



## PRESENTATION SUMMARIES

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Key: (G) = Graduate Student

☀ = Designated as sustainability-related by the President's Advisory Council on Sustainability

☯ = Designated as related to diversity/equity/inclusion by the President's Council on Diversity

★ = Supported by the Student Grant Program for Research and Creative Activity  
(funded by the University Foundation and the SUNY Oneonta Alumni Association;  
facilitated by the Senate Committee on Research and the Faculty Center)

See Appendices for index of student presenters and index of faculty sponsors

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**Student:** Colby Aaron

**Faculty Sponsor:** Jody Aultman (Human Ecology)

### **Accessories Design ★**

My project for the SRCA showcase is four original athletic bookbags that are made for basketball players. The role of this project is to expand my knowledge in the fashion world and learn something new outside of what the fashion program is teaching me. The project would take me about 2-3 months because of the number of steps that are needed for this project. The first two steps were the planning and designing phase. These two steps were figuring out how I want my backpack to look, how they would function, and what the pattern and themes for each backpack would look like. After my designs are approved, the next is the building phase. In this phase I would construct the patterns for my book bag and how I intend to build it. Once I have all the parts I will trace them out on each fabric and cut them out. Once I have all my pieces cut the next step would be to assemble them piece by piece. Once I have all the bags created the last step for me would be to test the bag and make sure it is durable and functional. Once the bag passes the phase it will be marked off as completed. The reason I decided to do this project is that I feel like it would benefit me in the long run by giving me the skills needed to help with my goal of being a designer for top brands like Nike, Jordan, or Puma.

*Presenting: Thursday 4/25 9-10am*

**Student:** Alex Allen

**Faculty Sponsor:** Daniel Stich (Biology)

### **Understanding and Managing Environmental Concerns: A Study of White Birch Lake in Broome County, NY ☀**

White Birch Lake is a private man-made reservoir located in Broome County NY, two miles south of Windsor, NY. White Birch Lake is a small 29-acre lake that sits in a 77-acre catchment in the Susquehanna River Watershed. In recent years, stakeholders have become concerned about the changes in water quality, high input of sediment, algae blooms, and the future management of this

important resource. The White Birch Lake Association participated in the New York State Citizen Statewide Lake Assessment Program (CSLAP) for 7 years. Through this program, stakeholders collected water samples and information like Secchi depth multiple times during the summer to help inform future management. The goal of this project is to collect limnological data to help better understand the current state of the lake and examine stockholder concerns. To do this, we will collect and analyze new and historical data to create a comprehensive state of the lake report and management plan for the future. *Presenting: Thursday 4/25 9-11am*

**Students:** Nancy Aguilera, Emily Boozel, Margaret Engasser, Tatum Hoff, Calliope Hoogenboom, Lizzy Keukjian, Taylor Klauk, George Macko, Jacob Maloney, Ethan Ryan, Mackenzie Sadler, Jonathan Stanzione, Shelby Walton (Gs)

**Faculty Sponsor:** Cynthia Falk (Cooperstown Graduate Program)

**Myths and Meanings of Historic Designation: The Glimmerglass Historic District as a Case Study** ☀️ 🌀

The Glimmerglass Historic District, which surrounds Otsego Lake, became a designated historic district listed on the National and New York State Registers of Historic Places in 1999. As the 25<sup>th</sup> anniversary of that designation approaches, the Historic Preservation class at SUNY Oneonta's Cooperstown Graduate Program has investigated the motivations for and effects of historic designation at the federal and state levels. The class also has explored common misconceptions about historic districts, such as their perceived negative effect on individual owner's property rights. On the positive side, historic district designation may positively influence tourism and other forms of economic development. Designation allows private property owners to take advantage of certain financial incentives and promotes sustainability through the conservation of embodied energy. Nevertheless, impacts on property values and demographics have the potential to benefit some groups while negatively affecting others, raising questions about the relationships among historic preservation, gentrification, and social justice. *Presenting: Thursday 4/25 9am-1pm*

**Students:** Julia Alvarenga, Jacob Aubrey, Liam Buchanan, Jazmine Reyes, Derek Yashinski

**Faculty Sponsors:** Kelly Gallagher (Chemistry & Biochemistry), Jill Fielhaber (Biology)

**Cyanospectre: First Stage in a Toolkit for Cyanobacterial Engineering** ★ ☀️ 🌀

Cyanobacteria are fast-emerging as effective chassis for the sustainable synthesis of organic compounds. They are currently being used to produce plastics, proteins, biofuels, and more. Cyanophages are cyanobacteria-infecting viruses that regulate cyanobacterial populations in nature. This makes them a promising vehicle for cyanobacterial engineering. To aid synthetic biologists who work with cyanobacteria, this project aimed to create a cyanophage toolkit for their use. Our initial goal was to create a "ghost phage" that can recognize and bind marine cyanobacteria. We identified a minimal set of cyanophage genes and designed a phagemid vector that can replicate in *E. coli* to produce the structural proteins of the phage. An additional biotin-tagged variant of the capsid was designed to allow our phage to immobilize modified cyanobacteria. We are employing a Golden Gate Strategy to construct the phagemid vector. Once this is complete further development of the phage toolkit will enable it to be used as a DNA delivery vehicle in cyanobacterial engineering.

*Presenting: Wednesday 4/24 1-3pm*

**Student:** Gregory Bandura

**Faculty Sponsors:** Michael McAvoy, Philip Sirianni (Economics)

**The Factors of NFL Scoring to Predict the Over**

I predict the determinants of scoring in a National Football League (NFL) game during week 18 for the 2023-2024 NFL season. I collect data for each team, starting at week 1 and continue through week 17, to predict the outcome of point's scored during week 18 games. Two separate regression models are estimated for each of the home and away teams to determine which variables are statistically

significant. Furthermore, I seek to identify a successful betting strategy for the total point bet (over/under) by summing the estimated predicted total points scored for each team and then comparing the number to the set betting line, given by popular sportsbooks. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Douglas Bartholomew

**Faculty Sponsor:** Ashley Allen (Geography & Environmental Sustainability)

**The Changing Landscape of Queer Life in New York City** ☯

In the United States, LGBTQIA+ rights are facing significant challenges, underscoring the pressing need to assess the progress made and forge ahead. This research project explores the historical landscape of LGBTQIA+ rights, through the lens of historical location data spanning several decades. This visualization-driven study not only presents geographic data but also delves into the historical significance of each location, shedding light on the rich history of LGBTQIA+ activism and milestones in New York City. *Presenting: Wednesday 4/24 1-3pm*

**Student:** Carlotta Batchelder

**Faculty Sponsors:** Rachel Kornhauser, Lindsay Wolfanger (Office of Sustainability)

**Waste Practices and Recycling Rates in SUNY Oneonta** ☀

A rapidly growing human population has contributed to a plethora of societal and environmental issues, most notably being the production of waste. The average American throws away about seven pounds of garbage every single day, leading to issues like pollution and the destruction of pristine natural landscapes. This phenomenon can be seen right here at the SUNY Oneonta campus, where tons of waste are collected and shipped out every month, much of this waste being nonbiodegradable and nonrecyclable, or conversely, the result of improper disposal of recyclable and compostable waste materials. The issue of the sheer amount of waste and what to do with it is easily observed across campus, ruining aesthetics, and harming local ecology with overflowing garbage receptacles and litter strewn about almost everywhere you look. The solution to this problem lies with the decisions of both the producer and the consumer; however, awareness can be raised, and suggestions could be made by viewing just how much waste SUNY Oneonta produces, alongside general trends in campus waste production. This project aims to do this by analyzing campus-wide data taken from the waste invoices sent to the Office of Sustainability by both Casella and the Otsego Auto Crushers since the year 2017. Over time, the amount of total garbage produced campus-wide has decreased, and the total recycling rate has increased. This is great news, implying that the campus community is becoming more waste-conscious, and is employing better, more sustainable practices. While there is still work to be done, these findings create hope for local environmentalists and reinforce the idea of sustainability as a core value of the institution. *Presenting: Wednesday 4/24 3-4pm*

**Student:** Natalie Benenati

**Faculty Sponsor:** Elizabeth Cruzado Carranza (Anthropology)

**An Examination of Tattooing Practices in the Pre-Contact Central Andes**

Tattooing, the art of inscribing pigment into the skin to create permanent designs and patterns, has garnered significant interest in recent decades. As a form of cultural expression, tattoos offer a wealth of information, often comparable to material culture. However, tattoo studies have not received as much attention as other cultural research areas. As tattoo culture's popularity grows, so does interest in understanding its origins and significance. With its rich history and diverse cultures, the Andes has become one of the focal points for scholars interested in tattoo practices due to the excellent preservation of human remains through natural mummification. The ancient Central Andes, with its early forms of tattoos, offers a unique lens to examine the expressions of cultural identity at the individual and communal levels, making it a compelling area of research. The discovery of multiple human remains from this region, along with evidence of this type of body modification, further underscores the importance of this region in our research. This poster delves into the unique tattooing

practices of the pre-Hispanic Central Andes, specifically in Peru and Chile. Through the analysis of cultures that have left behind evidence of archaeological tattooed skin, including Paracas, Moche, Huari, Tiwanaku, Lambayeque, Chancay, Casma, Chiribaya Alta, Ychsma, Ica, Chiu-Chiu, Maitas Chiribaya, San Miguel, Chinchorro, and Inca, I have uncovered intriguing similarities and differences in the time, space, and style of these practices. For instance, the composition of the ink, the tools used for tattooing, the symbolism of the tattoos, and the significance of specific designs and patterns. Notably, geometric patterns and zoomorphic designs were prevalent throughout the Andes.

*Presenting: Wednesday 4/24 1-5pm*

**Student:** Brogan Bennett

**Faculty Sponsor:** Michael Faber (Psychology)

### **Media Friends in the Digital Age: Personality and Parasocial Relationships ★**

A parasocial relationship (PSR) is a one-sided relationship a person has with a celebrity or media character (either real or fictional; see Horton & Wohl, 1956). In such constructions the individual may connect or identify with the character as if they were a real person in the individual's life—a "media friend" (Meyrowitz, 1994). PSRs may affect people's emotions, thoughts, and behaviors, and can also be facilitated by modern social media. As people interact with media personalities on these platforms the line between fictional and real relationships becomes less clear, making understanding PSRs more critical to behavioral science. This study examines the complex network of social and personality factors that impact the development and sustainability of these parasocial interactions and analyzes their contributions to the process. In doing so we address the complex nature of parasocial relationships in a constantly changing media-rich environment. We are recruiting participants for this study from multiple sources, including the online crowdsourcing service Amazon Mechanical Turk and the university experimental subject pool. The protocol used in the study is a 92-item questionnaire featuring basic parasocial character introductory questions, followed by self-judgment item groups on "classic" parasocial interaction, identification with the media character, emotional transportation, habitual media usage patterns, possible selves, self-monitoring, and adult attachment. Data collection for this study is ongoing and will test four main hypotheses using multiple regression analysis, correlational analysis, and independent groups comparisons. First: Those who report more usage of social media platforms like Twitter and Instagram will be more likely to show wishful identification towards media characters than others consuming more traditional forms of media. Second: Individuals who display large actual self - ought self-discrepancies will be likely to experience more intense PSRs, due to dissatisfaction with their real-life identities. Third: We anticipate an interaction effect between gender and age, suggesting that parasocial relationships (as well as social media use) will be most prevalent among younger women. Finally: Individuals with higher levels of adult attachment anxiety will be more likely to cultivate parasocial relationships in general. This study aims to fill in some of the sizable gaps in current research related to parasocial relationships by identifying and comparing some of the most prominent personality and social contributions related to parasocial processes. Media personalities maintaining a presence on multiple platforms (even aside from traditional TV and film) surely facilitate the PSR phenomenon (Gabriel et al., 2018); consequently, individuals may view the behaviors, actions, and messages of these media figures as aspirational models as they encounter them regularly and predictably during their daily lives. Furthermore, broad patterns of relating emotionally to significant others constitute another key contributor to the parasocial experience, with prior research indicating that media friends can occupy highly important positions in a person's social world. Finally, frequency of media usage varies by age, making it crucial to investigate differences in PSR formation between age and gender groups.

*Presenting: Thursday 4/25 9-10am, 11am-noon*

**Students:** Katrina Blais, Olivia Bucciero, Daniel Gallagher, Kenneth Johansson

**Faculty Sponsors:** Sophia Dunne (Milne Library), Toke Knudsen (Mathematics, Computer Science & Statistics)

### **The Life and Legacy of Vera Sanford**

Dr. Sanford joined the faculty of the Oneonta Normal School in 1933. Throughout her career at Oneonta, she was active in all aspects of mathematics. She was Head of the State University College Oneonta (SUCO) Math Department for 26 years. She was a big part in organizing the “1955 Institute at Oneonta.” This program was a summer workshop for high school and junior college teachers. At this workshop, many teachers and professors from the New England region came to host discussions. These teachers and professors would have designated time throughout the week to have talks and workshops. Dr. Sanford’s workshops were based on “Content and Organization of the Junior High School Program.” Sanford would also hold a session on “Recent Developments in the History of Mathematics.” Even though she was head of the Math Department she was also a big help to the Education Department. Dr. Sanford taught many courses as a professor at Oneonta. Most of the courses were math-related, but occasionally she would teach a course out of her content area such as “Elementary Education and Home Economics.” When Sanford first started teaching at Oneonta, she taught about three courses each year. As time went on, she would continue to add more courses to her schedule. She would eventually reach 20 courses in her last year as a professor at Oneonta (1957-1958). These courses ranged from “Basic Mathematics 1” to “Differential and Integral Calculus.” She would also teach higher level courses for Education Majors, including “Mathematics for Early Secondary Teachers” and “Research Studies in the Teaching of Mathematics.” During her time as a professor and mathematician, Sanford published many mathematical articles and textbooks. Sanford was the Associate Editor of “Mathematics Teacher” - an official journal of the National Council of Teachers of Mathematics which aims to improve the instruction of math in K-12 education settings - and was a curriculum consultant in the late 50s, which allowed her to write a syllabus for math in New York State Elementary Schools. Sanford sat on the editorial board of *Scripta Mathematica* - a quarterly journal devoted to philosophy, history, and mathematics - and the Math Association of the US. During her sabbatical in March of 1947, she made multiple contributions to *Encyclopedia Britannica*. She also made many workbooks and tests in many different subject areas, such as geometry and trigonometry, that she used in her own teachings or for other teachers to use. Vera Sanford's most famous work is her well-renowned book published in 1930, *A Short History of Mathematics*. Vera Sanford retired from her duties as head of the mathematics department in August of 1959. She passed in 1971 and shortly after, in 1982, the Hodgdon IRC Lecture Hall 3 at SUNY Oneonta was dedicated and named the Sanford Auditorium. Sanford was an incredibly intelligent woman who spent her time making monumental contributions to the mathematics department and impacting many students' lives here at Oneonta. She will forever be remembered. *Presenting:*  
*Wednesday 4/24 1-5pm*

**Students:** Katrina Blais, Daniel Schlagel

**Faculty Sponsors:** Sophia Dunne (Milne Library), Toke Knudsen (Mathematics, Computer Science & Statistics)

### **Chasing Tessellations: Hollist’s Exploration of Escher’s Mathematical Legacy**

The late J. Taylor Hollist (1936-2020), a faculty member at SUNY Oneonta from 1966 to 2003, was an expert on the Dutch artist M.C. Escher. Hollist explored the relationship between the fields of geometry, crystallography, mathematical group theory, and Escher's artwork. After his retirement, Hollist gave a portion of his research materials on Escher to Toke Knudsen, a faculty member in the Department of Mathematics, Computer Science, and Statistics, and the rest of the materials were given to Knudsen after Hollist's passing by Hollist's family. Two SUNY Oneonta students, Katrina Blais and Daniel Schlagel, participated in an independent study with Toke Knudsen and Sophia Dunne from Milne Library to catalog Hollist's research materials and create a finding aid for the collection. The dates of the materials range from 1922 to 2015. The materials include reproductions

of Escher's artworks, copies of Escher's correspondence (including one to Mr. A.J. Read from SUNY Oneonta in 1970), Hollist's own correspondence, photos of Hollist, Hollist's publications and notes, publications and research by other mathematicians and individuals relating to M.C. Escher, and material on the M.C. Escher Centennial Conference held in Rome, Italy, in 1998. The collection is kept in the University Archives in the Alden Room, Milne Library. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Nathan Bobal

