TRANSFORMATIONS

A Student Research and Creativity Conference

April 25-26, 2024

Thursday, April 25

Keynote Address
Sperry Center, Room 104, 4:30 p.m.
Kevin Dames, *Associate Professor, Kinesiology*
Recipient of the 2024 Dr. Peter DiNardo ’68 and Judith Waring Outstanding Achievement in Research Award

Friday, April 26

Student Presentations
Bowers Hall 10:20 a.m.-4 p.m.

Writing Gala
Dowd Fine Arts Center, Dowd Gallery
5-7 p.m.

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

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SUNY Cortland

Design by Virginia Mae Alvisi, Graphic Design and Digital Media

Transformations 2024:
A Student Research and Creativity Conference
Events scheduled for April 25 & 26, 2024

Thursday, April 25, 2024, 4:30 - 5:30 PM

Sperry Center, Room 104, SUNY Cortland

2024 Dr. Peter A. DiNardo ’68 and Judith Waring Outstanding Achievement in Research Award

Award Recipient:

Kevin D. Dames, Ph.D., Associate Professor, Kinesiology

You can go your own way: **why individual variation matters in movement**

Biomechanics is a field of study at the intersection of physics and biology. In this talk, Kevin Dames, Ph.D., will discuss his research on the mechanics of gait and balance through the lens of dynamical systems theory. He will discuss how characterization of movement variability can inform running performance optimization and contributes to our understanding of (un)healthy postural control across the lifespan. His talk will emphasize the importance of translating laboratory-based biomechanical assessments, tools, and knowledge to benefit clinicians, coaches, and athletes.

Biographical Sketch:

Kevin D. Dames, Ph.D. is an associate professor of Kinesiology at the State University of New York at Cortland. As a biomechanist, he studies the forces and effects of forces on a body for understanding adaptation, injury, or disease. His specific areas of interest include endurance running performance and postural control. His research has informed methodological considerations of clinical postural stability assessments, established best practices for computational analysis of static balance data, validated new measurement devices, and developed an effective intervention protocol to decrease stress fracture risk in endurance runners. The American Society of Biomechanics recognized his scholarship in 2021 with the President's Award at their 45th Annual Meeting. He has published in Journal of Biomechanics, Gait & Posture, Human Movement Science, and Journal of Sports Sciences, among others, and continues to mentor student researchers at the high school, undergraduate, masters, and doctoral levels.

Friday, April 26, 2024
A Student Research and Creativity Conference
Bowers Hall - SUNY Cortland

Schedule of Events

10:20-11:20 AM	Contributed Talks I
11:30-12:30 PM	Poster Session A
12:40-1:40 PM	Contributed Talks II
1:50-2:50 PM	Poster Session B
3:00-4:00 PM	Contributed Talks III

Cover Design by Virginia Alvisi, senior, graphic design and digital media major
for ATS 440: Portfolio Practicum

Transformations: A Student Research and Creativity Conference
is an event designed to highlight and encourage scholarship among SUNY Cortland students. Our scholarly work is crucial to who and what we are as individuals and as an institution. This day is an attempt to help our students and the general public understand and appreciate what we do, to draw students into the intellectual life and the excitement of scholarly work, and to publicize the accomplishments of our students.

Support for Transformations has been received from the President's Office, the Provost, and Vice President for Academic Affairs Office.

Our Appreciation to the Transformations Committee:
Christopher Badurek, Geography
Martine Barnaby, Art and Art History
Kevin Dames, Kinesiology
Laura Eierman, Biological Sciences
Kaitlin Flannery, Psychology
Eunyoung Jung, Foundations and Social Advocacy
R. Bruce Mattingly, Arts and Sciences (Chair)
Erin Morris, Sport Management
Kimberly Rombach, Childhood/Early Childhood Education
Meghan Vandeuson, Arts and Sciences
Hilary Wong, Memorial Library

Friday, April 26, 2024, 5:00 – 7:00 PM

The Writing Gala

Dowd Fine Arts Gallery, SUNY Cortland

The Writing Gala celebrates the art and craft of writing done by Cortland students.

At the ceremony, the winners of the Outstanding Writing Awards and the English Department's Creative Writing contests will share their work and be presented with their awards.

The Writing Gala coincides with the juried *Student Select* exhibition held each spring semester by the Dowd Gallery, so you'll be surrounded by visual art in a setting designed to celebrate the creative arts here at SUNY Cortland.

Hors d'oeuvres will be served from 5 – 5:45 PM

Transformations 2024
Contributed Talks I, 10:20 – 11:20 AM
Concurrent Session I
Bowers Hall, Room 339

General Interest Session	
Faculty Moderator	Erin Morris
Faculty Moderator Dept.	Sport Management
Faculty Email	Erin.Morris02@cortland.edu

Presentation 1 Title	**Using exercise to reduce the physical symptoms of Parkinson's disease.**
Abstract	Proper forms of exercise can be used by individuals with Parkinson's to reduce the effects of the disease. Our study utilized a unique eccentric lower body exercise program to improve gait, balance, mood, and movement initiation/control for people diagnosed with Parkinson's disease. The twice weekly, 12 week exercise regime was evaluated through a variety of biomechanical, physiological and psychological measurements conducted throughout each of the training sessions. An analysis of the measures indicated that the exercise protocol did provide positive outcomes related to gait, balance, mood, and movement initiation/control for individuals that participated in our study.
Student Presenter 1	Isabella Granahan
Student Presenter's Email	isabella.granahan@cortland.edu
Student's Major	Exercise Science
Student Year	Senior
Student Presenter 2	Aveleen McGinn Unkauf
Student Presenter's Email	aveleen.mcginnunkau@cortland.edu
Student's Major	Exercise Science
Student Year	Senior

Student Presenter 3	Jason Hoffman
Student Presenter's Email	jason.hoffman@cortland.edu
Student's Major	Exercise Science
Student Year	Senior
Student Presenter 4	Emma Gillis
Student Presenter's Email	emma.gillis@cortland.edu
Student's Major	Exercise Science
Student Year	Junior
Student Presenter 5	John Catapano
Student Presenter's Email	john.catapano@cortland.edu
Student's Major	Exercise Science
Student Year	Senior
Faculty Mentor 1	Jeffrey Bauer
Faculty Mentor's Email	jeff.bauer@cortland.edu
Faculty Mentor 2	Philip Buckenmeyer
Faculty Mentor's Email	phil.buckenmeyer@cortland.edu
Faculty Mentor 3	Erik Lind
Faculty Mentor's Email	erik.lind@cortland.edu

Presentation 2 Title	**Identifying TTX Producing Bacteria in Bipalium kewense and Bipalium adventitium**
Abstract	Terrestrial planarians such as Bipalium kewense and B. adventitium contain a neurotoxin called tetrodotoxin (TTX). TTX inhibits voltage-gated sodium channels, which blocks neurotransmission and paralyzes the muscles. Flatworms may use the toxin to stun their prey. Bacteria in the microbiome of organisms which contain TTX are believed to be the actual toxin source in marine animals. The microbiomes of terrestrial planarians remain unstudied, so it is unknown what bacteria are making TTX for them, or if bacteria are making the neurotoxin. In order to explore the culturable microbiomes of Bipalium flatworms, sampling of culturable bacteria is necessary because nothing is

	known about the genes that encode TTX production. Once isolated from worms, 16S sequencing will be used to identify the bacterial species and a competitive ELISA will be used to detect TTX production by these bacteria. My hypothesis is that the resident bacteria found in these planaria are producing TTX.
Student Presenter	Elizabeth DuBois
Student Presenter's Email	elizabeth.dubois@cortland.edu
Student's Major	Biology
Student Year	Senior
Faculty Mentor	Christa Chatfield
Faculty Mentor's Email	christa.chatfield@cortland.edu

Presentation 3 Title	**Celebrating HOLI - A Festival of Colors on campus**
Abstract	In Spring 2024, the Recreation, Parks, and Leisure Studies Department will be offering the Cultural Events (REC 427/527) course. The goal of this course is to provide students with the opportunity to explore the growing phenomenon of cultural events, with a focus on the planning and management of fairs, festivals and other cultural events. This course will teach students about partnerships, diversity and inclusion, sustainability, marketing, contracting, staffing, budgeting, and event management. The key aspect of this course is practical application of concepts of event management. Given the core elements of the course and as part of enriching their educational experience, I plan to organize a vibrant celebration of Holi, the South Asian festival of colors, on our campus. Holi or the festival of colors is celebrated in South Asian nations of India, Nepal, and Pakistan. The festival celebrates the commencement of spring. Presently, Holi is also celebrated in many

cities and universities across the United States, including various SUNY campuses. Holi, like numerous other festivals, embodies a celebration of life and the interconnectedness of cultures. By organizing this event on our college campus, we aim to offer a unique opportunity for students, faculty, and staff to gain insights into South Asian culture and traditions. I am working closely with the International Programs Office in involving current South Asian students in the event. I am also working closely with Dr. Anisha Saxena from the History Department. Dr. Saxena is from South Asia and teaches courses on South Asian history on campus from the History Department in organizing the event. The event will draw large number of faculty and students on campus and will foster a strong sense of belonging and inclusion among our South Asian community members on campus. I firmly believe that a well-rounded education extends beyond the classroom, and experiences like these, combined with academic knowledge, possess the potential for transformative impact. This event serves as an ideal platform for students to immerse themselves in multiculturalism and diverse cultural experiences beyond the confines of traditional classroom settings.

