4-13-2022

2022 Undergraduate Research Competition Program

Coastal Carolina University

COASTAL CAROLINA UNIVERSITY

Undergraduate Research Competition

April 12 and 13, 2022

The Undergraduate Research Competition is a spring tradition at Coastal Carolina University. This year, students and faculty mentors from different majors and all university colleges have worked to produce presentations, including __ oral presentations and __ poster presentations. These are the results of months, and in some cases, years of effort on undergraduate research projects, and demonstrate the strength of experiential learning at CCU. Congratulations, presenters!

Program Overview

Tuesday, April 12, 2022

12:30 – 2:30 PM Poster Session I – Lib Jackson Rotunda
3:00 – 8:00PM Oral Presentations – Brittain Hall, Rooms 101, 112, and 114

Wednesday, April 13, 2022

12:30 – 4:30 PM Oral Presentations- Brittain Hall, Rooms 101, 112 and 114
4:30 - 6:30 PM Poster Session II – Lib Jackson Rotunda

2022 Undergraduate Research Competition Schedule

ORAL PRESENTATIONS

Tuesday, APRIL 12, 2022 3:00-8:00pm

	ROOM 1 BRTH 101	ROOM 2 BRTH 112	ROOM 3 BRTH 114
3:00 PM	**Gaffney, Ansley** Breaking the Barriers of Gender Norms: The Female Musician Faculty Mentor: Philip Powell, Music	**Rhodes, James** Fish identification through video motion tracking from a publicly available live-streaming camera Faculty Mentor: Xiangxiong Kong, Physics and Engineering Science and Erin Burge, Marine Science	**Roach, Harleigh** A study of student perceptions of inclusive teaching in a higher education setting Faculty Mentor: Monica Fine, Marketing
3:20 PM	**Ludwig, Frances** Private Funding, Public Space Faculty Mentor: Elizabeth Baltes, Visual Arts	**Przybylski, Nicklaus** Classification of Shock and Vibrational Data Using Contemporary Machine Learning Techniques Faculty Mentor: William Jones, Computing Sciences and Nathan DeBardeleben	**Ghering, Trinity, Adam Bretton, and McKinley Chapman** Eating Disorders on College Campuses: Effects of Social Media and COVID-19 Concerns Faculty Mentor: Sharon Thompson, Health Sciences
3:50 PM	**Carlson, Jayme** Stepping Out of the Sun: Watteau and Freedom in the Early Eighteenth Century Faculty Mentor: Stephanie Miller, Visual Arts	**Meade, Jensen** On the periodicity of a modified Fibonacci sequence Faculty Mentor: Prashant Sansgiry, Mathematics and Statistics	**Sullivan, Casey, and Alyssa Simpson** Examining the interrelations between anxiety, COVID-19 worries, social support, and Intimate Partner Violence during the pandemic Faculty Mentor: Sharon Thompson, Health Sciences
4:10 PM		**Ownby-Connolly, Briar** The Use of Time-Lapse and Photography to Document the Effects of Seasonality on	**Spletzer, Devi**

