrimental effects such as reduced fecundity and feminization of males. As a keystone species and protandric hermaphrodite undergoing gametogenesis each year, the eastern oyster (*Crassostrea virginica*) is a great candidate species to study these effects. However, little is known about how xenoestrogens from plastic pollution are affecting their sexual development. Using 8 biologically validated genes involved in gametogenesis, I measured changes in gene expression in oysters grown on plastic compared to oysters grown on shell. I extracted RNA from gonadal and gill tissue, amplified each gene, and analyzed differences in expression between oysters grown on shell and on plastic and between each sex. Plastic exposure increased the expression of genes involved in the egg production for females and reduced the variation in expression in males. The findings suggest plastic may be altering gene expression in a way that contributes to population sex ratio changes.

Presenter:

Marissa Kordal, Junior, Biology

Mentor:

Laura Eierman, Biology

Concurrent Session III
URC Session
Room 105

Moderator: Peter Ducey, Biology

Title:

Determining the Abundance and Range of the Invasive Terrestrial Planarian Bipalium adventitium

<https://digitalcommons.cortland.edu/slides/10/>

Abstract:

The terrestrial planarian, *Bipalium adventitium*, is an invasive predator on earthworms. Despite having a wide range in the United States, neither its population densities nor ecological impacts are known. A factor contributing to this limited knowledge is the lack of an effective sampling technique for determining planarian abundance. Although scientists have begun to study the ecological impacts of some planarians using selected field techniques, there has not been a study analyzing the effectiveness of multiple techniques. My study investigates the effectiveness of five sampling techniques commonly used on organisms of similar microhabitats to *B. adventitium*: select point sampling, mustard applications, hand-sorting leaf litter, cover objects, and pitfall traps. The five techniques are being tested in three different terrains to determine any impact type of terrain has on the effectiveness. My results will help further studies into the abundance of non-native terrestrial planarians and their possibly detrimental impacts on ecosystems.

Presenter:

Samantha Robbins, Senior, Biology

Mentor:

Peter Ducey, Biology

Concurrent Session III
Presentation #1
Room 205

Moderator: Muteb Alqahtani, Early Childhood and Childhood Education (birth-6)

Title:

Using Robots to Teach Mathematics to First-Grade Students: Preservice Teachers' Perspectives

<https://digitalcommons.cortland.edu/programs/4/>

Abstract:

Helping preservice teachers (PSTs) develop positive attitudes toward using new pedagogical practices requires engaging them in professional learning and teaching practice. In this study, 16 PSTs engaged in an intervention that focused on integrating with robots with mathematical tasks and teaching mathematics using robots to a group of first-grade students. The mathematical tasks engaged first-grade students with concepts such as counting, addition, subtraction, and identifying patterns. After the teaching experience, PSTs responded to five open-ended questions that elicited perceptions of their experiences using robots and working with first grade students. We conducted qualitative content analysis of PSTs' responses to identify common trends regarding teaching mathematics using robots. Results illustrated positive engagement while using robots in teaching and considerations of novel approaches to teaching mathematics. PSTs reflections indicated their intentions to adopt or revise specific strategies in their future practice.

Presenter:

Alyssa Argila, Graduate Student, Teaching Students with Disabilities

Maryssa Leventhal, Graduate Student, Teaching Students with Disabilities

Mentor:

Muteb Alqahtani, Early Childhood and Childhood Education (birth-6)

Concurrent Session III
Presentation #2
Room 205

Moderator: Muteb Alqahtani, Early Childhood and Childhood Education (birth-6)

Title:

Preservice Teachers' Strategies for Interpreting Fractions Represented in Discrete and Continuous Models

<https://digitalcommons.cortland.edu/programs/6/>

Abstract:

Teaching and learning fractions has been a focus of research in mathematics education for decades. Current practices of teaching fractions emphasize the partitioning perspective, or part- whole, to conceptualize fractions. Another approach to teaching fractions is measurement. The part-whole approach limits students' conceptualization of fractions and impedes learning improper fractions, whereas the measurement approach has the potential to overcome these difficulties and supports learning improper fractions. In this study, 55 preservice teachers engaged in an intervention to reexamine fractions using a measurement perspective. Before and after the intervention, the preservice teachers were asked to interpret proper and improper fractions using discrete and continuous representational models. We used conventional content analysis to examine the changes in preservice teachers' strategies for interpreting fractions. In this presentation, we report on these qualitative changes from before and after the intervention and highlight how preservice teachers' interpretations of fractions influenced by the measurement perspective.

Presenter:

Victoria Webster, Senior, Early Childhood and Childhood Education (birth-6)

Mentor:

Muteb Alqahtani, Early Childhood and Childhood Education (birth-6)

Concurrent Session III
Presentation #3
Room 205

Moderator: Danica Savonick, English

Title:

Women's Rights are Human Rights: The Story of Abortion Laws and the Women Affected

<https://digitalcommons.cortland.edu/programs/7/>

Abstract:

The purpose of our project is to educate viewers on the history of abortion in the United States and the women affected by abortions. In the 21st century, the topic of abortion is over-politicalized and as a result, we tend to overlook the suffering and obstacles women encounter and are forced to overcome in these situations. We aim to de-stigmatize abortions with our project. Our unique abortion timeline includes three different components: the abortion laws and events beginning in the mid-1800s, the true, personal stories of women who are affected by these laws and abortions, and the different abortion resources available for women throughout time. Each topic appears as a different color circle on the bottom of the timeline to distinguish which story is what topic; red circles contain information on the laws and events, white circles are personal stories, and pink circles are resources. This timeline builds on the excellent abortion timelines already in existence including the "Abortion History Timeline" from the National Right to Life organization and the "Timeline of Attacks on Abortion" from the Planned Parenthood website. While these timelines do important work such as highlight major legislations and popular law cases, our timeline combines these insights in a way that we hope is accessible for students and readers interested in learning about abortions in a more complex and inclusive way.

Presenter:

Allison Burk, Senior, Early Childhood and Childhood Education (birth-6)
Skylar Locke, Junior, English

Mentor:

Danica Savonick, English

Concurrent Session III
Presentation #1
Room 304

Moderator: Tyler Bradway, English

Title:

The Intersectionality of Queerness and Weirdness in Weird Literature

Abstract:

The queer and the weird are two extremely vast topics that intersect in a very important way. I expand on this in many different directions within my conference paper, but for our purposes I will describe this intersectionality as it relates to representation within literature. My conference paper dealt with two main texts: *Meddling Kids* by Edgar Cantero and *Drowning Girl* by Caitlin Kiernan. These two texts could not be more different than one another, but they are both deeply involved with the weird, the queer, and of course, a mystery.

Within my essay, I discussed the ways in which it is important to look at the queer and the weird together, as it can reveal many truths about the queer experience, queer representation within weird texts, and why writers may choose to spin the queer and the weird together (and even why some may choose not to).