The event will take place on April 10, 2024

Project Objectives: • Cultural Education: To educate and engage students, faculty, and staff about the cultural significance of Holi and South Asian traditions. • Inclusivity: To foster a sense of inclusivity, belonging, and cultural appreciation among South Asian members of the campus community. • Multiculturalism: To promote multiculturalism, diversity, and cross-cultural

understanding among all members of the campus community. • Transformative Experiences: To provide students with experiential learning opportunities that complement classroom education and have a transformative impact. • Enrichment: To enhance the overall cultural and intellectual life of Cortland Campus.
The event will be celebrated on April 10, coinciding with the traditional timing of Holi celebrations around the world. The event will be held on Moffett Lawn, making it easy and accessible for students to attend. Activities will include: • Lighting a fire pit, inspired by the Hindu ritual. • Throwing brightly colored, vegetable-based organic powdered color at each other, a hallmark of Holi celebrations. • Cultural displays showcasing South Asian traditions, art, and cuisine. • Educational workshops and presentations on the history and significance of Holi. • Live performances of South Asian music and dance. Future Plans: As part of our commitment to fostering cultural understanding and engagement, we envision extending the impact of our Holi celebration beyond the event itself. In the near future, we plan to organize a Sandwich Seminar dedicated to Holi, where students, faculty, and staff can delve deeper into the cultural significance and historical context of this festival. This seminar will provide an academic platform for discussions and presentations related to Holi, further enriching the intellectual discourse on our campus. Additionally, we are plan to participate in the upcoming Transformations event later this semester, where students will showcase a poster highlighting the success and cultural significance of our Holi celebration. These initiatives underscore our dedication to fostering cultural exchange and engagement within the Cortland Campus

	community Conclusion: Organizing the Holi celebration on Cortland Campus aligns with our mission to provide students with transformative educational experiences and promote diversity and cultural understanding. We believe that this event will not only enrich the campus community but also enhance the image of Cortland College as an institution that values cultural enrichment and multiculturalism.
Student Presenter 1	Grace Buscemi
Student Presenter's Email	grace.buscemi@cortland.edu
Student's Major	Therapeutic Recreation
Student Year	Senior
Student Presenter 2	Alexander Cantone
Student Presenter's Email	alexander.cantone@cortland.edu
Student's Major	Recreation Management
Student Year	Junior
Student Presenter 3	Julian Deroziere
Student Presenter's Email	julian.deroziere@cortland.edu
Student's Major	Recreation Management
Student Year	Junior
Student Presenter 4	Abigail Gibson
Student Presenter's Email	abigail.gibson@cortland.edu
Student's Major	Recreation Management
Student Year	Junior
Student Presenter 5	Joseph Kane
Student Presenter's Email	joseph.kane022@cortland.edu
Student's Major	Outdoor Recreation
Student Year	Senior
Student Presenter 6	Abigail Loiselle
Student Presenter's Email	abigail.loiselle@cortland.edu
Student's Major	Therapeutic Recreation
Student Year	Junior
Student Presenter 7	T'ziah Owens
Student Presenter's Email	tziah.owens@cortland.edu
Student's Major	Recreation
Student Year	Senior

Student Presenter 8	Carlene Palmer
Student Presenter's Email	carlene.palmer@cortland.edu
Student's Major	Recreation
Student Year	Junior
Student Presenter 9	Sophia Royce
Student Presenter's Email	sophia.royce@cortland.edu
Student's Major	Therapeutic Recreation
Student Year	Sophomore
Student Presenter 10	Natalie Witt
Student Presenter's Email	natalie.witt@cortland.edu
Student's Major	Social Philosophy
Student Year	Senior
Student Presenter 11	Su Mon Aye
Student Presenter's Email	sumon.aye@cortland.edu
Student's Major	Recreation
Student Year	Junior
Faculty Mentor	Esther VanGorder
Faculty Mentor's Email	esther.vangorder@cortland.edu

Presentation 4 Title	**The dynamics of particles around upside down black holes**
Abstract	Using Einstein's General Theory of Relativity, this project studies how objects, such as particles or beams of light, orbit a massive zero-brane in five spacetime dimensions. A zero-brane is an object predicted by superstring theory and can be thought of as a higher dimensional generalization of a black hole. We find that this brane has some unique properties. It behaves like a black hole pulled inside out; with the roles of the central singularity and the event horizon interchanged. For this reason, we call these objects "Sock Black Holes." We calculate the symmetries of the brane, as well as the motion of particles and/or beams of light in its vicinity.
Student Presenter	Angel Chauca Rosendo

Student Presenter's Email	angel.chaucarosendo@cortland.edu
Student's Major	Physics
Student's Second Major	Mathematics
Student Year	Senior
Faculty Mentor 1	Moataz Emam
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Faculty Mentor 2	Bryan Reed
Faculty Mentor's Email	bryan.reed@cortland.edu

Transformations 2024
Contributed Talks I, 10:20 – 11:20 AM
Concurrent Session 2
Bowers Hall, Room 1119

Title for the Full Session	**The European Union as a Global Actor**
Faculty Moderator	Scott Moranda
Faculty Moderator Dept.	History
Faculty Email	Scott.Moranda@cortland.edu

Presentation 1 Title	**European Union's EU Policy Regarding Ukraine and Moldova & Migration**
Abstract	Students will present their work in the Global Model European Union Conference, in the respective committees that dealt with EU's Policies towards Ukraine and Moldova, and with Migration. We combined these two topics as a significant amount of migration into the European Union has come out of the war in Ukraine. Students will present the negotiations that occurred during the conference, focus on their specific country's positions and interests (Germany, Netherlands, and Croatia), and those of the European Union as a whole.

Student Presenter 1	Joshua Bates
Student Presenter Email	Joshua.bates@cortland.edu

Student Major	History
Student Year	Junior
Student Presenter 2	Ava Graziano
Student Presenter Email	Ava.Graziano@cortland.edu
Student Major	Community Health
Student Year	Sophomore
Student Presenter 3	Layla Myers
Student Presenter Email	Layla.Myers@cortland.edu
Student Major	International Studies
Student Year	Sophomore
Student Presenter 4	Andrada Rat
Student Presenter Email	Ratandrada2002@gmail.com
Student Major	International Studies
Student Year	Senior
Faculty Mentor 1	Alexandru Balas
Faculty Mentor's Email	Alexandru.balas@cortland.edu
Faculty Mentor 2	Scott Moranda
Faculty Mentor's Email	Scott.moranda@cortland.edu

Presentation 2 Title	**European Union's Strategy in the Indo-Pacific Region**
Abstract	Students will present their work in the Global Model European Union Conference, in the respective committee that dealt with EU's Strategy Towards the Indo-Pacific region. EU's role in South Asia and Southeast Asia has been understudies. Students will focus on the strategy they negotiated for the EU in this region of the world. Students will present the negotiations that occurred during the conference, focus on their specific country's positions and interests (Germany, Netherlands, and Croatia), and those of the European Union as a whole.
Student Presenter 1	Sarah O'Connor
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Student Major	International Studies

Student Year	Senior
Student Presenter 2	Asha Younas
Student Presenter Email	Asha.younas@cortland.edu
Student Major	International Studies
Student Year	Junior
Student Presenter 3	Donald Bosman
Student Presenter Email	Donald.bosman@cortland.edu
Student Major	International Studies
Student Year	Sophomore
Faculty Mentor 1	Alexandru Balas
Faculty Mentor's Email	Alexandru.balas@cortland.edu
Faculty Mentor 2	Scott Moranda
Faculty Mentor's Email	Scott.moranda@cortland.edu

Title of Presentation 3	**European Union's Policy in the Arctic**
Abstract	Students will present their work in the Global Model European Union Conference, in the respective committee that dealt with EU's Strategy Towards the Arctic region. EU's role in the Arctic has been understudied but the EU has member-states directly impacted by Arctic policies (Denmark, thanks to Greenland; Sweden, and Finland). Students will focus on the strategy they negotiated for the EU in this region of the world. Students will present the negotiations that occurred during the conference, focus on their specific country's positions and interests (Germany, Netherlands, and Croatia), and those of the European Union as a whole.
Student Presenter 1	Emma Efing
Student Presenter Email	Emma.efing@cortland.edu
Student Major	History
Student Year	Senior
Student Presenter 2	Victoria Quick
Student Presenter Email	Victoria.quick@cortland.edu

Student Major	International Studies
Student Year	Senior
Faculty Mentor 1	Alexandru Balas
Faculty Mentor's Email	Alexandru.balas@cortland.edu
Faculty Mentor 2	Scott Moranda
Faculty Mentor's Email	Scott.moranda@cortland.edu

Transformations 2024
Contributed Talk I, 10:20 – 11:20 AM
Concurrent Session 3
Bowers Hall, 1213

Title for the Full Session	**Summer Undergraduate Research Showcase**
Faculty Moderator	Maria Timberlake
Faculty Moderator Dept.	Foundations and Social Advocacy
Faculty Email	Maria.timberlake@cortland.edu

Presentation 1 Title	**Mental Health and Well Being Among College Based EMS (CBEMS) Providers**
Abstract	Emergency Medical Service (EMS) providers have been extensively documented to have higher rates of mental health disorders than the public. Workplace stressors and critical incidents have been demonstrated to increase EMS providers' mental health symptoms. In 2021, the Centers for Disease Control and Prevention stated that suicide deaths among EMS providers, known to be elevated, are likely still under-reported. The CDC called for more research on mental health in EMS. College Based EMS Providers (CBEMS) agencies operate differently than municipal agencies. Typically, CBEMS agencies have lower call volume and fewer critical incidents. Little is known about mental health symptoms in CBEMS providers. They

	experience typical EMS workplace stressors and may also be exposed to critical incidents. CBEMS providers also have the additional academic pressures of college life. This presentation will showcase original research conducted with more than 100 CBEMS providers across the country. The focus of this session will be on understanding CBEMS providers' experiences, the mental health symptoms that they report, and their recommendations to support student provider well-being.

Student Presenter 1	Kyla Young
Student Presenter 1 Email	Kyla.young@cortland.edu
Student's Major	Biomedical Sciences
Student Year	Senior
Faculty Mentor	Jena Curtis
Faculty Mentor's Email	Jena.curtis@cortland.edu

Presentation 2 Title	**The Effects of Acute Mountain Illness on the Human Body**
Abstract	This study focused on whether there was a difference in physiological markers (heart rate, blood pressure, breathing frequency, etc.) that are impacted by rapid ascent to altitude in those who do and do not experience Acute Mountain Sickness. Research was conducted through a systematic review of literature regarding high-altitude illness and possible physiological differences at low altitude between those who do and do not experience AMS using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Statement guidelines, followed by a meta-analysis of our collected data. Datasets were created in excel by compiling results from existing

	published data from articles that were narrowed down for relevancy. The data was evaluated using the software RStudio through forest plots demonstrating effect size. The difference in each physiological marker before and after ascent between those who do and do not experience AMS was negligible.
Student Presenter 1	Rachel Romero
Student Presenter 1 Email	Rachel. Romero@cortland.edu
Student's Major	Exercise Science
Student Year	Senior
Faculty Mentor	Bryanne Bellovary
Faculty Mentor's Email	Bryanne.bellovary@cortland.edu

Presentation 3 Title	**The Books that Bind: Analyzing Banned Book Effort's Effects on Public Education**
Abstract	The love triangle-the world's messiest and most complicated shape, where three people, all of whom are involved with one another in some way and have to balance their conflicts with their desire to be loved. In the sphere of public education, there exists such a metaphorical love triangle that contains teachers, parents, and school districts. While there are certainly exceptions and nuances within this metaphor, the conflicts that censorship causes are comparable to the metaphor of a love triangle with the intensity of relationships and interdependencies within public education. While much current research focuses on the literature that is being attacked and its effect on students. I am interested a in how censorship impacts the dynamics that exist within a school setting; this presentation shares the results of an interview study

	with three high school teachers and one librarian about the metaphorical love triangle and findings of community, diversity, representation, and prejudice.
Student Presenter 1	Emma Stack
Student Presenter 1 Email	Emma.stack@cortland.edu
Student's Major	Adolescence Education
Student Year	Senior
Faculty Mentor	Adrienne Raw
Faculty Mentor Email	Adrienne.raw@cortland.edu