**Faculty Sponsor:** Trudy Thomas-Smith (Chemistry & Biochemistry)

**Ensuring Precision and Integrity: A Comprehensive Study of Good Lab Practices and Data Integrity** ☀️ 🌀

The scientific community relies on the integrity and good lab practices (GLPs) of published research for the advancement of knowledge and innovation. In recent years, the academic community has witnessed a concerning rise in the reporting of research misconduct, academic dishonesty, and plagiarism among published papers. This results in a plethora of these papers being retracted for a variety of reasons in addition to those listed above such as falsified data, unreliable data, non-reproducible results, and accidental errors. In 2023 over 10,000 papers were retracted making a new annual record according to the credible journal Nature. While newly developed AI technologies have helped scientists with experimental research significantly, for example AI has made the screening of biologically active molecules easier, AI also poses a significant threat to scientific research integrity. AI has aided in the flood of papers with falsified data in unreliable results in journals. In addition, paper mills publish large amounts of falsified research papers damaging the academic and moral integrity of scientific development and research. To fully evaluate the extent to which poor lab practices are the cause of this integral issue, this research endeavors to conduct a comprehensive examination of GLPs within academia. This study primarily focuses on the ramifications of poor lab practices and the devastating impact poor lab practices have on society. Scholarly resources such as Retraction Watch, Center for Open Science and Data, were evaluated to identify recent articles retracted likely due to poor lab practices. Current events such as documentaries were evaluated to identify the broader societal impacts of poor lab practices. The gathered information focuses on occurrences that could have been avoided if GLPs were followed. Gathered information will also be assessed to distinguish the societal impacts due to poor lab practices. This study is designed to spread awareness of the importance of implementing GLPs when conducting research and publishing papers. *Presenting: Wednesday 4/24 2:30-5pm*

**Students:** Marie Box, Alexis Kownack, Cynthia Papaccio

**Faculty Sponsor:** Fred Zalatan (Biology)

**Jumping for Joy: The DAmP-ening of Clathrin and its Effect on a Jumping Gene**

A jumping gene, also known as a transposon, is a segment of DNA that can move from one location in a genome to another. Ty1 is a transposon found in the yeast *Saccharomyces cerevisiae* that replicates through reverse transcription. Clathrin is a protein that plays a key role in the process of endocytosis, which is the mechanism by which cells internalize molecules from the external environment. The effects of mutated Clathrin on Ty1 assembly and replication, as well as the possible implications, are being investigated. *Presenting: Thursday 4/25 9am-1pm*

**Students:** Liam Brady, Grace DeClerck, Amoun Ghorayeb, Michel Ghorayeb, Rachael Rivenberg

**Faculty Sponsor:** Fred Zalatan (Biology)

**Bridging Gaps: Racial Disparities in Medical Standards** 🌀

This study investigates racial disparities in vital health signs and their potential impact on healthcare. We hypothesize that biological variations and socioeconomic factors may contribute to differences in vital signs among racial groups. These discrepancies raise concerns about the fairness and accuracy of

medical standards. The study aims to identify potential biases in healthcare by analyzing vital signs and relevant health information from a diverse population. Statistical and potentially genetic analyses will be conducted to explore these disparities and their influence on healthcare outcomes. This knowledge can be used to improve healthcare equity and ensure more accurate diagnoses and treatment plans for all patients. *Presenting: Wednesday 4/24 3-5pm*

**Students:** Emily Bulmer, Kari Minissale (Gs)

**Faculty Sponsor:** Paul Lord (Biology)

**2022 & 2023 Catella Creek (Michelin Creek) Freshwater Pearly Mussel Survey Comparison ☀**

Over the past decade and a half, Catella Creek has been surveyed by many students and faculty for freshwater pearly mussels. It is a focus of interest due to the presence of a population of the New York State threatened species *Alasmidonta varicosa* (Brook floater). The 2022 mussel survey revealed the population is larger than previously estimated, while the 2023 survey showed there are environmental factors, such as mudflows, that threaten this population's survival. Comparing and interpreting these results provides insight to future assessments and plans to conserve and, possibly, expand this imperiled population of Brook floaters. *Presenting: Wednesday 4/24 1-5pm; Thursday 4/25 9am-1pm*

**Student:** David Butler

**Faculty Sponsor:** Alex Sotola (Biology)

**Genomic Hybridization Dynamics and Ecological Influences in Lepomis Populations of Otsego Lake: Implications for Conservation and Recreational Fisheries ☀**

The *Lepomis* species, renowned for their economic and recreational significance as popular sportfish, are subject to complex evolutionary processes including hybridization. In this study focusing on Otsego Lake populations, we employ double digest restriction-site associated DNA sequencing (ddRAD) to investigate hybridization phenomena and their genetic underpinnings. Our analysis encompasses several key objectives: Hybridization, a common phenomenon in many fish species, presents intriguing challenges and opportunities for understanding evolutionary processes and population dynamics. It is possible through hybridization that we could lose morphological diversity. This would diminish the value of *Lepomis* as a sport fish due to a possible disappearance of two species due to hybridizing into a morphological mix. Ecologically, it lowers genetic variation among the species hybridizing due to possible breeding incompatibility with hybrids. By studying hybridization in *Lepomis* populations, we aim to reveal the mechanisms driving genetic exchange between species and the potential consequences for species integrity and adaptation to changing environments. We aim to discern the extent of hybridization and introgression among distinct *Lepomis* species, particularly focusing on asymmetric patterns and the preferential introgression of alleles from one species into another. Utilizing Bayesian Genomic Cline frameworks, we anticipate uncovering heterogeneous patterns of genomic introgression, shedding light on the selective processes driving hybridization dynamics. By integrating population genomic data with environmental variables, we seek to reveal the ecological drivers that influence hybridization patterns and species boundaries. Through this integrative approach, we anticipate identifying environmental predictors that significantly correlate with individual admixture, such as temperature, water quality, and habitat structure, and maybe even dam affects, thus providing insights into the role of ecological isolation in maintaining species integrity. Moreover, we predict that certain genomic regions may show higher levels of introgression compared to others, reflecting differential selection pressures and adaptive potentials within hybridizing populations. Our prediction is that due to human infraction of waterways leading into Otsego Lake have created an environment where *Lepomis* have been forced to hybridize due to selection pressures, whereas naturally they would avoid it. Ultimately, our study aims to contribute to a comprehensive understanding of hybridization processes in *Lepomis* populations, offering valuable insights into evolutionary mechanisms and ecological dynamics in freshwater ecosystems. Our findings hold implications not only for the field of biology but also for

informing conservation strategies and management practices, particularly in the context of recreational fisheries and the economic sustainability of *Lepomis* populations. *Presenting: Thursday 4/25 10-10:30 am*

**Students:** Amanda Byron, Rachel Volpe

**Faculty Sponsors:** Paul Bischoff (Secondary Education & Education Technology), Christopher Karmosky (Earth & Atmospheric Sciences)

**Heat Wave Frequency in Oneonta, NY: Trends and Possible Causes ☀**

This study investigates the frequency and trends of heat waves in Oneonta, New York, utilizing data from SUNY Oneonta's weather station spanning from 1983 to 2019. Employing a localized definition of heat waves as three consecutive days with a maximum temperature of 82°F or higher, the research explores various factors influencing these events. Analyses included correlations between frequency in heat wave days per year and El Niño-Southern Oscillation, North Atlantic Ocean SST, and Carbon Dioxide levels. The study reveals a positive trend in heat waves, with 2005 registering the highest heat wave days (HWD) and 1992 marking the lowest due, in part, to the Pinatubo volcano eruption's global cooling effects. While El Niño-Southern Oscillation and Carbon Dioxide did not show significant associations, a noteworthy correlation emerged between North Atlantic Ocean SST and HWD, suggesting a potential influence on heat wave occurrences in Oneonta. Further refinement of SST data and comparative analyses with nearby regions are recommended for deeper insights into local weather patterns. *Presenting: Wednesday 4/24 1-5pm*

**Students:** Daniel Carter, India Futterman, Shaina Gormley, Emily Hilbert, Tatum Hoff, Jacob Maloney, Evan Moats, Madeline Olesky, Cassandra Smith, Cosette Veeder-Shave, Shelby Walton (Gs)

**Faculty Sponsor:** Brian Alexander (Cooperstown Graduate Program)

**Cooperstown Graduate Association Strategic Plan and its Process**

In the fall of 2023, as part of Cooperstown Graduate Program's (CGP) 'Strategic Planning' class students developed and facilitated a three-year strategic plan for the program's alumni organization, the Cooperstown Graduate Association (CGA). Students started the project by conducting a situational analysis of CGA, researching the history of the organization, governing documents, and the competitive environment. They then conducted a series of interviews and surveys of key stakeholders such as CGA members, trustees, and the wider alumni community. The results of this research were organized into a SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis to ascertain the critical issues facing CGA currently and guide the direction of the strategic plan. After conducting the situational analysis, students collaborated with CGA's Board of Trustees through three strategic planning workshops and assigned task forces in four key areas to develop a comprehensive strategic plan. Students hosted workshops to develop new mission, vision, and value statements to guide the priorities of the board for the next three years. The final draft of the strategic plan was presented and adopted by the Cooperstown Graduate Association on December 18, 2023. *Presenting: Wednesday 4/24 1-5pm*

**Students:** Calen Cavallaro, Margaret Engasser, India Futterman, Madeline Olesky, and Jacqueline Tian (Gs)

**Faculty Sponsor:** Erik Stengler (Cooperstown Graduate Program)

**Developing Interactive Science Activities for the Case Research Laboratory at the Cayuga Museum of History and Art ★**

In the Spring semester of 2023, first-year students in the Cooperstown Graduate Program (CGP) science museum studies track were tasked with creating interactive activities for adult audiences for the Cayuga Museum of History and Art's (CMHA) Case Research Laboratory (CRL) in Auburn, New York. CRL Curator Haley Boothe served as project sponsor and primary contact throughout the process. The CRL is a significant historic place because it was the lab where sound film technology was first developed. This location's unique role in history was an opportunity to bring science



interpretation to CMHA. The CGP science track was guided by the vision of making science accessible to a broader audience through effective communication. Keeping this vision in mind, the CGP team hoped to use their collaboration with CMHA and the CRL as an opportunity to apply the interpretive techniques, pedagogical theories, and best practices discussed in the classroom to an operational museum setting. Working in close collaboration with CMHA fortified CGP's standing within the local and semi local museum network, with the potential to provide further opportunities for both future CGP students and regional institutions. The project resulted in the proposal of two different science interactives. One was a Chladni Plate demonstration that used a vibrating plate and sand to help guests visualize the concepts of sound waves and sound frequency. The second was a digital matching game that demonstrated how the first sound video footage was captured and displayed. The project did not result in the implementation of the activities, but through the proposed interactives and other suggested next steps, the research team successfully worked with CMHA to make the history of science accessible to the public through thoughtful, meaningful, multi-sensory, narrative interpretation, and to illuminate the humanity and sense of place underlying all scientific discoveries. *Presenting: Thursday 4/25 9am-1pm*

**Students:** Jianna Chapman, Katherine Daniszewski, Sabrina Mena

**Faculty Sponsors:** Katherine Griffes (Sport & Exercise Sciences), Kelly Martin, Emily Riddle (Human Ecology)

**Needs Assessment of Nutrition-Related Issues Including Body Image, Disordered Eating, and Excessive Exercise Among SUNY Oneonta Undergraduate Students and Student-Athletes ★**

Research has shown that there are several risk factors associated with disordered eating behaviors and poor body image among student-athletes and the general college population. These risk factors include the desire to achieve an ideal body weight and type for performance, the change in environment when going to college, and a higher Body Mass Index. The purpose of this research was to identify the prevalence and relevancy of nutrition-related issues, including eating disorders (ED), disordered eating (DE), poor body image, and excessive exercise among SUNY Oneonta undergraduate students and student-athletes. The project's methods included assessing the literature and previous data to gain insights on the undergraduate and studentathlete populations and designing a tool to conduct a needs assessment of those current populations on our campus. An online survey was designed and administered through the online platform Qualtrics to determine and assess the prevalence rates of the nutrition-related issues. The survey was sent out to both student athletes and the general populous of SUNY Oneonta through an email containing a link that collected anonymous answers from the respondents. A QR code which was used on flyers and finally an online platform SONA. Survey results indicated that among 241 respondents, 58% (n=139) acknowledged that their thoughts about their weight or shape in the past seven days had a markedly or moderate impact on how they perceive or evaluated themselves as individuals. Out of the 109 student-athlete respondents, 61% (n=67) believed that they had to lose 1-15+ pounds to be at their best performance weight. 15% (n=16) of respondents stated they had to gain 1-15+pounds to be at their best performance weight. Out of 106 student-athletes, 61% (n=65) stated they worry about gaining weight during the off season or when they cannot train due to injury. Conclusions include that within both the general student and student-athlete population at SUNY Oneonta, poor body image issues are prevalent. This study contributes to the understanding of these issues within the campus community and lays the foundation for further research and interventions aimed at addressing and mitigating these concerns among college students. *Presenting: Wednesday 4/24 1-5pm*

**Student:** James Connolly

**Faculty Sponsor:** Shiyi Chen (Economics)

**Substance Abuse Disorder**

There has been a rise in substance abuse disorder in the United States. It is evident from the literature that some groups of people are more likely to become victim to substance abuse disorder. In my

paper, I will be exploring different factors that lead to substance abuse disorder. Specifically, I will be looking on a state-by-state basis of the United States of America. To do so, I will be using data from Substance Abuse and Mental Health Administration (SAMHSA). I will include economic variables such as average income and unemployment rates. I will also be looking at demographic variables, including sex, race, age and political stances. These statistics will be compared to drug overdose deaths, substance use, and reports of substance abuse disorder on a state basis. To analyze these numbers, I will use a linear regression model, comparing economic and demographic variables to substance abuse variables. I will also use Chi-squared test to see significant differences on a state-by-state basis. My final test will be an ANOVA test, to see significant differences in the states and to group the states based on substance abuse data. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Elijah Creedon

**Faculty Sponsor:** Daniel Stich (Biology)

**Against the Odds: How Eurasian Watermilfoil (*Myriophyllum spicatum*) has Spread Through Two Lake Basins Despite Human Intervention and Ecological Limitations ☀**

Horseshoe Pond and Deer River Flow are two neighboring waterbodies in the northern reaches of the Adirondack Park (Franklin County, NY). They have similar maximum and mean depths of 3 m and 1.5 m respectively; both fall within the Deer River watershed. Both lakes are highly tannic, as well as nutrient/pH limited. Eurasian watermilfoil was first documented in Horseshoe Pond in 2002 and has spread through both waterbodies since. Eurasian watermilfoil was present in 12 out of 14 of Deer River Flow's plant beds in 2011, and abundant to common in all of plant beds in Horseshoe Pond in 2007. Hand harvesting by divers and the seasonal installation of benthic mats occurred in Horseshoe Pond from 2007 through 2010 to little long-term effect. This study focused on the collection of comprehensive limnological data to better understand alternatives that can be used to successfully control this invasive species. *Presenting: Wednesday 4/24 3-4 pm*

**Students:** Grace DeClerck, Alexa Nanes, Samantha Yanqui

**Faculty Sponsor:** Fred Zalatan (Biology)

**Ty1 Moving Through the Endomembrane Maze ★**

Transposons are DNA components that possess the ability to replicate and move from one genomic location to another using the “copy and paste” mechanism. Ty1 is a transposon in baker’s yeast (*Saccharomyces cerevisiae*) and codes for a small set of proteins that help the transposon replicate. Ty1 also requires several factors encoded by the yeast genome. We are investigating the importance of factors in the endomembrane system and whether some of these components play a role in Ty1 assembly and replication. One major goal is to analyze Ty1 RNA levels in at least two mutant strains in the endomembrane system. The quantitative polymerase chain reaction (qPCR) method is being used for this analysis. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Isabella DeCicco

