



# **TRANSFORMATIONS**

A Student Research and Creativity Conference

**Online beginning Friday, April 30, 2021**

**SUNY  
Cortland**

**Presentations:** Session I: Faculty Moderator: Kimberly Rombach, 10:20 AM - 11:20 AM  
WebEx:<https://sunycortland.webex.com/sunycortland/j.php?MTID=m68760735986cab8b67b76fff964cfa4b>

<b>Title for the Full Session</b>	Researching Strategies to Promote Reading and Writing Development in Childhood Education Classrooms
<b>Faculty Mentor and Moderator</b>	Kimberly Rombach
<b>Department of the faculty Mentor</b>	Childhood/Early Childhood Education Department
<b>Title of Presentation 1</b>	Inquiring into Student Outcomes When Provided with Constructive Feedback from Classmates
<b>Abstract 1</b>	This research study gathered student responses from teachers and peers before and after implementing peer feedback in an elementary classroom setting. Data were collected using surveys and student work samples and were analyzed to determine the impact peer feedback had on students' achievement. Initial findings suggest peer feedback is useful to promote students' written expression. This presentation will offer information on how to incorporate peer feedback in an elementary classroom, as well as provide guidelines for giving feedback to students.

<b>Student Presenter Name 1</b>	Kendra Barton
<b>Student Presenter Year</b>	Graduate Student
<b>Student Presenter Major</b>	Childhood Education (Grade 1-6)
<b>Title of Presentation 2</b>	How does Grouping Arrangement Contribute to Student Success?
<b>Abstract 2</b>	Teachers commonly implement different small grouping arrangements during instruction. In what ways does grouping arrangement contribute to student success?

This action research study used a mixed-methods design to inquire into the benefits of homogeneous and heterogeneous grouping with regard to students' written expression. Data was collected throughout a five-week period. Four students who scored developing, proficient and above on the NYS ELA Test were placed in a heterogeneous ELA group while receiving instruction on written expression. Initial findings show an increase in written expression outcomes for students who were at the developing levels while no change was noted for students who were at the proficient and above levels. In addition, students who had scored proficient and above on the NYS ELA test, scored similarly when in heterogeneous and homogeneous groups. This presentation will provide information about how to use homogeneous and heterogeneous groupings as an intervention.

**Student Presenter Name 2**

Katherine Klecha

**Student Presenter Year**

Graduate Student

**Student Presenter Major**

Childhood Education (Grade 1-6)

**Title of Presentation 3**

Investigating Teachers' Use of Collaboration to Increase Academic Outcomes for Students with Disabilities

**Abstract 3**

Teachers collaborate often to identify how to promote students' learning and it's important to understand the effects of collaboration on student achievement. This action research study used a mixed-methods design to inquire ways that teacher collaboration contributes to academic outcomes for students with disabilities. Data were collected over a five-week period. Initial findings portray that co-teaching in the classroom does contribute to increased academic outcomes. This presentation will present the findings and will provide information about how to utilize co-teaching in the classroom as an intervention and ways that co-teaching can benefit all students.

**Student Presenter Name 3**

Emily Palmer

**Student Presenter Year**

Graduate Student

**Student Presenter  
Major**

Childhood Education (Grade 1-6)

**Title of  
Presentation 4**

The Benefits of Differentiated Instruction

**Abstract 4**

Students learn in different ways and it is important for teachers to adjust their instruction to help students learn. This action research study used a mixed-methods design to investigate the benefits of differentiated instruction during ELA lessons in a first-grade classroom. Data were collected during a three-week period. Initial findings show modified instruction effectively meets the diverse academic needs of students and maximizes learning of all students. This presentation will provide additional information about how to use differentiated instruction as an intervention along with suggestions for increasing students' phonics development.

**Student Presenter  
Name 4**

Melissa Schreffler

**Student Presenter  
Year**

Graduate Student

**Student Presenter  
Major**

Childhood Education (Grade 1-6)

**Presentations:** Session II: Faculty Moderator: Kimberly Rombach, 12:40 PM – 1:55 PM  
WebEx: <https://sunycortland.webex.com/sunycortland/j.php?MTID=mca56d1ccddcf14e6fa249a791f255bac>

<b>Title for the Full Session</b>	Encouraging Peer Interactions to Promote Social, Emotional and Academic Learning
<b>Faculty Moderator and Mentor</b>	Kimberly Rombach
<b>Department of the faculty moderator</b>	Childhood/Early Childhood Education Department
<b>Title of Presentation 1</b>	Inquiring into Peer Tutoring and Its Impact on Student Achievement
<b>Abstract 1</b>	The purpose of this action research project was to investigate the impact of peer tutoring on student achievement. This study was designed to examine how the use of mixed-ability partner work can contribute to students' social-emotional and academic outcomes while in a fourth grade mathematics classroom. Data was collected using a mixed-methods design over the course of a 3-week period. Findings related to students' academic and social-emotional growth that occurred through the use of peer tutoring will be shared during this presentation.
<b>Student Presenter Name 1</b>	Jessica Hannah
<b>Student Presenter Year</b>	Graduate Student
<b>Student Presenter Major</b>	Childhood Education (Grade 1-6)
<b>Title of Presentation 2</b>	Implementing a Social Emotional Curriculum to Help Students Cope with Stress
<b>Abstract 2</b>	Many teachers have recently reported an increase in students' stress yet are often unsure about how to facilitate students' coping and processing of it while in classrooms. This action research study used a mixed-methods design to analyze the benefits of implementing biweekly journal writing activities through a social

emotional curriculum in a fifth-grade classroom. The journal prompts were designed to help students reflect upon and cope with the added stressors associated with the COVID 19 pandemic in conjunction with changes in the school year. Data were collected throughout a three-week period. Initial findings show the student's increased ability to reflect on past events, as well as evidence to show the impressive resilience and adaptability portrayed by the group of students. This presentation will provide information about the benefits of social emotional curriculum as a way to help students with their coping skills during challenging times.

**Student Presenter Name 2**

Lauren Lester

**Student Presenter Year**

Graduate Student

**Student Presenter Major**

Childhood Education (Grade 1-6)

**Title of Presentation 3**

Developing a Classroom Community to Keep Students Attentive in Class

**Abstract 3**

Teachers often include classroom meetings in their daily schedules. In what ways do classroom meetings benefit students? This action research study used a mixed-methods design to inquire into the benefits of classroom meetings in a first-grade classroom. Data was collected over a three-week period. Initial findings portray that classroom meetings do increase attentiveness and behavior between elementary students. This presentation will portray results that emerged following the three-week intervention.

**Student Presenter Name 3**

Allyson McLyman

**Student Presenter Year**

Graduate Student

**Student Presenter Major**

Childhood Education (Grade 1-6)

**Title of Presentation 4**

Inquiring into Teacher Encouragement to Improve Students' Academic Outcomes

**Abstract 4**

Teachers' encouragement can play a large role in elementary classroom settings yet more needs to be understood regarding the association between offering encouragement and students' academic achievement. This action research study uses a mixed-methods design to inquire into how teacher encouragement contributes to students' academic outcomes. Data was collected over a five-week period. Initial findings portray that encouragement increased students' academic outcomes. This presentation will present findings of this study and will provide tips for giving constructive encouragement to those students who would benefit from it the most.