Presentation 4 Title	**Using Commercial Soil Testing Kits to Understand the Effects of Climate Events in Antiquity**
Abstract	My research at Çadır Höyük in the Yozgat Province of Turkey revolved around two known climate events that occurred in 3200 B.C.E and 1200 B.C.E. Using soil tests that are commercially available for the testing of garden soil I tested for the nutrients nitrogen, phosphorus and potassium. I tested samples dated to these periods via carbon dating to gain an understanding of both the effect these events had on soil health and the rapidity and effectiveness of human response to these changes. I was able to see the onset and peak of the climate events and the eventual return of key nutrients in the soil, presumably with the aid of human activity. Next, I was able to make informed interpretations about the methods that the inhabitants likely took to combat these climate events that both exacerbated the issue and assisted in the return to normal soil health.
Student Presenter	Ryan Baumgartner
Student Presenter Email	Ryan.baumgartner@cortland.edu
Student's Major	Archaeology
Student Year	Senior

Faculty Mentor	Sharon Steadman
Faculty Mentor Email	Sharon.steadman@cortland.edu

Presentation 5 Title	**Resolving Commingling and the Identification of Human Remains at the State University of New York at Cortland**
Abstract	Last summer, as part of the Summer Research Fellowship program, I analyzed and sorted human skeletal remains that had been donated to SUNY Cortland and likely require repatriation under The Native American Graves Protection and Repatriation Act (NAGPRA). The goal of my project was to sort and inventory the remains to estimate the number of individuals present. Preliminary results indicate a minimum of six individuals. My experience with undergraduate research provided me with important training for graduate study and paved the way for additional academic opportunities. In October, I attended the international Cuba TIES academic conference, where I presented my research findings in a poster session among students and faculty at the University of Cienfuegos. Additionally, my interest in repatriation led to an anthropology honors project investigating the effectiveness of NAGPRA in New York State institutions and an independent study with a criminology professor that explores aspects of state violence.
Student Presenter	Caleigh Pfalzer
Student Presenter Email	caleigh.pfalzer@cortland.edu
Student's Major	Criminology & Anthropology
Student Year	Senior
Faculty Mentor	Kent Johnson
Faculty Mentor Email	kent.johnson@cortland.edu

Transformations 2024
Poster Session A, 11:30 AM – 12:30 PM
Bowers Hall, Lobby

Poster Title	**Prevalence of Mental Health Issues in Division III Athletes**
Abstract	College athletes have always struggled with their mental health, and it has recently become more widely recognized because of their lifestyle. Between managing schoolwork, team responsibilities, and having a social life, it is extremely easy to become overwhelmed and put other things before one's psychological health. In this study,13 athletes were surveyed the SUNY Cortland Women's Basketball team to determine if depression, anxiety, and stress are prevalent in athletes at SUNY Cortland. The DASS-21 questionnaire was be electronically distributed to each of the women's basketball team athletes. This 21-question survey was scored and produced scores that determined whether these athletes are experiencing symptoms of depression, anxiety, and/or stress and which factors might predict these symptoms.
Student Presenter	Logan Streety
Student Presenter Email	Logan.streety@cortland.edu
Student Major	Exercise Science
Student Year	Senior
Faculty Mentor	Jacqueline Augustine
Faculty Mentor Email	Jacqueline.augustin@cortland.edu

Poster Title	**Effects of Invasive Jumping Worms on Native Vegetation's Above and Belowground Growth**
Abstract	Invasive jumping worms significantly alter soil structure and chemical composition, thereby

	negatively affecting soil biota and plant performance. Mechanisms by which worms influence plants are not well understood but are likely related to disruption of mycorrhizal associations, and changes in water and nutrient availability. This study examines the ecological effects of invasive jumping worms on mycorrhizal associations and nutrient uptake in four native plant species within the Catskills Mountains. Our research focuses on red oak, bottle brush grass, zig-zag goldenrod, and lady fern transplanted across seven sites with varying worm populations in 2019. In the lab, we dissected, dried, and processed plant samples for nutrient analysis. We predict that the invasive jumping worms will affect each species differently, and have negative impacts on AMF associations as well as the concentrations of nitrogen and phosphorus, found in the leaves. These findings will guide land management strategies and conservation efforts going forward as these worms continue to spread.
Student Presenter 1	Audrey Cozine
Student Presenter 1 Email	609audrey@gmail.com
Student's Major	Biology
Student Year	Senior
Faculty Mentor	Andrea Davalos
Faculty Mentor's Email	mariaandrea.davalos@cortland.edu

Poster Title	**Kinetic investigation of short chain dehydrogenase reductases.**
Abstract	Short-chain dehydrogenase reductases (SDRs) are enzymes of a diverse family of proteins involved in catalyzing the oxidation or reduction of a wide range of substrates. The SDRs of interest that were used for research were found from the Seattle Structural Genomics Center for Infectious Disease. Steady-state kinetic assays were used to observe

	the enzymatic activity of these SDRs on different substrates. The goal of research is to create a biocatalytic tool kit for these substrates which can used for environmental or health purposes. Benzil is a promising substrate that has been researched as it is showing significant enzymatic activity on enzymatic assays. Future work will involve finding the enzyme kinetics of benzil and further exploring other substrates and their enzyme kinetics.
Student Presenter 1	Michael Catoggio
Student Presenter 1 Email	Michael.catoggio@cortland.edu
Student's Major	Biology
Student Year	Sophomore
Faculty Mentor	Katherine Hicks
Faculty Mentor's Email	Katherine.hicks@cortland.edu

Poster Title	**Characterization of Novel Orotate Phosphoribosyltransferase Using a Structure-Function Approach**
Abstract	Pyrimidine nucleotides are extremely important to all living things. One of the main pathways for creating these nucleotides is through the use of an enzyme called orotate phosphoribosyltransferase (OPRTase). By determining a possible inhibitor to this enzyme, our overall goal is to find a way to fight some diseases that utilize this pathway. To do this, we will need to learn more about the structure and kinetics of OPRTase, which is what this project will be focused on. In collaboration with scientists at the University of Minnesota, we are working on refining the overall structure which reveals a novel hexameric protein. Future work will involve further studying OPRTase structurally and kinetically.
Student Presenter 1	Sean Zupko
Student Presenter 1 Email	Sean.zupko@cortland.edu

Student's Major	Chemistry
Student Year	Junior
Dual Major	Yes
Student Presenter Second Major	Adolescence Education
Faculty Mentor	Katherine Hicks
Faculty Mentor Email	Katherine.hicks@cortland.edu
Faculty Mentor Department	Biochemistry

Poster Title	**Use of genetically altered cells to detect volatile chemicals.**
Abstract	Developing a cheap and low-risk way of detecting explosives and other dangerous volatile chemicals in the environment is important. One solution is creating a cell-based biosensor that utilizes olfactory receptors to detect volatile molecules. Olfactory receptors are G-protein-coupled receptors that specifically bind to volatile chemicals. HUVECs (Human umbilical vein endothelial cells) were chosen for this effort because previous experimental data indicated that these cells express the 10J5 olfactory receptor, which, upon binding to its ligand, causes a measurable change in cell movement. Additional olfactory receptors will be transfected into HUVECs to determine if this cell line can be used to detect multiple volatile chemicals of interest
Student Presenter	Dwayne Jones
Student Presenter Email	Dwayne.jones@cortlannd.edu
Student's Major	Biology
Student Year	Junior
Student Presenter	Adrianna Calangelo
Student Presenter Email	Adrianna.calangelo@cortland.edu
Student Year	Junior

Student's Major	Biomedical Sciences
Faculty Mentor	Theresa Curtis
Faculty Mentor Email	Theresa.curtis@cortland.edu
Faculty Mentor Department	Biology

Poster Title	**The effects of cellular dynamics on flower size throughout development in Nicotiana section Repandae polyploids**
Abstract	Pollination is dependent on flower tube size, for example, pollinators must have a longer tongue to reach nectar in a longer tube. Flower size is dependent on cellular dynamics, the way that cells elongate and divide. Cellular dynamics within the flower tube are measured by observing cell length, width, and number across development. Another factor that may impact cell size, ultimately influencing flower tube size, is polyploidy. Polyploids have duplicated genomes and tend to have larger cells than related diploids. In this study, we use Nicotiana section Repandae polyploids (~4 million years old) and their diploid progenitors to understand the impacts of polyploidy on flower size. We stain flowers across development with acid fuchsin and measure cell length, width, and number. With these measurements, we will investigate the role that polyploidy played in the evolution of the flower size differences observed in Nicotiana section Repandae polyploids and their diploid progenitors.
Student Presenter	Edie Russo
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Student's Major	Biology
Student Year	Junior
Faculty Mentor	Elizabeth McCarthy

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Poster Title	**Effects of nutrient restriction on productive responses in early lactation ewes**
Abstract	Insulin resistance occurs to support lactation. The sphingolipid ceramide may be a driver of this process. Understanding this connection may allow us to increase the efficiency of milk production. The objective of this study was to determine the effects of nutrient restriction on feed efficiency and productive responses in early lactation ewes. Twenty mature ewes in late pregnancy were followed until 21 d postpartum. Ewes were either ad libitum-fed a high-energy pelleted diet or were nutrient restricted to 50% of energy requirements for a 5-d period both pre- and postpartum. Nutrient restriction decreased metabolizable energy intake ($P < 0.01$) and modestly lowered milk yield ($P < 0.05$), which improved feed efficiency ($P < 0.01$). Nutrient restriction also increased fatty acid mobilization ($P < 0.01$) and numerically increased milk fat yield. In the future, we will evaluate the effects of nutrient restriction on ceramide production and insulin sensitivity in lactating ewes.
Student Presenter	Shalise Hill
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Student Year	Junior
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Faculty Mentor	Joseph McFadden
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Poster Title	**The most stretched quartz in the world.**
Abstract	We investigated quartz inclusions in garnet from a metapelite gneiss located in the western Adirondacks by Raman spectroscopy at Syracuse University. The Raman spectra yielded bimodal results, with one group showing strong negative shifts (i.e. stretched). For this group, the three most prominent quartz peaks (128, 207, 464 cm-1) were shifted, on average, by -3.81, -15.78, and -4.16 wavenumbers, respectively. Inclusion pressures were calculated using the on-line data reduction programs stRAinMAN, EosFitPinc, and EntraPT (Angel et al., 2019; Mazzucchelli et al., 2021). Calculated inclusion pressures, remarkably, range from -0.65 to -0.91 gigapascals. Another report of stretched quartz inclusions (Kouketsu et al., 2014) from Japan, lists maximum shifts of the aforementioned peaks of -3.1, -6.4, -2.2 wavenumbers, respectively. Therefore, the quartz inclusions from the western Adirondacks are, by far, the most stretched quartz inclusions in the world. These inclusions are an exceptional example of quartz under extreme tension.
Student Presenter	Khi Atchinson
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Student Year	Senior
Faculty Mentor	Robert Darling
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Faculty Mentor	Jay Thomas
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Poster Title	**Land Cover Change Analysis of Restoration of the North Aral Sea, Kazakhstan, 2000 to 2014**
Abstract	The decline of the fresh-water body known as the Aral Sea is a well-known case study of mismanagement of natural resources in