**Faculty Sponsor:** Rachel Kornhauser (Office of Sustainability)

**Environmental Communication in the Media ☀**

In an era defined by accelerating environmental degradation and increasing ecological crises, effective communication plays a pivotal role in shaping public understanding, attitudes, and behaviors towards environmental issues. This research project delves into the interplay between media, education, and environmental awareness, elucidating their collective impact on fostering sustainable practices and promoting ecological stewardship. The significance of communication in addressing environmental challenges cannot be overstated. Media platforms, ranging from traditional outlets like television and newspapers to contemporary digital platforms and social media, serve as primary outlets for spreading information and shaping public discourse on environmental issues. Through strategic messaging, storytelling, and visual representation, media channels have the power to capture public attention, raise awareness, and catalyze action on pressing environmental concerns. However, the effectiveness of environmental communication is contingent upon various factors, including the framing of issues, the credibility of sources, and the accessibility of information. As the Social Media and Communications intern for the Office of Sustainability, I’ve had firsthand experience in environmental communication. I run both the Instagram and Facebook accounts for The Office of Sustainability, and when creating posts for these platforms, I really take all of these factors into consideration. Sustainability is a core value of SUNY Oneonta, and I have a lot of responsibility as the social media and communications intern to help students develop a sustainable mindset. The way I phrase and present the information I’m sharing plays a huge role in how it’s perceived. So, my poster focuses on how important factors of communication are when talking and posting about the environment. *Presenting: Wednesday 4/24 3-5pm*

**Students:** Konstantinos Dikas, Jada Rosas

**Faculty Sponsor:** Ho Hon Leung (Sociology)

**Indigenous Tourism for Climate Change ★☀🌀**

The research that has been conducted and researched thoroughly through a series of interviews and readings have allowed this research team insight into the inter-ethnic relations and indigenous tourism practices in Sudbury, Ontario, Canada. Our team, faculty advisor Leung HoHon, Konstantinos Dikas, and Jada Rosas traveled to this northern region of Canada to better understand the practices that Sudbury has implemented into their region as a way to further promote sustainability practices that further enhance the living of people who reside in the area, as well as the Ojibwe population to endure. During our time there, we gathered and collected an abundance of knowledge and information through many interviews with notable professors, such as John Gunn (Laurentian University), William Morin (Laurentian University), and Hoi F. Cheu (Laurentian University) that allowed us to advance our understanding of Sudbury. Owen Matthews was then a key person through this research that helped converge and analyze all the information that we had collected during our

stay in Sudbury. When taking a deeper look into the history of Sudbury, it is important to recognize how this once severely polluted area that could barely foster its natural biodiversity completely turned around over the course of the past two decades to increase the greening practices of the region to create a healthier living environment, which goes hand and hand with the UN's 17 Sustainable Developmental Goals from through research of indigenous tourism for climate change mitigation in Sudbury, Ontario, Canada. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Julia Dosch

**Faculty sponsor:** Nicholas Benson (Communication & Media)

### **A Blazing Campus** ☀

My project *A Blazing Campus* is a visual narrative and walkthrough around the SUNY Oneonta campus at night. SUNY Oneonta's campus has a certain feel at night, and it is amplified by the unique variations of light sources around campus. This project brings you around the campus and introduces you to intimate scenes of life surrounding the idea of SUNY Oneonta's lighting. This research project was to create a series of photos with a cohesive narrative, in which I created an artwork series using various lighting. In this project, I experimented with visual storytelling techniques such as composition and framing learned in Digital Storytelling. We studied and focused on various aspects of camera settings like ISO, shutter speed, contrast, and aperture while also looking at design techniques like off-centering focal points or using the rule of thirds. We studied what to change settings wise for different environments and capturing varying landscapes, like changing shutter speed to capture movement. Not only was this a research project used to study visuals and lighting but also studies the SUNY Oneonta campus itself and can be considered a wake-up call to the energy and light pollution that the campus could be creating by powering all these different light sources through the entire night. The campus's atmosphere at night is warm and safe with the lights but is also cold and lonely with so much fluorescence. The amount of light at night makes you worry about the energy consumption of the campus. The power usage that the campus could be created by needing to constantly have lights, not just streetlights but building and individual classroom and hallway lights, active 24/7 can impact or damage our environment. Whether people see this as a wake-up call or a series of moments around the campus at night, *A Blazing Campus* is a project I am extremely proud of. *Presenting: Wednesday 4/24 2-5pm*

**Student:** Margaret Engasser (G)

**Faculty Sponsors:** Elizabeth Small (Foreign Languages & Literatures) Erik Stengler (Cooperstown Graduate Program)

### **Translation of *El Museo de Ciencia Transformador (The Transformative Science Museum)*, by Guillermo Fernández** ☀ 🌀

During the 2023 – 2024 school year I will translate the book, *El Museo De Ciencia Transformador (The Transformative Science Museum)*, from its original Spanish to American English. The book's premise is that a visit to a science museum can and should be much more than an afternoon's entertainment, or even "learning experience". Visiting a science museum should change people. The book's author bases his work on the use of the "museographic language", which is what makes museums unique. No other mode of communication can reach people in quite the same way a museum can. Learning a new language takes time and diligent effort, but until now, professionals in contemporary science museums had no tools to help them. They were left to design their own professional paths using existing resources, which focus on operating science museums as the sites of school field trips and destinations to visit on a rainy afternoon. Just as when learning to speak any language, picking it up here and there is ineffective, and takes a lifetime. (My own journey to learn Spanish is an example.) If science museums are to contribute to 21st century society, then those who design museums and museum programming must be trained first to think of themselves as agents of transformation, and then to use the museographic language to design museums and museum programs

to inspire visitors to learn, and to act. This book will unite science museum professionals around a common understanding of their potential. *Presenting: Thursday 4/25 9am-1pm*

**Students:** Sarah Faulisi, Graham Wooden

**Faculty Sponsor:** Katie Griffes (Sport & Exercise Sciences)

**Empowering Volunteers: Developing a Comprehensive Volunteer Training Program for Adapted Sport Events** ★☀️🌀

Volunteers play a role in the enhancement of adaptive sporting events. In order to foster an inclusive environment all volunteers should receive the appropriate training and knowledge (Hettinga and Ling, 2023). Currently the EDD Adaptive Sports Program does not have a systemized training program that can be accessed remotely. Therefore, our research aims to develop a comprehensive volunteer training program for adapted sport events with the overarching goal of empowering volunteers to effectively support adapted athletes. The study recognizes the critical role of volunteers in adapted sports, where resources funding is often limited (Pate et al., 2023), yet training opportunities for volunteers are insufficient. By addressing this gap, the research seeks to enhance the inclusivity, safety, and enjoyment of adapted sports events while fostering empathy, understanding, and meaningful connections among participants. The primary objective of this study is to create a robust training curriculum that equips volunteers with the knowledge, skills, and abilities necessary to support adapted athletes effectively. By providing volunteers with comprehensive training, the study aims to underscore the crucial role of informed and prepared volunteers in fostering inclusivity, safety, and enjoyment for the athletes. Additionally, the study seeks to empower volunteers to create an environment where adapted athletes feel respected, empowered, and fully included in the sports community. Data for this study were collected through a multifaceted collaboration with experts from various fields, including applied behavior analysis, sport psychology, adapted sport administration, and videography. The research team conducted a thorough examination of existing literature on educational programs, volunteer training methodologies, and the nuances of supporting adapted athletes. Based on this research, a comprehensive training curriculum encompassing online modules and written training materials was developed. Additionally, high-quality training resources, including videos exemplifying effective communication strategies and inclusive coaching techniques were produced. As a sample of the training module, an excerpt from the curriculum covers disability awareness, emphasizing the diverse needs and capabilities of athletes with disabilities. This module provides volunteers with insights into the unique challenges faced by individuals with disabilities and equips them with strategies to provide appropriate support and accommodations during sporting events. Through this sample module and the broader training program, volunteers gain the knowledge and skills necessary to create a more inclusive and supportive environment within the realm of adapted sports.

*Presenting: Thursday 4/25 9-11:30am*

**Student:** Jillian Fitchette

**Faculty Sponsor:** Jody Aultman (Human Ecology)

**Couture Fashion** ★

I made four couture beaded gowns. My inspiration was butterflies. Throughout my career at SUNY, I have grown into a new person. Butterflies grow and change into something beautiful, and I wanted to showcase that in my dresses. These dresses are colorful, fun, and free, just like a butterfly. I also chose to use warm colors, representing a sunrise, symbolizing a new beginning. During this study I kept a detailed research notebook documenting the process of creating my gowns. First, I sketched out all the designs. Next, I choose my materials to use for my designs. Then I started the pattern making process. I used measurements from models to draft and construct a pattern of a dress to fit their body. Once this was done, I constructed each garment. Then I started the task of hand embellishment using beads and crystals. I plan to enter my favorite gown into the International

Textile and Apparel Association's yearly conference in the fall of 2024. Learning about couture is going to open many doors for me in the future. I learned to look at small, ornate details, opposed to just the overall garment. I focused on small finishings and applications you can add to garments to enhance the overall appearance. I learned how to make a beautiful garment from start to finish and have every detail perfect. The skills I developed will also add a new and exciting component to the fashion department. I believe learning this is incredibly beneficial to not only me, but the student population. This is important for all designers to learn, and I am excited that I was able to start the research for it. Learning these skills helped my work stand out in a crowd, and it will help me immensely in my profession. *Presenting: Wednesday 4/24 1-3pm*

**Students:** Jillian Fitchette, Jenna McLaughlin

**Faculty Sponsor:** Jody Aultman (Human Ecology)

**What Was Old, Now is New** ★ ☀

Thrifting has become a great past time for many individuals. There are many thrift stores to choose from such as Good Will and the Salvation Army. Thrifting can also be done in consignment shops, vintage boutiques, flea markets and online resale platforms. In this study, we focused on Good Will and the Salvation Army because their prices are lower due to them being charitable organizations. The goals of this study were to learn the art of thrifting, sustainability, and how to make the old, new. Before heading to the thrift stores, we designed the garments on paper that we planned to create. One student is interested in men's wear and the other in women's wear. Most purchasing decisions were made based on the students' designs. Sustainability is a large part of this project, because we purchased secondhand clothing based on our designs. We used 90% of what we purchased in the garments. Each student created 4 new designs. *Presenting: Wednesday 4/24 1-3pm*

**Student:** Morgan Fleming (G)

**Faculty Sponsor:** Florian Reyda (Biology)

**A Deeper Look at Hooks: Inter-Relationships Among Neoechinorhynchid Acanthocephalans** ★



Acanthocephalans are integral parts of ecosystems and can damage host populations. There is, however, an existing knowledge gap about most species of acanthocephalans and many of them have yet to be analyzed using modern technology, including DNA sequencing. The key objective of this project is to increase our understanding of features of Family Neoechinorhynchidae, a diverse group of ~150 acanthocephalans of fish and turtles that consists of 18 genera worldwide. The approach is to compare species of the 9 genera that occur in the United States using morphological data, with a focus on hook morphology, and DNA sequence data. The first phase of this project and the focus of this presentation is the survey work to obtain representatives of species of each of these 9 genera from at or near their type localities. As a result of various surveys, we now have study sets of specimens of 8 of the 9 genera; a representative of the 9th genus will be obtained later this year. The samples acquired include *Tanaorhamphus longirostris* (Van Cleave, 1913) Van Cleave 1919 and *Gracilisentis gracilisentis* (Van Cleave, 1913) Van Cleave 1919 from Gizzard shad (*Dorosoma cepedianum*) from the Illinois River near Havana, Illinois; *Octospiniferoides chandleri* Bullock, 1957 from Eastern mosquitofish (*Gambusia holbrooki*) from the Florida Everglades; *Floridosentis elongatus* Ward, 1953 from White mullet (*Mugil curema*) from coastal Florida; *Atactorhynchus verecundus* Chandler, 1935 from Bolivar Peninsula, Texas; *Paulisentis missouriensis* Keppner, 1974 from southeastern Nebraska; *Octospinifer macilentus* Van Cleave, 1919 from localities in New York; various species of *Neoechinorhynchus* Stiles and Hassall, 1905 from various localities. This talk focuses on the specific results of field sampling and preliminary observations of the variable hook morphology represented by these genera. *Presenting: Thursday 4/25 1-5pm*

**Student:** Natalie Frank

**Faculty Sponsors:** Ed Beck, Chilton Reynolds (Faculty Center), Wesley Bernard (Art)

### **Graphic and Instructional Design Internship**

This semester I was granted the opportunity to work under Ed Beck to learn about accessibility and instructional design and take on projects related to this. It has given me the opportunity to get a feel for what the job force will truly be like, and I am gaining skills along the way to help me in the future. We have mainly focused on work in WordPress, as I am designing two websites for some of the faculty on campus. I have been working with the Experiential Learning Center to make a showcase of projects that faculty and student work on related to sustainability, study abroad, creative activity and so on. I also have worked with Sarah Simpson the head of the gallery here at Oneonta to design a website for the Excellence in New Media Award. Shifting more into graphic design work, I also have been able to come up with new logo designs for our SUNY COIL program and we are working with Hope Windle, the director to come up with something that represents what its truly about. One of the things I have been able to participate with is the Educational Book being created by some staff at Oneonta. I have created illustrations related to revolutionary educators picked by the authors of the book that will hopefully be presented in the textbook. The main focus of this internship has been in WordPress, which I have been learning more and more each day with Ed's help. I am in the process of designing a portfolio website that I can use in future interviews to help me secure a job. Lastly, I have been taking accessibility courses through Deque University to better understand what goes into making a site accessible to everyone. Not only am I brushing up on my skills in design, and learning more programs, but the collaboration has also been extremely useful. In Graphic Design it is extremely important to work with the people around you, getting feedback to better improve your work. It's been really beneficial to do such hand on work and collab with Ed and Chilton to really improve my projects along the way. Overall, I am extremely grateful for this opportunity I have been granted and I believe it will really help me in the future when entering the job force. It's one thing to have a degree, but to have an internship experience where you truly get a feel for the job force is in my opinion more beneficial than just taking classes. *Presenting: Wednesday 4/24 3-5pm*

**Student:** Sarah Frueh

**Faculty Sponsor:** Sean Robinson (Biology)

### **Developing Methods to Induce Sex Expression in the Moss, *Bryum Argenteum* ☀**

Mosses play important roles in a variety of ecosystems from wetlands to deserts. More specifically, they are known to have a significant impact on nutrient cycling, soil formation, and moisture retention, and serve as a habitat for a number of microorganisms. Unfortunately, little is known about the reproductive phenology of mosses and how our changing climate may affect their reproduction and dispersal. Using *Bryum argenteum* as a model, Dr. Robinson initiated the development of an EREN (Ecological Research as Education Network) project in collaboration with two colleagues, Erin Bissell (Metropolitan State University of Denver) and Denise Finney (Ursinus College), to assess phenological variation in plants growing in urban vs. rural environments across North America. College campuses across the country are getting involved in the EREN project by monitoring sporophyte production in populations of *B. argenteum*. In addition, project participants are then sending voucher specimens of their *B. argenteum* plants to Dr. Robinson for species verification and to assess gametangia production. However, plants of this species are known to be sterile (lacking male or female reproductive structures) during specific times of the year and/or in different parts of the country. The specific goal of this independent research project, therefore, was to work on the development of new methods which could be used to encouraging sex expression in non-expressing plants in the lab. *Presenting: Thursday 4/25 9-11:45am*

**Students:** Amoun Ghorayeb, Michel Ghorayeb

**Faculty Sponsor:** Fred Zalatan (Biology)

**Dressed for Sec-cess: Unveiling a Link Between Ty1 and Secretory Vesicles ★**

Transposons are mobile DNA elements that can copy and insert themselves at different locations within a genome, contributing to genetic diversity and genome plasticity. This study investigates the potential interaction between the Ty1 transposon Gag protein and secretory vesicles in yeast (*Saccharomyces cerevisiae*). This research employs co-localization analysis using fluorescence microscopy to examine whether the Ty1 Gag protein, crucial for viral particle assembly, associates with secretory vesicles. *Presenting: Wednesday 4/24 1-3pm*