Presenter:

Molly Donovan, Junior, English

Mentor:

Tyler Bradway, English

Concurrent Session III
Presentation #2
Room 304

Moderator: Eric Edlund, Physics

Title:

Gaussian Optics in the Browser

Abstract:

This project demonstrates the practicality of building sophisticated scientific tools that can run in an internet browser. Using HTML, CSS and JavaScript, along with the THREE JS library, a tool was developed to allow users to design and analyze optical arrays of lenses and mirrors for gaussian beams. We have created a design environment and user-friendly interface that allows users to quickly develop, modify and analyze designs in 3D.

Presenter:

Nathaniel Rose, Senior, Physics

Mentor:

Eric Edlund, Physics

Concurrent Session III
Presentation #3
Room 304

Moderator: Jeremy Jimenez, Foundations & Social Advocacy

Title:

'It's my responsibility': Perspectives on Environmental Justice and Education for Sustainability among international school students in Singapore

Abstract:

For those of us who are the next generation to come into adulthood during an ever worsening climate crisis, it's important to ask ourselves, "How do we as the future generation lead for a sustainable future?" This study examines how international high school students studying in Singapore prioritize environmental decision-making both in their individual lives as well as public policy advocacy. From surveys of international students, and a smaller subset of open-ended interviews, our data gives insight into their views on climate change, environmental issues, and public activism as well as what themes in their environmental education may be inadequately addressed. This study analyzes how students think their formal education curriculum as well as outside media sources empower them to acquire knowledge, skills and values needed to promote sustainable development. This study hopes to conclude with proposals for informing how to evaluate current environmental education programs for efficacy and inclusion.

Presenter:

Tova Wilensky, Senior, Selected Studies in Education

Mentor:

Jeremy Jimenez, Foundations & Social Advocacy

Concurrent Session III
Presentation #1
Room 307

Moderator: Andrew Pragacz, Sociology

Title:

Dead at the Scene; Reforming Police approaches with Mental Health Crisis Calls

Abstract:

In America, an individual with a mental illness is 16 times more likely to be killed during an encounter with the police (Morris, 2018). There is no doubt that this is an issue that needs to be resolved, but the question is, how can we do that? In this presentation, the research on removing police from responding to mental health crisis calls will be discussed as well as organizational approaches to resolving this issue.

Presenter:

Kaylee Conley, Senior, Psychology

Mentor:

Andrew Pragacz, Sociology

Concurrent Session III
Presentation #2
Room 307

Moderator: Philip Buckenmeyer, Exercise Science

Title:

Prevalence of Iron Deficiency in Division III Female Cheerleaders

<https://digitalcommons.cortland.edu/slides/14/>

Abstract:

Iron deficiency is known to affect many female athletes, but there is a lack of research on its prevalence amongst cheerleaders. Iron deficiency is known to cause fatigue, which is likely to impair an athlete's performance. Hence, the purpose of this study was to provide insight into the iron levels of cheerleaders that could guide both athletes and coaches, creating positive dietary changes. It may be necessary to increase awareness of this condition amongst female athletes as it is preventable. The online tool, MyDietAnalysis, was used to examine each participant's actual nutrient intake relative to their Recommended Dietary Allowance (RDA), based upon a 7- day food recall. The results showed that SUNY Cortland cheerleaders are consuming significantly lower levels of iron than females that are not high-intensity athletes (control group). In addition, the results revealed a significantly lower caloric intake amongst the cheerleaders compared to the control group.

Presenter:

Cassandra Sterbens, Senior, Biomedical Sciences

Mentor:

Philip Buckenmeyer, Exercise Science

Concurrent Session III
Presentation #3
Room 307

Moderator: James Hokanson, Exercise Science

Title:

The SMR Power Study

Abstract:

Self-Myofascial Release (SMR) is a massage technique used to treat muscle immobility and pain by stimulating the stretch reflex in muscles using a foam roller. Healthy non-runners aged 18-22 years were recruited to participate in a three-session repeated measures experimental protocol. Prior to testing, participants filled out the PAR-Q and informed consent forms. After a warm-up, participants completed 5-minutes of either a control condition or foam rolling protocol, followed by a 5-minute run at 70% VO₂ max, and a cool-down. Results from a pilot study showed that the steady-state VO₂ engaging in the SMR protocol was 31.18 O₂/kg/min and control condition was 27.22 O₂/kg/min. Average running power was 65.0 Watts and 64.6 Watts for SMR and control, respectively. Positive well-being increased and physiological distress were also evaluated.

Presenter:

Kaitlin Veigl, Senior, Exercise Science

Mentor:

James Hokanson, Exercise Science

Poster Session A:

Title:

Critical Analyses of Human and Social Geography Perspectives

Abstract:

Undergraduate students from two General Education geography courses connect their individual research interests and experiences to concepts and themes about human-environment interactions and social justice. The poster presentation focuses on critical analyses of development, international interactions, locational analyses, and local policies aimed at promoting equity among social groups. (Student presenters are Juniors)

Presenters:

Daniel Gross, Junior, Geography

Chih-Yu Lee, Junior, Geography

Mentor:

Ibipo Johnston-Anumonwo, Geography

Poster Session A:

Title:

"Our America": Geographies of Diversity amidst Segregation in New York Hometowns

Abstract:

Charts on demographic trends and maps of ethnic and racial residential patterns along with observations and documented narratives of hometowns across New York state are compared with information about the state's more widely known metropolitan areas. Unlike Queens, NY, touted as the most diverse city in the United States or Buffalo, NY, considered the fourth most segregated US city in 1990, change and continuity in diversity and segregation are characteristic of most presenters' hometowns. Presenters describe and explain the varying trends.

Presenters:

Dan Gross, Junior, Geography

Mentor:

Ibipo Johnston-Anumonwo, Geography

Poster Session A:

Title:

"True Colors" Revisited: Changes in Racism across Place and over Time?

Abstract:

In this presentation, undergraduate students enrolled in a Social Geography General Education course about prejudice and discrimination conduct their own investigative research on contemporary realities about race-ethnicity and place. They examine if any stark instances of racial bias that existed in Kansas City are present or absent two and three decades later in locations across New York state and in three neighboring states. Topics presented include shifts in using public transportation such as taking a taxi in Manhattan in 1990s versus getting an uber in 2020; social distance occurrences during Latinization of Pennsylvania's Lehigh Valley; and the role of skin color in differential experiences of residents in locations across Upstate New York, suburban Long Island, or urban spaces in Connecticut and New Jersey.