	environmental studies. However, recent restoration efforts in the North Aral Sea by the government of Kazakhstan have yielded increases in fresh-water levels and related vegetative cover. This study uses land cover change analysis using Landsat imagery for the time periods of 2000 and 2014. The machine learning classification method maximum likelihood is used with a training data set to derive land cover classes for both time periods. The change over time is calculated by comparing pixel values of land cover classes from 2000 and 2014. Results indicate an increase in biomass both along the edge of the water and inside of it. Overall, trends indicate the amount of water and biomass significantly increased over time, and the amount of sand and salt has decreased.
Student Presenter	Andrew Kidder
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Student's Major	Geographic Information System
Student Year	Senior
Faculty Mentor	Christopher Badurek
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Poster Title	**The relationships between parental and youth physical activity behaviors and perceptions**
Abstract	Engaging in at least 60 minutes of daily physical activity during childhood is important for maintaining healthy weight and promoting motor and cognitive development, however only 15% of youth/children meet these guidelines (Hubbard et al., 2016). To comprehensively assess and potentially improve children's physical activity behaviors, it's essential to understand parent physical activity behaviors as well. The purpose of this study is to examine the relationship between

	parental physical activity (i.e., leisure-time physical activity [moderate-vigorous physical activity]), youth health (i.e., body mass index [BMI], physical activity (moderate-vigorous physical activity), and perception of parental encouragement towards physical activity in a sample of parent-youth (8-14 years old) dyads. Using validated questionnaires, parents and their youth will independently record their participation in physical activity and their perception of parental encouragement towards physical activity digitally. Data analyses and results are forthcoming. Hubbard, K., Economos, C. D., Bakun, P., Boulos, R., Chui, K., Mueller, M. P., Smith, K., & Sacheck, J. (2016). Disparities in moderate-to-vigorous physical activity among girls and overweight and obese schoolchildren during school-and out-of-school time. International Journal of Behavioral Nutrition and Physical Activity, 13, 1-8.
Student Presenter	Bryanna DeAngelis
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Student's Major	Exercise Science
Student Year	Senior
Faculty Mentor	Samantha Moss
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Poster Title	**Mindfulness and Problematic Internet Use: The Moderating Role of Stress**
Abstract	Problematic use of the internet (PIU), such as overuse and holding unrealistic beliefs toward the internet and social media, have been found to interfere with individuals' physical and psychological health, especially for those experiencing high levels of stress. In previous

	studies, mindfulness has been identified to correlate with psychological well-being, and act as a protective measure against PIU development. In this pilot study, 203 college students were surveyed on perceived stress, mindfulness, and PIU. The preliminary findings supported the conceptual model in which mindfulness negatively correlates with PIU. However, the negative correlation only holds under low to moderate levels of stress but not under high levels. The findings have implications for educators and administrators in designing plans to help combat the development of PIU on college campuses. Future studies should use a longitudinal design with a larger sample size to examine the potential causal relationship between the variables.
Student Presenter	Aydan Coughlin
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Student's Major	Psychology
Student Year	Sophomore
Faculty Mentor	Haiyan Zhang
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Poster Title	**Social Media Usage and Tendency to Conform Among College Students**
Abstract	The importance of social media is undeniable among college students who frequently turn to online platforms as a form of recreation. While researchers have analyzed the influence of social media on emotional factors, fewer researchers have investigated if social media usage has an impact on public behavior and conformity habits. Therefore, the current study assesses if the usage of two common platforms, TikTok and Instagram, are associated with conformity levels among users. Current data collection comes from a sample of 90

	college-aged participants. Results found that Instagram usage, as opposed to TikTok, was more closely associated with a tendency to conform, $r(88) = .31$, $p = .003$. Data collection is ongoing, and descriptive statistics regarding social media influence are forthcoming. These findings will highlight the importance of understanding how consumption of social media has the potential to alter the decisions and behaviors of young adults.
Student Presenter	Emily Grucello
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Student's Major	Psychology
Student Year	Senior
Faculty Mentor	Kaitlin Flannery
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Poster Title	**The Impact of Internet Access on the Strategies Used to Malinger Dissociative Identity Disorde**
Abstract	Dissociative Identity Disorder (DID) is especially important in forensic settings because defendants may attempt to malinger, fake or exaggerate symptoms, to avoid punishment. Previous research has used a simulation design where participants are provided with an accurate description of a diagnosis to facilitate their ability to malinger. However, these studies may not accurately represent the information defendants use to malinger. The current study will examine how the use of online sources impacts responses to instruments used to assess for malingering of DID. Participants will be randomly assigned to review DID diagnostic criteria or search online for information about DID prior to completing the Dissociative Experiences Scale and interview designed to assess for malingering. Analyses will examine whether participants' responses on the

	instruments differ significantly based on the materials used to prepare to malinger. The results will help to inform professionals on the potential impact of online information on malingering strategies.
Student Presenter 1	Mackenzie Dickman
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Student 1 Major	Psychology
Student 1 Year	Senior
Student Presenter 2	Sophia Pugsley
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Student 2 Major	Psychology
Student 2 Year	Senior
Dual Major	Yes
Student Presenter Second Major	Criminology
Faculty Mentor	Karen Davis
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Poster Title	**The Effect of Environmental Enrichment on Nicotine-Primed Ethanol Consumption in Adolescent Female Rats**
Abstract	Alcohol use among adolescent females has significantly increased in the United States with young females drinking alcohol at the same rate as young males. Along with this alarming trend, prenatal nicotine exposure can lead females to be more vulnerable to developing an alcohol use disorder (AUD) in adolescence. Environmental Enrichment (EE) is proposed as a potentially effective treatment strategy in deterring alcohol consumption, even if the subjects (adolescent female rats) have been primed prenatally with nicotine. We examined if the implementation of EE after nicotine primed (administered nicotine injections, 0.06 mg/kg) ethanol self-administration

	training will significantly reduce continued ethanol consumption (abstinence) in adolescent female rats. We found that EE reduced ethanol consumption for both Pre-Nicotine and Non Pre-Nicotine exposed adolescent female rats compared to controls. The results suggest that enriched life conditions are important in facilitating adolescent female abstinence in nicotine and alcohol co-substance abuse.
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Student 2 Year	Senior
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Student 3 Year	Junior
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Student 4 Year	Sophomore
Student Presenter 5	Ava Roper
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Student 6 Year	Junior
Student Presenter 7	Joseph Defeo
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Student 7 Major	Psychology
Student 7 Year	Sophomore

Faculty Mentor	Joshua Peck
Faculty Mentor Email	Joshua.peck@cortland.edu

Poster Title	**GIS Analysis of Redlining on Urban Forest Composition in New York City**
Abstract	What impact does the history of redlining have on forest composition in neighborhoods of New York City? Spatial analysis of percent tree canopy cover for fifty-three neighborhoods formerly classified into four categories of desirability in 1930's era Homeowners Owners Loan Corporation (HOLC) maps was conducted in New York City. Results indicate a substantial difference in tree canopy cover among neighborhood classifications, with a neighborhood low of zero percent and high of 68.8% forested. However, limited differences were found in median tree canopy cover among the highest and lowest rated neighborhoods. The analysis is supplemented with a 'visual dictionary' of urban tree canopy types taken from field data in the areas of Industry City and Little Haiti/Prospect Park in Brooklyn and 116th Street in Harlem. This project adds additional insight into tree canopy cover as an indicator of inequalities in property values, home ownership rates, and climate change resilience.
Student Presenter 1	Madison Hodges
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Student 1 Year	Senior
Faculty Mentor	Christopher Badurek
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Poster Title	**Taylor Swift and her Midas Touch: a case study for sustainable action opportunities in moments of economic boon**
Abstract	Taylor Swift's Eras Tour is projected to be the largest musical tour, ever. In addition to ticket sales, each concert series provides an economic boon to the cities she plays in with an estimated $4.6 billion in consumer spending. (Forbes, 2023). While the tour brings welcome economic revitalization, it becomes a rose garden filled with thorns when we consider the broader impacts of these events. Estimates of fan travel to her concerts puts the U.S. tour alone contributing 84,000 tons of carbon to our atmosphere. which is the equivalent of 15.5 million trees. Interestingly, if each concert ticket holder planted 13 trees, it would offset the same amount of carbon. This research considers opportunities for sustainable action presented by an economic boon like the Eras Tour with an emphasis on carbon emissions, blank space (open/green space), and environmental justice.
Student Presenter	Rachel Curatolo
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Student's Major	Geology
Student Year	Senior
Faculty Mentor	Melinda Shimizu
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Poster Title	**Analyse SIG de la Fumée Noire and du Carbone Provenant des Feux de Forêts Québéquois dans l'Etat de New York en 2023**
Abstract	In June and July of 2023, public health air quality warnings severely limited outside activities for residents across New York State and especially in the metro New York City region. The air quality

	warnings were due to highly elevated particulate matter levels related to wildfire smoke from Canada. This study compares the extent of atmospheric pollutants directly related to mapped data on uncontrolled wildfire in northern Quebec by comparing Black Smoke and Black Carbon atmospheric concentration using data from NASA's second Modern-Era Retrospective Analysis for Research and Applications (MERRA-2) Model, gathered from NASA's GIOVANNI web GIS application. The data are collected at 0.5 by 0.625 degrees (MERRA-2) spatial resolution and visualized with ArcGIS Pro. Preliminary results indicate distinct plumes, or temporal periods, of substantial increase in tropospheric column density of black smoke and black carbon across New York State during the two-week period of public health warnings as described in New York media sources
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Student 1 Year	Senior
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Transformations 2024
Contributed Talk Sessions II, 12:40 – 1:40 PM
Concurrent Session 1
Bowers Hall, 1119

Title for the Full Session	**Interns Reveal Secrets of the Past and Present**
Faculty Moderator	Sharon Steadman
Faculty Moderator Dept.	Anthropology
Faculty Email	Sharon.steadman@cortland.edu