**Student Presenter Name 4**

Kalee Updyke

**Student Presenter Year**

Graduate Student

**Student Presenter Major**

Childhood Education (Grade 1-6)

**Title of Presentation 5**

Inquiring into the Benefits of Choice Boards while Online Learning.

**Abstract 5**

Choice boards have been found to be beneficial in classrooms but little is known about the impact of using choice boards in online learning environments. This action research study used a mixed-method design to inquire into the benefits of choice boards in a hybrid second-grade classroom. Data were collected during a three-week period, specifically on ELA choice boards. Initial findings portray an increase in student engagement and time spent reading while at home. This presentation will dive into online learning and what can be done to promote student success while online, as well as how to use choice boards to personalize student learning.

**Student Presenter Name 5**

Hailie Searles

**Student Presenter Year**

Graduate Student

**Student Presenter Major**

Childhood Education (Grade 1-6)

**Presentations:** Session III: Faculty Moderator: Kimberly Rombach, 3:00 PM – 4:00 PM  
WebEx: <https://sunycortland.webex.com/sunycortland/j.php?MTID=m8dfe121074a692758beb82fe116bec0e>

<b>Title for the Full Session</b>	Investigating Strategies to Promote Student Engagement in Childhood Education
<b>Faculty Moderator and Mentor</b>	Kimberly Rombach
<b>Department of the faculty moderator</b>	Childhood/Early Childhood Education Department
<b>Title of Presentation 1</b>	Inquiring into Students' Goal Setting to Meet Their Learning Outcomes
<b>Abstract 1</b>	<p>It is important for students to actively participate in their own learning yet more information is needed to understand the impact of students' goal setting on academic achievement. This action research study used a mixed-methods design to inquire into the benefits of having students set their own SMART Goals to achieve their learning outcomes. Data was collected throughout a four-week period with help from a teacher, and a two-week period where students did not have help from their teacher. Initial findings portray an increase in elementary students' learning outcomes by setting their own goals. This presentation will also provide suggestions about how to implement SMART Goals as an intervention with elementary students.</p>
<b>Student Presenter Name 1</b>	Rebecca Bouyea
<b>Student Presenter Year</b>	Graduate Student
<b>Student Presenter Major</b>	Childhood Education (Grade 1-6)
<b>Title of Presentation 2</b>	The Impact of Teachers' Interactions and Goal Setting on Students' Outcomes
<b>Abstract 2</b>	<p>Teachers' interactions can have a powerful impact on students' outcomes. This action research study used a mixed-methods strategy to inquire into students' outcomes resulting from teachers' interactions in a</p>

third-grade classroom. The study is focused on three students all at different academic levels. Data was collected through a three-week period and initial findings indicate that goal setting can be intimidating for some. Achieving self-selected goals within a week's timeframe has been found to be challenging to students but offers a motivational target to work toward and reflect on. This presentation provides insight into the benefits of using goal setting as an instructional intervention while also reporting outcomes resulting from receiving student-to-student support.

**Student Presenter Name 2**

Megan Moody

**Student Presenter Year**

Graduate Student

**Student Presenter Major**

Childhood Education (Grade 1-6)

**Title of Presentation 3**

Effects of Universal Design for Learning on Academic Outcomes

**Abstract 3**

Classrooms are serving an increasingly diverse population of students; some teachers are using Universal Design for Learning (UDL) as an approach to meet the needs of all students. This actions research study used a mixed-methods design to inquire into the benefits of UDL. Data was collected in a second-grade classroom, over three-weeks, and included quantitative assessments, qualitative analysis of writing, and anecdotal notes. Initial findings suggested that using UDL to promote all students' academic outcomes increased engagement through motivation, promoted students' perceptions about their abilities, and met the needs of individual learners through strategies to scaffold learning. These findings aligned with the three guiding principles of UDL: "engagement, representation, and action/expression" (CAST 2018, <https://udlguidelines.cast.org/>). The studies reviewed in this report, show these categories reflect positively on academics. Presentation of this study, will also provide information about apply the principles of UDL to lessons created for elementary students.

**Student Presenter Name 3**

Shelly Moscato

**Student Presenter  
Year**

Graduate Student

**Student Presenter  
Major**

Childhood Education (Grade 1-6)

**Title of  
Presentation 4**

Effects of Gamification on Student Engagement in 6th Grade AIS English Language Arts Class

**Abstract 4**

Gamifying lessons in elementary classrooms is becoming more prevalent yet little is known about its effect as an intervention to increase student engagement during English Language Arts instruction. This action research study uses a mixed-methods design to investigate the effects of gamifying lessons in a 6th grade AIS English Language Arts classroom on student engagement. Baseline data was collected using non-gamified lessons. After implementing gamified lessons, data was collected throughout a three-week period. Initial findings showed students had an increase in overall engagement indicated by increased participation, more frequent assignment completion and increased on-task behavior. This presentation will present findings of this study and provide information about how gamifying lessons for students may be a valid intervention to promote student engagement.

**Student Presenter  
Name 4**

James Pattwell

**Student Presenter  
Year**

Graduate Student

**Student Presenter  
Major**

Childhood Education (Grade 1-6)

## **2020 Outstanding Writing Awards**

**WebEx:**

<https://sunycortland.webex.com/sunycortland/j.php?MTID=m20d9cc47e977a9c4dc3c54a239bc4e29>

**Moderator:** Michael Turner, Director, Writing Center;  
Associate Director of Writing Programs

**Co-Moderator:** Katherine Ahern, Assistant Professor, English;  
Director, Writing Program

**Session II: 12:40- 1:40 P.M.**

**Student Readers during the LIVE Presentations:**

Becca Gresens

Jacob Anweiler

Rebecca Diers

Kim Welch

### **Collin Anderson Memorial Awards**

#### River's Edge

Presenter: Emily Tartamella, SR, SHS

Category (Award): Poetry - Winner

Faculty Sponsor: Professor Mario Hernandez

#### The Owl

Presenter: Jacob Anweiler, SR, HIS

Category (Award): Fiction - Winner

Faculty Sponsor: Professor Gailanne Mackenzie

#### Nature's Observations

Presenter: Aliza Brylinsky, SR, PWR

Category (Award): Fiction - Honorable Mention

Faculty Sponsor: Dr. David Franke

#### Grief is love with nowhere to go

Presenter: Sara Sampson, SR, PWR

Category (Award): Creative Nonfiction - Winner

Faculty Sponsor: Dr. David Franke  
Declares the Lord  
Presenter: Madison Scheuneman, SR, PWR  
Category (Award): Creative Nonfiction - Honorable Mention  
Faculty Sponsor: Professor Tyler Bradway

Anonymous

Presenter: Kimberly Welch, SR, PWR  
Category (Award): Digital/Multimodal Writing  
Faculty Sponsor: Dr. Adrienne Raw