**Student:** Sarina Graziano

**Faculty Sponsor:** Elizabeth Bastiaans (Biology)

**Impact of Light Intensity on Activity Levels of the Red-Backed Salamander, *Plethodon Cinereus* ★ ☀**

Urbanization and the construction of human infrastructure have increased artificial illumination, particularly artificial light at night (ALAN) and poses a threat to the circadian rhythm of many organisms, especially those who are nocturnal. Many amphibians are primarily nocturnal, often due to the higher risk of skin desiccation from greater light intensity and higher temperatures during the day. Skin desiccation harms amphibians by disrupting their osmotic regulation and, in the case of lungless species, can even cause suffocation. At night, there is lesser light intensity, and lower temperatures, decreasing amphibian's chance of experiencing skin desiccation. Due to the environmental conditions at night, amphibians emerge above ground and migrate, forage, and reproduce. Previous research has shown that ALAN has created tremendous top-down trophic cascades through its effects on predator-prey interactions, thus having a trickle-down effect on population dynamics and food web relationships. We examined *Plethodon cinereus* (Eastern Red-backed Salamander), a species previous research has shown is behaviorally impacted by ALAN, which reduces its ability to efficiently hunt food and survive. *Plethodon cinereus* typically remains beneath leaf litter and uses vision to ambush prey during the day but emerges from the leaf litter to use chemoreception to pursue their prey at night. We investigated the effects of both light levels and food types upon salamander activity levels. We presented twenty individual red-backed salamanders with two prey types under two different light conditions. Prey were presented as live *Reticulitermes flavipes* (Eastern subterranean termite), to provide a visual cue of prey presence, or *R. flavipes* paste, to provide a chemosensory cue. Light conditions simulated either daytime or nighttime. We found that neither the light treatment nor food treatment had a significant effect on *P. cinereus* activity levels, although there was a numerical trend towards greater activity under daylight conditions than under nighttime conditions. *Presenting: Wednesday 4/24 1-5pm*

**Students:** Robert Gronenthal, Andrew McCabe

**Faculty Sponsor:** Ho Hon Leung (Sociology)

**Exploring Intergroup Relationships in Sudbury, Canada: A Micro-Level Analysis of Ethnic and Indigenous Dynamics ★ ☀ 🌀**

The study aims to explore intergroup relationships in the diverse community of Sudbury, Northern Ontario, Canada. With a focus on understanding how various ethnic and Indigenous groups coexist and collaborate, the research seeks to fill a gap in existing literature by examining intergroup dynamics at a micro level within this specific region. Sudbury, characterized by its multiculturalism and significant Indigenous population, presents an ideal setting for this investigation. Census data from 2016 reveals a diverse demographic, with Indigenous residents comprising 19.5% of the Sudbury District and 41% of the Manitoulin District. Additionally, Sudbury boasts a mix of North American, European, and Asian origins among its population, with notable visible minority groups such as Black, South Asian, and Chinese communities. The research objectives encompass a



comprehensive analysis of intergroup interactions across political, economic, social, and cultural domains. Of particular interest are the relationships between different ethnic groups and the Indigenous communities. By conducting in-depth interviews and examining individual and collective behaviors, the study seeks to shed light on the complexities of intergroup relations within Sudbury. At its core, "Exploring Intergroup Relationships in Sudbury, Canada" aims to unravel the mechanisms of cultural exchange, the formation of social networks, and the construction of shared identities among diverse groups. By delving into these dynamics, the study not only enhances understanding of the challenges faced by these communities but also underscores the potential for collaboration and mutual understanding. Importantly, the research holds implications for the integration experiences of newcomers, offering insights into the facilitators and barriers to harmonious integration. By exploring the role of intergroup relationships in fostering belonging, inclusion, and community cohesion, the study contributes to discussions on social cohesion and cultural appreciation in multicultural societies. Beyond its academic significance, "Exploring Intergroup Relationships in Sudbury, Canada" advocates for social cohesion and the celebration of diversity. By highlighting the importance of understanding and nurturing intergroup relationships, the study underscores the value of promoting mutual respect and understanding within diverse communities like Sudbury. In summary, "Exploring Intergroup Relationships in Sudbury, Canada" addresses a gap in research by examining intergroup relationships within the multicultural context of Sudbury, Canada. Through a micro-level analysis, the research aims to deepen understanding of intergroup dynamics, integration experiences, and the role of relationships in fostering community cohesion. Ultimately, the study advocates for social cohesion, cultural appreciation, and the celebration of diversity within Sudbury and beyond. *Presenting: Thursday 4/25 9-11am*

**Students:** Dylana Gutierrez, Sebastian Lujan

**Faculty Sponsor:** Benjamin Wilhelm (Biology)

### **Pectoral Fin Morphology in Ray Finned Fishes ★**

Actinopterygian fishes are the most diverse group of vertebrates, with over 35,000 described species accounting for over half of known vertebrates. This diversity includes the form and function of their pectoral fins, which are paired fins found on the left and right sides of the body, directly behind the head. For example, there are actinopterygian fishes that use their fins to swim, those that use them to hold on to structures in the water, and even those that use them to “walk” on the ocean floor or make periodic excursions onto land. The name actinopterygian means “ray finned,” referring to the long series of bones called fin rays that support the structure of the fins, including the pectoral fin. Fin rays are composed of two halves called hemitrichia that are made up of jointed segments called hemisegments. Flexible ligaments hold the opposing hemisegments together and link adjacent fin rays. The flexible ligaments allow opposing hemitrichia to be moved relative to each other by the muscles attaching to their bases. Coupled with the jointed segments of the fin, this can create curvature of individual fin rays and allow the flexibility and stiffness of the fin to be changed. Pectoral fins can also be used as control surfaces during swimming and may serve a propulsive function in some fishes. Previous studies have shown that the pectoral fin ray anatomy can vary between actinopterygian species, possibly related to differences in their environment. For example, benthic fish that spend more time interacting with the ground underwater tend to have longer hemisegments that are more resistant to bending. The purpose of this study is to add to the existing literature by examining a sample of fishes distributed across the phylogenetic tree of actinopterygians. We cleared and stained six species of fish obtained from the SUNY Oneonta Vertebrate Collection. Clearing and staining is a histological technique that makes muscle and skin transparent while staining bones and cartilage, making the skeleton visible without dissection. In addition to newly cleared and stained specimens, we described the anatomy of cleared and stained specimens representing 21 species of fish that were photographed at the American Museum of Natural History for a previous study. Our examination of these fishes found differences in the morphology of the pectoral fins including robustness of the basals, unsegmented regions of the proximal fin rays, and

branching of the distal fin rays. We also found that fish that make periodic excursions onto land share similarities in their pectoral fin morphology. These results are one of the broadest samples of pectoral anatomy in actinopterygians to date. Future work will include describing the anatomy of under-sampled groups of fishes, looking at intraspecific variation, histological sectioning and staining to observe microscopic anatomical differences, and examination of how the observed differences contribute to differences in function. *Presenting: Thursday 4/2 9am-1pm*

**Students:** Joshua Hardesty, John Skelton (G)

**Faculty Sponsors:** Daniel Stich (Biology), Michael Morgan (New York State Department of Environmental Conservation)

### **Statistical Predictions of Spawning Population of Lake Sturgeon (*Acipenser fulvescens*) on Artificial Spawning Beds ☼**

The Lake Sturgeon (*Acipenser fulvescens*) is a North American temperate freshwater fish that is listed as a threatened species in New York State. The Lake Sturgeon population in the St. Lawrence River has been drastically reduced, largely due to overfishing, the establishment of dams, and spawning habitat loss or degradation. The New York Power Authority created artificial spawning habitats for Lake Sturgeon in 2007 upstream and downstream of the Iroquois Dam. The New York State Department of Environmental Conservation (NYSDEC) has monitored spawning sturgeon at these sites since 2011 using transect-based underwater video. We estimated local abundance of Lake Sturgeon on these spawning beds from 2011-2023 using spatially explicit n-mixture models that accounted for imperfect detection of individuals and autocorrelation among observed counts. Detection of individuals was generally highest during the peak of the spawning season. Abundance was highest over spawning beds and was generally higher at the downstream bed than at the upstream bed. We observed interannual fluctuations in abundance at both beds that were potentially indicative of recruitment and/or spawning periodicity. Abundance decreased slightly at both beds during the monitoring period. Additional monitoring of this population could improve understanding of periodicity and long-term trends. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Isabella Harnett

**Faculty Sponsor:** Keith Brunstad (Earth & Atmospheric Sciences)

### **Dynamic Flow Modeling of Inflation and Deflation Characteristics for Effusive Lava Eruptions**

Over the past decade several studies have highlighted the importance of developing analog models of lava flow physical characteristics. Recent field experience demonstrates that inflation and deflation characteristics in effusive flows can produce broad topographic profiles as result of crustal “breakouts” and dynamic flow passage “pileups”. The goal of this study is to utilize analog paraffin wax flow modeling to demonstrate the presence of inflation and deflation features in dynamic effusive flows as an interpretation of in-situ emplacement. For this study, Gulf Wax was utilized as an analog flow material. Utilizing a 500mL graduated cylinder and a candle making wax melter, the wax was heated to over 165°C. Pouring the heated wax into the 500mL graduated cylinder, 2mm, 4mm, 6mm, and 8mm steel balls were dropped into the graduated cylinder where a Vivitar 4k handheld camera on a tripod was used to record and calculate the velocity of the steel balls falling through the paraffin wax medium. Using Stoke’s Law principles, viscosity was calculated at 75°C, 100°C, 125°C, and 150°C. At this stage of the research, the reheated wax was poured onto an inclined slope surface with rough slope features to imitate typical volcanic slope and topographic profile. Subsequent modeling incorporated video recording using the handheld camera as well as thermal capture of dynamic crustal development with fixed position thermocouples and a handheld FLIR imager. Using the thermocouples and thermal imager, breakout development was recorded via thermal intensity measurements. This combined with recorded video evidence clearly demonstrated displacement of the analog medium whereby deflation of the main lobe, adjacent to the breakout lobe, represented clear topographical depressions. Similarly, thermal, and electro- optical recording of the analog medium encountering mechanical flow vectoring revealed flow inflation profiles at elevated points on

the flow surface pathway. The recording and analysis of flow depression features near breakout zones demonstrates a mechanism for actual topographical depressions in flow fields. Additionally, the video and thermal documentation of inflation profiles in the presence of topographic obstructions to downslope flows highlight key characteristics of ‘real-world’ flow vectoring. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Isabella Harnett

**Faculty Sponsor:** Keith Brunstad (Earth & Atmospheric Sciences)

**The Pleistocene Tieton Lava Flow Field, Bear Creek Mountain Eruptive Stage of the Goat Rock Volcanic Complex, Southern Cascades, Washington: Emplacement Features**

The Tieton andesite lavas located in Southern Washington Cascades consist of two lava flows (74 and 52 km in length), and a newly mapped flow field located on the SW portion of Pinegrass Ridge. Mapping has identified a compound flow field consisting of multiple flow lobes of Tieton andesite (Qta2) and basaltic andesites (Qba and Qob2). Mapping was also improved by using lidar. The goal of this study is to improve the resolution on previous mapping to understand the lavas associated with the andesites above Section 3 Lake (Qas31) which are related to Qta2. Lavas in the upper part of the sequence located in the SW portion of Pinegrass Ridge are related to Qas31 (Qta2) and have a flow direction to the NE. Older units comprising Qab and Qob2 have an average flow direction to the E. Physical characteristics of the flows consist of lava flow channels with massive cores surrounded by platy jointing on all sides and breccia levees and bases. In addition, similar lava sheet flows were identified. Breccias are sintered to welded with tongues of glassy lava often present. The morphology of lava flows can be used to determine whether a flow is a simple or compound flow field. However, several parameters need to be considered when using morphology such as, the sum of the effects of viscosity, eruption rate and duration. It has been shown that compound lava flows form by slow effusion, low viscosity magma, and high viscosity favors lavas with fewer flow units. The Pinegrass Ridge flow field appears to be between the two end members. *Presenting: Thursday 4/25 9am-1pm*

**Students:** Isabella Harnett, Samantha Martin

**Faculty Sponsor:** Keith Brunstad (Earth & Atmospheric Sciences)

**Analogue Modeling of Inflation and Deflation Features in the Pleistocene Tieton Andesite Lava Flow**

Analogue modeling of lava flow emplacement during the past several decades has provided insight into naturally occurring geodynamic processes that are difficult or impossible to directly observe. Ongoing field work has identified what is interpreted as inflation and deflation characteristics associated with effusive lava flows. The inflation and deflation of lava flows can provide a wide range of morphologic profiles due to crustal breakouts and flow passage “pileups”. In this study, we attempt to scale analogue lava flow models using paraffin wax to produce inflation and deflation features found in natural lava flows and compare these to those found in the Tieton andesite lava flow (1.6 Ma) erupted from the Bear Creek eruptive center. The viscosity of the paraffin wax, ranging from 50° C to +100° C, was measured using two methods: Stokes law and a Modular Compact Rheometer (MCR). The viscosities were calculated at 7.41 mPa s (60° C), 7.56 mPa s (70° C), 8.52 mPa s (80° C), 4242 mPa s (90° C). The effusion rate of the paraffin wax, heated to ~75° C, was emplaced through a 23 mm hose onto an inclined slope of increasing channel complexity to demonstrate the behavior of andesite lava flows under different conditions such as rough slope vs. smooth slope, and straight vs. sinuous channel. Different colored dye was used to differentiate layering in the wax to provide a clear visual representation of flow features. Experimental runs used the handheld camera as well as thermal capture of dynamic crustal development with fixed position thermocouples and a handheld FLIR imager. The different layering in the wax provides a clear visual of inflation and deflation characteristics. These analogue models imitate the shape of the Tieton Andesite lava flow as well as the U-shaped valley it flowed into. At the 90° bend of the Tieton Andesite model, the paraffin wax inflated and piled up along the corner, subsequently causing a crustal breakout to occur past the

bend. Following the breakout, the paraffin wax deflated at the 90° bend forming depression features near breakout zones. These findings support previous observed mechanisms for topographic depressions in flow fields. Additionally, the presence of topographic obstructions to downslope flow help identify characteristics found in “real world” lava flows. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Dasia Harrigan

**Faculty Sponsor:** Kpoti Kitissou (Economics)

### **Gender & Racial Wage Gap** ☯

Given today's society, it is imperative to explore and address the racial gender pay gap. There's a unique intersectionality that occurs between gender and race that influences disparities in earnings in the United States. Analyzing this disparity is crucial for gaining an understanding of the factors that contribute to wage inequality and will be helpful in establishing policies and strategies to address the issue. In my paper, I hope to look at the gender racial pay gap for White, Black, Asian and Hispanic women and men on a regional level: South, Northeast, Midwest, and West. To analyze the racial gender pay gap, I will look at data from the Annual Social and Economic Supplement (ASEC) of the CPS. Variables that I suspect will have an influence on the gap are industry, age, marital status, number of children, level of education/experience, occupation, and more. I plan on using OLS regression to analyze the relationship between race, gender, and wage by region. *Presenting: Wednesday 2/24 1-5pm*

**Students:** Jessica Haun, Brendan Heaney, Allison LaBarbera

**Faculty Sponsor:** Kelly Martin (Human Ecology)

### **Nutritional Needs Assessment of SUNY Oneonta Students Using the On-Campus Food Pantry**



One of the main goals of the on-campus food pantry at SUNY Oneonta is to provide resources to help students in need and to lessen the burden of food insecurity. Food insecurity is complicated, and it is beneficial for college-based food pantries to provide not only food, but education on topics such as food preparation, food safety, budgeting, and contacts to other food support resources in the community. The purpose of this needs assessment study was to gather data to evaluate the current nutrition education needs of student users of the SUNY Oneonta on-campus food pantry. A flyer with a QR code link to the electronic survey was posted in the pantry, and the survey was also sent by email to a sample of students via Qualtrics. Twenty-two student users of the on-campus food pantry responded to the survey. The survey determined that on average students felt their nutritional knowledge was a level 3, and their cooking skills a 3.3, on a 5-point scale where a higher number indicated greater nutrition knowledge. 50% (n=11) of student respondents said they felt that the food pantry sometimes offers healthy food options. The majority of the respondents (90.9%, n=20) accessed the pantry 1-2 times per week. Looking forward, the survey asked respondents about what educational methods and topics appealed to them within the food pantry. It was revealed that the preferred educational methods were handouts/flyers (63.6%, n=14), in-person/hands on classes (50%, n=11), and posters or online seminars (31.8%, n=7). Preferred topics for nutrition education included meal kits with recipes (59.1%, n=13), food budgeting tips (54.5%, n=12), how to build a healthy meal using food pantry items (50%, n=11), and cooking classes using food pantry items (40.9%, n=9). Another 31.8% (n=7) said it would be beneficial to have nutrition education on how to read a nutrition label. These findings provide information on who the current student users of the on-campus food pantry are, and what types of nutrition education is needed in this population. Next steps of this project will include the design and implementation of educational interventions to address these identified needs in Fall 2024. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Ryan Heaphy