Presentation 1 Title	**Lessons Learned: Managing an Archaeology Lab**
Abstract	One of my roles as an Archaeology lab intern is to serve as the Lab Manager. This can be challenging given that there are often 10 or more interns doing various projects in any given semester. My presentation will describe how I balance my lab manager activities such as training new interns, lab organization, paperwork, and information management, along with doing my own internship activities. My experiences have allowed me to learn about archaeological labs literally from the inside out!
Student Presenter	Grace Beauchamp
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Student's Major	Archaeology
Student Year	Junior
Faculty Mentor	Sharon Steadman
Faculty Mentor Email	Sharon.steadman@cortland.edu

Presentation 2 Title	**Ancient Diets: Archaeobotanical Techniques**
Abstract	We are carrying out archaeobotanical research, which is the study of ancient plants. Using special lighting and magnification, we investigate the remains of plant materials (seeds and wood) to identify ancient diets. Plant seeds can tell us what people ate and what they planted, providing a palaeo-ethnography of an ancient culture. We are examining samples from two sites, one here in Central New York, and one from central Türkiye. We will present our results and discuss the archaeobotanical techniques we used to complete our research.
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Student's Major	Archaeology

Student Year	Junior
Student Presenter	Anna Tanzman
Student Presenter Email	Anna.tanzman@cortland.edu
Student's Major	Archaeology
Student Year	Freshman
Faculty Mentor	Sharon Steadman
Faculty Mentor Email	Sharon.steadman@cortland.edu

Presentation 3 Title	**The Real Work after Fieldwork: Old Harbor, Alaska**
Abstract	While every archaeologist is drawn to the excitement of archaeological work in the field, much more is involved besides the process of excavation. Until items are brought back to the lab, we can only make guesses about their possible meaning and significance. In my internship work in the SUNY Cortland Archaeology Lab, I have analyzed material not only from NYS, but also from drawn from a recent excavation in Kodiak, Alaska, in which I participated. By taking part in this admittedly sometimes tedious lab work, I have been able to contribute to creating a deeper foundation of knowledge about the ancient cultures of these two regions.
Student Presenter	Kathryn Cosman
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Student's Major	Archaeology
Student Year	Senior
Faculty Mentor	Hollis Miller
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Presentation 4 Title	**Exhibiting Global Ways of Life in the Brooks Museum**
Abstract	Our internships in the Brooks Museum over this academic year allowed us to acquire many skills

	associated with museum curation. The museum received a donation of nearly 50 new objects that we were able to follow from first donation, through the accession process, and finally to display. We also created collections databases and catalogs. A major endeavor was the design and execution of a major exhibit currently on display. We will describe not only our activities during the year, but how these have advanced us to a hoped-for goal of future careers in the museum world.
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Student's Major	Anthropology
Student Year	Senior
Student Presenter	Corra Smyntek
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Student's Major	Anthropology
Student Year	Junior
Faculty Mentor	Sharon Steadman
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Transformations 2024
Contributed Talk II, 12:40 – 1:40 PM
Concurrent Session 2
Bowers Hall, 1120

Title for the Full Session	**In Search of Fatmax: Controlled Settings, Field Testing, and Future Considerations**
Faculty Moderator	Erik Lind
Faculty Moderator Dept.	Exercise Science
Faculty Email	Erik.lind@cortland.edu

Presentation 1 Title	**Walking for Pleasure, Burning the Fat: Subjective Responses Approximate to Maximal Fat Oxidation Intensities.**
Abstract	Little is known about the subjective responses approximate to the point at which an individual reaches the greatest fat utilization for energy cost (FATox). This experiment aimed to determine perceptual and affective responses across walking exercise intensities used to elicit FATox. Eleven apparently healthy college aged female participants performed the following walking exercise protocol: seven 3-mintue stages at 88.44 m.min-1 with 3% gradient increases. FATox was measured via indirect calorimetry and calculated using expired oxygen consumption (VO2) and carbon dioxide (VCO2) production values. Subjective measures of ratings of perceived exertion (RPE) and affect (Feeling Scale; FS) were assessed during the last 15 secs of each stage. A repeated-measures ANOVA was calculated. FATox, RPE, and FS all evidenced a significant time effect (ps<.001). Increases in this exercise intensity range appears to reduce feelings of pleasure significantly. Walking past the point of FATox increased greater effort sense.
Student Presenter	Madison Heffern
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Student's Major	Exercise Science
Student Year	Senior
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Faculty Mentor 2	Jim Hokanson
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Presentation 2 Title	**Fuel Utilization During Inclined Walking on a Normal Treadmill Compared to a Lower Body Positive Pressure Treadmill**
Abstract	Lower body positive pressure treadmills (Alter-G) decrease ground reaction force by providing a lifting force as the treadmill chamber is inflated. Fuel utilization is uncertain on the Alter-G. The purpose was to compare Fatox on an Alter-G and Normal Treadmill (NT) at increasing walking intensities. Healthy college-age female volunteers completed 3-minute stages of inclined ambulation at 88.4 mmin with a 3% grade increase per stage. The Alter-G was set to 80% of normal body weight. Metabolic data were collected every 15 seconds. Fatox was calculated based on steady-state VO2 and VCO2. A significant two-way interaction was observed between each treadmill type and stage. Pairwise comparisons for NT showed that Fatox was significantly lower for the last stage and at rest ($p<0.05$) and the highest Fatox occurred during the penultimate stage. Our current protocol is not able to identify Fatox on the Alter-G.
Student Presenter	Mary Savi
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Student's Major	Exercise Science
Student Year	Senior
Faculty Mentor 1	Erik Lind
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Faculty Mentor 2	Jim Hokanson
Faculty Mentor 2 Email	Jim.hokanson@cortland.edu

Presentation 3 Title	**Alter(in)G My Zone: Investigating a Maximal Fat Oxidation Protocol in Athletic Females**
Abstract	Zone 2 training intensity maximizes fat oxidation (Fatox). This study investigated maximal Fatox,

	respiratory exchange ratio (RER), and total caloric expenditure on an Alter-G treadmill. Fatox was measured using indirect calorimetry (TrueOne 2400 Metabolic Measurement System, ParvoMedic). A pilot study (n = 2) was performed with athletic college-aged female participants. Participants completed seven 3-minute stages at 80% of body weight (BW) at a walking speed of 107.29 m/min. The grade increased 3% each stage. Metabolic data was collected every 15 seconds. Despite increases in steady state VO2, HR, and RER being observed, a maximal Fatox was not measured. Future research aims to devise an optimal Fatox exercise protocol on the Alter-G, utilizing power (Stryd power meter) to identify zone 2 training intensity.
Student Presenter 1	Eric Thomas
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Student 1 Major	Exercise Science
Student 1 Year	Senior
Faculty Mentor 1	Erik Lind
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Faculty Mentor 2	Jim Hokanson
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Presentation 4 Title	**Where is my Fatmax? Field Testing of Fuel Utilization at Zone 2 Exercise Intensity**
Abstract	Zone 2 training is typically moderate intensity (60 to 70% of maximal) that optimizes fat utilization. The purpose of the present study was to measure fat oxidation (FATOX) in the field at zone 2 intensity. A portable (PNOE) VO2 analyzer was used to measure FATOX during a one-mile exercise session on an indoor track. Nine volunteers completed the exercise bout and heart rate (HR), rate of perceived exertion, and time were recorded

	at the end of each lap. FATOX was calculated from the respiratory exchange ratio (RER) and caloric expenditure data. Average (±SD) for HR (bpm), RER, and fat utilization (%) were 132±12, 0.85±0.05, and 47.5%, respectively. Average exercise HR's were in zone 2 (66% of maximal HR) yet RER were elevated suggesting more than expected carbohydrate utilization. The portable PNOE offers a novel method for field testing however volunteers may need familiarization with device.
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Student Year	Graduate Student
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Transformations 2024
Contributed Talk II, 12:40 – 1:40 PM
Concurrent Session 3
Bowers Hall, 1213

Title for the Full Session	**Elderly and at Risk: A Quantitative Study on Financial Scam Vulnerability**
Faculty Moderator	Kathleen Burke
Faculty Moderator Dept.	Economics
Faculty Email	Kathleen.burke@cortland.edu
Presentation 1 Title	**Social Media and Its Negative Impact on Adults**
Abstract	In 2022, nearly $8.8 billion was lost to fraud, with people over 60 losing $3.1 billion. This research study uses data from the Consumer Financial Protection Bureau (CFPB) to find out patterns and variables that significantly influence individuals' likelihood of falling victim to financial fraud. The goal is to understand better who is most at risk and

	how to protect them. This research will help create better ways to thwart financial scams, keeping people safe from losing money and facing other negative consequences.
Student Presenter	Intaek Park
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Student 1 Major	Psychology
Student 1 Dual Major	Economics
Student 1 Year	Freshman
Faculty Mentor 1	Kathleen Burke
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Faculty Mentor 2	Caitlin McKillop
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Presentation 2 Title	**Foreign Language Learning Motivation in the U.S Public School System**
Abstract	Due to massive social media outlets and mass immigration stemming from world conflicts, second language acquisition in adolescents is becoming more prominent. Language is what connects all of us. Unfortunately, motivation to acquire another language outside of the native tongue in the United States education system has faded in the last ten years in key "high use" languages such as Spanish, French, Chinese and Arabic (Modern Language Association, 2021). There are many factors that influence motivation in the classroom for students to pursue a foreign language: engagement of material, attitudinal behaviors in the home towards foreign languages, and the socio-cultural and practical importance of foreign languages. The objective of this study is to find out from the student perspective in local school districts what the most prominent factors of foreign language learning are motivating for them.