**Writing Across Curriculum Awards**

The Style and Substance of Wes Anderson

Presenter: Benjamin Smith, SR, SPM  
Category (Award): Kathy Lattimore-First Year Student - Winner  
Faculty Sponsor: Professor Jacyn Pittsley

The Fisherman and His Wife: a Feminist Perspective

Presenter: Drew Hessler, JR, POL  
Category (Award): Kathy Lattimore-First Year Student -  
Honorable Mention  
Faculty Sponsor: Professor Howard Lindh

Lipinski's Five Rules Applied to Five Drug Target Classes

Presenter: Jason Evans, SR, CHM  
Category (Award): School of Arts & Sciences - Winner  
Faculty Sponsor: Professor Karen Downey

Nevada's AB4: The COVID-19 Pandemic and Impacts on Native American Voting Rights

Presenter: Molly Kraus, JR, POL  
Category (Award): School of Arts & Sciences - Honorable Mention  
Faculty Sponsor: Professor Thomas Pasquarello

Culturally Relevant Pedagogy in Education

Presenter: Becca Gresens, SR, IEC  
Category (Award): School of Education - Winner  
Faculty Sponsor: Professor Rhiannon Maton

Letter to President Trump

Presenter: Lauren Leister, GR, CHC  
Category (Award): School of Education - Honorable Mention  
Faculty Sponsor: Professor Kim Wieczorek

Application of Behavior Change Theories to Healthy Eating Habits

Presenter: Sabrina Cordaro, SR, SEL  
Category (Award): School of Professional Studies - Winner  
Faculty Sponsor: Professor Alexis Blavos

Mental Health and Reintegration of Former Child Soldiers in the Congo:  
An Analysis of Cultural Responses to Trauma

Presenter: Rebecca Diers, SR, PWR  
Category (Award): Graduate Student - Winner  
Faculty Sponsor: Professor John Sosa

**Presentations:** Session II: Faculty Moderator: Mark Dodds, 12:40 PM - 1:55 PM

WebEx: <https://sunycortland.webex.com/sunycortland/j.php?MTID=mecb5cec55053ab32e5db93c7378bc37a>

**Title of presentation 1**

Comprehensive Issues in Sport Management

**Abstract 1**

"The COVID-19 pandemic has forced an unprecedented global shut-down, while the impacts on sport and active living have been transformative and complex. How has this shut down affected mega events and smaller sporting events and what will the future of hosting sports entail?"

**Faculty Mentor**

Mark Dodds

**Faculty Mentor Department**

Sport Management

**Student Presenter Name 1**

Anna Lieza Bradshaw

**Student Presenter Year**

Senior

**Student Presenter Major**

Sport Management

**Title of presentation 2**

Corona Virus Affecting Sport Sales and Marketing

**Abstract 2**

With Coronavirus destroying not only our country, but our world, the sport marketing industry must stay alert and on their toes if they want their company to stay in business. The Coronavirus has affected all aspects of sports and is unfortunately, bringing sports into the gutter with it. Through tough times like these, companies are doing their best to overcome the financial burden that was brought upon them. Unfortunately, the Coronavirus doesn't give the companies much room to expand to bring in more revenue. Rules and regulations put a huge halt on the companies from doing all they can to bring back their

revenue standings.

**Faculty Mentor**

Mark Dodds

**Faculty Mentor Department**

Sport Management

**Student Presenter Name 2**

Gabriella Competiello

**Student Presenter Year**

Senior

**Student Presenter Major**

Sport Management

**Title of presentation 3**

COVID-19 Effect on Sports Facility and Event Management

**Abstract 3**

How coronavirus has effected the Sports Facility and Event Management field. From a financial standpoint in the field as a long lasting effect from the virus. On top of this the way things have been done and stadiums have been ran will be changed forever as well as the lives of all employees/workers.

**Faculty Mentor**

Mark Dodds

**Faculty Mentor Department**

Sport Management

**Student Presenter Name 3**

Robert Christ

**Student Presenter Year**

Senior

**Student Presenter Major**

Sport Management

**Title of presentation 4**

Inclusivity Evolving for Women in Sport

**Abstract 4**

There have been many recent actions that have been taken in the sport industry towards becoming more inclusive towards women in sport. Women have recently made big strides in the sport industry towards bringing awareness to the issue so that the proper changes can be made. It is important for women to have a voice in the sport industry because it is important for equal representation. It is important to educate people on this matter so changes can be made. Women in sport play a huge role in the sport industry, despite what people may think. Many times people form biased opinions on things that they are not educated on. It starts with educating the youth so they can grow up and continue to make changes in the sport industry.

**Faculty Mentor**

Mark Dodds

**Faculty Mentor Department**

Sport Management

**Student Presenter Name 4**

Mckenna Chesbro

**Student Presenter Year**

Senior

**Student Presenter Major**

Sport Management

**Title of presentation 5**

Empowering Women Through Sports

**Abstract 5**

I am currently writing a piece for the Op/Ed Project on the importance of empowering women through sports and would love to turn my writing into a speech. I am a nationally ranked speaker from my high school and have a plethora of experience in writing and delivering speeches. As an aspiring sports journalist/broadcaster, this is my opportunity to explain to people why women should be granted more opportunities in the world of sports and why it is important to use sports as a channel to empower women and help them form a necessary community. My speech will focus on my personal experience and why I became interested in my chosen field and then move on to the facts of how women who are involved in sports form close friendships, do better in school, and are more confident. I appreciate the opportunity to speak and look forward to hearing your decision soon. Thank you!

**Faculty Mentor**

Mark Dodds

**Faculty Mentor Department**

Sport Management

**Student Presenter Name 5**

Alexandra Russo

**Student Presenter Year**

Freshman

**Student Presenter Major**

Communication Studies

**Presentations:** Session II: Faculty Moderator: Elizabeth McCarthy, 12:40 PM - 1:40 PM  
WebEx: <https://sunycortland.webex.com/sunycortland/j.php?MTID=m160c2cef793652156906dd764a708c8a>

**Title of presentation 1**

Altered Gametogenesis Gene Expression of the Eastern Oyster (*Crassostrea virginica*) in Response to Plastic Exposure

**Abstract 1**

Marine plastic pollution leaches chemicals that cause detrimental effects such as reduced fecundity and feminization of males in marine species. The eastern oyster, *Crassostrea virginica*, is a valuable species to study the effects of plastic on sex differentiation because it is a protandric hermaphrodite that undergoes gametogenesis yearly. My objective was to investigate a potential cause of an observed female-skew in the sex ratio of first year oysters exposed to plastic by measuring differential gene expression of eight gametogenesis genes from oysters grown on plastic compared to those on shell. Plastic exposure increased the expression of genes involved in egg production for females and reduced the variation in expression for males. The results suggest plastic may be altering gene expression in a way that results in a female-skewed sex ratio as observed in plastic-exposed oysters.

**Faculty Mentor**

Laura Eierman

**Faculty Mentor Department**

Biology

**Student Presenter Name 1**

Marissa Kordal

**Student Presenter Year**

Senior

**Student Presenter Major**

Biology

**Title of presentation 2**

Computational modeling of the flavonoid biosynthetic pathway in Nicotiana: How do simulated outputs compare to collected transcriptome data?