		Dune Morphodynamic Evolution in Corolla, NC. Faculty Mentor: Till Hanebuth, Marine Science	Defining Consensual Sex: Exploring the Mentality of College Aged Men Faculty Mentor: Melissa Paiva-Salisbury, Psychology and Ina Seethaler
4:30 PM	**Sanker, Sydney** Remote Work and It's Sustainability Impact Faculty Mentor: Pamela Martin, Political Science	**Johnson, Brooklyn** Striped blenny behavior and shelter use in a southeastern saltmarsh tidal creek Faculty Mentor: Juliana Harding, Marine Science	**Pertell, Adonya** The Incarcerated VOICE Initiative: How to Successfully Elevate Incarcerated Students in Higher Education Faculty Mentor: Jennifer Schlosser, Sociology
4:50 PM	**Ownby-Connolly, Briar** Caring for the Environment in Georgetown County, SC: Using SDGs, environmental ethics, and attitudes to highlight triadic socioeconomic barriers Faculty Mentor: Pamela Martin, Political Science	**Worrell, Virginia** Flood-event sediment distribution within oxbow lakes in the Pee Dee River, SC floodplain Faculty Mentor: Zhixiong Shen, Marine Science	**Still, Patricia** Video Modeling vs. Video Prompting with Task Analysis: Which one do students with ID respond better to? Faculty Mentor: Nicole Uphold, Special Education
5:10 PM	**Hough, Corey** The Politicization of COVID-19 Reflected in Beliefs and Behaviors Faculty Research Mentor: Fredanna McGough, Public Health	**Williams, Tyler** Effects of COVID-19 Isolation on College Students Faculty Mentor: Craig Boylstein, Sociology	**Jinier, Carol and Celina DeCordova** The Japanese Shikoku Buddhism Game: Basic Customs and Language Faculty Mentor: Ronald Green, Philosophy and Religious Studies and Susan Bergeron, Anthropology and Geography
5:30 PM	**Cuba, Kiley** The Effects of Covid-19 on Coping and Family Experiences	**Jones, Caleb** Use of Loop-Mediated Isothermal Amplification	

	Faculty Mentor: Terry Pettijohn, Psychology	(LAMP) for the Detection of Tomato Mosaic Virus Faculty Mentor: Michelle Barthet Parker, Biology	
5:50 PM			

Wednesday, APRIL 13, 2022 12:30-4:30pm

ROOM 1 BRTH 101 **ROOM 2 BRTH 112** **ROOM 3 BRTH 114**

	ROOM 1	ROOM 2	ROOM 3
12:30 PM		**Mack-Bingham, Brianne** The Religious Relations of Gender Roles in America Faculty Mentor: Michael Promisel, Political Science	**DiAlesandro, Nico** Compromise, Accommodation, and Collaboration: France During World War Two Faculty Mentor: Philip Whalen, History
12:50 PM		**St Louis, Jamesia** The Gendered Views of Professionalism within Real Estate Sales Faculty Mentor: Deborah C. Breede, Communication	**Maddalena, Michaella** The Internal Contradictions of the Vichy Regime: Women Collaborators and Resistors Faculty Mentor: Philip Whalen, History
1:10 PM	**Garthwaite, Hannah** Aligning the 17 UN Sustainable Development Goals to CCU Faculty Mentor: Pamela Martin, Political Science	**Cherry, Mackenzie** Organizational, Societal, and Cultural Barriers: Why Women are Still a Minority in Leadership Positions Faculty Mentor: Nicholas Schlereth, Recreation and Sport Management and Donald Rockey, Recreation and Sport Management	**Maddalena, Michaella** Never Forget: The Two 9/11s and the Power of Memory Faculty Mentor: Shari Orisich, History
1:30 PM	**Cody, Savannah**	**Devlin, Bridgette**	**Kevin Joyce**