Presenters:

Christopher Fenandez, Freshman, Anthropology

Isabel Witzenburg, Freshman, Criminology

Megan Sanchez, Freshman, Physical Education

Haley Lambert, Freshman, PRE-Major

Mentor:

Ibipo Johnston-Anumonwo, Geography

Poster Session A:

Title:

The effect of selective herbivory and herbicide treatment on mycorrhizal colonization patterns in *Vincetoxicum rossicum*

Abstract:

The invasive vine *Vincetoxicum rossicum* is abundant throughout the forests and fields of North America. Its reproductive strategy and lack of predators allow it to outcompete native plant inhabitants of the areas it invades. The purpose of this study was to investigate the impacts of deer herbivory, invasive earthworms, and herbicide management on the health and success of *V. rossicum*, specifically on the plant's mycorrhizal associations as it has been well established that this is directly related to plant health. Within three NYS parks selected, two areas were designated as treatment and reference sites for herbicide management, and in these were two plots either enclosed in a fence or left open to test for the effects of deer herbivory. My findings indicated that there was no significant effect of deer exclusion or herbicide management on mycorrhizal colonization frequency ($p < 0.05$), however a significant difference was found between the three forested locations.

Presenters:

Angela McEnerney, Senior, Biology

Mentor:

Andrea Davalos, Biology

Poster Session A:

Title:

Utilizing Yeast to Detect Toxic Chemicals in Drinking Water

Abstract:

The Department of Defense is concerned with the vulnerability of our drinking water to terrorist attack. Yeast may be able to serve as a general toxicity bioindicator because after exposure to various pollutants the vacuoles become more active. Using commercially available fluorescent dyes, we examined the size and pH of the yeast vacuoles after toxic chemical exposure. With the use of these dyes, we have observed changes in the number and pH of the vacuoles in response to varying concentrations of chemicals, indicating that yeast could potentially serve in a portable biosensor to screen drinking water.

Presenters:

Robert Voos, Senior, Biology

Chloe Mullarkey, Senior, Biology

Mentor:

Theresa Curtis, Biology

Poster Session A:

Title:

Enzymatic characterization and structural analysis of flavin monooxygenases involved in bacterial nicotinic acid degradation

<https://digitalcommons.cortland.edu/posters/6/>

Abstract:

N-heterocyclic aromatic compounds (NHACs), are commonly found in shampoos, dyes, pharmaceuticals, industrial solvents and other anthropogenic products. Both *Bacillus niacini* and *Pseudomonas putida* have pathways that degrade the NHAC nicotinic acid (NA), leading to the formation of the less toxic metabolite, fumaric acid. One of the enzymes in the *P. putida* pathway is 6-hydroxynicotinic acid 3-monooxygenase (NicC). NicC catalyzes the decarboxylative hydroxylation of 6-hydroxynicotinic acid (6-HNA) to 2,5-dihydroxy pyridine (2,5-DHP). A similar step also occurs in the *B. niacini* NA metabolic pathway by a flavin monooxygenase (FMO) that is currently structurally and mechanistically uncharacterized. Here we present preliminary results of crystallization experiments on the N-terminally tagged-His6 protein, which resulted in low quality crystals. We are also working to synthesize potential FMO substrates and obtain a liganded NicC structure. Together these data will provide insights into the catalytic mechanisms of these enzymes, and aid in their potential utilization in bioremediation efforts.

Presenters:

Savannah Brancato, Senior, Biochemistry

Emmalee Cooke, Visiting Student, College of Wooster

Jonathan Gwilt, Senior, Biology

Mentor:

Katherine Hicks, Chemistry

Poster Session A:

Title:

Synthesis of pi-clamp probes with polyethylene glycol linkers of differing lengths

Abstract:

Fluorescent labeling of proteins is a method of tagging a protein with a fluorophore in order to achieve live cell imaging. A limitation of fluorescent labeling is that it isn't always site specific, so it's unclear where on the sequence of a protein binding of the label occurs. This research looks at synthesizing different lengths of fluorescent probes that are designed to be site specific utilizing published research on the pi-clamp labeling method.

Presenters:

Christian Harrison, Senior, Chemistry

Mentor:

Frank Rossi, Chemistry

Poster Session A:

Title:

A Constant Composition Kinetic Interfacial Energy Study of Calcite Formation in the Presence of Microplastic and Polyelectrolyte Inhibitors

Abstract:

The crystallization of calcium carbonate, to mineral phase calcite, is of considerable importance in the understanding of mineralization pathways in marine life. However, subsequent to the changing climate; ocean temperatures, dilution, carbon dioxide levels, and acidity within ocean environments are all rising. Consequently, both the viability and durability of calcite-seashell formation are decreasing, causing more harm to the environment, in turn. This study emphasizes the impact of such factors within our water systems on calcite formation by a low supersaturation, low concentration, constant composition kinetic analysis on the rate and characteristics of calcite formation in the presence of both microplastic material and polyelectrolyte inhibitor, poly(sodium styrene sulfonate).

Presenters:

Rachael Richards, Senior, Chemistry

Mentor:

Timothy Halter, Chemistry

Poster Session A:

Title:

Effects of Technology Engagement on Preschoolers Social Emotional Interactions

Abstract:

As technologies and digital tools continuously progress in the 21st century, so does influence on the way that young children grow and learn (Gordon et al., 2015). Literacy and computational thinking skills are being introduced in preschool classrooms, despite scarce research for development of these skills prior to kindergarten. Current designs of some educational software or programs may concern teachers about the development of social emotional skills. Educational robotics programs have shown promising results in engaging students in collaborative and prosocial development as children learn to work with others (Elkin et al., 2016). Through our research involving 34 preschoolers, we collected photographs, videos, and voice recordings of children interacting with Bee-Bots in various centers. By providing children with open-ended experiences we can examine how technology promotes literacy and collaboration. During this research process, we hope to explore the effects that technology engagement has on preschoolers' social emotional interactions.

Presenters:

Kelsi Carlisle, Senior, Early Childhood and Childhood Education (birth-6)

Danielle Silverman, Junior, Early Childhood and Childhood Education (birth-6)

Ashley Jones, Junior, Early Childhood and Childhood Education (birth-6)

Mentor:

Kate McCormick, Early Childhood and Childhood Education (birth-6)

Poster Session A:

Title:

Engaging Culturally Diverse Young Learners with Technology

<https://digitalcommons.cortland.edu/slides/3/>

Abstract:

In this presentation, we are to present our EDU315 Mock Teaching Project designed by a group of teacher candidates for an elementary school classroom (4th grade) of culturally and linguistically diverse learners. Using TPACK as the theoretical framework, we designed an integrated lesson of Social Studies and ELA. Using reliable and age-appropriate resources we guided 4th graders to explore/research southeastern Asian countries and traditions. The main components of our lesson rested on our technological content knowledge and our technological pedagogical knowledge. These specific areas of knowledge enabled us to determine what technology tools are the most appropriate for our lesson and how these tools can meaningfully be integrated into our lesson to achieve the intended goals of our lesson. We used a series of technology tools such as iMovie and StoryJumper for 4th graders to engage in the content and learn to revamp said content creatively in different digital forms.