**Abstract 2**

Flower color is variable across Nicotiana (tobacco) due to the presence of different pigments. We used Wheeler and Smith's (2019) model to simulate evolution of pigment phenotypes of the flavonoid biosynthetic pathway, which produces anthocyanin (colorful) and flavonol (colorless) pigments. Each iteration, a mutation is introduced in one of three enzyme parameters influencing pigment production: catalytic constant, binding affinity, or enzyme concentration to reach a desired pigment concentration optimum. 10,000 iterations run in each of 50,000 simulations. Results indicate that mutations which contribute to reaching the optimum occurred in all parameter types. Enzymes at branches of the pathway were mutated most frequently, as expected because these enzymes determine the flux of the pathway. Our goal is to edit the code to evolve to multiple optima to better simulate actual pigment data. Additionally, we will compare simulated enzyme concentration outputs to transcriptome data from our accessions to determine if similarities exist.

**Faculty Mentor**

Elizabeth McCarthy

**Faculty Mentor Department**

Biology

**Faculty Mentor**

Garrett Otto

**Faculty Mentor Department**

Mathematics

**Faculty Mentor**

Jacob Landis

**Faculty Mentor Department**

The School of Integrative Plant Sciences, Cornell University

**Student Presenter  
Name 2**

Layne Jensen

**Student Presenter  
Year**

Senior

**Student Presenter  
Major**

Mathematics

**Title of  
presentation 3**

Attitudes, Beliefs, and Experiences of Campus Members Participating in COVID-19 Surveillance testing at State University of New York (SUNY) College at Cortland.

**Abstract 3**

Students, faculty, and staff have been participating in COVID-19 surveillance testing on campus since September of 2020. This presented a new challenge for the campus given this was the first-time surveillance testing of this level was mandated for an infectious disease during a pandemic. This presentation will describe the surveillance testing process that took place over the academic year. This presentation will also present the results of a survey administered to a sample of campus members in the Spring of 2021 to understand their attitudes, beliefs, and experiences associated with surveillance testing. The findings will include campus members' satisfaction level with surveillance testing, as well as the challenges and barriers faced. The survey findings will be used to improve the quality and efficiency of the surveillance testing process and future pandemic planning responses.

**Faculty Mentor**

Jill Murphy

**Faculty Mentor  
Department**

Health Department

**Student Presenter  
Name 3**

Megan Perine

**Student Presenter  
Year**

Junior

**Student Presenter  
Major**

Community Health

**Presentations:** Session II: Faculty Moderator: James Hokanson, 12:40 PM - 1:40 PM

WebEx: <https://sunycortland.webex.com/sunycortland/j.php?MTID=m6ace12c423e6e7100a953d8c449bf55e>

**Title of presentation**

Resting Cardiovascular Response to Elevated Alter-G®  
Treadmill Chamber Pressure at Three Unweighted  
Conditions in College Age Volunteers

**Abstract**

The Alter-G® treadmill creates positive pressure by utilizing an inflatable chamber with forced air. This generates an unweighted condition but changes to cardiovascular responses is not fully known. The purpose of this investigation was to study resting heart rate (HR), blood pressure (BP), and chamber air pressure (CAP) across three unweighted conditions. Volunteers (n=5) of a pilot study stood inside the chamber under unweighted conditions of 35, 70, and 90%. HR, BP and CAP were recorded at the end of each 3-minute condition. Preliminary results across conditions show changes in average ( $\pm SD$ ) HR of  $67.60 \pm 14.63$ ,  $71.00 \pm 17.07$ , and  $74.00 \pm 14.98$  bpm. Mean arterial BP for each condition was  $89.20 \pm 5.67$ ,  $90.70 \pm 5.51$ ,  $83.90 \pm 7.56$  mmHg. Average CAP decreased from  $767.08 \pm 18.40$  to  $744.44 \pm 13.27$  mmHg. HR and BP were maintained despite the pattern of higher to lower CAP across conditions.

**Faculty Mentor**

James Hokanson

**Faculty Mentor  
Department**

Exercise Science

**Faculty Mentor**

Erik Lind

**Faculty Mentor  
Department**

Exercise Science

**Student Presenter**

Lauren Roberts

**Name 1****Student Presenter**  
Year

Junior

**Student Presenter**  
Major

Exercise Science

**Student Presenter**  
Name 2

Emily Siefert

**Student Presenter**  
Year

Junior

**Student Presenter**  
Major

Exercise Science

**Student Presenter**  
Name 3

Jacqueline Santaniello

**Student Presenter**  
Year

Junior

**Student Presenter**  
Major

Exercise Science

**Presentations:** Session III: Faculty Moderator: Christian Nelson, 3:00 PM - 4:00 PM

WebEx: <https://sunycortland.webex.com/sunycortland/j.php?MTID=m4fc19ed7af478fc1f16b4e4f1d8e8813>

**Title of presentation 1**

The role of Sec16a in JC polyomavirus infection.

**Abstract 1**

JC polyomavirus (JCPV) is a common human virus that does not cause disease in healthy individuals. If an individual becomes severely immunocompromised, JCPV may infect cells of the central nervous system (CNS), causing a fatal de-myelinating disease known as progressive multifocal leukoencephalopathy (PML). Recent pharmacological studies have suggested that Sec16a, a human host protein that resides in the endoplasmic reticulum, may play a role in JCPyV infection. For other pathogens, knockdown of Sec16a interferes in transport of pathogens within cells, and our hypothesis is that a similar effect would be observed for JCPyV. We are using molecular biology techniques to knock down protein levels of Sec16a in CNS-derived cells and observing what effect decreased Sec16a levels has on JCPyV infection and transport. Our hope is that understanding how JCPyV enters and infects cells will provide druggable targets and treatment options in immunocompromised individuals suffering from PML.

**Faculty Mentor**

Christian Nelson

**Faculty Mentor Department**

Biology

**Student Presenter Name 1**

Adam Lamont

**Student Presenter Year**

Junior

**Student Presenter Major**

Biology

**Title of presentation 2**

The Role of Type-I Interferons in JCPyV Infection of Human Glial Cells

**Abstract 2**

JC Polyomavirus (JCPyV) is a common virus of humans and most infected individuals remain asymptomatic throughout their lifespan. In immunocompromised patients, JCPyV spread to the central nervous system and infects glial cells resulting in the fatal demyelinating disease progressive multifocal leukoencephalopathy (PML). Glial can sense viral infection using a number of immune receptors. One outcome of sensing viral infection is mounting a type-I interferon response that results in dramatic changes to the host cell that makes viral replication more difficult. Given that type-I interferons have been implicated in restricting JCPyV infection, we hypothesize that knocking out the interferon a/b receptor (IFNAR) using CRISPR/ Cas9 will result in an increase in viral replication. We are currently verifying IFNAR knockout in clones of glial cells and challenging these cells with JCPyV. If these cells are more susceptible to viral infection, the specific host receptors used to sense viral infection will be determined.