	A Seat at the Table: Examining Antisemitism and Jewish Representation on Coastal Carolina University's Campus Faculty Mentor: Christina Selby, Communication	The Power of Small Local Businesses Faculty Mentor: Pamela Martin, Political Science	The Muslim World: Democracy, Transition, and Terrorism Faculty Mentor: Matthew Cobb, Intelligence and Security Studies
1:50 PM	**Escandon, Joshua** When the road speaks, the cars will listen! Faculty Mentor: Carol Borisuk, Communication	**Morgan, Jesse** Across Time and Many Waters Faculty Mentor: Pamela Martin, Political Science	**Bailey, Neelie** The Relationship between Pet Attachment and Mood during COVID-19 Faculty Mentor: Terry Pettijohn, Psychology
2:10 PM	**Allen, Cierra** Crime and Weather Correlations from 2015-2019 in South Carolina Faculty Mentor: Adam Chamberlain, Political Science	**Sheridan, Maggie** Fulfilling the UN Sustainable Development Goals in Georgetown, South Carolina: Economic Recovery in a Post-COVID World Faculty Mentor: Pamela Martin, Political Science	**Alysabeth Howard** Relationships between Light and Dark Triad Personality Profiles, COVID-19 Vaccine Hesitancy, and Gratification in College Students Faculty Mentor: Terry Pettijohn, Psychology
2:30 PM	**Mazzone, Casey** Understanding Military Takeovers in post-Cold War Africa: The Cases of Mali and Burkina Faso Faculty Mentor: Richard Aidoo, Political Science	**Zimmerman, Katelyn** Bucksport and the Sustainable Development Goals Faculty Mentor: Pamela Martin, Political Science	**Graveline, Jaclyn** The Effect of Life and Death Regarding COVID-19 on Criminal Sentencing Judgements Faculty Mentor: Terry Pettijohn, Psychology
2:50 PM	**Dewitt, Nysheim** Justice, Reconciliation, and Restoration: An Evaluation of	**Ataalla, Sandra** Remote Work and It's Sustainability Impact	**Butts, Kayla** Memory In College Students

	the Gacaca Courts in Post-Genocide Rwanda Faculty Mentor: Richard Aidoo, Political Science	Faculty Mentor: Pamela Martin, Political Science	Faculty Mentor: Terry Pettijohn, Psychology
3:10 PM	**Whitmire, Jana** The Reformation of The Monetary Bail System in South Carolina for Non-violent Individuals Faculty Mentor: Michael Promisel, Political Science	**Restuccia, Hailey** Examining Health Disparities Among Healthcare Workers in South Carolina Faculty Mentor: Pamela Martin, Political Science	**Bretton, Adam** Overachieving Pigeons: The Justification of Effort Impact on Reward Value Faculty Mentor: Matthew S. Murphy, Psychology
3:30 PM	**Beatty, Sara** The Pageantry of Politics Faculty Mentor: Michael Promisel, Political Science	**Willis, Bailie and Amanda Giambi** Murrells Inlet Sustainability and Risk Assessment Faculty Mentor: Pamela Martin, Political Science	**Williams, Tyler** Effects of COVID-19 Isolation on College Students Faculty Mentor: Craig Boylstein, Sociology
3:50 PM	**Daniels, Elisabeth** From the Sidelines: College Athletics from the Perspective of a Collegiate Dance Team Athlete Faculty Mentor: Scott Pleasant, Director of the Writing Center	**Willis, Bailie** United Nations Sustainable Development Goals in Local Stores and the Impacts of Reusable Bags Faculty Mentor: Pamela Martin, Political Science	**Restuccia, Hailey** Knowledge, Attitudes, and Perceptions Towards Condoms Among College Students Faculty Mentor: John Yannessa, Health Sciences
4:10 PM			**Wrobel, Dean** Comparison of Body Condition in Commonly Sampled Species Found in Oxbow Lakes and Main River Habitats along the Upper and Middle Waccamaw River Faculty Mentor: Derek Crane, Marine Science

4:30 PM			

2022 Undergraduate Research Competition

POSTER PRESENTATIONS

Session I: Tuesday, April 12, 2022 12:30-2:30pm

Session I: Wednesday, April 13, 2022 4:30pm-6:30pm

POSTER SESSION I: Lib Jackson Rotunda
Tuesday, April 13, 2022, 12:30pm-2:30pm

1. **Walsh, Kelly**
   Molecular Cloning of Genes from the Bacteriophage, Phayonce
   Faculty Research Mentor: Daniel Williams, Biology and Michael Pierce, Biology

2. **Smith, Owen**
   The Effects of Human Behavior on Staphylococcus and Escherichia Bacteriophage Presence at Coastal Carolina University
   Faculty Research Mentor: Paul E. Richardson, Chemistry

3. **Oldfield, Hailey**
   Environmental Bacteriophage Detection on Coastal Carolina University Campus
   Faculty Research Mentor: Paul Richardson, Chemistry and Madison Gentilo