**Faculty Sponsor:** Scott Maguffin (Earth & Atmospheric Sciences)

**Empowering Community Health: Lead Paint Testing Outreach in Oneonta** ☀️ 🌀

In Oneonta, the presence of lead paint in older homes remains a persistent concern, given constructions dating back to the 1900s, predating the prohibition of lead paint only 46 years ago. This study addresses this health hazard through the distribution of lead tests to residents in Oneonta and its surrounding areas. Collaborating with Bugbee, a local daycare facility, allowed for streamlined distribution and accessibility of tests, particularly to vulnerable families with children. Each kit provided includes a QR code-linked survey, facilitating comparison of test swab colors against a gradient from yellow to dark red, aiding in lead presence identification. The primary objective is to heighten awareness among residents regarding potential toxic paint in their homes. Furthermore, if lead is detected, the survey offers guidance on protective measures against its harmful effects. This report presents data from the outreach program, illustrating a community initiative dedicated to equipping residents with crucial knowledge for safeguarding their well-being amidst the legacy of lead paint. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Daniela Hernandez

**Faculty Sponsor:** Sallie Han (Anthropology)

**Historias de las Salinas: The Cultural Significance of Salt-Making in Tlaxcuapan, Puebla, Mexico** ★ ☀️ 🌀

This poster details preliminary ethnographic fieldwork conducted during summer 2023 in Tlaxcuapan, a rural municipality located in the Mixteca region of Puebla, Mexico. Tlaxcuapan has a longstanding history of salt-making practice that has been regarded as a deeply ingrained part of the community with profound roots in ancestral tradition and indigenous knowledge. Salt making today remains integral in shaping, sustaining, and contributing to local economic processes, as well as forming both cultural and social identity. Yet, changing social and environmental factors have produced new anxieties regarding the future of salt-making in Tlaxcuapan. In particular, the discovery of lithium in the soil has created fear about the potential of outside commercial enterprises and the Mexican government to exploit the community for lithium extraction and the subsequent environmental degradation that could result. These fears in turn have given rise to social tensions in the community. Additionally, the change in market demands for locally produced salt, and generational differences in attitudes among salineros (salt-workers) in the community have also produced uncertainties about the future and stability of the salt-making practice. This research examines how these discourses have been centered around the dilemmas of modernity and tradition, as we live in an era of rapid technological changes which often conflicts with the preservation and continuation of traditional practices. This poster draws on recent ethnographic fieldwork documenting the experiences of salineros whose perspectives are essential to understand these emerging social tensions. Furthermore, this poster considers these emerging issues and Tlaxcuapan as situated within complex global and national processes. *Presenting: Wednesday 4/24 1-5pm*

**Students:** Meghan Hoolahan, Alexandra Krebs, Eva Woodworth

**Faculty Sponsor:** Daniel Patrone (Philosophy)

**Does Professional Self-Regulation Work? Assessing Safety, Openness, and Transparency in the Review, Oversight, and Conduct of Research Involving Recombinant and Synthetic Nucleic Acid Molecules** ☀️ 🌀

Research involving recombinant or synthetic nucleic acid molecules has important social benefits. But such research also carries risks for researchers, workers, the public health, and the environment. For the past fifty years in the United States, the biosafety regulatory strategy has relied heavily on local review bodies, now called Institutional Biosafety Committees (IBCs), to ensure researchers are exercising adequate biosafety and containment practices. Since its inception, this system was

designed to rely on requirements for openness, transparency, and public communication to promote safe research practices and to maintain a unique system of professional self-regulation largely free from statutory oversight. To examine the extent to which this unique biosafety system is both safe and transparent, we filed 268 requests under the Federal Freedom of Information Act, The NIH Guidelines, and various state open records laws to obtain internal documents from the National Institutes of Health and a random sample of 233 federally registered IBC. These documents were examined to (a) identify and classify reported cases of serious violations of the professional regulations, and (b) determine IBC compliance with the transparency, openness, and public communication requirements that serve to replace the need for statutory oversight. We identified 593 reported serious violations of the NIH guidelines occurring in an 18-month period, almost three quarters (73.3%) of which involved personnel exposures or loss of containment. More than 2/3rds (70%) of IBCs failed to provide documents required under the regulations, and no IBC met all minimal requirements to document the review and oversight of new protocols. We observed numerous additional failures of and obstacles to transparency, openness, and public communication in the review and oversight of these potentially dangerous research activities. There are significant problems in the current biosafety system for research involving recombinant or synthetic nucleic acid molecules. Either the profession must reconsider its commitment to transparency, openness, and public communication, or society must impose statutory regulations to protect workers, the public health, and the environment. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Alexander Javitz (G)

**Faculty Sponsor** Daniel Stich (Biology)

**Comparing Past and Present Data to Construct a Management Plan for Loon Lake, Wayland, NY ☀**

Loon Lake is a 166-acre kettle lake in the town of Wayland, Steuben County, NY. In 2018 water samples were conducted from June through September through the Citizens Statewide Lake Assessment Program (CSLAP), a volunteer lake monitoring program run by the NYS Department of Environmental Conservation (NYSDEC) and the NYS Federation of Lake Associations, Inc. (NYSFOLA). Monitoring is currently being conducted to help understand the state of Loon Lake, so that a management plan can be created that supports stakeholder goals. To achieve these goals and obtain quality data on the lake, a one-year sampling plan is being conducted at the deepest point to understand how the limiting factors change throughout the year. This sampling will occur from October 2023 to October 2024, measuring temperature, oxygen, pH, total phosphorus, ammonia, total nitrogen, nitrate/nitrite, specific conductance, calcium, alkalinity, hardness, salinity, and chloride in the water. Additionally, we are gathering and compiling available historical and background information about the lake and its management, including human populations, conducting watershed analyses to quantify important characteristics of the landscape including geomorphology, geology, soil composition, and land use. At the conclusion of the sampling period data will be analyzed and compared with CSLAP data to create a management plan for Loon Lake. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Nicholas Jordan

**Faculty Sponsor:** Daniel Stich (Biology)

**Changes in Population Indices of Lake Trout in Otsego Lake 1992-2022 ☀**

Lake Trout *Salvelinus namaycush* population indices are directly affected by predator-prey relationships in lacustrine systems. Otsego Lake has experienced dynamic shifts in food web and trophic status in response to watershed management, introduction, and extirpation of Alewife *Alosa pseudoharengus*, introduction of dreissenid mussels, and corresponding changes in the plankton community. We characterized changes in proportional size distribution ( $PSD_0$ ) and length distributions, relative weight ( $Wr$ ), catch per unit effort (CPUE), and instantaneous mortality ( $Z$ ) where data were available from standardized biennial gillnet surveys conducted by NYSDEC 1992-

2022. Lake Trout sizes have shifted toward greater proportional representation of large fish, with increases in PSD<sub>Q</sub> concurrent with reduced CPUE recently. Relative weight decreased following Alewife eradication but has increased recently. Mortality decreased from 1992 through 2008, but estimates are unavailable for years after 2010. These results indicate Lake Trout in Otsego Lake have experienced population changes concurrent with changes in the lake food web and trophic status during the last 20 years, with reduced condition and abundance likely the result of the eradication of Alewife as the primary forage base. The next step for this work will be identifying changes and updating our understanding of the prey community. *Presenting: Thursday 4/25 9-10am*

**Students:** Kayleigh Kerwin, Carly Manley, Ryan O'Loughlin

**Faculty Sponsor:** Robert Lockamyeir (Psychology)

### **Individual Differences in Eyewitnesses May Affect Their Confidence and Susceptibility to Feedback.** ☺☺

The prevailing view in eyewitness memory identification is that there is a positive relationship between the confidence and the accuracy of eyewitnesses. We aimed to investigate whether self-esteem and memory distrust have an impact on this relationship and how individuals change their confidence levels based on receiving feedback that is either positive, negative or absent. The topic of individual differences affecting eyewitness confidence levels is an area of research that can and should be expanded upon as it can have real life implications. Previous research has investigated how individual differences may affect accuracy in eyewitness identification, but our goal is to further investigate the confidence-accuracy (CA) relationship and assess how it is impacted by feedback. Previous research has found that confirming feedback after making an identification decision inflates eyewitness confidence (e.g., Wells & Bradfield, 1998). In this study, we looked at self-esteem and memory distrust as individual differences and how they may be influenced by feedback. Saunders (2012) researched self-esteem as an individual difference in terms of the misinformation effect and interrogative suggestibility, but the findings only highlighted the accuracy of participants and urged further research to determine how confidence could play a role. Memory distrust refers to one's ability to trust their own recollection. Zhang et al. (2021) researched memory distrust as an individual difference and found if someone has high memory distrust, they may be more susceptible to external influences and suggestions. In this study, we are interested in how feedback is received in terms of confidence and how that may differ due to individual differences such as self-esteem and memory distrust. In this experiment, we predicted self-esteem and memory distrust would be negatively correlated, such that lower self-esteem will be associated with higher memory distrust. We predicted average confidence will be lower in those with low self-esteem and high memory distrust and higher in those with high self-esteem and low memory distrust. We also predicted that average confidence will be highest in groups that receive positive feedback and will be the lowest in those who receive negative feedback. In terms of the CA relationship, we predicted those with high memory distrust and low self-esteem will be more susceptible to feedback, thus disrupting the CA relationship. The purpose of this study is to investigate how individual differences have an effect on the confidence accuracy relationship of an eyewitness. Overall, the findings show two potential main effects that support our hypotheses. First, those with low self-esteem and high memory distrust were less confident ( $M = 74.56$ ,  $M = 72.4$ ) than those with high self-esteem and low memory distrust ( $M = 78.35$ ,  $M = 80.2$ ). Second, those who received positive feedback were the most confident ( $M = 78.5$ ) and those who received negative feedback were the least confident ( $M = 54.65$ ). We also found an interaction between memory distrust and accuracy. Those with high trust in their memory were more likely to be accurate ( $M = 83.7$ ) compared to those with low trust in their memory ( $M = 76.5$ ). Additionally, we found that providing negative feedback weakened the confidence accuracy relationship, in which individuals tend to be as confident as they are accurate. We found that providing negative feedback weakened the confidence accuracy relationship and we successfully replicated the post identification feedback effect (Wells & Bradfield, 1998). Participants who were more trusting of their memory were more accurate and those who were less trusting of their memory

made more errors. Participants who were more trusting of their memory and had higher self-esteem were willing to report higher confidence when making a correct identification than participants who were less trusting and had lower self-esteem. Some limitations we may have encountered include a restriction of range for self-esteem. Additionally, participants may not have honestly shared their honest self-esteem levels. More research is necessary to assess how individual differences can affect eyewitness confidence and accuracy, and to see how feedback differentiates self-esteem and memory distrust levels. Zhang, Y., Otgaar, H., & Wang, J. (2022). Memory distrust is related to memory errors, self-esteem, and personality. *Applied Cognitive Psychology*, 36(2), 283–292. <https://doi.org/10.1002/acp.3917> Saunders, J. (2012). The role of self-esteem in the misinformation effect. *Memory*, 20(2), 90–99. <https://doi.org/10.1080/09658211.2011.640690> Wells, G., & Bradfield, A. (1998). *Presenting: Thursday 4/25 9am-1pm*

**Student:** Amanda Kiser

**Faculty Sponsors:** Kpoti Kitissou, Philip Sirianni (Economics)

### **The Correlation Between Life Expectancy and Socioeconomic Factors** ☯

In my research I will be discussing the correlation between life expectancy and socioeconomic factors. I am replicating the work done by Charles C. Lin, Eugene Rogot, Norman J. Johnson, Paul D. Sorlie, and Elizabeth Arias in their paper titled *A Further Study of Life Expectancy by Socioeconomic Factors in the National Longitudinal Mortality Study*. In this paper, the authors study the effects of educational attainment, income, employment, and marital status on life expectancy in different sexes, races, and ages in the United States. They use data from the National Longitudinal Mortality Study, which consists of Current Population Surveys that come from the National Death Index. The years 1979 through 1989 are used, with 569,384 people aged 25 and over being studied. In my research, I will be studying how life expectancy in the United States by region is affected by age, sex, race, income, education level, employment status, marital status, and health status. My data will come from the IPUMS Health Survey from the year 2015, where I am able to find data for each of the variables I am interested in. This study is important for several reasons. Research shows that people with lower socioeconomic status are more prone to disease, disability, and death. By researching how socioeconomic status affects life expectancy, it may help further research in the future to address the differences in health among varying populations. Socioeconomic factors can be influenced by public and government policies. By understanding the relationship between socioeconomic factors and life expectancy, policymakers can create better intervention practices to improve health and reduce mortality rates in the disadvantaged populations. Poor health and early death rates can have significant economic consequences such as increased healthcare costs and lower quality of life. When studying the effects of socioeconomic factors on life expectancy, we can understand the economic concerns of health differences in different populations and come up with strategies to improve life expectancy and quality of life. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Eleni Konstantelos

**Faculty Sponsor:** Aynul Bari (Environmental & Sustainable Engineering, University of Albany)

### **Evaluation of Satellite Based Models in Estimating Surface PM2.5 in Bangladesh** ☀

Air quality has always been an important topic to discuss meteorologically, but there has been an emerging focus on the health impacts as time has shown the effects of long-term exposure to poor air quality. The National Science Foundation International Research Experience for Students program collaborated with the State University of New York at Albany, Stanford University, the Bangladesh University of Engineering and Technology, and the University of Dhaka. The goal of this partnership is to analyze the usefulness of low-cost sensors and remote sensing technologies to further the understanding of the air quality issues in Bangladesh. Factors that cause poor air quality in the country include densely populated cities, brick kiln pollution, and waste burning that affects both indoors and outdoors. The use of these low-cost sensors and satellite data is crucial to the advancement of developing countries like Bangladesh by providing the public with accurate and



reliable data. In this study, surface mass concentration of PM<sub>2.5</sub> was measured, focusing on the inter-city variation of seven major cities in Bangladesh. These seven cities are: Dhaka, Rajshahi, Khulna, Sylhet, Barishal, Rangpur, and Chattogram. For each city, the yearly variation of concentration from 2000 to 2022 as well as the seasonal variations were analyzed using the Modern Era Retrospective Analysis for Research and Applicants (MERRA-2). Not only was the overall PM<sub>2.5</sub> examined, but the individual components that make up the mass of surface PM<sub>2.5</sub> were also measured to get a better understanding of which particle affects air quality the most and during which seasons. These particles include sea salt, dust, organic carbon, black carbon, and sulfate. It was found that black carbon, organic carbon, and sulfate concentrations were highest during the winters for each city and Rajshahi had the highest concentrations throughout most of the year. Dust in all cities was the highest during the pre-monsoon season and has the highest concentrations in Dhaka mostly caused by the dense population and unfinished construction. Looking at the annual cycles of PM<sub>2.5</sub>, organic carbon, and black carbon from 2000-2022 in all cities, there has been an overall gradual increase in all three pollutants with notable spikes in 2009, 2012, and 2018. The seasonal variations reveal that the overall PM<sub>2.5</sub> has the greatest concentrations during the winter months although the summer months have seen the greatest variability. *Presenting: Wednesday 4/24 2-4pm, Thursday 4/25 11:30am-1pm*

**Student:** Mason Lampron

**Faculty Sponsor:** Trudy Thomas-Smith (Chemistry & Biochemistry)

**The Effect of Iron On UV-Vis and Fluorimetry Spectra for Color Dissolved Organic Matter (CDOM) in Natural Waters ☀**

Fulvic acid is formed when organic matter decays and is found in most bodies of water. This compound is a major component of color dissolved organic matter (CDOM). CDOM is ubiquitous in natural waters and can potentially change the chemistry of water bodies such as rivers and lakes. High concentration of CDOM in water can block sunlight from reaching down into the water. This can lead to the death of plants, causing more CDOM. These compounds are also responsible for giving bodies of water a brown color. CDOM is analyzed by utilizing UV vis spectroscopy and fluorimetry. These techniques provide information by analyzing what wavelengths of light the CDOM absorbs and emits. Specific wavelength ranges indicate different structures of the CDOM. Research in the past has shown that the presence of iron or aluminum can change the characteristic absorbance or emission of light for CDOM. Suwannee River fulvic acid (SRFA) was analyzed using UV-vis spectroscopy and will be spiked with iron and analyzed. In addition to this, Water samples from Lake George, Otsego Lake, and the Susquehanna River were collected during the summer and fall months of 2023. These samples were filtered before analysis and stored at 4°C. To measure the amount of iron present in these water bodies, Inductively Coupled Plasma Optical Emission Spectroscopy (ICPOES) was used. ICP-OES analyzes the water by breaking up the molecules into its individual atoms and ions. Then, the ions absorb light to gain energy. When they emit this light to release energy, it's in the form of photons that possess a characteristic wavelength that identifies the element it came from. Determining the amount of iron present in these water samples will give insight into what will be seen with other spectroscopy techniques. *Presenting: Thursday 4/25 9am-12pm*