**Faculty Mentor**

Christian Nelson

**Faculty Mentor Department**

Biology

**Student Presenter Name 2**

Jonathan Freund

**Student Presenter Year**

Senior

**Student Presenter Major**

Biology

**Title of presentation 3**

Student-lead Marketing: It's your story

**Abstract 3**

Story-brand marketing is a customer-facing approach that places the prospective participant at the center of their own success story. This presentation will share how a student researched, developed and applied this marketing strategy to a campaign to increase awareness the Recreation Management major. The transferable marketing principles will be shared as they can be applied to a variety of initiatives, particularly for those

that center on creating meaningful experiences for the participant.

**Faculty Mentor**

Kenneth Cohen

**Faculty Mentor Department**

Recreation Management

**Student Presenter Name 3**

Stephen Zelows

**Student Presenter Year**

Senior

**Student Presenter Major**

Recreation Management

**Title of presentation 4**

Elder Care App

**Abstract 4**

Elder Care App is a website and app created by several volunteer students with the supervision of Dr. Bauer focused on providing crucial and helpful information to the elderly population and their caregivers. The effort started during the Fall 2020 semester and the project has grown with the help of interested students. We have worked together to identify nine main areas of need that people face in the latter stages of life: daily needs, finance, health issues, insurance, legal documentation/medical equipment, locations for living, loved ones, medical services, and social/exercise. We have conducted research intended to address these areas of need with resources and clear steps to take when navigating them. Currently, we have compiled a significant amount of information for the local Cortland area and are working to organize it in a way that is helpful to address this need many people are facing.

**Faculty Mentor**

Jeff Bauer

**Faculty Mentor Department**

Exercise Science

**Student Presenter Name 4**

Phillip Blough

**Student Presenter**

Senior

Year	
Student Presenter Major	Exercise Science

**Presentations:** Session A: Lightning Round #1: 11:30 AM - 12:00 PM

Faculty Moderator: Ann Blanton

WebEx:<https://sunycortland.webex.com/sunycortland/j.php?MTID=m2842f56537890dc97565af494308c64e>

**Title of  
Poster**

The Impact of Social Media on the Academic Performance of Undergraduate and Graduate Students in SUNY Cortland's Communication Disorders and Sciences Department.

**Abstract**

The objective of this study is to correlate the amount of time spent on social media to the academic performance of Communication Disorders and Sciences (CDS) undergraduate and graduate students. From firsthand experiences, the researchers uncovered a correlation between their own social media use and their academic performance. More time spent on social media resulted in poorer test grades and overall academic success. The goal is to support or deny this suspected correlation in hopes of helping current and future students. In order to be a successful student, it is important to know how social media affects students academically.

**Faculty Mentor**

Ann Blanton

**Faculty Mentor  
Department**

Speech and Hearing Science

**Student Presenter  
Name 1**

Abigayle Hens

**Student Presenter  
Year**

Graduate Student

**Student Presenter  
Major**

Speech and Hearing Science

**Student Presenter  
Name 2**

Jade Osadchey

**Student Presenter  
Year**

Graduate Student

**Student Presenter Major** Speech and Hearing Science

**Student Presenter Name 3** Corinne Murphy

**Student Presenter Year** Graduate Student

**Student Presenter Major** Speech and Hearing Science

**Student Presenter Name 4** Gen Ventrola

**Student Presenter Year** Graduate Student

**Student Presenter Major** Speech and Hearing Science

**Presentations:** Session A: Lightning Round #2: 11:30 AM - 12:00 PM  
Faculty Moderator: Christopher Badurek  
WebEx:<https://sunycortland.webex.com/sunycortland/j.php?MTID=m3400596c04540263866f21e56219cf50>

<b>Title of Poster</b>	Developing a Citizen Science Web GIS Application for Reporting Invasive Plants in Cortland County, NY
<b>Abstract</b>	<p>This poster reports on development of a web GIS application for reporting invasive species conducted in conjunction with the iMap Invasives team of the NY Natural Heritage Program. The application was developed using ESRI's Story Maps application builder and the NY iMapInvasives and NY Protected Areas Database (NYPAD) web mapping services (WMS) used for citizen science. This application provides citizens information about invasive terrestrial plant species targeted for data collection by the NY Natural Heritage Program, including hemlock woolly adelgid, porcelain berry, and oriental bittersweet. Citizen scientists can then identify locations and upload photos using the iMapInvasives mobile app. As part of this project, students in the GPS Technology course were also trained by the SUNY Cortland team on using iMapInvasives for data collection and for conducting data analysis on downloaded iMapInvasives data for the SUNY Cortland campus.</p>

<b>Faculty Mentor</b>	Christopher Badurek
<b>Faculty Mentor Department</b>	Geographic Information Systems
<b>Student Presenter Name</b>	Connor Brierton
<b>Student Presenter Year</b>	Senior
<b>Student Presenter Major</b>	Geographic Information Systems
<b>Title of Poster</b>	GIS ANALYSIS USING ARCHIVED UAS DATA OF ICE JAM FLOODING IN PLYMOUTH, NH
<b>Abstract</b>	<p>This poster reports on GIS analysis performed on archived UAS data of the Plymouth, NH ice jam of</p>

February 2017. Ice jams are a costly occurrence throughout the northern CONUS as noted by the USACE Ice Jam Database (2020). Data collected with a DJI Inspire 1 with FC550 sensor for image collection over four miles of the Pemigewasset River resulted in a final 3 cm resolution mosaic image of the ice jam impacted area. We accessed the data set from USGS Earth Explorer and processed it with ArcGIS. First, we examined the aerial mosaic of the ice flow in relation to prior high resolution aerial photos. We compare DEMs derived from the aerial imagery with 1 meter resolution USGS DEMs of the area at ten transect locations located along the river. GIS analysis of the UAS data at transects demonstrate utility of rapid data collection with UAS for flood response.

<b>Faculty Mentor</b>	Christopher Badurek
<b>Faculty Mentor Department</b>	Geography
<b>Student Presenter Name</b>	Brynn Crocker
<b>Student Presenter Year</b>	Senior
<b>Student Presenter Major</b>	Geology
<b>Title of Poster</b>	Self-Efficacy of Physical Education Teacher Education Students to Teach Outdoor Education: A Longitudinal Study
<b>Abstract</b>	Purpose: Physical Education Teacher Education (PETE) students need to participate in training to teach appropriately teach outdoor education (OE). Teachers with high self-efficacy for teaching their content are typically effective teachers. Therefore, the guiding question is: does participation in a residential OE program continue to increase self-efficacy to teach OE among PETE students after the passage of time from the training program? Methods: Ninety-five PETE students were taught OE skills in multiple residential environments in our first study. Students were evaluated using The Survey of Self-Efficacy for Teaching Outdoor Education, pre/post-test, to determine self-efficacy to teach OE. Data collection in our longitudinal study is nearly complete. Results: indicated an increase in self-efficacy scores from pre- to post-test in the original

study. Additionally, there was a large effect size of the OE program in several self-efficacy domains. Conclusion: Participation in the program positively affected PETE students' self-efficacy for teaching OE, which may improve their ability to teach this content.