Presenters:

Ragin Hewitt, Senior, Early Childhood and Childhood Education (birth-6)

Morgan Mrozek, Senior, Childhood and Early Childhood

Danielle Silverman, Senior Childhood and Early Childhood

Faculty Mentor:

Shufang Strause, Early Childhood and Childhood Education (birth-6)

Poster Session A:

Title:

Efficacy of a Gait Retraining Program using a Smartphone app to Correct Abnormal Gait Patterns and Improve Running Economy

Abstract:

Gait retraining interventions are used to modify foot strike patterns associated with musculoskeletal injuries. Many interventions involve specialized, expensive equipment and expert researchers to interpret characteristics of foot strike patterns. However, new technology that provides sound intensity feedback on runners' footfalls is more readily accessible. This study determined whether recreational runners can use a smartphone decibel app to self-modify characteristics of their gait mechanics and evaluated the effectiveness of the intervention a week later. Fifteen female subjects ran over a force plate to examine foot strike parameters at baseline, after the gait retraining intervention using the smartphone decibel app, and one week following the intervention. Immediately following and one-week post-gait retraining, peak vertical force and loading rate were significantly reduced. These findings suggest recreational runners can benefit from self-modification of gait biomechanics by using a smartphone app to provide sound intensity biofeedback on their foot strike patterns.

Presenters:

Sarah Rothstein, Graduate Student, Exercise Science

Mentor:

Jacqueline Augustine, Exercise Science

Kevin Dames, Exercise Science

Larissa True, Exercise Science

Poster Session A:

Title:

Analysis of Urban Tree Problems Identified by Community Tree Survey of the Village of Homer, NY.

<https://digitalcommons.cortland.edu/posters/5/>

Abstract:

This poster reports on outcomes of a multi-day community tree survey as part of civic engagement components of two connected SUNY Cortland courses. In fall 2019, students from the Environmental Remote Sensing and Tree Biology courses conducted a tree survey for the Village of Homer, NY as part of an NSF Common Problems Pedagogy grant. The students jointly collected nearly 1,000 tree data points using the iTree mobile app and GPS units, then created maps and conducted image processing on aerial photography. Students shared their findings in collaborative final presentations, including a species distribution of greater than 56% maples with over 25% invasive Norway maple (*Acer platanoides*) along with non-natives Callery pear (*Pyrus calleryana*) at 3.4% and Norway spruce (*Picea abies*) at 1.7%. Results presented here focus on the spatial extent of the urban tree problems of potential insect damage to maples, power line conflicts, and sidewalk damage.

Presenters:

Connor Brierton, Junior, Geographic Information Systems

Mentor:

Christopher Badurek, Geographic Information Systems
Steven Broyles, Biology

Poster Session A:

Title:

The Invasion of the Southern Pine Bark Beetle

<https://digitalcommons.cortland.edu/slides/12/>

Abstract:

The Southern Pine Bark Beetle has been an ever-present pest in the southeastern United States. In recent years the species has moved northward, increasing their reign from Florida all the way to New York. Using Geographic Information Systems (GIS) techniques and prior ecological knowledge, I have tracked the movement of the species as the average yearly temperature has increased.

Presenters:

Matthew Shaughnessy, Senior, Biology

Mentor:

Wendy Miller, Geographic Information Systems

Poster Session A:

Title:

How GIS is Used by Facilities Management at SUNY Cortland

Abstract:

This poster explains how Geographic Information Systems (GIS) technology is used at SUNY Cortland in order to represent maps and data for locations of fire doors and drinking fountains all around campus. Information on fire door locations and characteristics were collected and mapped. This information is useful for both on-campus personnel and the Cortland Fire Department so they can identify which doors need to be regularly inspected and which ones do not. Another way GIS is being used is for a project involving reusable water bottles. Next fall semester, reusable water bottles will be passed out to incoming freshman, which will have a QR code on them that brings them to a map that I'm creating of all the drinking fountain locations all around campus.

Presenters:

Charles Headley, Junior, Geographic Information Systems

Mentor:

Wendy Miller, Geographic Information Systems

Poster Session A:

Title:

Using GIS to Explore Soil Data Across New York State

Abstract:

Geographic Information Systems (GIS) Technology is used to explore aspects of soil data within New York State. Several variables are explored, including pH levels. These variables help us understand which soils may or may not be good for growing crops. Different organic compounds such as hydrogen, calcium, magnesium, or other organic compounds play a factor in how basic or acidic the soil is in any given area. Understanding where organic compounds are prevalent is vital to understanding varying pH levels across counties in the state.

Presenters:

Liam Joyce, Senior, Geographic Information Systems

Mentor:

Wendy Miller, Geographic Information Systems

Poster Session A:

Title:

Creating an Inventory With GIS

Abstract:

Having an inventory of some sort is unavoidable in this day and age. Knowing what you have and where it is can play a critical role in countless situations. As more items are added or are spread out over distances, you want to have a reliable and updated inventory that you can use to the best of your ability. I want to present a poster on different ways I have had to create an inventory using GIS techniques, and show the infinite amount of data that can be collected in the field or office.

Presenters:

Nathaniel Potter, Junior, Geographic Information Systems

Mentor:

Wendy Miller, Geographic Information Systems

Poster Session A:

Title:

Using GIS to Investigate Radon in Cortland County

Abstract:

Cortland County has one of the largest radon problems in the United States. Cortland is in an area where, because of past glaciation periods, these sediments have left radon to decay and cause problems. Radon is a colorless, odorless gas that is typically undetectable without special testing and has been linked to health issues, including lung cancer. Geographic Information Systems (GIS) are used to explore the presence of radon in Cortland County and possible connections to other variables including surficial geology and the ages of the houses. Census data is used to provide insight into the demographic patterns in Cortland County.

Presenters:

Mackenzie Watts, Senior, Geographic Information Systems

Mentor:

Wendy Miller, Geographic Information Systems

Poster Session A:

Title:

The Geographical Journey of the Tomato

Abstract:

We follow the rambling journey of the much-loved garden favorite, the tomato. From its humble origins in South America to Europe, many thought it was poisonous, the tomato has traveled, and changed, on its way around the world.

Presenters:

Laura Herrling, Senior, Geographic Information Systems

Mentor:

Wendy Miller, Geographic Information Systems

Poster Session A:

Title:

Analysis of Urban Tree Problems Identified by Community Tree Survey of the Village of Homer, NY.