4. **Newton, Lindsay and Anna Tingler**
   Identifying Conditions for Indole Additions to Aldehydes to be Applied to the Synthesis of Phidianidine Analgoues
   Faculty Research Mentor: Bryan Wakefield, Chemistry

5. **Busby, Laura**
   Isolation and Analysis of Extracellular Vesicles from Lactic Acid Bacteria
   Faculty Research Mentor: Brian M. Lee, Chemistry

6. **Madden, Sydney**
   What lives on offshore artificial reefs in South Carolina? An analysis of epifaunal reef communities and how they vary with reef age
   Faculty Research Mentor: Ryan Rezek, Marine Science and Paul Gayes, Marine Science

7. **Sutz, Grace**
   The Relationship between Alexithymia, Callous Affect, and Aggressive Behaviors in Emerging Adulthood: Are Aggressive Acts Related to Not Feeling or Not Knowing How You Feel?

Faculty Research Mentor: Andrew Terranova, Psychology

8. **Berzonski, Erin**
   Demographic Characteristics and Cognitive, Emotional, and Social Adjustment in College Students
   Faculty Research Mentor: Andrew Terranova, Psychology

9. **Myers, Molly**
   COVID-19 Threat and Music Preferences in College Students
   Faculty Research Mentor: Terry Pettijohn, Psychology

10. **Adorno, Kyleigh, Kayley Ozimac, Emma Kinerson, and Nikki Boon**
    Neuronal Density in Navigation-Related Regions of the Adult Leopard Gecko Brain
    Faculty Research Mentor: Ryan Yoder, Psychology

11. **Smith, Margaret**
    The Role of Greek Life Participation on Student Risk Taking Behaviors and Perceptions
    Faculty Research Mentor: Terry Pettijohn, Psychology

12. **Campbell, Dylan**
    Georgetown County Workforce Assessment and Survey
    Faculty Research Mentor: Pamela Martin, Political Science

13. **Zheng, Ya**
    Tourism and Sustainability in the City of Georgetown
    Faculty Research Mentor: Pamela Martin, Political Science

14. **Kerns, Hannah**
    Accessibility and Productivity within Primary Healthcare During a Global Pandemic
    Faculty Research Mentor: Pamela Martin, Political Science and Michelle Dzurenda

POSTER SESSION II: Lib Jackson Rotunda
Wednesday, April 13, 2022, 4:30pm-6:30m

1. **Wilson, Amber**
   Cloning and Overexpression of Phayonce Genes 12 and 77 in M. Smegmatis
   Faculty Research Mentor: Michael Pierce, Biology

2. **Price, Chesney and Sean Ferrano**
   Detecting Potential Neurotoxic Pseudo-nitzchia Species in the Grand Strand
   Faculty Research Mentor: Megan Cevasco, Biology

3. **Burbage Kaitlynn, Edenborough Hibionada Jr., and Kirsten Presnell**
   Discovery and Investigation of Novel Bacteriophage DuncansLeg

Faculty Research Mentor: Megan Cevasco, Biology

4. **Hadwin, Connor and Michael Moore**
   Bioinformatic Investigation into Mycobacterium phage DuncansLeg
   Faculty Research Mentor: Megan Cevasco, Biology

5. **Montoya, Abbey and Olivia Sundman**
   Cloning and Overexpression of Phayonce Genes to Assess Cytotoxicity in Mycobacterium Smegmatis
   Faculty Research Mentor: Daniel Williams, Biology and Michael Pierce, Biology

6. **Hoxha, Klea**
   Identification and Characterization of Small Regulatory RNA in Streptococcus
   Faculty Research Mentor: Brian M. Lee, Chemistry and Gabriela C. Pérez-Alvarado, Chemistry

7. **Mickey, Carson**
   Arbovirus Project
   Faculty Research Mentor: Paul Richardson, Chemistry