<b>Faculty Mentor 1</b>	Diana Niland
<b>Faculty Mentor Department</b>	Physical Education
<b>Faculty Mentor 2</b>	Katherine Hovey
<b>Faculty Mentor Department</b>	Physical Education
<b>Student Presenter Name 1</b>	Taylor Felicello
<b>Student Presenter Year</b>	Graduate Student
<b>Student Presenter Major</b>	Physical Education
<b>Student Presenter Name 2</b>	Courtney Kane
<b>Student Presenter Year</b>	Senior
<b>Student Presenter Major</b>	Physical Education

**Presentations:** Session B: Lightning Round #3: 1:50 PM - 2:20 PM

Faculty Moderator: Ann Blanton

WebEx:<https://sunycortland.webex.com/sunycortland/j.php?MTID=mbe9a5bb1879c90005b72d13045609b45>

**Title of Poster** What Draws Undergraduate Students to SHS Major?

**Abstract** To understand what draws SUNY Cortland undergraduate students to the Speech and Hearing Science (SHS) major and to determine if students switching from other major studies have different reasons for majoring in SHS than those who initially choose SHS as their major. This will increase our knowledge of the reasons that people major in SHS which could potentially lead to better recruitment of undergraduate students for the major at SUNY Cortland.

**Faculty Mentor** Ann Blanton

**Faculty Mentor Department** Speech and Hearing Science

**Student Presenter Name 1** MaKenzie Wicks

**Student Presenter Year** Graduate Student

**Student Presenter Major** Speech and Hearing Science

**Student Presenter Name 2** Megan Netuschil

**Student Presenter Year** Graduate Student

**Student Presenter Major** Speech and Hearing Science

**Student Presenter Name 3** Hannah Lundeen

**Student Presenter Year** Graduate Student

<b>Student Presenter Major</b>	Speech and Hearing Science
<b>Title of Poster</b>	Changes in the Classroom due to COVID-19
<b>Abstract</b>	<p>As educators, we learn a lot about children's development and their various strengths and weaknesses through observing their play. Observing children's play impacts how we perceive their abilities, knowledge, and how we plan our lessons around what we learn from this. Not only is it hard for teachers to make time to watch each individual student to document learning, but with the addition of the COVID-19 pandemic, it has become more challenging for teachers to master this skill given their classes might be hybrid or entirely virtual. When teaching lessons virtually, you do not get to see children interact with each other during free play or a typical center time, so the usual observations that teachers conduct have had to change. In this presentation, I will describe the different ways teachers have had to change their observation process due to COVID-19.</p>
<b>Faculty Mentor</b>	Kate McCormick
<b>Faculty Mentor Department</b>	Early Childhood and Childhood Education (birth-6)
<b>Student Presenter Name</b>	Erin Decker
<b>Student Presenter Year</b>	Sophomore
<b>Student Presenter Major</b>	Early Childhood and Childhood Education (birth-6)

**Presentations:** Session B: Lightning Round #4: 2:20 PM - 2:50 PM

Faculty Moderator: Kate McCormick

WebEx:<https://sunycortland.webex.com/sunycortland/j.php?MTID=mf005499f9b12b90a9f87ed5a2808ad4b>

**Title of Poster**

Let's Talk About Sex: Assessing Emerging Adults Sources of Information by Gender and Race

**Abstract**

Learning about sex can seem daunting and uncomfortable. This study assessed sexual education sources from 275 SUNY Cortland students (48.4% male, 50.2% female; 76.7% non-Hispanic white; 15.3% Latinx; 6.2% Black; 4.7% Asian/Pacific Islander; 2.9% other; 0.7% Native American). Participants indicated who taught them most about sex. The most commonly selected source was friends, and this was true for participants of each race (64.5% of white participants; 54.8% Latinx; 46.2% Asian/Pacific Islander; 35.3% Black) and gender (54.1% of males, 67.4% of females). The second most common source for Black participants was TV, whereas for Asian and non-Hispanic white participants it was teachers, and for Latinx participants it was parents. Notably, 14.3% of males indicated that no one taught them about sex compared to only 2.9% of females. These results indicate that while sources of information may differ by gender and race, friends play an important role.

**Faculty Mentor 1**

Kaitlin Flannery

**Faculty Mentor Department**

Psychology

**Faculty Mentor 2**

Katherine Bonafide

**Faculty Mentor Department**

Psychology

**Student Presenter Name**

Mackenzie Webster

**Student Presenter Year & Major**

Senior, Psychology

**Title of Poster**

COVID-19 and its Effects on Play-Based Learning

**Abstract**

The most rapid brain development happens within the first five years of children's lives (Shonkoff, J.P., & Phillips, D. A. (2000). This time period sets the

framework for how children will continue to develop and grow. Play is an integral part of a child's learning because it targets all developmental domains, encourages independence, and promotes engagement (Hassinger-Das et al., 2017). Because of this, many preschools adopt a play-based curriculum. However, due to the COVID-19 pandemic and the education challenges associated with it, many preschool children are lacking play-based experiences and are instead exposed to screens for large parts of their day. This drastic change will potentially affect children's development now and later on in their lives. In this presentation, I will discuss the specific effects that this lack of play-based learning has on preschool children.

<b>Faculty Mentor</b>	Kate McCormick
<b>Faculty Mentor Department</b>	Early Childhood and Childhood Education (birth-6)
<b>Student Presenter Name</b>	Hailey Daubman
<b>Student Presenter Year</b>	Sophomore
<b>Student Presenter Major</b>	Inclusive Childhood Education
<b>Title of Poster</b>	Screen Reading vs Paper Reading
<b>Abstract</b>	<p>Is the convenience of paperless reading better for a student's performance or should paper textbooks still be in the hands of students? When considering the similarities and differences in reading from a screen compared to reading from a paper, there are many aspects as to how it affects a student's learning. Could one be more or less effective than the other? The research follows with an understanding of how reading comprehension and other cognitive traits may fluctuate when students are exposed to screen or paper reading. At SUNY Cortland, the EDU315 course will be evaluated on two different readings of similar text structure, difficulty, and reading level with two control groups. One group will read online and the other on paper and will both be taking a short quiz to gather comprehension. For the second readings, the groups will switch and the results will then be compared again. This will coincide with a survey at the beginning about the</p>

metacomprehension of students and end with a debriefing survey of how do they feel about their metacomprehension now.

<b>Faculty Mentor</b>	Jacob Hall
<b>Faculty Mentor Department</b>	Early Childhood and Childhood Education (birth-6)
<b>Student Presenter Name 1</b>	Olivia Thresher
<b>Student Presenter Year</b>	Junior
<b>Student Presenter Major</b>	Early Childhood and Childhood Education (birth-6)
<b>Student Presenter Name 2</b>	Danielle Bleiweiss
<b>Student Presenter Year</b>	Junior
<b>Student Presenter Major</b>	Early Childhood and Childhood Education (birth-6)

**Presentations:** Session C: Lightning Round #5: 3:00 PM - 3:30 PM

Faculty Moderator: Melinda Shimizu

WebEx:<https://sunycortland.webex.com/sunycortland/j.php?MTID=med4880dcf98cee90a87959b8dd8720d2>

**Title of Poster**

Optimizing Community Efforts With GIS

**Abstract**

Many smaller communities are limited by budgetary, personnel, and/or software constraints in their ability to deploy and collect spatial data specific to their community. Often such data are required to support other community initiatives and projects. The goal of this project is to provide a proof-of-concept for supporting a local community in gathering spatial data relevant to their needs. Specifically, as part of the Tree Planting Program in Cortland, NY, there is a need to survey and inventory previously planted trees. To make this process more efficient, we created a custom application with ArcGIS software that can collect and store spatial data relevant to tree plantings. In future surveys, this app could be used by volunteers or citizen scientists to reduce the cost of time-consuming data collection. Community-collected data is then reviewed by a professional arborist to verify tree species and finalize the inventory.