Abstract:

This poster reports on outcomes of a multi-day community tree survey as part of civic engagement components of two connected SUNY Cortland courses. In fall 2019, students from the Environmental Remote Sensing and Tree Biology courses conducted a tree survey for the Village of Homer, NY as part of an NSF Common Problems Pedagogy grant. The students jointly collected nearly 1,000 tree data points using the iTree mobile app and GPS units, then created maps and conducted image processing on aerial photography. Students shared their findings in collaborative final presentations, including a species distribution of greater than 56% maples with over 25% invasive Norway maple (*Acer platanoides*) along with non-natives Callery pear (*Pyrus calleryana*) at 3.4% and Norway spruce (*Picea abies*) at 1.7%. Results presented here focus on the spatial extent of the urban tree problems of potential insect damage to maples, power line conflicts, and sidewalk damage.

Presenters:

Connor Brierton, Junior, Geographic Information Systems

Mentor:

Christopher Badurek, Geographic Information Systems
Steven Broyles, Biology

Poster Session A:

Title:

Application of GIS in an Interdisciplinary Field Course on Sustainable Development of Adirondack Park, NY

<https://digitalcommons.cortland.edu/posters/12/>

Abstract:

This poster presents the learning outcomes of a summer field course undergraduate experience integrating GIS, economics, and history content. Students from two summer courses, Political Economy of the Adirondacks and Environmental Geography of the Adirondacks, worked together to develop a grant proposal for economic development of the Raquette Lake region of Adirondack Park. The courses were part of the NSF-funded Common Problems Pedagogy Project in which undergraduate students work together to articulate a problem to be addressed from an interdisciplinary perspective. In this field experience, students visited communities, prominent hiking locations, and historic Camp Huntington to develop a strategy for balancing economic development while balancing environmental impacts. Students used ESRI's ArcGIS Online and Business Analyst Online to provide analysis on environmental conservation and economic opportunities in the area. Students will report on their final grant proposal and use of web GIS tools used in the supporting data analysis.

Presenters:

Benjamin Rozwod, Senior, Geographic Information Systems

Laura Herrling, Senior, Geographic Information Systems

Mentor:

Christopher Badurek, Geographic Information Systems

Poster Session A:

Title:

Simulating evolution of flower color in *Nicotiana* (tobacco)

Abstract:

We observe different flower color across accessions of *Nicotiana* (tobacco). The flavonoid pigment pathway produces multiple anthocyanins and flavanols, which results in light pink, dark pink, or white flowers. A computational model (Wheeler and Smith, 2019) has been constructed to simulate the evolution of the flavonoid pigment pathway to reach an optimum. Mutations are introduced in three parameters which influence pigment production: the catalytic constant, the binding affinity, and the concentration of an enzyme, and the model is run until an optimum is reached. Our goals are to use previously collected pigment data to define an optimum to determine which combinations of mutations result in a particular color and how to shift between optima using outputs from the model to simulate the evolution from one color to another. Further, we will compare simulated enzyme concentration outputs of the model to actual transcriptome data from *Nicotiana* accessions.

Presenters:

Laynie Jensen, Senior, Mathematics

Mentor:

Elizabeth McCarthy, Biology

Garrett Otto, Mathematics

Poster Session A:

Title:

Perceived Motor Competence in Preschool Students

<https://digitalcommons.cortland.edu/posters/9/>

Abstract:

Systematic review showed that motor competency may be directly correlated with the enhancement of long term health outcomes in children and adolescents (DeMeester et al., 2016). In addition, children with higher levels of perceived motor competence (PMC) are often more likely to participate in physical activities (Stodden et al., 2008). The purpose of this study is comparing preschool students' PMC to their actual motor competency (AMC). In this study, PMC is an individual's subjective self-perception of their ability to perform fundamental motor skills (FMS) and AMC is the proficiency in the performance of FMS skills. PMC was measured by the Pictorial Scale of Perceived Movement Skill Competence (Barnett et al., 2015) survey. AMC was measured by the WOOD Motor Success Screening tool (WOOD, 1998). A total of 49 preschoolers, 23 girls and 26 boys participated in this study. Results show a positive correlation between PMC and AMC in FMS skills among preschoolers.

Presenters:

Jennifer Maysuch, Senior, Physical Education

Mentor:

Helena Baert, Physical Education

Larissa True, Exercise Science

Poster Session A:

Title:

An Exploration of Twitter Content Prior to and Following, the Parkland Mass Shooting

Abstract:

After a mass shooting occurs, news outlets, politicians, and organizations use social media, such as Twitter, to inform the public and discuss topics related to mass shootings. Twitter has increasingly become a way that a large percentage of the public receive their news and provides an outlet for individuals or organizations to comment about topics related to mass shootings. Given the public's widespread use of Twitter to discuss mass shootings, the purpose of this study is to analyze the different content of tweets posted regarding the Parkland Shooting. Specifically, selected tweets will be coded to determine the prevalence of content regarding mental health, gun legislation, survivors, and the perpetrator. Understanding social media content related to mass shootings can provide preliminary insight into how content can influence public perceptions regarding factors that contribute to and can lessen the likelihood of future, school shootings.

Presenters:

Amanda Clemens, Senior, Psychology

Kaitlyn Coleman, Senior, Psychology

Nathan Marble, Senior, Psychology

Mentor:

Karen Davis, Psychology

Poster Session A:

Title:

Identifying Truth and Lies from Micro Expressions

Abstract:

In a fraction of a second, our faces reveal the real emotions we try to conceal. These involuntary micro-expressions leak universal emotions and an individual's intent. I will show that displays of micro expressions cannot be prevented, making them an essential key for detecting deception and understanding emotional intelligence. Training law enforcement about these leaks not only allows them to have more successful investigations and interviews but also gives them the ability to detect threats before they even happen.

Presenters:

Jordynn Aiello, Senior, Psychology

Mentor:

Leslie Eaton, Psychology

Poster Session A:

Title:

The Role of Type I Interferons in Controlling JC Polyomavirus Infection, through use of the CRISPR/Cas9 System.

Abstract:

JC polyomavirus (JCPyV) infects a majority of the human population. Immunocompromised individuals, such as HIV/AIDS patients, are at risk for developing progressive multifocal leukoencephalopathy (PML). In healthy patients, JCPyV chronically infects tissues of the urinary tract system. Immunosuppression results in spread to the central nervous system, causing demyelination of neurons and PML. Type I interferons are believed to play a role in the innate immune response to JCPyV infection. We are investigating the ability of Type I interferons to control JCPyV infection by knocking out the Interferon receptor using the CRISPR/Cas9 system. Cas9 and its guide RNA were encoded in a plasmid that also contained an antibiotic resistance gene, and this DNA was introduced into human glial cells. Following selection for Cas9 positive cells, individual cells will be cloned and tested for their susceptibility to JCPyV infection. This work will demonstrate whether Type I interferons control JCPyV infection.