8. **Hunt, Caitlyn**
   Initial Investigation of the Chemical Contribution of Hemp to Beer Aroma
   Faculty Research Mentor: Drew Budner, Chemistry

9. **Ackershoek, Emily**
   Decipher reliable COVID-19 related information among college students
   Faculty Research Mentor: Christina Selby, Communication

10. **Geddes, Rakaia**
    The Present Uncanny in Maurice Sendak's Where the Wild Things Are
    Faculty Research Mentor: Steven Hamelman, English

11. **Hucks, Garrett Ronny**
    From 2D Images to 3D virtual reality: a digital application in cultural heritage
    Faculty Research Mentor: Xiangxiong Kong, Physics and Engineering Science

12. **Coleman, Dana**
    Solving Electron Spin Drift-Diffusion Equations in Presence of Hyperfine Interactions
    Faculty Research Mentor: Nicholas Harmon, Physics and Engineering Science

13. **Brown, James and Riley Melton**
    Assessment of Near-Infrared Spectroscopy Assessed Muscle Oxidative Capacity in Collegiate Cross-Country Athletes and College-Aged Students

Faculty Research Mentor: Justin Guilkey, Kinesiology, Jakob Lauver, Kinesiology, and Timothy Rotarius, Kinesiology

14. Carlson, Joy
Combining Physical and Mental Practices of a Dart-throwing Task Enhances Motor Learning and Impacts Psychological Skills
Faculty Research Mentor: Marcos Daou, Kinesiology

15. Conner, Caroline
Microplastic Concentration Analysis of the Atlantic Sand Fiddler Crab (*Leptuca pugilator*) in Murrells Inlet, South Carolina
Faculty Research Mentor: Eric Rosch, Marine Science

16. Wrobel, Dean
Investigating Temporal Groundwater Interactions between a Barrier Island and High Marsh Environment
Faculty Research Mentor: Rich Viso, Marine Science

17. **Boon, Nikki, Kyleigh Adorno, Kayley Ozimac, and Emma Kinerson**
Embryonic Hypoxia Alters Exploratory Movement in Adult Geckos
Faculty Research Mentor: Ryan Yoder, Psychology and Scott Parker, Biology

18. D'Aconti, Gianna
Birth Order, College Major, and Social Behavior
Faculty Research Mentor: Andrew Terranova, Psychology

19. Oswald, Emma
The Association Between Parental Relationships and the Marital Views and Relationships of College Students
Faculty Research Mentor: Andrew Terranova, Psychology

20. Rainwater, Nicole
Georgetown County: The Issue of Land Litter and Pollution
Faculty Research Mentor: Pamela Martin, Political Science

21. O'Hara, Daniel
Sustainable Planning, Protecting Social, Economic, and Environmental Interests of Coastal Communities
Faculty Research Mentor: Pamela Martin, Political Science

22. Whitehead, Britany
Empirical Analysis of Sustainable Land Use and Development and Potential Solutions for Remediation in Georgetown County
Faculty Research Mentor: Pamela Martin, Political Science

Abstracts: 2022 Undergraduate Research Competition

Office of Undergraduate Research

(Alphabetical by Presenter)

Decipher Reliable COVID-19 Related Information among College Students *(Poster Session)*
Ackershoek, Emily, Communication
Faculty Research Mentor: Christina Selby, Communication, Media and Culture
On March 11, 2020 the world changed forever. The World Health Organization declared COVID- 19 a global pandemic. Nearly two years later with numerous mutations of COVID-19 and with medical advancements of vaccines we are still living in a pandemic. This project will further decipher reliable COVID-19 related information among college students.
With more downtime due to the pandemic and classes being shifted to virtual, more and more students are downloading popular social media apps like TikTok to cope with the lockdown. Many public health related agencies are taking advantage of the opportunity of using TikTok to share COVID-19 related information to the younger generation. Social media platforms such as TikTok, which is a short form video sharing app that allow users to create videos and share them across a community. TikTok users have used this as a creative outlet where one can discuss the pro and cons of vaccines, mask mandates and debatable topic regarding COVID-19.
For my project, I am creating a social media marketing campaign on TikTok. TikTok, can easily persuade people opinion based on what they are shown on their For You Page. I will use the cultivation theory to show what you see on TikTok can persuade your opinion regarding COVID-19 and supply you with unreliable information. A required step of completing this project is to perform interviews where college students ask a question in regard to COVID- 19. I would then ask a doctor or a medical professional the correct response. I would upload the interviews to TikTok and use hashtags to reach more college students.