**Faculty Mentor**

Melinda Shimizu

**Faculty Mentor Department**

Geographic Information Systems

**Student Presenter Name**

Shelby Soule

**Student Presenter Year**

Senior

**Student Presenter Major**

Geology

**Dual Major**

Yes

**Student Presenter Second Major**

Geographic Information Systems

**Title of Poster**

Analysis of Impact of COVID-19 on Nitrogen Dioxide and Sulfur Dioxide Concentrations Across the Northeastern

**Abstract**

The COVID-19 pandemic has been called a 'natural experiment' in which to analyze the relationship between anthropogenic activities and emissions from fossil fuels. Preliminary studies from NASA satellite monitoring show a decline in commuting for work and reduced electrical consumption are related to a decline in air pollution as evidenced by atmospheric measures of sulfur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>). This study explores this relationship further by comparing rates of SO<sub>2</sub> and NO<sub>2</sub> using data from NASA's Ozone Monitoring Instrument (OMI) and 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 0.25 by 0.25 degrees (OMI) and 0.5 by 0.625 degrees (MERRA-2) spatial resolution. Preliminary results indicate substantial differences in measures of both tropospheric column SO<sub>2</sub> and NO<sub>2</sub> in the New York City metro area, along the I-95 corridor, and across the state of Pennsylvania.

**Faculty Mentor**

Christopher Badurek

**Faculty Mentor Department**

Geography

**Student Presenter Name**

Bettina Bonfiglio

**Student Presenter Year**

Sophomore

**Student Presenter Major**

Geographic Information Systems

**Title of Poster**

Postural Stability: The Effect of Trial Duration

**Abstract**

Evaluation of postural stability is pivotal to the understanding of human sensorimotor integration. The primary sensory contributions to postural stability include visual, proprioceptive, and vestibular sources, whereas muscles produce force to respond to balance challenges. Postural stability can be looked at in a variety of settings to assess the functional status of an individual, whether it be telling if an athlete is concussed, or to assist the elderly in rehabilitation. The purpose of this study is to examine the effect of trial duration on measures of postural stability. Methods will

include utilizing a force plate to quantify postural adjustments during quiet standing. A pair of 3-minute trials will be conducted (eyes open and eyes closed) to assess the extent to which vision plays a role during prolonged standing tasks. Results are forthcoming.

<b>Faculty Mentor</b>	Kevin Dames
<b>Faculty Mentor Department</b>	Exercise Science
<b>Student Presenter Name</b>	Luigi Auriemma
<b>Student Presenter Year</b>	Junior
<b>Student Presenter Major</b>	Exercise Science
<b>Title of Poster</b>	Synthesizing river water quality studies of trace metals in Dhaka, Bangladesh
<b>Abstract</b>	<p>Over the course of the last several decades, largescale increases of various industries such as textiles and electronics have swept through Southeast Asia and Africa. In favor of maximum production of cheap products, many nations within these regions have set very lenient environmental regulations on dumping industrial waste within its waterways. One such nation that abides by this philosophy is Bangladesh, which has seen a steady uptick of pollution in the Turag-Buriganga river system which runs through its capital and main industrial hub of Dhaka. The aim of this study is to synthesize published studies in the Dhaka region from 2008 to 2017 on trace metal concentrations such as Chromium and Copper as well as to present and analyze the data using ArcGIS. This allows for a better understanding of the geospatial distribution and trends across time of heavy metal pollution within main waterways of Bangladesh.</p>
<b>Faculty Mentor</b>	Li Jin
<b>Faculty Mentor Department</b>	Geology
<b>Student Presenter Name</b>	Zachary Saltsman

**Student Presenter  
Year**

Senior

**Student Presenter  
Major**

Geology

**Dual Major**

Yes

**Student Presenter  
Second Major**

Geographic Information Systems

**Presentations:** Session C: Lightning Round #6: 3:30 PM - 4:00 PM

Faculty Moderator: Andrea Davalos

WebEx:<https://sunycortland.webex.com/sunycortland/j.php?MTID=m68760735986cab8b67b76fff964cfa4b>

<b>Title of Poster</b>	Distribution of Jumping Worm Species in Taughannock State Park
<b>Abstract</b>	<p>Jumping worms (<i>Metaphire</i> and <i>Amyntas</i>) are an invasive group of worms that originated in Asia and were introduced to North America in the 19th century. These worms are important to study because they alter the soil composition and can promote invasive species while being detrimental to native species. There are currently three species of jumping worms co-occurring, but how they partition their shared habitat has not been studied. The goal of this project was to identify the distribution of the three lineages of jumping worms in Taughannock State Park as an initial step to understanding their habitat requirements and drivers of their dispersal. I amplified and sequenced a region of cytochrome oxidase I for 105 worm samples and assembled the sequences using Sequencher. I generated a maximum-likelihood tree to determine if genetic relatedness corresponded with geographic location within the park.</p>
<b>Faculty Mentor 1</b>	Laura Eierman
<b>Faculty Mentor Department</b>	Biology
<b>Faculty Mentor 2</b>	Andrea Davalos
<b>Faculty Mentor Department</b>	Biology
<b>Student Presenter Name</b>	Nicholas Lavy
<b>Student Presenter Year</b>	Senior
<b>Student Presenter Major</b>	Biology
<b>Title of Poster</b>	Leaf Litter Macro-Invertebrate Survey
<b>Abstract</b>	<p>Pale swallowwort <i>Vincetoxicum rossicum</i> is a vining perennial herb native to southern Europe and highly invasive to much of the eastern United States and</p>

Canada. *Vincetoxicum rossicum* outcompetes native species decreasing the quality of the site making it less suitable for native plants. Overabundance of ungulates such as white-tailed deer reduces plant cover and diversity and increases the availability of forest floor to invasive species. In conjunction with projects that explore whether *V. rossicum* will thrive in areas that are accessible by ungulates as well as earthworms, it was hypothesized that diversity of leaf litter macro-invertebrates would be lower in open plots where deer are present and in areas with higher earthworm abundance. It was also hypothesized that leaf litter biomass would be higher at locations where *V. rossicum* is removed. During summer 2020, sixty samples of leaf litter were collected at three sites in central New York. Samples were obtained at random from both management and reference sites which included paired fenced and unfenced plots. Following collection of leaf litter, invertebrates were extracted in Berlese funnels and preserved in ethanol. Today, data has been collected on the biomass of leaf litter and the research team is continuing cleaning and preparation of invertebrate samples for identification and sorting. Preliminary analyses, contradictory to hypothesized results, indicate that leaf litter accumulation is higher in places where *V. rossicum* is unmanaged than at locations where *V. rossicum* is removed. Median biomass of leaflitter was higher in fenced plots than in open plots to which ungulates have access.