Presenters:

Jonathan Freund, Junior, Biology

Mentor:

Christian Nelson, Biology

Poster Session A:

Title:

Practitioners Attitudes and Beliefs on Opioids in generation Rx

<https://digitalcommons.cortland.edu/posters/10/>

Abstract:

Prescription opioid misuse is a major public health concern in the US. Non-medicinal use of opioid prescription drugs is at the forefront of the epidemic and is considered the "gateway" to other illicit opioid use. As opioid prescribing has increased, so has opioid-related deaths, surpassing car accidents as the leading cause of injury-related deaths. Though the amount of opioids prescribed has increased, the amount of pain reported has stayed constant. Prescribing practitioners are therefore crucial stakeholders in the opioid epidemic. Guided by institutional theory and theory of planned behavior, the study examines Florida practitioners' attitudes and beliefs on opioids. The study employs a cross-sectional design, utilizing the Clinicians' Attitudes and Beliefs about Opioids Survey. Factors analyzed will include impediments, perceived effectiveness, education, opioid drug schedules, and tamper-resistant formulations. Examining these factors is essential in creating educational and intervention strategies for achieving a balance in opioid prescribing is necessary.

Presenters:

Grace Murphy, Junior, Health

Mentor:

Vierne Placide, Health

Poster Session B:

Title:

Mathematical Talent vs. Grit

Abstract:

The factors contributing to achievement or lack thereof in mathematics are unclear. Certainly talent, hard work, and grit are among them, yet these terms and their importance are understood differently by different people. This qualitative study of six secondary mathematics teachers reports on how teachers describe these qualities and their importance in achievement in mathematics classrooms.

Presenters:

Christopher Autera, Senior, Adolescence Education

Mentor:

David Dickerson, Mathematics

Poster Session B:

Title:

The Effect of Retro-2 on JC Polyomavirus Intracellular Transport

Abstract:

JC polyomavirus (JCPyV) is a common human pathogen infecting greater than 50 percent of the population. In healthy individuals, JCPyV chronically infects tissues of the kidney and individuals remain asymptomatic. In an immunocompromised individual, the virus can cross into the central nervous system where it infects glial cells, causing a fatal, degenerative disease of the brain known as progressive multifocal leukoencephalopathy (PML). Retro-2 is a small molecule that blocks viral infects by inhibiting transport out of the endosomal system. We hypothesize that Retro-2 treatment will result of retargeting of virions to lysosomes, resulting in viral destruction. We are investigating viral transport using immunofluorescent staining of viral protein, endosomes, and lysosomes with and without Retro-2 treatment. This study is expected to increase our understanding of the long-term effects of Retro-2 treatment on JCPyV.

Presenters:

Sidney Campbell, Junior, Biology

Mentor:

Christian Nelson, Biology

Poster Session B:

Title:

Bipalium Predation

Abstract:

Bipalium, a genus of predatory flatworms which tract and kill earthworms, exists around you every day. Originating from Asia, they have been introduced into American land. Very little is understood about their impact on the native soil ecosystems. While research has been conducted on their predator behavior, many questions remain about their potential impacts. This presentation seeks to illustrate the unique and underappreciated hunting methods of Bipalium and to compare the observations of our laboratory with the current literature in the hopes of nullifying any misconceptions. Through video analysis of controlled predatory events, we have been able to closely observe and quantify their behavior. We seek to develop ethograms, a set of behavioral diagrams describing unique behaviors like "capping" and "pharynx extrusion", for the two most abundant species we have observed B. kewense and B. adventitium.

Presenters:

Chris Cottom, Senior, Biology

Mentor:

Peter Ducey, Biology

Poster Session B:

Title:

Now We Are Teaching: Choosing the Right Tools for the Right Objectives

Abstract:

Technology is ubiquitous nowadays and it is a must for us teacher candidates to become tech-savvy so as to engage our elementary school students - the "digital natives" (Prensky, 2001) and to cultivate their P21 Century 4C skills - Critical thinking, Communication, Collaboration, and Creativity (P21, 2009). In this presentation, we showcase a mock teaching project completed in EDU315 Critical Media Literacy. In this project, we designed learning activities for an elementary classroom and we taught a 30-minute mock lesson, meaningfully integrating multiple technology tools into our teaching and our students learning. The objectives of our lesson is for 4th graders to explore different aspects of a Southeast Asian country- Vietnam. Applying the principles of Universal Design for Learning (UDL), we choose to meaningfully integrate tools like Google Slides, QR Code, Seesaw, Coggle, and Screencast-O-Matic into the whole process of our teaching and our students learning.

Presenters:

Benjamin Pinchak, Senior, Early Childhood and Childhood Education (birth-6)

Kelly Langan, Senior, Early Childhood and Childhood Education (birth-6)

Cassidy Morales, Senior, Early Childhood and Childhood Education (birth-6)

Mentor:

Shufang Strause, Early Childhood and Childhood Education (birth-6)

Poster Session B:

Title:

Coming to The Edge: Exploring Digital Tools with an Educational Lens

Abstract:

In the technology-rich environment of the 21st century, children have access to an abundance of information and rapidly progressing technological tools (P21, 2009). Prensky says that digital immigrant instructors speak an outdated language and struggle to teach students who are digital natives (2001). Likewise, NAEYC states, "Preservice and professional development should include in-depth, hands-on technology experiences [...] and access to the latest technology [...] Educators need opportunities to play and create using these tools" (2012). In EDU 315 I was able to Come to the Edge of comfortability by exploring different categories of digital tools such as assessment, study skill, tutorial making, digital storytelling, and more in order to create activities and immersive learning experiences for students in K-6. Through tools like Seesaw, Flipgrid, VoiceThread, Google Classroom, StoryJumper, and more I have expanded my mastery of technology and hope to help other pre-service teachers to do the same.

Presenters:

Kelsi Carlisle, Senior, Early Childhood and Childhood Education (birth-6)

Mentor:

Shufang Strause, Early Childhood and Childhood Education (birth-6)

Poster Session B:

Title:

Preschoolers unstructured play with Bee-Bots: Digital persistence, peer interaction, and frequency of center based on gender differences

Abstract:

Technology in the classroom has become predominant and has been shown to help benefit children's problem solving, social interactions, and emotional exploration. With technology in the classroom, however, there is often a persisting stereotypical gap based on gender that often contributes to girls having negative associations with technology. By exposing children at a young age, the goal is to foster positive associations with technology and engineering and to lessen this gap. It is yet unclear as to whether early experiences impact a child's inclination towards technology or not. Due to the limited research available, the purpose of this presentation is to explore three representations of how young children play with a programmable robot across genders. Data were collected through 34 preschool students via observation, video analysis, and child interviews.