**Students:** Tyler Lazarus, Miranda Murray, Dashawn Trotman

**Faculty Sponsor:** Katherine Griffes

**Teaching Emotion Management Through Sport: A Community Programming Approach ☯**

PE and PA professionals are essential in youth development as they put forth programs to help kids improve themselves whether it's physical or mental. The question that is brought up when dealing with the youth is what we can incorporate in our programs to make a contribution or influence in kids' lives. Through PE and PA kids are exposed to new learning tactics that can help teach them personal and social responsibility. A key in TPSR is the teaching of values; values are "central to

human relationships, decision-making, and the development of life skills”. Kids need to reflect, adopt, and modify these values in their lives as TPSR has long-term impact on future responsibilities. By conducting an in-depth review of the literature on using the Teaching Personal and Social Responsibility Model, we designed and implemented a multi session program focusing on emotion management and coping skills as a pilot test for future, more long-term projects. We will implement this program in a community-based sports setting while following the model and we will examine its effectiveness after the initial pilot test. Ultimately, the research and program implementation should set the stage for a long-lasting TSPR program at the local Oneonta boys and girls club. Data was collected from several sources to get a better understanding of the needs around emotion management. This included staff interviews to see their perspective on what behavioral patterns they see while at the club, parent interviews where we examined different behavioral trends among each kid and interviews with the kids who would be in the workshop with sample questions so we could better analyze and understand certain behavioral patterns. Each workshop also included exit tickets to examine what the kids were taking away and enjoying or not enjoying after each workshop. Surveys will be included to allow for kids input on workshop effectiveness. Sample workshop structure and content will be presented, along with results from these surveys and interviews. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Peyton Legg

**Faculty Sponsor:** Tracy Betsinger (Anthropology)

**Tibia Honest: Should Human Remains be Displayed in Museums? Assessing the Disposition of Legacy Human Skeletal Remains**

Museums are vessels for artifacts and material culture while being institutions driven to support public knowledge. Yet, ethical concerns and issues of consent arise when human skeletal remains are housed in museums and/or placed on display. This project addresses these issues through the assessment of two legacy human skeletal remains. The project developed from a request by a local museum to evaluate two sets of human skeletal remains that had been donated to the museum in the 1950s. One set of remains had been modified for display as a medical specimen prior to its donation. As a result, the remains needed to be disarticulated prior to evaluation of sex, age, and other characteristics that assist in identifying potential descendent communities. The remains were carefully cataloged, housed, and handled with the goal of providing a recommendation to the museum regarding their final disposition. Historical information was acquired about those who “owned” the remains prior to donation as well as the regions from which they originated to potentially aid in identifying descendent communities to which the remains could be repatriated. As part of this study, research was conducted on the issue of human remains being in museums today and the ethicality of displaying such remains for public viewing. This is especially when consent was unlikely to have been given in many cases, which creates issues and debates regarding ownership, repatriation, and scientific inquiry. Understanding more about these two legacy skeletal remains helps in trying to uncover the truth about who these individuals were, while also diving deeper into the controversy of human remains in museums. The goal of the research is to better understand the debate and issues surrounding these topics and to attempt to repatriate the two legacy skeletal remains. *Presenting: Thursday 4/25 9 am-1 pm*

**Student:** Peyton Legg

**Faculty Sponsor:** Alanna Rudzik (Anthropology)

**Is There a Formula for Mothering? Focus Group Discussions with College Aged Women on Mothering and Care of Infants.**

Mothering is a universal phenomenon across the globe that ripples into our past, present, and future. Motherhood is important in being a transformative experience for a woman, which required the development of her maternal identity while being encircled with culturally constructed ideals of

motherhood. The goal of the project is to investigate college-aged young adults' perceptions of mothering and infant care, specifically positive and negative perceptions of women's characteristics and practices. In particular, it is designed to investigate cross-cultural differences in these perceptions between young adults attending university in upstate New York versus in a small city in Veracruz state, Mexico. The study itself involves qualitative focus groups conducted with 5-7 college-aged women focused on perceptions of mothering behaviors, from breastfeeding to bed sharing to night-time care, as well as the actions and characteristics of mothers that are viewed positively and negatively. Participants from the State University of New York at Oneonta and the University of Veracruz, Mexico are recruited for the study using flyers, tabling in academic buildings and visits to classes. Focus group studies provide rich information on opinions, perspectives, and perceptions to help gather knowledge on a specific topic of study such as mothering. The poster presented shows preliminary findings and analysis taken from the focus groups that have been completed at SUNY Oneonta so far. The research and study will contribute valuable information about perceptions, opinions, and understanding about mothering among college-aged women across two culturally distinct populations. *Presenting: Wednesday 4/24 2-5pm*

**Student:** August LePique

**Faculty Sponsors:** Philip Sirianni (Economics), Dona Siregar (Business)

**The Effect of Florida Hurricanes on the Stock Prices of Insurance Companies ☀**

Between 1980 to present, hurricanes have cost an estimated \$2.6 trillion – more than any other type of natural disaster. Insurance and reinsurance companies bear most of the cost of these events. Climate change is also increasing the intensity of hurricanes, which makes this topic increasingly important to study. This paper analyzes the effect of hurricanes that made landfall in Florida on the stock prices of Property and Liability insurance companies between 1992 and 2022. In recent years, many major insurers have been pulling out of Florida, citing the increasing risk from hurricanes. An event study methodology will be used to calculate expected, abnormal, average abnormal, and cumulative average abnormal returns for each hurricane. The average abnormal returns will be tested for their significance. These results will also be compared with the S&P 500 returns, as well as the NASDAQ Insurance Index returns. Abnormal returns will be analyzed over time as well, to see how they have changed over the past 30-year period. *Presenting: Wednesday 4/24 1-3pm*

**Student:** Mikayla Lettich

**Faculty Sponsor:** Gregory Fulkerson (Sociology)

**Social Media and Its Impact on Mental Health**

Social media has an effect on our mood and overall mental health. A questionnaire has been developed to measure the extent (average daily screen time) and type of social media being used by students. It also measures general and specific forms of mental health problems as well as how they relate to the Covid-19 pandemic which was a time where social media became even more prevalent as a form of social interaction. We are looking to see if there is a correlation between the increased use of social media post-pandemic and poor mental health. The research questions involve examining the link between social media usage and negative mental health outcomes. There are additional questions about the students, such as demographic information. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Aidan Levitz

**Faculty Sponsor:** Chien-Wei (Wilson) Lin (Business)

**Getting Rich vs. Staying Poor: Perceived Economic Mobility on Brand Role Preference ★🌀**

Is the "American Dream" alive and well? News on this topic can impact consumers greatly. This project investigates the impact of consumer's perceived economic mobility on their brand role preference. We conducted an online experiment (N = 200) to show that high (low) perceived economic mobility individuals prefer a product that portrays as a partner (servant). Preliminary results also suggest the brand role signaling effects. Marketers can use this information to find an audience

(rich or poor) that matches their brand roles. Brand roles can be a valuable asset in building relationships during different economic times (which can influence consumers' perceived economic mobility). *Presenting: Wednesday 4/24 1-5pm*

**Student:** Sebastian Lujan

**Faculty Sponsor:** Kimberly Cossey (Chemistry & Biochemistry)

#### **Extraction of Caffeine from Culinary and Ceremonial Grade Matcha**

The purpose of this study is to explore different procedures for extracting caffeine from Matcha. Matcha has risen in popularity in recent years, so we focused on how different matcha grades might be a viable option in teaching extraction techniques. Ceremonial matcha, harvested from late April to May, has the highest quality, with a vibrant green powder from hand-picked young leaves. Culinary-grade matcha is often harvested from June to late July and has a bolder flavor due to the older leaves that are exposed to more sunlight, resulting in a less vibrant green powder. We are interested in how these different matcha grades vary in results and how it can be another option for liquid-liquid extraction. Historically, Black Tea has been commonly used in Organic Chemistry Labs to teach students the importance of solvent-solvent interactions and intermolecular forces (IMFs). Liquid-liquid extraction is a common lab technique that involves the separation of organic molecules based on their solubilities in two immiscible liquids, one aqueous and one organic solvent. Although Black tea is the most popular option, it causes a significant amount of emulsions when shaking the separatory funnel, which makes it difficult to separate both layers. Emulsions can lead to the less organic layer being extracted, which can result in lower caffeine yields than desired. Previous research developed procedures optimized for the extraction of Black tea and Crystal Light. These were the starting points for the matcha extraction procedures. Culinary and Ceremonial Matcha were purchased and were extracted with dichloromethane and washed with Calcium Chloride. The organic layer was then evaporated to isolate caffeine and samples were weighed. After using previous procedures, variables were modified to examine if there was a potential impact on the caffeine extraction yield. H-NMR was used to confirm the identity and to estimate its impurity based on its peak intensity. Although both matcha grades have different uses, our study focuses on which matcha grade will provide a higher yield and more pure samples of caffeine. The crystal light procedure on ceremonial matcha provided the highest amount of caffeine yielded at 39 mg, while the tea procedure provided a smaller impurity peak ratio with lower background noise in H-NMR analysis. This study can provide a useful framework for teaching liquid-liquid extractions using matcha, as it brings a higher caffeine yield. Additionally, it also exposes students to being able to interpret H-NMR.

*Presenting: Thursday 4/25 9-11am*

**Student:** Adrian Maleszewski

**Faculty Sponsor:** Leslie Hasbargen (Earth and Atmospheric Sciences)

#### **A Study in the Viability of Pole Mounted Camera Structure from Motion Surveys as Geomorphological Monitoring Tools ☀**

Erosion along stream banks remains a prevalent issue in the Catskills. In recent years, the NYCDEP has played a major role in monitoring and mitigating channel morphological changes at sites acting as major sources of turbidity. This study serves as a proof of concept for the viability of pole mounted structure from motion (SfM) as a tool for monitoring stream channel morphology. SfM photogrammetry allows for a 3D reconstruction of an environment using 2D images. Continuous overlap between photos in a set allows for SfM software to accurately project the locations of known tie points between photos. The DEP already performs recurring Uncrewed Aerial Systems (UAS), or drone based, surveys of Bank Erosion Monitoring Sites (BEMS) and Stream Sediment Turbidity Reduction Projects (STRPs), capturing high-definition topographic data at each of these project sites in the Catskill Mountains. In our piloting of the methodology, we surveyed 2 sites, the Warner Creek site, north of Phoenicia, NY, which underwent a restoration project in 2021, and the East Kill landslide site outside of Jewett, NY. Surveys were conducted using consumer grade action

cameras mounted at ~5m on poles. Constructed point clouds were compared to publicly available Lidar and DEM data, as well as a preexisting drone-based survey of the Warner Creek site, courtesy of SLR Consulting. Our results support the validity of pole mounted SfM surveys as a monitoring tool. Point clouds we generated showed near perfect alignment to existing point clouds generated through drone based SfM surveys. Our resulting point density of 7mm in between points exceeded data sets used in comparison. This resolution allows for change detection due to surface runoff, as well as larger mass movements. A repeat survey at the East Kill site documented a significant collapse of the landslide face along the creek, resulting in the formation of a ~2-meter-tall deposit within the channel. Overall, our work demonstrated the viability of pole mounted SfM surveying as a tool for actively monitoring changes in channel morphology. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Jenna McLaughlin

**Faculty Sponsor:** Jody Aultman (Human Ecology)

**Basics of Lingerie ★**

I worked on this study to further my knowledge on lingerie and the process that goes into creating such fine garments. I felt that throughout my other classes I had not focused on learning some of the qualities that go into making lingerie which is what made me want to do this particular study. My inspiration was companies like Fenty by Rihanna and Victoria's Secret because they create these types of garments regularly that allow woman to feel confident and comfortable in what they are wearing. Although my fabrics are much more fine than fabrics you would find in these brands, I felt the construction type was similar. I enjoyed getting to learn techniques like boning and bra wiring. Working with materials like lace and silk has allowed me to expand my knowledge on how to work with certain fabrics. I felt that all the techniques I had learned in school came into one in this project and I enjoyed getting to test myself by having to learn. *Presenting: Wednesday April 24 1-3pm*

**Student:** Rowan Mentley-Peters

**Faculty Sponsors:** Daniel Stich, Alex Sotola (Biology)

**Genetic Variation of Semelparous and Iteroparous East Coast American Shad Populations ☀**

The American shad (*Alosa sapidissima*) is an anadromous fish species native to the East Coast of North America from Southern Canada to Florida. Shad live primarily in salt water as adults and return to their natal freshwater streams to spawn. Northern and southern populations of American shad possess temporal and behavioral differences with respect to reproductive strategies; iteroparity, multiple reproduction events, decrease as latitude decreases. The presence of both semelparous and iteroparous American shad populations have been reported in the Delaware River, approximately in the center of the species range. Unlike other rivers where shad populations reproduce, the Delaware River is unique in that it contains no mainstream dams. There are uncertainties surrounding the genetic basis of these divergent life histories. We aim to assess the genetic variation between shad populations with these differing life history strategies to determine if there is a genetic association pointing to genes directly involved in regulating their life-history. Fin clip samples were sourced from shad populations in the Delaware River and Florida populations in 2020. A genotyping-by-sequencing approach will be undertaken to produce a reduced-representation multiplex genomic library. Genome-wide sequencing will be done to determine the relationship between their genetic variation and life histories. We predict that northern and southern populations will differ genetically, belonging to distinct genetic populations. Additionally, we predict there will be an association between their genetic variation and their parity, pointing to genes involved with these divergent life histories. While no concrete data is present at this stage of research, pending funding, future data analysis will reveal a pronounced understanding of contributing geographic and genetic factors surrounding their life histories. Genetic diversity and structure findings can be used in conservation efforts to designate populations or areas that may require additional or specific management practices. With increasing anthropogenic effects on shad critical habitats and ocean temperatures, this information will be beneficial for supplementary studies and future research. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Kari Minissale (G)

**Faculty Sponsor:** Daniel Stich (Biology)

**A Study of American Eel Within Fish Communities of the Upper Susquehanna Watershed ☀**

American eel (*Anguilla rostrata*) is a species of fish which was previously common in the Upper Susquehanna River watershed. They are an important predator within fish communities and serve as the host fish of a freshwater pearly mussel in the watershed, Eastern elliptio (*Ellitio complanata*). American eel were functionally extirpated from New York waters of the Susquehanna River by 1990, primarily caused by the presence of dams along the mainstem of the Susquehanna River, but have

been reintroduced in recent years. The goal of this study is to improve the understanding of American eel distribution within New York to inform monitoring and conservation so they may be managed effectively. SUNY Oneonta, the Susquehanna River Basin Commission (SRBC), and other organizations have collaborated to assess the presence of American eels and determine their distribution within the upper Susquehanna River and its tributaries. Standardized sampling methods were used throughout the upper watershed so sites could be compared, and methods of observing presence-absence would be consistent throughout the watershed. This was accomplished using three-pass depletion electrofishing surveys for the physical collection of fish and eDNA sample collection to detect American eel DNA within the water column at each site. The electrofishing surveys were also used to characterize fish communities where American eel may be present. The first iteration of sampling was conducted in summer 2023, and another round of sampling will be conducted in summer 2024. SRBC surveyed approximately 25 sites within the watershed and SUNY Oneonta surveyed 19 sites. Of the 19 sites surveyed by SUNY Oneonta, one American eel was detected through backpack electrofishing. This result will be compared to eDNA results in the future to provide a holistic understanding of eel distribution in this watershed. *Presenting: Wednesday 4/24 1-5pm*