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Student's Major	Spanish
Student Year	Junior
Faculty Mentor	Colum Yip
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Presentation 3 Title	**Beyond Rainbows: Silent Revolution in Queer Expressions Beyond Western Binaries**
Abstract	Inspecting the boundaries of Western queer ideologies, this paper critically examines the limitations of LGBTQ+ acceptance through the works of Carlos Ulises Decena and Gloria Wekker. I investigate the significance of "coming out" culture, as well as the practices of fixed micro-labeling as pillars of Western queer culture, and the possibility that they do more harm than good. Drawing from Decena's 'Tacit Subjects' and Wekker's 'What's Identity Got to Do With It?', I inspect some cultural intricacies of queerness, Decena's exploration of tacit queerness for Dominican immigrant men challenges Western norms, while Wekker's lens on working-class Surinamese women in mati work reveals a fluidity and multiplicity absent in fixed Western identities. Through this paper, I invite readers to reconsider pride, embracing a more inclusive and nuanced understanding of silent queer revolutions outside of the Western scope.
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Student Dual Major	Psychology
Student Year	Graduate Student
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Transformations 2024
Poster Sessions B, 1:50 – 2:50 PM
Bowers Hall, Lobby

Poster Title	**Physiological responses of monkeyface pricklebacks (Cebidichthys violaceus) to temperature increases**
Abstract	Ectotherms, whose body temperatures match environmental temperatures, are forced to adapt, relocate, or perish as oceans warm. Intertidal ectotherms face large impacts daily as low tide temperatures approach their thermal limits. Monkeyface pricklebacks (Cebidichthys violaceus) are herbivorous, intertidal finfish directly impacted by climate change via thermal stress. The study objectives were to (1) determine an approximate critical thermal maximum (CTM) and (2) examine changes in aerobic metabolism as temperatures increase. To identify the CTM, ventilation rates and behavior were examined while undergoing a temperature ramp. Aerobic metabolism was quantified by measuring changes in oxygen consumption using respirometry. We found monkeyface pricklebacks reached their CTM around 30°C. Oxygen consumption increased with increasing temperatures until their optimal temperature was reached, where it then decreased, indicating thermal stress. As climate change causes ocean warming, understanding the thermal maximum of intertidal fish is necessary to determine how warming may impact marine ecosystems.
Student Presenter	Bailee Guernsey
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Student Major	Biology
Student Year	Junior
Faculty Mentor	Laura Eierman

Faculty Mentor Email	Laura.eierman@cortland.edu

Poster Title	**Using Random Mutants to Study Legionella Micdadei Biofilms**
Abstract	Bacteria of the genus Legionella are responsible for many human infections such as Legionnaires disease. The most common and studied Legionella species is Legionella pneumophila, which accounts for most Legionnaires cases. However, another species Legionella micdadei (Lmic) also accounts for 1.8%-3% of cases annually. These bacterial species live in man-made water systems such as pipes, tanks, and cooling towers. The colonization, growth rate, and overall persistence to disinfectants and environmental aggressors in water sources are driven by its ability to infect amoeba and by attachment to surfaces as biofilms. Understanding how biofilms form and what they are made of can help us get rid of these bacteria. The study aims to create a transposon library with mutated Lmic cells that we will screen for loss of biofilm formation. DNA sequencing can then be used to find the gene interrupted by the transposon and thus required for biofilm growth.
Student Presenter 1	Bradley Blake
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Student 1 Major	Biochemistry
Student 1 Year	Sophomore
Faculty Mentor 1	Christa Chatfield
Faculty Mentor 1 Email	Christa.chatfield@cortland.edu

Poster Title	**Developing PCR protocols to discern genes associated with the production of flavonols within Nicotiana section Polydicliae polyploids**

Abstract	Flower color is an important factor in the reproduction of different plant species. Different pollinators are attracted to different flower colors; this could possibly result in the divergence of species. Some pollinators can see UV light, unlike humans. These UV signals can be accredited to the production of flavonols, which is one of many ways to attract pollinators. Polyploidy is when an organism has more than two sets of chromosomes. Some of these polyploids are the result of hybridization of two different species. In Nicotiana, there are different polyploid species, including Nicotiana section Polydicliae, which originated about one million years ago from N. obtusifolia and N. attenuata diploid progenitors. We will be formulating a PCR protocol to distinguish between the progenitor copies of the genes producing flavonols to further investigate gene expression between polyploids and their progenitors.
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Student Major	Adolescence Education
Student Year	Sophomore
Student Presenter Second Major	Biology
Faculty Mentor	Elizabeth McCarthy
Faculty Mentor Email	Elizabeth.mccarthy@cortland.edu

Poster Title	**The development of a PCR protocol to study the genes responsible for creating floral anthocyanins in Nicotiana clevelandii and N. quadrivalvis allopolyploids.**
Abstract	Polyploids are organisms that have more than two sets of chromosomes, meaning each progenitor passed down more than one copy of their genes. Some polyploid organisms are created through the

	hybridization of two different species, which is called allopolyploidy. Hybridization results in genetic diversity in plants and plays a big part in creating diverse and novel flower colors. Flower color is important because it attracts a variety of pollinators as each type of pollinator sees color differently. Color develops through the flavonoid biosynthetic pathway where numerous enzymes work together to develop both flavanol and anthocyanin pigments. This study will design a PCR protocol to distinguish between the progenitor copies which will allow us to quantify the expression of the genes associated with anthocyanins in both Nicotiana clevelandii and N. quadrivalvis. These polyploid species are approximately one million years old and are the progeny of N. obtusifolia and N. attenuata diploids
Student Presenter	Brooke Tillotson
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Student Major	Biology
Student Year	Sophomore
Faculty Mentor	Elizabeth McCarthy
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Poster Title	**Mechanisms of Fission and Regeneration in the Terrestrial Planarian Bipalium kewense**
Abstract	Bipalium kewense is a widespread species of terrestrial planarian that uses exceptional regeneration powers to break off a small piece of its posterior end and regenerate its missing tissues. Based on current scientific literature and our observations, we are creating a theoretical model that lays out the regulatory mechanisms of both fragmentation and regeneration, and investigates different components of these processes. Experiments we are conducting aim to fill in gaps

	within the literature. The model incorporates ideas such as cellular signaling, bioelectrical signaling, and pre-established morphogen gradients explaining how Bipalium controls the fission process and decides where to fragment. Conclusions drawn from research on regeneration could have important implications for the medical treatment of disabling conditions and ailments.
Student Presenter 1	Cole Mura
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Student 1 Major	Biology
Student 1 Year	Junior
Student Presenter 2	Ava Miranov
Student 2 Email	Ava.miranov@cortland.edu
Student 2 Major	Biomedical Sciences
Student 2 Year	Sophomore
Faculty Mentor	Peter Ducey
Faculty Mentor Email	Peter.ducey@cortland.edu

Poster Title	**Unveiling Campylobacter Jejuni's Pathogenicity: Insight into AspA Enzyme and Potential Therapeutic Targets**
Abstract	Campylobacter Jejuni is a prevalent pathogenic Bacteria causing food borne diseases globally. The bacteria can usually be contracted through raw or undercooked poultry, contact with animals, and untreated water, as well as other foods, seafood, meat, and produce. Commonly causing diarrhea, cramping, abdominal pain, and fever. The project is focused on the enzyme Asp A, which plays a crucial role in C.Jejuni virulence. The project aims to understand the catalytic mechanism by directly substituting potential active sites residues. In this project we plan to purify recombinant protein T101, S140,T141 and S319. Characterizing these variants will enhance our understanding of how

	C.Jejuni metabolizes L-aspartate. This work will hopefully increase our understanding of Campylobacter Jejuni pathogenisis and may lead to the development of novel inhibitors of AspA activity.
Student Presenter 1	Angel Alicea-Morales
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Student 1 Major	Biomedical Sciences
Student 1 Year	Junior
Faculty Mentor	Christian Nelson
Faculty Mentor Email	Christian.nelson@cortland.edu

Poster Title	**The Role of Sport and Exercise Science in Sports Coaching: Perspectives and Practices**
Abstract	This qualitative research investigated the role of exercise science in sports coaching, focusing on the perspectives and practices of 30 sports coaches. Through in-depth interviews, the study explored how exercise science knowledge was acquired and integrated into coaching practice. It examined coaches' perceptions of the importance of exercise science concepts and the challenges they faced in applying this knowledge. Additionally, the study assessed the effectiveness of exercise science in athlete development, considering factors such as performance improvement, injury prevention, and strategic enhancement. Findings from this research enhanced understanding of exercise science's significance in coaching and may inform the development of training programs and resources to improve coaching effectiveness.
Student Presenter 1	Mason Blake
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Student 1 Major	Physical Education
Student 1 Year	Junior
Student Presenter 2	Anthony Cawley

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Student 2 Major	Physical Education
Student 2 Year	Sophomore
Faculty Mentor	Jeongkyu Kim
Faculty Mentor Email	Jeongkyu.kim@cortland.edu

Poster Title	**Exploring Attitudes and Views of Nature of Science Among First Semester Students in an Introductory Science Class for Future Teachers**
Abstract	Students' classroom experiences affect their views of science, placing importance on teachers' instructional approaches. Current reform suggests inquiry-based science instruction supports positive views. However, students and teachers have been shown to hold developing views of nature of science (VNOS). Compounding matters, every student has their own personal science experiences that shape their science understandings and attitudes. This project investigates the attitudes and VNOS among preservice elementary teachers (PSTs) who are currently enrolled in SCI 142. Two course sections were surveyed throughout the semester (n = 77 students total) to track their views and attitudes and how those changed over time. Data was collected via open-ended surveys and analyzed using open coding. Results revealed a range of attitudes and VNOS, and that PSTs understood certain aspects more than others. As such, findings supported research showing developing VNOS but provided granular entry points to supporting PSTs' understandings via inquiry-based approaches.
Student Presenter 1	Anna Stahurski
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Student 1 Major	Adolescence Education
Student 1 Year	Junior

Faculty Mentor	Jeffrey Radloff
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Poster Title	**Exploring the project approach and Reggio Emilia and their approach to literacy**
Abstract	Exposure to literacy and books at an early age is one of the most important steps to building a foundation for children's future learning. In this research poster, I will compare two curriculum approaches to introducing and teaching literacy in an early childhood environment. My research will focus on Reggio Emilia and The Project Approach. The Reggio Emilia model is based on open-ended exploration guided by the children and encouraged by the teacher. The Project Approach focuses on real world problems, and while the children still have an active part in their learning, the teacher has a larger role facilitating it. My goal is to find the best way to approach literacy in my future classroom.
Student Presenter 1	Ella Kelly
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Student 1 Major	Childhood/Early Childhood Education
Faculty Mentor	Deborah Silvis
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Poster Title	**An Exploration of the Link Between Antagonism and Identity Pathology**
Abstract	Antagonism is a personality trait understood as the opposite pole of Agreeableness, marked by frequently being at odds with others. Antagonism comprises five lower-order trait facets: attention seeking, callousness, deceitfulness, grandiosity, and manipulativeness. Existing research into

	antagonism has focused primarily on its interpersonal correlates, but far less is known about its intrapersonal (i.e., self-related) correlates. One relevant intrapersonal process is identity diffusion, marked by a distressing, unclear, and/or inconsistent sense of self. We explored the associations between self-reported antagonism (and its lower-order trait facets) and identity diffusion in a large sample of N = 305 university students. Correlation analyses revealed antagonism and its component trait facets were significantly associated with identity diffusion (effect sizes ranged in strength from small/medium to medium/large). These findings indicate antagonism is closely related to at least one major intrapersonal problem (identity diffusion). Further nuance and implications of these findings are discussed
Student Presenter 1	Sara Brown
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Student 1 Major	Psychology
Student 1 Year	Senior
Student Presenter 2	Jordan King
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Student 2 Major	Psychology
Student 2 Year	Senior
Student Presenter 3	Gabriela Solis
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Student 3 Major	Psychology
Student 3 Year	Junior
Student Presenter 4	Miranda Aldrich
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Student 4 Major	Psychology
Student 4 Year	Junior
Student Presenter 5	Sebastian Patino
Student Presenter 5 Email	Sebastian.patino@cortland.edu
Student 5 Major	Psychology