Presenters:

Natasha McCarthy, Junior, Early Childhood and Childhood Education (birth-6)

Maya Waters, Senior, Early Childhood and Childhood Education (birth-6)

Diana Barskiy, Junior, Early Childhood and Childhood Education (birth-6)

Mentor:

Kate McCormick, Early Childhood and Childhood Education (birth-6)

Jacob Hall, Early Childhood and Childhood Education (birth-6)

Poster Session B:

Title:

Cartography Competition Section 1: The Art and Science of Map-Making

Abstract:

Cartography is the art and science of making maps. While there is certainly room for creativity, there are well-defined standards that guide the process of creating a map. These standards direct and clarify the choices made in all aspects of map composition. Of chief concern for the mapmaker is consideration of the intended map audience. Knowing this audience directs the entire process and the design choices made in executing a map. For this project, the students of GRY 324 - Section 1, were directed to create a map for children. Their choices in map design reflect the needs of their audience and the results of their work are now presented as an assemblage of different maps designed for the same purpose. The variety in maps presented demonstrates both the flexibility and rigidity in map standards.

Presenters:

Craig Denton, Freshman, Geographic Information Systems

Daniel Gross, Junior, Geography

Jordan Johnstone, Freshman, Geographic Information Systems

Shaileen Bello, Junior, Early Childhood/ Childhood Education with a concentration in Environmental Studies

Kaitlyn Bremer, Sophomore, Environmental Geoscience

Joshua Chrysler, Junior, Recreation

Charles Donovan, Freshman, Pre-Major (PRE)

Jonathan Ecker, Junior, Outdoor Recreation

Elisha House, Junior, Early Childhood/ Childhood Education with a concentration in Environmental Studies

Matthew Macchia, Sophomore, Pre-Major (PRE)

Andrew Palmer, Sophomore, New Communication Media

Thea Pilipina, Junior, Childhood & Early Childhood Ed

Zachary Thorp, Senior, Conservation Biology

Austin Vogt, Junior, Environmental Geoscience

Jaycob White, Sophomore, Mathematics

Mentor:

Melinda Shimizu, Geographic Information Systems

Poster Session B:

Title:

Bronx Zoo Map

Cartography Competition Section 2: The Art and Science of Map-Making

<https://digitalcommons.cortland.edu/posters/7/>

Abstract:

Cartography is the art and science of making maps. While there is certainly room for creativity, there are well-defined standards that guide the process of creating a map. These standards direct and clarify the choices made in all aspects of map composition. Of chief concern for the mapmaker is consideration of the intended map audience. Knowing this audience directs the entire process and the design choices made in executing a map. For this project, the students of GRY 324 - Section 2, were directed to create a map for children. Their choices in map design reflect the needs of their audience and the results of their work are now presented as an assemblage of different maps designed for the same purpose. The variety in maps presented demonstrates both the flexibility and rigidity in map standards.

Presenter:

Dean Corbin, '04, Social Philosophy, Visiting Student

Mentor:

Melinda Shimizu, Geographic Information Systems

Poster Session B:

Title:

Cost of transport of running uphill at a reduced body weight

Abstract:

The purpose of the present study was to measure the metabolic cost while running uphill on Lower Body Positive Pressure Treadmill (LBPPT). Little previous research has been conducted on running uphill on the LBPPT. We wished to compare uphill running at a reduced weight (decrease body weight by 20 or 40%) with normal uphill treadmill running. Treadmill speed was kept constant at 160.9 m/min and treadmill grade increased from 3, 6, to 9% for each 4 min stage. Steady state $\dot{V}O_2$, $\dot{V}CO_2$, and RER were measured using an open flow system (Parvomedics). Preliminary results show a steady state $\dot{V}O_2$ of 37.1, 40.4, and 50.8 ml O_2 /kg/min at 20% reduced body weight at uphill grades of 3, 6, and 9%, respectively. As expected, these are less than calculated $\dot{V}O_2$ values for running uphill at normal body weight.

Presenters:

Theresa Alessio, Graduate Student, MS Exercise Science
Kayla Bautista, Graduate Student, MS Exercise Science
Jacob Burchfield, Graduate Student, MS Exercise Science
Christopher Massari, Senior, BS Exercise Science
Cabel McCandless, Graduate Student, MS Exercise Science
Seth Spicer, Graduate Student, MS Exercise Science
Brady Stein, Graduate Student, MS Exercise Science
Colleen Stengel, Graduate Student, MS Exercise Science
Timothy Sutton, Graduate Student, MS Exercise Science
Olivia Trumino, Graduate Student, MS Exercise Science

Mentor:

James Hokanson, Exercise Science

Poster Session B:

Title:

Caloric expenditure of uphill walking. There's an app for that!

Abstract:

Smart phones and watches are now being used extensively as fitness training tools. The distance of an exercise would appear to be relatively easy to measure with GPS, yet the change in elevation may be more of a challenge. The elevation change is important because the metabolic cost of uphill exercise is certainly greater than on flat. The purpose of the current study was to measure the estimated caloric (kcal) expenditure of walking outside on an uphill course using the Under-Armor MapMyWalk app installed on smart phones. Results were compared to published metabolic calculations. A pilot study of a short uphill walk estimated a caloric expenditure of 30.0 kcal using the app compared to a calculated expenditure of 35.6 kcal. The study will further compare caloric expenditure of uphill walking using smart phone apps and published metabolic equations.

Presenters:

Katherine Carey, Senior, Fitness Development

Mentor:

James Hokanson, Exercise Science

Poster Session B:

Title:

Coupled Pendula-Oscillators to Study Wave Dispersion and Tunneling

Abstract:

Dispersion and tunneling phenomena are abstract concepts that are central to quantum mechanics. Our present research aims to experimentally demonstrate these phenomena using a series of coupled pendula oscillators. These oscillators' behavior is tracked over time using a series of images derived from video of the motion. By altering the length of the pendula, we enforce a change in cutoff frequency, thereby providing a visual demonstration of wave tunneling effects.

Presenters:

Tyler Edgar, Senior, Physics

Scott Blankenbaker, Graduate Student, Adolescence Education

Mentor:

Eric Edlund, Physics

Poster Session B:

Title:

A Macroscopic Model of Quantum Mechanical Systems

<https://digitalcommons.cortland.edu/posters/11/>

Abstract:

This research uses a computer simulation in Python to model a network of coupled pendula that has been constructed as a macroscopic model for quantum mechanical systems. Our system consists of 22 actual masses and 2 dummy masses representing specified boundary conditions. A Runge-Kutta integrator was used for the simulation because of its ability to "cancel" the error associated with each timestep. The damping parameter used in the simulation was experimentally determined and could change over time to achieve good convergence of the simulation. Simulation results for a range of experimental conditions will be presented to show resonance and wave tunneling phenomena.