**Students:** Jessica Nimar, Katerina Sawickij (G)

**Faculty Sponsor:** Florian Reyda (Biology)

**Parasite Trafficking: The Introduction of an Exotic Parasitic Worm to the Florida Everglades via the Invasive Fish, Goldline Snakehead** ★ ☀

From May to August 2023, a study of intestinal parasites from freshwater fish was done in the Everglades of Florida. Seven hundred and fifteen fish from 31 different species were collected among various sites including Lake Okeechobee and other surrounding reservoirs, 13 of which were non-native to the east coast. One of these species was *Channa marulius*, also known as the goldline snakehead. It is native to Asia, and little is known about this species or its parasites. *Channa marulius* is highly invasive, which raises concerns regarding its impact on the species native to North America. When a non-native species is introduced to a native population, it can lead to extinction of native species, reducing biodiversity. Invasive species also compete with our native species for limited resources such as food, which can alter their habitat. Nine *channa marulius* fish were examined in our survey, and 2 species of parasites were found in those fish. One parasitic species found is native to North America. The focus of this study is to identify the other species found, a trematode belonging to family Derogenidae. We are currently attempting to identify this intestinal parasite to species in order to better understand its potential impact on the ecosystem in Florida. *Presenting: Wednesday 4/24 3-5pm*

**Students:** Kaelin O'Connor, Lucas Plaisted

**Faculty Sponsor:** Barbara Durkin (Business)

**Implementing the ILO- The Impact of Supply Chain Management and Economics** ☀ 🌀

Government procurement contracts are utilized by the United States and in other countries to implement social change. The United States government is the world's largest consumer of goods and services. The American government mandates affirmative action, with their emphasis on goals and timetables for federal contractors and subcontractors. Which have been instrumental in successfully encouraging equal employment opportunity programs on a large scale. This paper aims to highlight the global trend of corporate social responsibility and the Sustainable Development Goals (SDGs) promulgated by the United Nations. As companies become transnational, there will be increasing pressure on the human resource management function in those organizations to respond to the changing environment. Existing methods for encouraging companies to be accountable for their international labor standards specifically in the United States have been inadequate. After rejecting the concept of mandatory compliance, the paper then proposes a mechanism for the implementation of international labor standards modeled on the recommendations of the Kenan Consensus. The use of

incentives or government contractors, based on compliance with certified management standards are explored. Such as, Social Accountability 8000 (SA8000). Standards of work are monitored less frequently and working conditions are incredibly poor. As tier-1 suppliers are unable to satisfy the demand from buyers they're forced to push production down the tier network. Ultimately impacting buyers' ability to properly monitor quality of production and sourcing. Creating ineffective and inconsistent oversight of working conditions. To mitigate these issues in MNEs and hold parent companies accountable for their subsidiaries requires a thorough analysis of buyer's relationship with their suppliers. Additionally, fair labor standards in contracts abiding by SA8000 and the International Labor Organization (ILO) should be implemented. In return, if suppliers adhere to these requirements buyers can implement a preferred supplier program (PSP) relation with their existing suppliers. PSPs offer many economic benefits for both the suppliers themselves and the companies they provide to. To ensure that suppliers abide by fair labor standards, buyers can implement contractor performance assessment reports (CPARS). Essentially contractors could require performance assessments with regards to scheduled timeliness, quality control, and management/business relations. Afterwards, suppliers will receive a rating, best being exceptional, worst being unsatisfactory. This guarantees a steady long-term supply and demand relationship between both parties. Cultivating a strong relationship, creating high quality goods with increased efficiency, and reducing total cost. When suppliers act socially responsible this creates a better reputation for the buyers while simultaneously creating a mutually beneficial work environment for suppliers' employees. *Presenting: Wednesday 4/24 2-5pm*

**Students:** Jessica Ozner, Timothy Picozzi (G)

**Faculty Sponsor:** Florian Reyda (Biology)

#### **On the Identity of a Problematic Set of *Neoechinorhynchus* Specimens from Buffalo (Catostomidae) from Illinois**

Three species of *Neoechinorhynchus* (Acanthocephala) were described by Van Cleave from Buffalo fishes (Catostomidae: *Ictiobus*): *Neoechinorhynchus australis*, *Neoechinorhynchus distractus*, and *Neoechinorhynchus strigosus*. During surveys conducted in 2017 and 2019 we were unsuccessful in obtaining these species from their type hosts in their type localities in Mississippi and Tennessee. In 2023 however, we were successful in obtaining a currently unidentified species of *Neoechinorhynchus* from *Ictiobus bubalus* from Illinois. Our specimens most closely resemble *N. strigosus*. However, there are differences between the type series of *Neoechinorhynchus strigosus* and our specimens from 2023. Importantly, Van Cleave reported in 1949 that mature females of *Neoechinorhynchus strigosus* have a trunk length ranging from 9 to 14.1 mm, with males ranging from 3.5 to 5.5 mm. Our 2023 female specimens, conversely, range from 17.5 to a startling 27 mm, almost double that of the type series of *N. strigosus*. Males follow this trend, with our only sample measuring 9 mm. There are also discrepancies with the egg length and width, but this metric can be affected by different fixation approaches and is currently under analysis. Additionally, we are investigating the conspecificity of the two sets of specimens used by Van Cleave to describe *N. strigosus* given that one set came from *Ictiobus* sp. from Tennessee whereas the other set came from *Catostomus commersonii* from Wisconsin. We plan on continuing our morphological comparisons, with the eventual goal of determining if *N. strigosus* requires a redescription or if we have discovered a new species of *Neoechinorhynchus*. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Aaron Paul

**Faculty Sponsor:** Thomas Beal (History)

#### **Origins and Implications of Race Riots in New York City: A Digital Media Project ★**

This research project focuses on examining three significant race riots in New York City: the riots of 1863, 1900, and 1935. By traveling to historical archives, primary source documents will be collected to provide a nuanced understanding of the causes, events, and aftermath of each riot. These primary sources will include government and police reports, eyewitness accounts, and official



documents from the period. The gathered materials were then organized and stored on a website created specifically for this project. This website will serve as an educational resource, offering access to primary sources for students and educators alike. Incorporating these materials to enrich students' understanding of the complexities of race relations in New York City throughout different points in time. By analyzing primary sources, students will gain insights into the social, economic, and political factors contributing to racial and class tensions and conflicts, to help foster critical thinking and historical empathy. Ultimately, this project aims to illuminate lesser-known aspects of New York City's history and empower future generations to engage critically with the past.

*Presenting: Wednesday 4/24 1-5pm*

**Student:** Connor Peters

**Faculty Sponsors:** Rachel Kornhauser, Lindsay Wolfanger (Office of Sustainability)

### **The Importance of Third Spaces in College Towns** ☀️ 🌀

The term 'third space' refers to any place besides work or home where people can gather and socialize, something known as in-between spaces as well – this can include spaces such as parks, recreation centers, places of worship, restaurants, and much more. These spaces are vital for building a proper sense of community, allowing people to socialize equally and build connections that otherwise might not have been possible without a space to allow for it. When it comes to college towns, bars are a common third space, though there are alternatives both on and off campus to allow anyone to socialize where they feel the most comfortable. Unfortunately, factors such as escalating real estate prices and car-centric urban areas have reduced both the number of third spaces and people's ability to access them without some mode of transportation; the same can be said for the SUNY Oneonta community. This project will analyze the decrease in third spaces while discussing the benefits they bring to college towns, both socially and economically. In conjunction with this analysis will be the creation of a pamphlet of off-campus resources that will be accessible to students at SUNY Oneonta, with input from the Offices of Sustainability and Off Campus & Commuter Student Services. Through the dissemination of this educational pamphlet, third spaces surrounding campus and the positive benefits will be highlighted to our student body. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Emily Petramale

**Faculty Sponsor:** Toke Knudsen (Mathematics, Computer Science & Statistics)

### **Rithmomachia: A Medieval Math Board Game**

Rithmomachia is a board game from Medieval Europe based on and exploring the art of arithmetic. SUNY Oneonta student Emily Petramale undertook to explore the history of Rithmomachia in a research paper in the course History of Mathematics with Dr. Toke Knudsen. At its height, Rithmomachia was more popular than chess, but the game is no longer known today. Petramale's paper turned into a larger project in which Petramale and Knudsen explored the mathematical origins of the numbers involved in the board game and its connections to Medieval European society. The specific focus of the project is the use of the game Rithmomachia in modern day classrooms. Rithmomachia is an early example of gamification, that is, the use of games in teaching. It relies on arithmetic as taught in the works of the Roman philosopher Boethius (c. 480–524 AD). Boethius's approach is no longer used, which is one of the reasons the game lost popularity. Since Rithmomachia is not commercially available, in collaboration with the art department, physical copies of the board game were designed from scratch using plywood and a laser cutter. These board games were used to teach a module on Rithmomachia, with an emphasis on the role of gamification in math classrooms, in Dr. Knudsen's MATH 1030-01 and MATH 3010-01 classes in Spring 2024. Students have reported that they enjoy a change from the traditional lecture-style classes, and believe that with a few modifications, Rithmomachia could be a valuable asset to today's classroom teaching. *Presenting: Wednesday 4/24 2:30-5pm*

**Student:** Dalton Reagan

**Faculty Sponsor:** Alex Sotola (Biology)

**Exploring Hybridization Dynamics of *Lepomis Spp.* in Lake Otsego Through a Morphometric Approach** ☀

The *Lepomis* or sunfish genus is composed of commonly occurring North American freshwater fishes and are known for their propensity of hybridization. Hybridization is an important natural evolutionary process and can be used to inform conservation and management efforts, life-history information, and the evolutionary processes of species. In this study, we utilized geometric morphometric methods to determine whether hybridization is occurring between sunfishes in Otsego Lake basin and to understand morphological differences between species. Geometric morphology is a biological branch which analyzes the size, shape, and structure of animals, plants, and microorganisms' bodies. By placing landmarks at designated areas, it allows for quantified graphical representations of shape differences. In Otsego Lake, boat electrofishing and netting methods were utilized to sample 51 fish of 4 *Lepomis* members including native bluegill (*Lepomis macrochirus*), redbreast (*Lepomis auritus*), pumpkinseed (*Lepomis gibbosus*), and the invasive green sunfish (*Lepomis cyanellus*). Subsequently, standardized pictures were taken and utilized in a geometric morphometric framework. Through the 'geomorph' package accessible in R, each picture was digitalized by placing landmarks at 14 specific locations on the body of each individual fish. With all landmarks present, we used various analytical techniques, including Generalized Procrustes Analysis (GPA), Principal Component Analysis (PCA), shape change plots, and Procrustes ANOVA to explore any species differentiation and to determine if hybridization is occurring. We found morphologically intermediate individuals which potentially represent the presence of hybridization as a phenomenon in the Otsego Lake basin. PCA suggests hybridization due to intermediate body shapes between redbreast and pumpkinseed along with bluegill and green sunfish. There are significant differences, based on ANOVA, between species and the values indicate there to be variations in shape. The most similar species determined by post hoc were bluegill and pumpkinseed, while bluegill and redbreast were the least similar in body shape. Hybridization between native species and an invasive species poses a detrimental impact on the native populations. This information can be used to inform management and conservation for efforts to maintain the native *Lepomis* members within the Otsego Lake region. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Tanya Reyes

**Faculty Sponsor:** Maria Montoya (Foreign Languages & Literatures)

**Observing Institutional Praxis of Government Policies on SDG 13, 10, 16 “Climate Change, Reduced Inequalities and Peace, Justice and Strong Institutions” in Three Cities: Cali, Manizales, and Medellín, Colombia** ★ ☀ 🌀

The primary objective of this project was to provide a thorough description of the current situation regarding climate migrants, or violence displacements in Colombia, a phenomenon of climate migration that poses significant challenges globally. We know that people are displaced from their original territories in Colombia due to all kinds of factors related to violence and social inequalities, but for this project, we explored displacement due to environmental issues by surveying a complete scenario of people internally displaced and interviewing government and other organizations that work with “desplazados” displaced individuals or families. Existing policies at both national and local levels address displacement of people from rural to urban areas, due to multiple factors. This work focused on policy implementation and effectiveness. *Presenting: Wednesday 4/24 1-4pm*

**Student:** Jhon Rios

**Faculty Sponsor:** Barbara Durkin (Business)

**Smart Colombian Cities** ☀️ 🌀

This research consists of observing three Colombian cities (i.e., Cali, Manizales, and Medellin) to study their level of sustainability, especially concerning the Sustainable Development Goals (SDGs). The United Nations, in its discussion on SDG11 (Sustainable Cities and Communities), focuses on its mission to make cities and human settlements inclusive, safe, resilient, and sustainable. The goal of this research program is to describe how “smart” the three cities are. The cities in Colombia are considered larger-to-medium-size urban settlements. (Cali has a population of almost 2.5 million; Manizales a population of 450,000; Medellin a population of more than 2.5 million). There has been a rapid population and infrastructure since the end of the 20th century, deepening inequalities. Technology and scientific advances should benefit city planning. Efficient transportation, renewable energy, and communications are some factors that make a city smart. Other aspects affecting cities' sustainability include housing and the availability of green spaces. The objectives of this research program are to travel to each of these three cities and to map various aspects of their use of “smart” technology. These elements may include the availability of smart transportation systems (if any), diversification of energy sources, and the availability of communication systems (e.g., apps permitting residents and visitors to navigate the cities more effectively). This research will investigate how these elements apply to the sustainability of these three cities. During my travels to these locations, research will also investigate how local governments promote sustainability through their communications and policies. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Ella Saunders

**Faculty Sponsor:** Keith Brunstad (Earth & Atmospheric Sciences)

**Possible Ice-Bounded Lava Flows of The Bear Creek Mountain Eruptive Stage of the Goat Rocks Volcanic Complex Southern Washington Cascades**

The large (6.6 km<sup>3</sup>) Tieton andesite (Qta 1, 1.64 Ma) is 74 km long and has features consistent with ice and water interactions, proximal and distal to the vent area at Bear Creek Mountain. This study examines ice + water interaction features in the Tieton andesite flow unit Qta1 as an example. Observations are supported by unusual flow thickness, features consistent with ice/water-contact, and emplacement during the time of the Stuck DriO (1.6 Ma) support the proposal the lava flowed beside and within a valley glacier that filled the ancestral Tieton River. Field evidence of ice/water-interaction include vertical basal columnar joints (30-50 cm diameter, <30 m in length) originated normal to lower contact, and basal breccias (0-10 cm), and a gradual to sharp transition to the flow exterior of thick entablature. All columns show pinch-and swell features. The entablature groundmass is glassy. Flow interior is porphyritic, microcrystalline with glass. Flow margins are glassy sub horizontal columns 20-40 cm in diameter, 2-3 m in length, and an outer margin 0-5 m wide which banks against and under the overlying basaltic andesite (Qba). The subsequent basaltic andesite melted the confining ice and banked against and overflowed the Tieton andesite. Given the evidence for lava and ice/waterinteraction, the Tieton andesite shows a range of features with variable ice/water- interaction ratios along its length from Bear Creek Mountain to the confluence with the Naches River. Furthermore, the Tieton andesite Qta 1 has similar features to those described at Ruapehu volcano, New Zealand, and Mount Rainier volcano, USA. *Presenting: Thursday 4/25 9am-1pm*

**Students:** Katerina Sawickij (G), Madison Stanley

**Faculty Sponsor:** Florian Reyda (Biology)

**Finding Dory (*Neoechinorhynchus doryphorus*): Van Cleave and Bangham's Mystery Worm Rediscovered in the Florida Everglades** ★ ☀️

A survey of intestinal parasites of freshwater fish was conducted across the eastern portion of the Everglades, Florida from May to August 2023. Seven hundred and fifteen fish from 31 species were

investigated from 13 sites across three water bodies designated as storm water treatment areas or water conservation areas as well as Lake Okeechobee and surrounding water bodies. Fish were collected through various sampling means and their intestines were examined for parasites in conjunction with a collaborator in Florida. A new species of *Neoechinorhynchus* was documented from *Micropterus* sp. While the species strikingly resembles the well-known and widely reported centrarchid neoechinorhynchid *Neoechinorhynchus cylindratus* it differs in 2 key features. The proboscis of the new species is markedly wider than that of *N. cylindratus*. The most distinctive feature of the new species is, however, egg morphology. The eggs of the new species resemble those of many other species of *Neoechinorhynchus* in their possession of polar prolongations of the fertilization membrane but differ in that ends of the prolongations expand into a crown-like structure, a unique feature in the diverse genus. A second species of *Neoechinorhynchus* was also documented from *Micropterus* sp., the poorly known previously described *Neoechinorhynchus doryphorus* that was described by Van Cleave and Bangham in 1949 based on poor material and not observed since. We provide additional morphological data on *N. doryphorus*. The 3<sup>rd</sup> acanthocephalan encountered is a species of *Neoechinorhynchus* from the Mayan cichlid, *Mayaheros urophthalmus*, which constitutes a new locality record. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Samantha Schein