Neuronal Density in Navigation-Related Regions of the Adult Leopard Gecko Brain *(Poster Session)*
Kyleigh Adorno, Kayley Ozimac, Emma Kinerson and Nikki Boon, Psychology
Faculty Research Mentor: Ryan M. Yoder, Psychology
Hypoxic conditions disrupt brain development in many species, but oxygen deprivation may be particularly detrimental to ectotherms such as reptiles. Our preliminary data suggest the brains of embryonic leopard geckos (*Eublepharis macularius*) are damaged following brief hypoxic conditions in ovo, and these developmental changes are associated with altered exploratory behavior in adulthood. The objective of this study is to understand the effects of such hypoxic conditions neuronally once the geckos have reached adulthood. However, no previous studies have evaluated the neuronal density of navigation-related brain regions in normal adult geckos, or whether these regions are sensitive to early hypoxia. Here, we present the optical density measurements from the medial cortex, the dorsal and lateral cortex, the dorsal lateral thalamus, and the septal region of adult geckos (n=2) that developed in normoxic conditions, to establish a baseline measure of cell density.
Mean (SEM) optical density values are shown in the Table. These optical density values provide an important baseline for our on-going evaluation of neuronal sensitivity to hypoxic conditions in ovo. We

anticipate that neuronal density values from hypoxic geckos will be reduced, relative to those of geckos that develop in normoxic conditions.

Crime and Weather Correlations from 2015-2019 In South Carolina *(Oral Presentation)*
Cerra Allen, Political Science
Faculty Research Mentor: Adam Chamberlain, Political Science
The relationship between weather and crime is a well-researched area, with previous studies putting forth four theories about how the two interact. In this paper, I apply the Routine Activity Model to study the weather-crime connection in three South Carolina counties: Horry, Richland, and Spartanburg. Using monthly data from 2015-2019 from the South Carolina Law Enforcement Department, and the Time and Date Online weather database, I uncover a small correlation between heat index and temperature in relation to more violent crimes. However, this correlation varies by county due to contrasting crime rates. Humidity is found to be negatively related to crimes against societies as shown in two counties and crime totals. Finally, crimes against society show the least relation to weather variables. The evidence, then, does support the Routine Activity Model, but it also supports other models as well. Furthermore, the possibility of high tourism areas, such as Horry County, impacting the explanations behind these theories is explored. Overall, the relationship between weather and crime can have implications and practical uses in fields like law enforcement and national security, helping to inform decision-making and keeping the general public safe.

Remote Work and its Sustainability Impact *(Oral Presentation)*
Sandra Ataalla, Intelligence and Security Studies
Faculty Research Mentor: Pamela Martin, Political Science
Working remotely has huge sustainability impacts locally and globally. Though remote work is not a new concept, mandated lockdown restrictions at the beginning of the COVID-19 pandemic prevented most citizens from working in their business offices. As a result, companies were challenged to re-evaluate their practices and determine whether their employees could work from home. In reviewing all the benefits of remote work, such as less commuting, flexible work schedules, lower fuel emissions, less office building space, and a more diverse workforce, we experienced these changes first-hand interning remotely for the Mercom Corporation. Mercom Corporation is a technology firm specializing in providing solutions to the Federal government. The Sustainability Development Goals (SDG): nine; industry, innovation, and infrastructure, eight; decent work and economic growth, and seventeen; partnerships to achieve the goal; all reflect what remote work is doing in meeting these goals locally and globally. While interning at Mercom, SDG goal nine innovation is actively implemented while supplying the federal government's IT needs. This, in turn, fosters innovation by allowing the government to have the right equipment to grow. SDG goal eight is impacted by remote work by allowing flexible work schedules and lower fuel emissions to affect the economy positively. SDG goal seventeen is implemented by allowing a more diverse workforce. Remote work allows inclusivity for different minds, ideas, and approaches to come together. This research will highlight how employers shift to a remote workforce and the positive effects on the environment and employees.