Presenters:

Karl Hipius, Senior, Physics

Mentor:

Eric Edlund, Physics

Poster Session B:

Title:

The Effects of Environmental Enrichment on Ethanol Consumption in Prenatally Exposed Female Adolescent Rats

Abstract:

Adolescent female alcohol abuse is a serious and growing epidemic with the rate of adolescent females abusing alcohol now surpassing adolescent males. Thus, the primary focus of this study was to investigate Environmental Enrichment (EE) as a potential treatment strategy that would support ethanol (ETOH) abstinence in prenatally exposed adolescent female rats. Environmental enrichment studies have been successful; however, it remains unknown whether prenatally alcohol exposed adolescent female rats will mimic these effects. We hypothesized that EE adolescent female rats prenatally exposed to alcohol will consume significantly less alcohol than non-enriched (NEE) prenatally exposed adolescent female rats. We found that EE significantly reduced ethanol consumption for prenatally and non-prenatally exposed adolescent female rats compared to prenatally and non-prenatally ethanol exposed female rats who were placed in the non-enriched environment. The current findings may have important implications concerning treatment strategies for prenatal alcohol exposure in adolescent females and alcohol abuse.

Presenters:

Natalie Lipari, Senior, Psychology
Sabrina Ciambra, Junior, Biomedical
Sciences Julia Evans, Junior, Psychology
Nathaniel Rose, Senior, Physics
Nikan Baratian, Junior, Biology

Mentor:

Joshua Peck, Psychology

Poster Session B:

Title:

The Study Place Project Online: A Pilot Study

<https://digitalcommons.cortland.edu/slides/7/>

Abstract:

This poster will report the results of a program evaluation for a new pilot online resource. The Study Place Project Online (TSP2 Online) is a personalized and confidential resource that aims to help students achieve their academic goals. The resource includes study tips, study locations, advice from professors, and a virtual study session. Students in psychology classes completed a brief online survey including a series of questions about the visuals and content of the pilot online resource. Final data collection and analyses will not be complete until early spring 2020, but preliminary findings suggest that TSP2 Online will be a valuable and effective academic resource.

Presenters:

Carolanne M. L. Clark, Senior, Psychology

Safiya K Tonic, Senior, Psychology

Mentor:

Raymond Collings, Psychology

Poster Session B:

Title:

The Presence of Adult ADHD Diagnostic Criteria on Websites

Abstract:

The growing concern around the self-diagnosis of Adult Attention Deficit Hyperactivity Disorder (ADHD) makes it evermore necessary for mental health professionals to be aware of the potential misinformation on websites viewed by the public. This study analyzes content from websites participants identified when asked to search for online information that could help them malingering ADHD as part of a larger research project. The researchers will code the content of these websites for the presence of inattentive, hyperactive/impulsivity symptoms, and other ADHD diagnostic criteria as well as for the presence of diagnostic criteria unrelated to ADHD. Identifying online content that individuals may review before undergoing an assessment for adult ADHD could help professionals more effectively identify instances of malingering and lead to more accurate and reliable diagnoses.

Presenters:

Victoria Baquet, Senior, Psychology
Carly Miller, Senior, Psychology

Mentor:

Karen Davis, Psychology

Poster Session B:

Title:

An Examination of Tweet Frequency and Social Engagement Related to the Parkland Mass Shooting

Abstract:

Social media platforms help news outlets, politicians, and professional organizations connect with the public on a variety of topics, including mass shootings. In this study, selected Twitter accounts will be examined to determine whether the frequency of tweets related to the Parkland shooting across time shows a pattern similar to what has been observed in the news coverage of mass shootings. Additionally, the amount of engagement in response to selected tweets will be coded to examine whether engagement differs across the tweet's content or time. This project will provide preliminary information about how the Parkland shooting was presented on Twitter and the degree of online social engagement surrounding mass shootings. Lastly, a greater understanding of how this social media platform may shape public perception of topics related to mass shootings will be generated.

Presenters:

Nathan Marble, Senior, Psychology
Amanda Clemens, Senior, Psychology
Kaitlyn Coleman, Senior, Psychology

Mentor:

Karen Davis, Psychology

Poster Session B:

Title:

The Sociological Impact of Hip-Hop on Society

Abstract:

Hip-hop culture is extremely influential on wide society due to the complexity of the art form and the lyrics it contains. While it is extremely impactful on society, it is also a reflection of it and this can be seen in artists such as J. Cole, Kendrick Lamar, and Chance the Rapper. I use George Mead's and Erving Goffman's respective theories of Dramaturgy and the Self to understand this mutual impact in more depth.

Presenters:

Joseph Moore, Senior, Sociology

Mentor:

Brock Ternes, Sociology

Poster Session B:

Title:

Critical Literature Review of Social Media Literacy

Abstract:

Research has identified a high prevalence of social media use in everyday life with the most usage occurring during ages 16-24 years old. Although there are benefits to using social media, there are also potential risks which include cyberbullying, body image issues, less sleep, anxiety, depression, etc. There is a call for research on social media education in grade school and the learning of social media literacy. The present study will review existing literature on adolescents use of social media, with a special attention paid to highlight developmental changes in their uses. The current study will also review existing literature on critical social media literacy.

Presenters:

Abigail Green, Senior, Psychology
Emily Tabb, Junior, Psychology

Mentor:

Haiyan Zhang, Psychology

Poster Session B:

Title:

How Neoliberalism and Racialized Capitalism Intersected to Create the Flint Water Crisis: A Sociological Perspective

Abstract:

In 2014, Flint's emergency manager Ed Kurtz made the decision to allow Flint's water source to be drawn from the Flint River. An already failing water system was met with further degradation that changed the lives of the residents of Flint and caused the Flint Water Crisis (FWC). Throughout this crisis, there were multiple pieces of evidence that showed environmental, racial and economic injustices. My research examines these injustices as well as the origins of this crisis in relation to neoliberalist and racialized capitalist practices. The research method used for this exploration was secondary analysis. Also included are the residents' stories of the hardships they faced throughout this crisis and their attempts in advocating for themselves to the officials unwilling to listen.

Presenters:

Kimberly Jenney, Senior, Sociology

Mentor:

Brock Ternes, Sociology

Poster Session B:

Title:

Deafness and Use of Sign Language: A Cross Cultural Survey

<https://digitalcommons.cortland.edu/posters/4/>

Abstract:

This survey examines the cross-cultural perspectives of Deafness and the use of Sign Language. According to Lee et al. (2015), "The current circumstances of deaf education in Korea are very similar to those in the USA of the 1970s, when the study of American Sign Language as a first language was in its infancy". Thirty individuals residing in the United States and thirty individuals residing in South Korea ranging from the ages 18-64 participated in an online 7-10 question survey. Individuals residing in South Korea had greater negative perspectives of Deafness and were more likely to use sign language as their child's primary mode of communication than individuals residing in the United States. Individuals residing in South Korea may have had more negative perspectives of Deafness and have had a more positive perception of sign language due to lack of awareness of alternative modes of communication.

Presenters:

Arielle Curry, Senior, Speech and Hearing Science

Hannah Truman, Senior, Speech and Hearing Science

Mentor:

Ann Blanton, Speech and Hearing Science