Student 5 Year	Sophomore
Faculty Mentor	Alexandra Vizgaitis
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Poster Title	**A Content Analysis of Intimate Partner Violence in the Television Show Euphoria**
Abstract	Intimate partner violence (IPV) includes acts of physical, emotional, and sexual violence, as well as stalking and can include those who do not live in the same household. Popular media often depicts IPV in ways that reflect myths surrounding this type of violence, which can distort public perception and lead to the development of inaccurate stereotypes. This study will complete a content analysis of the television show Euphoria to identify how IPV is portrayed in teenage relationships. The behavior of four characters will be coded for the type of IPV that they engage in, their response to IPV, as well as myths of IPV. Additionally, the study will explore gender differences in how IPV is depicted and the extent to which the television show reinforces myths of IPV.
Student Presenter 1	Sasha Machmuller
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Student 1 Year	Senior
Student Presenter 2	Alyssa Wicks
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Student 2 Major	Psychology
Student 2 Year	Senior
Student Presenter 3	Malana Booker
Student Presenter 3 Email	Malana.booker@cortland.edu
Student 3 Major	Psychology
Student 3 Year	Senior
Faculty Mentor	Karen Davis
Faculty Mentor Email	Karen.davis@cortland.edu

Poster Title	**Examining the Validity of a Measure of Sentence Construction Among Elementary-Age Students**
Abstract	Currently, there is limited research on the validity of measures that directly assess sentence writing. The purpose of this correlational design study was to examine the relationship between a newly developed direct measure of sentence writing (i.e., Curriculum-Based Measurement-Sentence Construction) and an established measure (Wechsler Individual Achievement Test-Third Edition Sentence Composition subtest) among elementary-age students. A total of 313 first- through third-grade students completed both measures in class-wide format over the course of two sessions. In this poster, we will present bivariate correlation results to determine if a positive, moderate to strong correlation exists between the criterion and predictor variables as hypothesized. Implications will be discussed.
Student Presenter 1	Katharine Rudelic
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Student 1 Major	Psychology
Student 1 Year	Junior
Student Presenter 2	Emily Sommer
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Student 2 Major	Psychology
Student 2 Year	Senior
Student Presenter 3	Alexa Suero
Student Presenter 3 Email	Alexa.suero@cortland.edu
Student 3 Major	Psychology
Student 3 Year	Junior
Faculty Mentor	Bridget Hier
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Poster Title	**UV-vis and Fluorescence Spectra of Disubstituted Phenylbenzo[d]1,3,2-diazaboroles**
Abstract	A series of serial dilutions were performed on various disubstituted 2-phenylbenzo[d]1,3,2-diazaboroles. For each species, measurements were conducted at seven different concentrations in methanol (MeOH): 1.0 mM, 0.50 mM, 0.10 mM, 0.050 mM, 0.010 mM, 0.0050 mM, and 0.0010 mM. The compounds were then examined using two analytical techniques: fluorescence and ultraviolet-visible spectroscopy (UV-vis). Excitation spectrums were constructed for each diazaborole compound. Joint spectra were produced containing all seven concentrations of each species. Additionally, concentration and absorbance charts were created for each of the diazaborole compounds. Tables will be presented that show the highest absorbance at 0.50 mM for each compound and the concentration, absorbance, and absorbance max for each compound. The range of absorbance for the diazaborole compounds ranges from 298 - 310 nanomolar (nM). Furthermore, molecular aggregation affected three species, hindering their peak intensities. The diazaborole compounds produced an excitation wavelength between 250 - 272 nM.
Student Presenter	Joseph Vaglio
Student Presenter Email	Joseph.vaglio@cortland.edu
Student Major	Biochemistry
Student Year	Junior
Dual Major	Yes
Student Present Major	Psychology
Faculty Mentor	Julius Green
Faculty Mentor Email	Julius.green@cortland.edu
Faculty Mentor Department	Chemistry

Poster Title	**Effects of Polymer Additives in Amorphous Pharmaceuticals**
Abstract	As new pharmaceuticals with high therapeutic potential emerge, the application of amorphous solids, or glasses, has become a significant topic due to their high soluble nature. While there is a high hope for an improvement in the bioavailability of pharmaceutics, the crystallization of amorphous solids has become a crucial problem lowering the expected solubility. To better understand the kinetics and mechanism behind such processes in amorphous solids, the crystallization of amorphous Indomethacin (IMC), an anti-inflammatory medicine, has been investigated through bulk-crystallization under microscopy and using Differential Scanning Calorimetry (DSC). Since previous studies have shown the effect of specific polymers in accelerating crystal growth, PEO, poly(ethylene oxide), has been used to observe the effect of polymer on different polymorphs of IMC, and to explore the glass-to-crystal (GC) growth in bulk amorphous IMC. By better understanding its effects on IMC, the effects of PEO can be applied to new pharmaceuticals and can contribute to a better understanding of crystallization in amorphous solids overall.
Student Presenter 1	Sarah Kono
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Student 1 Major	Chemistry
Student 1 Year	Sophomore
Student Presenter 2	Dustine Izzo
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Student 2 Major	Chemistry
Student 2 Year	Junior
Student Presenter 3	Christopher Faherty
Student Presenter 3 Email	Christopher.faherty@cortland.edu

Student 3 Major	Chemistry
Student 3 Year	Junior
Faculty Mentor	Sarah Wolf
Faculty Mentor Email	Sarah.wolf02@cortland.edu

Poster Title	**Synthesis of 2-phenyl-5-Benzo[d]1,3,2-diazaborole Analogues**
Abstract	This presentation will be about ongoing research with the goal of synthesizing a library of BDAPI compounds. Known bioisosteres of these compounds have been used to treat Chagas disease, African Sleeping Sickness, and other Trypanosomal parasitic diseases. This poster will include a full outline of our future goals with the research, our synthetic methods, and current results. This research will be introduced, a table of compounds, methodology, and supplemental information about unexpected and "interesting" results.
Student Presenter	Alexander Rash
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Student Major	Biochemistry
Student Year	Junior
Faculty Mentor	Julius green
Faculty Mentor Email	Julius.green@cortland.edu

Poster Title	**IPN Synthesis**
Abstract	A series of interpenetrating (IPN) and pseudo-interpenetrating polymers (PIPN) were synthesized. Poly (p - phenylene oxide) was used as the foundational material and other monomers were added to create the IPN and PIPN. These materials are of interest as they are currently used in many products including consumer electronics and automotive parts. The physical properties of these

	materials can be designed / controlled by selectively adding a second monomer to the PPO to form an IPN or PIPN creating a hybrid that retains many of the desirable properties of pure PPO. The networks were synthesized by mixing polymers with monomers and by starting from monomers and then polymerizing in situ. The compositions of the networks were based on weight percent of each polymer used in the mixture. The resulting materials were characterized using DSC.
Student Presenter	Kuba Szulejko
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Student Major	OTHER
Student Year	Sophomore
Other Major	Physics and Engineering
Faculty Mentor	Gregory Phelan
Faculty Mentor Email	Gregory.phelan@cortland.edu

Transformations 2024
Contributed Talks III, 3:00 – 4:00 PM
Concurrent Sessions 1
Bowers Hall, 1120

Title for the Full Session	**Student Research in Anthropology**
Faculty Moderator	Hollis Miller
Faculty Moderator Dept.	Anthropology
Faculty Email	Hollis.miller@cortland.edu

Presentation 1 Title	**A Historical Perspective on the Pollution of Onondaga Lake**
Abstract	Onondaga Lake is considered to be the most polluted lake in the United States. Exploitation of this area, beginning with the Salt Industry, has introduced dozens of chemicals into the

	environment, ruining the system that was once well-preserved in the lake. Due to centuries of mistreatment, the lake and its community have suffered tremendously with recreation, biodiversity, and culture at a loss. As an example of the extension of colonialism, this region must be prioritized as cleanup processes progress to bring justice to the Indigenous community that has lived here for thousands of years, and be done in a sustainable manner. With this in mind, we must take a deeper look at how this ranking came to be and the true damage that has been caused as a result.
Student Presenter	Haley Tanner
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Student's Major	Anthropology
Student Year	Senior
Faculty Mentor	Hollis Miller
Faculty Mentor's Email	Hollis.miller@cortland.edu

Presentation 2 Title	**Historical Ecology of Onondaga Lake: Flora and Fauna**
Abstract	Onondaga Lake is a lake in central New York located northwest of the city of Syracuse. The shores of Onondaga Lake directly border the city. The lake has been severely polluted and as a result, flora and fauna of the lake ecosystem have suffered. This lake is a historically sacred site for the Haudenosaunee Confederacy. The Onondaga Nation recognizes "The Lake is the living sum of everything in its watershed: the fish, the people, the plants, the soils, the tributaries" (Onondaga Nation's Vision for a Clean Onondaga Lake, onondaganation.org). The living and non-living ecological landscape and relationship between this ecosystem and the people who have historically used it, has been forever changed.