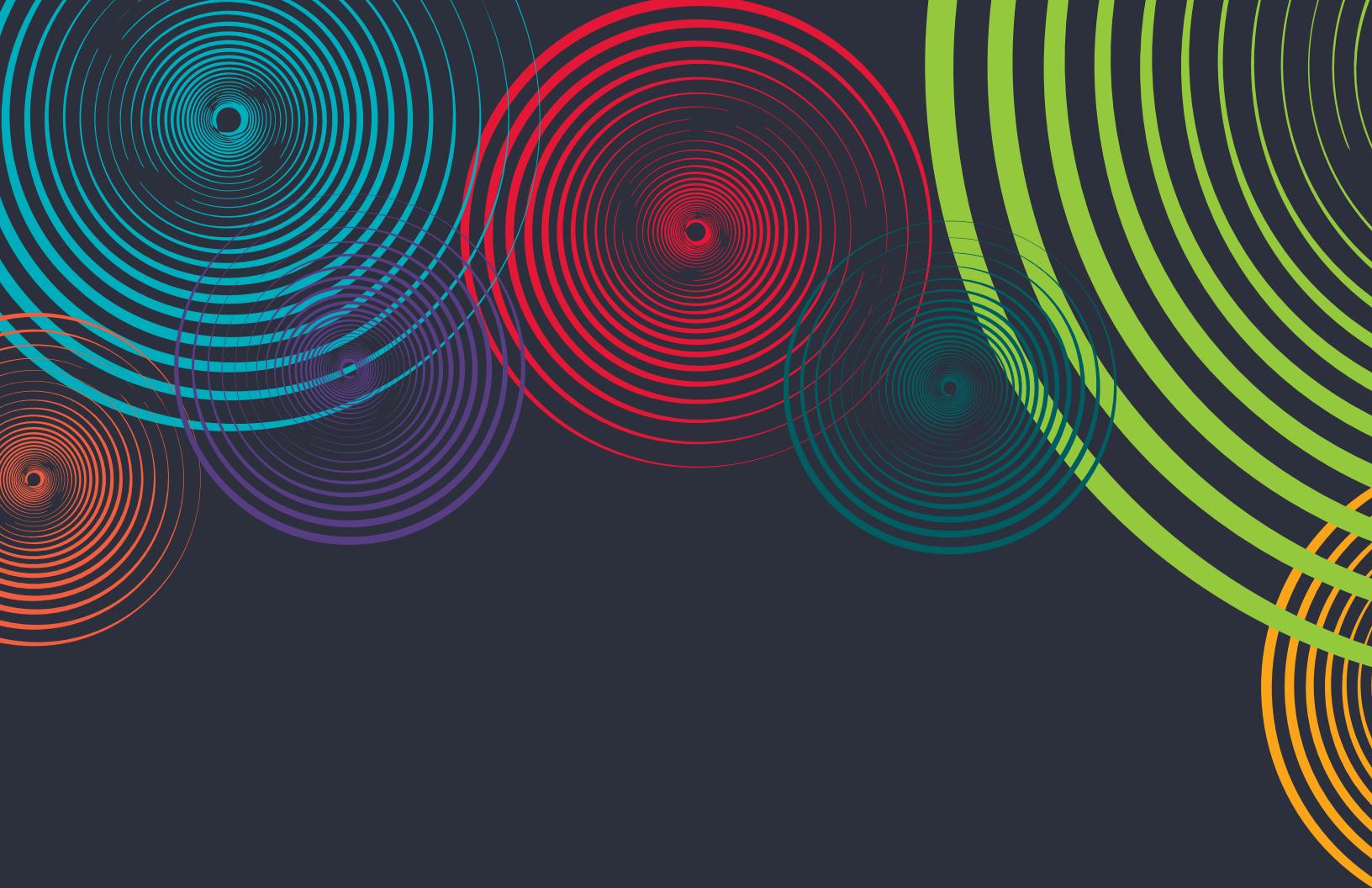
<b>Faculty Mentor</b>	Andrea Dávalos
<b>Faculty Mentor Department</b>	Biology
<b>Student Presenter Name</b>	Kaleb Frierson
<b>Student Presenter Year</b>	Sophomore
<b>Student Presenter Major</b>	Biology
<b>Title of Poster</b>	How do evolutionary pressures on the genes of the flavonoid biosynthetic pathway affect flower color shifts in <i>Nicotiana</i> ?
<b>Abstract</b>	For millions of years, the survival and evolution of flowering plants has relied heavily on the presence of pollinators. Different pollinators are attracted to

different colored flowers, which are produced from varied pigments. Some examples are the anthocyanin pigments, including pelargonidin (red), cyanidin (pink), and delphinidin (purple), produced by the flavonoid biosynthetic pathway. The objective of this study is to identify the evolutionary pressures acting on the biosynthetic pathway genes to better understand the genetic basis of flower color differences in the genus *Nicotiana* (tobacco). We will obtain available transcriptome data and run nonsynonymous mutation rate to synonymous mutation rate (dN/dS) ratio analyses to determine whether these genes have been subjected to purifying selection, neutral evolution, or positive selection. We will then compare ratios between species with anthocyanin versus no anthocyanin production and those that produce cyanidin versus delphinidin to determine whether dN/dS ratios are correlated with flower color shifts.

<b>Faculty Mentor</b>	Elizabeth McCarthy
<b>Faculty Mentor Department</b>	Biology
<b>Student Presenter Name</b>	Abigail McCoy
<b>Student Presenter Year</b>	Freshman
<b>Student Presenter Major</b>	Biomedical Sciences
<b>Title of Poster</b>	Usage of Assistive Walking Devices in Populations with Neurological Disorders
<b>Abstract</b>	Many neurological disorders present with a loss of balance and unsteady gait patterns. Assistive walking devices such as canes, walkers, and other wearable technology is often prescribed for people with these symptoms in hope of returning them to a safe and normal mobility level. With many different devices available, it can become confusing as to which is the most helpful device for each person's circumstance. This integrated literature review focuses on this idea and discusses the pros and cons of the wide variety of devices and their uses for several neurological disorders. Specific populations reviewed include: Parkinson's Disease, Huntington's Disease, and stroke patients. Assistive devices evaluated include: wheeled walkers, canes, poles, lasers, and assorted wearable technology.

Published literature results of device effectiveness concluded that many were indeed helpful in improving balance and mobility, however it was noted that their use may decrease gait speed and become problematic in specific scenarios.

<b>Faculty Mentor</b>	Jeff Bauer
<b>Faculty Mentor Department</b>	Exercise Science
<b>Student Presenter Name</b>	Gracie Hullings
<b>Student Presenter Year</b>	Senior
<b>Student Presenter Major</b>	Exercise Science



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

Design by Claritza Rodriguez, senior,  
graphic design and digital media major  
for ATS 440: Portfolio Practicum