The Relationship between Pet Attachment and Mood during COVID-19 (*Oral Presentation)*
Neelie Bailey, Psychology
Faculty Research Mentor: Terry Pettijohn, Psychology
As COVID-19 swept the nation and changed life as we knew it, people turned to unique ways to cope. Social distancing, face masks, and lockdowns brought a new way of life no one could have ever expected. Past research has shown that the COVID-19 pandemic and its changes brought mental health issues and illnesses to people everywhere, especially college students. However, research has also shown that having a pet during these changes can improve overall mood. Using a series of surveys to measure mood, pet attachment, and COVID-19 threat, data was collected from 69 participants and analyzed to view the correlation between these items. It was assumed that more attachment to a pet would result in more positive affect and less COVID-19 threat. Contrary to what was assumed, data did not show that there was any correlation between any of these items. Further research is needed to examine the relationship between pet attachment and mood during the COVID-19 pandemic.

The Pageantry of Politics *(Oral Presentation)*
Sara Beatty, Political Science
Faculty Research Mentor: Michael Promisel, Political Science
Elections and campaigns are a major component of modern American politics. Therefore it is inevitable that there is great interest in the factors that influence vote choice. While there is a plentiful amount of research pertaining to the use of heuristics, I was interested in how the physical attractiveness of a candidate could impact their success in elections. A prominent example of this occurring is President Kennedy's campaign and presidency. The introduction of radio and television assisted in this greatly, as candidates could be compared beyond their opinions. The Kennedy-Nixon debates were the first televised debates and appearances proved to be important. Kennedy's physical attractiveness was exaggerated in comparison to Nixon who was ill at the time. "As predicted, it was a close election, Kennedy winning the popular vote 49.7 percent to 49.5 percent. Polls revealed that more than half of all voters had been influenced by the Great Debates, while 6 percent claimed that the debates alone had decided their choice." (Editors, 2010). It is my contention that attractiveness has assisted in helping candidates succeed in the past and more importantly, will continue to as technology increases and knowledgeable voters do not. This subject is particularly important because of how an element as insubstantial as attractiveness can play a significant role in designating our leaders.

Demographic Characteristics and Cognitive, Emotional, and Social Adjustment in College Students *(Poster Session)*
Erin Berzonski, Psychology
Faculty Research Mentor: Andrew Terranova, Psychology
Past research has examined elements of interest to this study in separate levels, like how gender and political party can affect the way you respond to the military (Park 2020), how military-connected students perform academically and socially in college (Williams-Klotz & Gansemer-Topf, 2017), and how college students perceive the COVID-19 vaccine (Brunson, Rohde, & Fulton, 2021). However, the combination of these factors and how they play a role together in college students' adjustment has received less attention. An online survey will be used to examine how undergraduate students'

demographic characteristics and military affiliations relate to indicators of cognitive, emotional, and social functioning.

Embryonic Hypoxia Alters Exploratory Movement in Adult Geckos *(Poster Session)*

Nikki Boon, Kyleigh C. Adorno, Kayley Ozinac, Emma E. Kinerson, Psychology
Faculty Research Mentors: Ryan M. Yoder, Psychology and Scott L. Parker, Biology

Environmental changes, such as temporary hypoxia, during the embryonic stage can impair brain development in leopard geckos (*Eublepharis macularius*). We therefore tested whether this early brain damage produces behavioral deficits that persist into adulthood.