Student Presenter	Olivia Morrison
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Student's Major	Anthropology
Student Year	Senior
Faculty Mentor 1	Hollis Miller
Faculty Mentor 1 Email	Hollis.miller@cortland.edu

Presentation 3 Title	**Recreational Use of Onondaga Lake**
Abstract	My talk will focus on the recreational use of Onondaga Lake, highlighting not only its use in the past, but the state of recreational use in the present as well. The past overview will focus on the different resorts that used to be along the lake, featuring the many different attractions and gatherings over the years, until their eventual closing. Within the presentation is also a section touching on Indigenous people's use of the lake, as even though it may not be recreational in the Western sense of the word, the lake was still of great importance to these people. Finally I will conclude the discussion by talking about efforts to bring the lake back to its past recreational beauty, as well as bringing to attention the few recreational activities still available.
Student Presenter 1	Ronde Wood
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Student 1 Major	Anthropology
Student 1 Year	Senior
Faculty Mentor	Hollis Miller
Faculty Mentor's Email	Hollis.miller@cortland.edu

Presentation 4 Title	**Onondaga Lake Cleanup Efforts**
Abstract	Onondaga Lake is one of the most polluted lakes in the nation due to industrialization, wastewater pollution, and runoff. Over the years we have seen the lake grow worse in its condition, being declared

	a Superfund site in 1994. With the teamwork of the New York State Department of Environmental Conservation, Honeywell, and the Onondaga Nation, plans have been made to benefit both the Nation and other visitors of the lake to create a cleaner environment for all to utilize and enjoy. Through several legal battles, we have seen plans set forward to clean the lake and make it enjoyable for all, but is the plan in place enough to satisfy everyone's expectations?
Student Presenter 1	Jennifer Baker
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Student 1 Major	Anthropology
Student Dual Major	Sociology
Student 1 Year	Senior
Faculty Mentor	Hollis Miller
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Presentation 5 Title	**Measuring the Effectiveness of NAGPRA in New York State Institutions**
Abstract	There is a well-documented history of US state institutions possessing Indigenous human remains and cultural artifacts without consent from descendent communities. Since the Native American Graves Protection and Repatriation Act's (NAGPRA) establishment in 1990, institutions have been required by law to repatriate these remains back to their rightful communities, but today there are still many cases of repatriation that remain uncompleted. To evaluate NAGPRA'S effectiveness in New York State, I investigated repatriation efforts on 64 SUNY campuses. I examined campus involvement concerning NAGPRA by collecting data on NAGPRA Coordinators at SUNY campuses and collections held by their departments and museums that potentially fall under the realm of NAGPRA. I am also analyzing the index of repatriation reports in the Federal Register, while writing a literature review that includes legislation. Results will help measure NAGPRA's effectiveness of sparking repatriation efforts from the perspectives of all parties involved, including Indigenous descendant communities.
Student Presenter 1	Caleigh Pfalzer
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Student 1 Major	Anthropology
Student 1 Dual Major	Criminology
Student 1 Year	Senior
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Transformations 2024
Contributed Talks III, 3:00 – 4:00 PM
Concurrent Sessions 2
Bowers Hall, Room 1129

General Interest Session	
Faculty Moderator	Hilary Wong
Faculty Moderator Dept.	Library
Faculty Email	Hilary.wong@cortland.edu

Presentation 1	**Approaches to the synthesis of photocleavable and membrane permeable APPPI, an endogenous inhibitor of the mitochondrial ATP/ADP translocase**
Abstract	ApppI is a toxic endogenous compound that is synthesized from IPP and AMP in the cell. ApppI induces apoptosis by inhibiting the mitochondrial ATP/ADP translocase. Approaches to the synthesis of both a membrane permeable and photocleavable derivative of ApppI are being studied and optimized to further the investigation of ApppI and its cellular functionality. The addition of a pivalate group on the tertiary oxygen masks the negative charge, enhancing membrane permeability which allows ApppI to be introduced into cell lines. Introduction of a photolabile group, an o-nitrobenzyl alcohol, on ApppI will allow for

	temporal and spatial regulation of ApppI introduction in the cellular environment. Isolated and purified ApppI derivatives will be introduced in cell lines to study its impacts on cellular viability as it relates to potential clinical manifestations in combination therapy with bisphosphonates, probenecid, and novobiocin in formation of BP modulators that could be tested for clinical efficacy.
Student Presenter	Sophia Boccio
Student Presenter Email	Sophia.boccio@cortland.edu
Student Major	Biochemistry
Student Year	Junior
Faculty Mentor	Frank Rossi
Faculty Mentor's Email	Frank.rossi@cortland.edu

Presentation 2 Title	**Base-promoted synthesis of phosphate esters from H-phosphonates**
Abstract	Phosphorus compounds, specifically phosphate esters are ubiquitously found in biological systems and hold great physiological importance. Because of their wide applications and biologically abundant nature, phosphate ester compounds have attracted great attention from academic, pharmaceutical, and industrial labs. This methodology uses a sound, one-pot, base-promoted oxidation of H-phosphonates. Substrate isoprenol was successfully phosphorylated from H-phosphonates using this methodology. However, this method's reaction was not optimized, or scoped, and mechanisms/kinetics were not elucidated. Herein, I report a kinetic analysis of the synthesis of Phosphate esters from H-phosphonates. An optimal base/oxidant ratio for the highest desired product yield was elucidated via NMR analysis. Furthermore, a full equilibrium of every participating phosphorus molecule is deciphered & characterized. This proposed

	methodology may be a way to phosphorylate biologically significant substrates efficiently.
Student Presenter	Tazio Cutrona
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Student Major	Biochemistry
Student Year	Junior
Faculty Mentor	Frank Rossi
Faculty Mentor's Email	Frank.rossi@cortland.edu

Presentation 3 Title	**Response of stress related genes in Eastern Oysters exposed to plastic leachate**
Abstract	Millions of tons of plastic end up in the oceans, causing many different hazards to marine organisms. I studied how eastern oysters (Crassostrea virginica) respond to plastic exposure by measuring differential expression of stress-related genes in plastic-polluted water compared to control conditions. Ten juvenile oysters were kept in each of ten beakers. Five beakers contained clean saltwater at 17ppt. Five beakers contained plastic leachate made from the breakdown of plastic pieces in 17 ppt saltwater. After 2 weeks of exposure, treatment oysters were moved to clean 17ppt water for an additional two weeks of recovery time. Gill tissue was removed from two oysters per beaker weekly for 4 weeks. I used complementary DNA synthesized from extracted RNA to measure relative expression of genes involved in stress responses via quantitative PCR. I found that exposure to microplastics and plastic leachate caused differential expression in the stress-related genes of eastern oysters.
Student Presenter	Makiah Poli
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Student Major	Biology
Student Year	Junior

Faculty Mentor	Laura Eierman
Faculty Mentor's Email	Laura.eierman@cortland.edu

Presentation 4 Title	**Examining evolutionary pressures on flavonoid biosynthetic pathway genes in Nicotiana species with different flower colors**
Abstract	The evolution of angiosperms has relied on pollinators to facilitate speciation. Various pollinators are attracted to distinct flower colors produced by different combinations of pigments. The flavonoid biosynthetic pathway (FBP) works in a branched pattern to produce flavonol and anthocyanin pigments, including pelargonidin (red), cyanidin (magenta), and delphinidin (purple). The objective of this study is to evaluate evolutionary pressures acting on FBP genes affecting flower color shifts in Nicotiana species. We aligned DNA sequences, inferred phylogenies, then ran both branch model and branch-site model analyses to identify the ratio of the rates of nonsynonymous to synonymous mutations (dN/dS). In branch models, some genes are under more relaxed purifying selection in species that do not produce anthocyanins, suggesting that there is less pressure to maintain these sequences. In branch-site models, some genes had some amino acid sites under positive selection, suggesting that those sites may be important in producing different pigments.
Student Presenter	Abigail McCoy
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Student Major	Biomedical Sciences
Student Year	Seniors
Faculty Mentor	Elizabeth McCarthy
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Transformations 2024
Contributed Talks III, 3:00 – 4:00 PM
Concurrent Sessions 3
Bowers Hall, Room 1213

Title for the Full Session	**Histories of Sports, Empire, and Nationalism in the UK and Ireland**
Faculty Moderator	Scott Moranda
Faculty Moderator Dept.	History
Faculty Email	Scott.moranda@cortland.edu

Presentation 1 Title	**Was Tennis Irish Enough? Women's Tennis and Irish Nationalism**
Abstract	In this presentation, Emma Efing will present from her HIS 290: Historical Methods research paper, in which she explored the Gaelic Athletic Association's initial rejection of tennis as a sport, seeing it as inappropriate for a new Ireland free of English influence. In particular, she explores how female tennis players advocated for the sport within a nationalist movement that celebrated traditional "Irish" sports in highly gendered ways. While male leaders of the Gaelic Athletic Association promoted athletic events that molded Irish men into activist citizens fighting for independence, advocates for tennis hoped to make space for women in the emerging Irish nation.
Student Presenter	Emma Efing
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Student Major	History
Student Dual Major	Adolescence Education
Student Year	Senior
Faculty Mentor	Scott Moranda
Faculty Mentor's Email	Scott.moranda@cortland.edu

Title of Presentation 2	**Beyond the Bell: Jack Johnson's Pursuit to Redefine Racial Dynamics in the British Empire**
Abstract	In this presentation, James Dobbins presents from his project completed for HIS 490: Senior Research Seminar. James explores how the African-American boxer, Jack Johnson, actively sought out a title bout with the British world champion in 1911. White boxers evaded a fight with Johnson and eventually British political and sports authorities canceled a fight scheduled in London. James discusses how fears of colonial uprising and perceived threats to "white supremacy" led to the fight's cancellation, but he also considers Johnson's globetrotting pursuit of boxing opponents from London to Sydney and back as Johnson's personal campaign against segregation.
Student Presenter	James Dobbins
Student Presenter Email	James.dobbins@cortland.edu
Student Major	History
Student Dual Major	Adolescence Education
Student Year	Senior
Faculty Mentor	Scott Moranda
Faculty Mentor's Email	Scott.moranda@cortland.edu

Title of Presentation 3	**Constructed Irish Nationalism: Depicting Irish Identity from 1900-1930 through Dance, Gender, and Nationalism**
Abstract	In this presentation, Anna Verwij will presnet from her HIS 490: Senior Research seminar project. She explores how Irish nationalists promoting traditional Irish dance fought against the spread of modern, non-Irish dance forms. Not only did they believe traditional Irish dance better promoted "proper" feminine behavior and helped stabilize gender roles, their response to jazz suggested how racial thinking influenced the Irish

	nationalist movement. Dance, for the subjects under study, helped bind young Irish men and women in large cities to national values associated with the countryside.
Student Presenter	Anna Verwij
Student Presenter Email	Anna.verwij@cortland.edu
Student Major	History
Student Dual Major	Adolescence Education
Student Year	Senior
Faculty Mentor	Scott Moranda
Faculty Mentor Email	Scott.moranda@cortland.edu

Presentation 4 Title	**Differing Perspectives on the Gaelic Athletic Association At The End Of The Troubles in Northern Ireland**
Abstract	In this presentation, Colin Aleci will present from his HIS 490: Senior Research seminar project, in which he explored the role of the nationalist Gaelic Athletic Association in the sectarian conflict called the Troubles in Northern Ireland. His project revealed how in the Republic of Ireland, the media began to distance themselves from radical nationalism. Journalists praised the Gaelic Athletic Association for promoting traditional Irish sport and fought against anti-Catholic discrimination, but they insisted that the organization distance itself from a nationalist linked to violence and war. On the other hand, Protestant football fans in Northern Ireland continued to present the Gaelic Athletic Association as a radical Catholic nationalist organization that made the Troubles worse and actually discriminated against Protestants.
Student Presenter	Colin Aleci
Student Presenter Email	Colin.aleci@cortland.edu

Student Major	History
Student Dual Major	Adolescence Education
Student Year	Senior
Faculty Mentor	Scott Moranda
Faculty Mentor Email	Scott.moranda@cortland.edu