**Faculty Sponsor:** Wesley Bernard (Art)

#### **A New York Minute ★**

This is a photographic documentary project where my goal is to provide the audience with my unique view of New York City on the street. This is my hometown which I grew up in and will continue to live and have a career. This is a special place that I believe is best represented through the eyes of a lifelong resident of New York. The objective of this project is to capture the vibrancy of New York City through the lens of a native New Yorker, going beyond the traditional tourist perspective to unveil the authenticity of the city. This will be accomplished through a series of photographs taken on 35mm color film, extensively curated down from hundreds to reflect the diversity, dynamics and sometimes neglected street life in New York City. I chose 35mm color film because it evokes a classic photography style from the 1970s. It has a certain aesthetic that cannot be produced digitally. *Presenting: Thursday 4/25 11am-1pm*

**Student:** Christine Schmitt

**Faculty Sponsor:** Sarah Simpson (Art)

#### **Emotional Ties**

I'm proposing a presentation about my solo exhibition, titled Emotional Ties, which was on view Jan 30 - Mar 9, 2024, in the Project Space Gallery in Fine Arts. This exhibition was a collection of work created within the past year that was selected from the Gallery's semesterly Project Open Call. It was a collaborative exhibition and included supporting photographic works by Molly Seidl and featured a wide range of my crocheted art such as my 2D abstract wall works, 3D sculptures, wearables, and site-specific installations. I created all art with an emphasis on texture, color, and shape, before then combining all of it into an exhibition that was an immersive experience for viewers. My presentation would be a little extension of the show, as I would bring in a few of my pieces as part of the display. I would bring in two of my circular wall works, Molly, 2023 and April 4th, 2023. My red human sculpture, Frustration, 2023-2024 and a few of my masquerade masks. Having examples of my work physically there would help viewers better understand both what I create and the amount of work and time that it takes. I would also include photos to present on a board that document the process of working towards and putting up the show. There are in progress photos of pieces of work as well as before and afters for the space itself. These photos would help the viewers to see and learn more about the process of putting on a solo exhibition. I feel quite passionately about this solo exhibition and would love to have the opportunity to share my story with people. Not only was it the first fully

crocheted art student solo exhibition in SUNY Oneonta history, but it was a reflection of me and my art journey during my time at SUNY Oneonta. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Jessica Shaw

**Faculty Sponsor:** Antoine Blanc (Chemistry & Biochemistry)

### **Synthesis on Solid Phase of Novel Antiviral Cyclohexapeptides ★**

In Asia, tea or traditional Chinese medicine granules of *Melicope pteleifolia* are employed for the treatment of various diseases or symptoms, including cerebritis, eczema, dermatitis, rheumatoid arthritis, cold, and flu. In late 2020, scientists identified the active ingredients against Influenza A Virus, named Melicoptelins.<sup>1</sup> Three of the five Melicoptelins (C, D and E) contain a constrained and oxidized tryptophan called HPIC. So far, chemists have accomplished the synthesis of only a few HPIC-containing cyclopeptides, due to the tedious extraction process from natural resources and challenging synthesis.<sup>2</sup> Consequently, their medicinal properties are difficult to unravel, and scientists seek to develop a robust method to achieve their synthesis. Here we report the total solid phase synthesis of two unnatural Melicoptelins, each bearing an HPIC made from the oxidation of the non-proteinogenic d-Trp which were characterized by 1D and 2D-NMR (<sup>1</sup>H and <sup>13</sup>C) spectroscopy, UV-VIS spectrometry, low- and high-resolution LC-MS/DAD (in collaboration with SUNY Binghamton). Our innovative synthesis of Melicoptelins represents a good starting point in our chemical and biological exploration of HPIC-containing cyclopeptides. Moreover, this work lays down the foundation for an OBOC combinatorial HPIC peptide library to improve the Melicoptelins antiviral activity.<sup>1</sup> Lee, B.W.; Ha, T.K.Q.; Park, E.J.; Cho, H.M.; Ryu, B.; Doan, T.P.; Lee, H.J.; Oh, W.K. *J. Org. Chem.* 2021, 9, 1726-1735. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Derek Shea (G)

**Faculty Sponsor:** Daniel Stich (Biology)

### **Using Data to Understand a Lake Ecosystem: How We Assessed the State of Craine Lake Based on Historical and Recent Datasets ☀**

Craine Lake is a 26-acre lake located in Madison County, New York. The Craine Lake Association has been a consistent participant in the Citizen Statewide Lake Assessment Program (CSLAP) with a 35-year sampling span. My graduate thesis used this data as well as our own sample methods to examine a variety of limnological parameters and provide us a greater understanding of the lake ecosystem. These analyses were used to identify trends and develop a comprehensive management plan for Craine Lake. This plan will inform strategies to address the stakeholder concerns of harmful algal blooms, sedimentation, and nuisance levels of aquatic plants. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Garrett Smith

**Faculty Sponsor:** Junryo Watanabe (Biology)

### **Functional Clearance of Apoptotic Debris by Drosophila Plasmatocytes**

Macrophages are professional phagocytes of the mammalian immune system, and they adjust their surface receptors as well as their secreted products in response to the environmental cues and local stimuli. Classically activated macrophages, or M1 macrophages, perform anti-microbial functions and secrete proinflammatory cytokines. In contrast, alternatively activated macrophages, or M2 macrophages, are involved in mechanisms such as tissue regeneration and release anti-inflammatory cytokines. Macrophage-mediated clearance of apoptotic debris is crucial for regeneration of peripheral nervous system after injury. It is hypothesized that M2 macrophages are mediating this clearance much in the same way M2 macrophages aid in the repair and regeneration in muscle and liver organs. In *Drosophila* plasmatocytes are the professional phagocytes, and they are responsible for disposal of all apoptotic and pathogenic microorganisms. The mechanism by which plasmatocytes recognize and engulf apoptotic debris is poorly understood. Here we propose to

investigate similarities between signaling in mammalian M2 macrophages and plasmacytocytes exposed to apoptotic corpses using genomic and in vitro systems. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Kimberly Stevenson

**Faculty Sponsor:** Maria Montoya (Foreign Languages & Literatures)

**Observing Institutional Praxis of Government Policies on SDG 4 “Quality Education and Colombia bilingüe” in three cities: Cali, Manizales, and Medellín Colombia** ★ ☀️ 🌀

This project analyzed the implementation of ‘Colombia Bilingüe’ a government policy for bilingualism at all educational levels and explored programs in place that foster dual language programs leading to bilingualism. This research departed from studying the existing governmental policy in bilingual education, analyzing ideologies in linguistic diversity, which may give more importance to the learning of more global languages such as English, but less emphasis in maintaining indigenous languages in territories where there are still bilingual indigenous communities. The primary objective is to provide a thorough description of the current situation regarding bilingual education in Colombia, and its implementation at various educational institutions. I observed a variety of school settings and conducted guided interviews with school administrators and teachers in K-12 schools. *Presenting: Wednesday 4/24 1-5pm*

**Student:** Kayla VanPelt-Cathcart

**Faculty Sponsor:** Ronald Bishop (Chemistry & Biochemistry)

**Proposal to Design and Build Piperocyanines as Potential TRPV1 Antagonists** ★

Pain is sensed through a protein called Vanilloid receptor type 1 (TRPV1), found in sensory neurons. The goal of our research is to develop small molecules that can reduce pain by desensitizing TRPV1 to painful stimuli. TRPV1 triggers pain by allowing  $\text{Ca}^{2+}$  ions to surge into nerve cells, which send an electrical impulse to the brain. TRPV1 agonists like capsaicin or piperine (from hot and black peppers, respectively) open the protein pore that admits the  $\text{Ca}^{2+}$  ions. Many known antagonists have chemical structures similar enough to pepper compounds to bind to TRPV1, and different enough to close the  $\text{Ca}^{2+}$  ion pore. However, side effects discovered in clinical trials made them impractical to use. Piperine has been used with limited success to treat various ailments, including chronic pain. Obstacles appear to include limited bioavailability and relatively weak binding to therapeutic target proteins such as TRPV1. We are interested in exploring piperine derivatives that could address these two obstacles. Merocyanines are molecules that can shift their internal electronic structures in response to their external environments. Because of this ability, merocyanines can migrate from polar environments (such as water) to those that are less polar (such as protein interiors). This is could be an important feature for their use in medicine. We propose for the first time to synthesize merocyanine molecules based on piperine. This is expected to increase their bioavailability and effectiveness as TRPV1 antagonists. *Presenting: Wednesday 4/24 1-4pm*

**Students:** Matthew Vlietstra, Nicholas Walters

**Faculty Sponsor:** Scott Maguffin (Earth & Atmospheric Sciences)

**Redox Dynamics in Transition: Investigating the Effects of Bypassing Wetland Filtration on Susquehanna River Water Quality** ☀️

Bypassing the Cooperstown wastewater treatment plant's constructed wetland for direct discharge into the Susquehanna River raises significant concerns regarding downstream water quality. This study aims to investigate the impact of this transition by comparing contaminant levels (including nitrates, phosphates, and heavy metals) and redox processes (assessed primarily utilizing Fe(II) and HS concentrations as proxies for shifts in redox environments) at both discharge points. Our approach involves historical data analysis alongside an initial survey of constructed wetland soil composition. Through comprehensive soil sampling and water quality testing, we seek to quantify potential

increases in downstream contamination resulting from the bypassed wetland filtration. In addition to developing a monitoring well network, we plan to employ multiple investigatory methods, including analyzing soil, surface and pore water, and biomass, for nutrient and metalloid concentrations. This investigation will assess the differences between the original discharge point and the new one. We hypothesize that the shift in discharge points, coupled with a decreased influx of water into the wetland, will induce significant soil redox changes towards more aerobic processes, mobilizing certain elements such as nitrate and cadmium while sequestering others such as arsenic. *Presenting: Wednesday 4/24 1-4pm*

**Student:** Hannah Whitcomb (G)

**Faculty Sponsor:** Florian Reyda (Biology)

**Past vs. Present: A Survey of the Fish Parasites of the Tributaries of Oneida Lake, New York**



In 1932, Van Cleave and Mueller conducted a study on the parasite fauna of the fish in Oneida Lake and its tributaries, where they made many discoveries. Since 1932, the lake has undergone countless environmental changes which have impacted the invertebrate fauna, mollusks in particular. The present study is a fish parasite survey of multiple tributaries of Oneida Lake undertaken to compare both the recent and past survey data of the lake itself. The methods of this study included the collection of fish species via backpack shocking, e-boat and hook and line fishing, partial necropsy of fish to collect parasites and the mounting of parasites for identification using light and scanning microscopes. During the recent surveys of the lake, data suggested that certain parasite species had been 'missing.' For example, we encountered *Bunodera sacculata* in 3 of 31 *Perca flavescens*. *B. sacculata* uses a native clam as an intermediate host, which has been functionally extirpated due to the introduction of invasive species. In addition, the stream survey resulted in recovery of some species not originally reported by Van Cleave and Mueller. For example, eleven species of acanthocephalan were found, whereas only four were originally reported. The stream survey results also include multiple species of nematodes and cestodes. This survey fills a knowledge gap on the fish parasite data in the tributaries, provides context for the contemporary survey of the lake and demonstrates that the fish parasite species in the tributaries somewhat differ from those found in the lake. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Morgan Whittington

**Faculty Sponsor:** Gregory Fulkerson (Sociology)

**Resilience in Focus: City of Oneonta's Climate Vulnerability Assessment** ☀

New York State is already experiencing the impacts of climate change, which are expected to worsen with further warming of our atmosphere and contribute to risks including more frequent and intense heat waves, shifting seasonal patterns, heavy rainfall events, and increased coastal and riverine flooding. Without adequate actions to adapt to these unfolding impacts, populations, ecosystems, and wildlife will face an uncertain future. In response to these threats, NYS has incentivized local governments to significantly reduce greenhouse gas emissions and enhance community resilience. New York State's Climate Smart Communities program is an initiative developed in 2009 to assist local governments in order to meet the challenges of climate change impacts. Currently, there are over 400 communities within the state that are members of this program. The program provides resources, guidance, and technical support for municipalities. Climate Smart Communities is organized into high impact actions with overarching goals such as increasing renewable energy, decreasing energy use, implementing smart land-use practices, and reducing waste. A priority action for local governments to conduct a climate vulnerability assessment report, a starting point for enhancing ecological resilience. Within the central region of New York State, Oneonta is a small city with a population of 13,0179, with a local municipal government. Projections suggest that Oneonta and the surrounding region will be increasingly faced with milder winters and hotter summers, longer and more intense precipitation events, and severe

flooding. In my current role as a Sustainability Intern for the City of Oneonta's Department of Community Development, I conducted independent data collection and research in order to develop a Climate Vulnerability Report for the City. My research involved identifying and assessing potential vulnerabilities to current and future climate risks. In addition, the report is instrumental for the City of Oneonta's attainment of a Climate Smart Communities program certification. Vulnerable assets and systems in the community were found to include critical facilities such as schools, police stations, and hospitals, energy, transportation, water quality and supply, ecosystems, public health, and the local economy. Populations that may be disproportionately affected by climate hazards were also identified. In March 2024, the City approved and released the assessment to the public and will utilize it as a living document to continuously assess climate impacts and its relation to the community while incorporating public input. Through these efforts, the City of Oneonta is poised to effectively prioritize actions that will mitigate these risks, address challenges posed by climate change, and overall become a leader in climate adaptation and sustainability. *Presenting: Thursday 4/25 9am-1pm*

**Student:** Morgan Whittington

**Faculty Sponsor:** Lindsay Wolfanger (Office of Sustainability)

**Understanding and Mitigating Food Waste: A Campus-Level Analysis at SUNY Oneonta ☀**

Food waste is a pressing issue with significant repercussions on environmental sustainability, economic efficiency, and food security. Specifically, food waste contributes to environmental degradation as discarded food decomposes in landfills and emits methane, a potent greenhouse gas that fuels climate change. Moreover, the resources invested in food production, including water, energy, and land, are wasted when food is needlessly discarded. Furthermore, the prevalence of food waste perpetuates food insecurity by diverting resources away from those in need. The primary goal of this project is to deepen understanding and raise awareness of the environmental impact of food waste within the SUNY Oneonta community. Through a comprehensive food waste audit conducted at the university's dining halls as the Food and Food Waste Intern for the Office of Sustainability, this project aims to measure, analyze, and mitigate food waste generation. Collaborating with Sodexo and dining hall staff, five food waste audits were conducted—three at Wilsbach Dining Hall and two at Mills Dining Hall—during the peak lunch hours from 11:30 am to 1:00 pm. Data collection involved weighing all food waste generated by students and faculty, alongside voluntary surveys to understand contributing factors to food waste. Findings from the audits revealed differences in food waste quantities between the two dining halls, highlighted prevalent types of wasted food, and determined average per person waste metrics. These insights provide a baseline for recommendations of policy and practice changes aimed at reducing food waste on campus. Ultimately, this project aspires to foster a culture of environmental consciousness and responsibility among students, encouraging the adoption of green habits and contributing to a more resilient, sustainable campus community.

*Presenting: Thursday 4/25 9am-1pm*

**Student:** Goeun Yu

**Faculty Sponsor:** Nicholas Benson (Communication & Media)

**Campus Romance: A Visual Journey of Student Life 📷**

Campus Romance is a photo series capturing my feelings and experiences as a student on this campus. Inspired by Kathy Ryan's Office Romance, which features iPhone images from around The New York Times office building, I took a series of five images focusing on image composition, framing, balance, and digital photography tools. These visuals depict the late-night experience of doing homework. The project aims to convey a narrative solely through visual storytelling, enabling the audience to connect with their own experiences. Additionally, as an exchange student, I found common ground through these shared moments. *Presenting: Wednesday 4/24 1-5pm*