The organization and kinematic properties of non-visual exploration between normal (n = 14) and hypoxia (n = 3) geckos were compared. Geckos were individually placed on a circular table (diam=91cm) and allowed to explore darkness for 60min while being recorded. The gecko's coordinates were calculated at 5frames/second. Movement properties within each trial were evaluated across five 10min epochs.

Total distance, peak speed, movement scaling (correlation between path length and peak speed), distance ratio, heading error, total stop time, mean stop time, number of stops, number of progressions, and progression distance were compared between groups and across epochs with a mixed Group X Epoch ANOVA. Movement properties did not differ across time epochs. However, hypoxia animals showed significantly lower peak speed [$F(1,15) = 6.18$, $p = .025$], and greater movement scaling [$F(1,15) = 5.78$, $p = .03$] scores, compared to controls. These results indicate that brain damage caused by early hypoxia causes adult geckos to move slowly, but they retain the ability to move normally and accurately estimate distance. Thus, the reduced speed is not caused by a general movement deficit.

These preliminary results suggest that embryonic hypoxia alters exploratory behavior that persists into adulthood. This on-going study will continue to evaluate exploratory movement, and data will be added to the presentation as they become available.

Overachieving Pigeons: The Justification of Effort Impact on Reward Value *(Oral Presentation)*

Adam Bretton, Psychology
Faculty Research Mentor: Matthew S. Murphy, Psychology

Research in animal and human models suggests that greater reward value is associated with tasks requiring more effort or time to obtain the reward, called the Justification of Effort (JoE). Through a series of two experiments, this study incorporates touchscreen operant chambers to assess the choice preference in a pigeon model. Experiment 1 focuses on physical tasks differentiated between a difficult task (20 pecks to a target) and an easy task (1 peck to a target). After training with the two choice stimuli (correct and incorrect), we begin the critical test. This test assesses the preference between the correct choice after the hard task and after the easy task.

Pigeons will be presented with both "correct" stimuli and asked to choose. The Justification of Effort theory predicts that subjects should prefer the stimulus that followed the hard task over the easy one. Once completed, Experiment 2 will test this same phenomenon except with a cognitively difficult task (perceptually similar stimuli) or a cognitively easy task (perceptually distinct stimuli), rather than the physical task in Experiment 1. Results will follow.

Assessment of Near-Infrared Spectroscopy Assessed Muscle Oxidative Capacity in Collegiate Cross-Country Athletes and College-Aged Students *(Poster Session)*

James Brown and Riley Melton, Exercise and Sport Science
Faculty Research Mentors: Justin Guilkey and Timothy Rotarius, Kinesiology

Muscle oxidative capacity (MOC) is the maximum rate at which the muscle can utilize oxygen to meet the energy demand of exercise. Near-infrared spectroscopy (NIRS) measurement of muscle oxygen uptake (mVO2) during brief arterial occlusions has shown to be a valid, reliable indicator of MOC, but is affected by aerobic fitness. It is unclear if the NIRS measurement can detect a difference in MOC in populations of varying aerobic fitness. The purpose is to compare MOC between collegiate cross-country runners and age-matched college students. Maximal oxygen uptake will be measured from an individualized treadmill test to characterize aerobic fitness. MOC will be determined from a series of 20 short (5-10 sec) arterial occlusions interspersed with short recoveries. Rapid inflation cuffs placed on the distal portion of the thigh will be inflated to 300 mmHg during occlusions and released during recovery. Deoxyhemoglobin (HHb), collected at 10 Hz, will be measured at the gastrocnemius. To calibrate the signal to individuals, a 5-min arterial occlusion will determine maximal deoxygenation (highest HHb) and the hyperemic response after cuff release will determine minimum HHB (maximal oxygenation). The slope of change in HHb during the first 3-5 seconds of each occlusion will be the mVO2. Each mVO2 will be plotted and a mono-exponential decay curve will be fitted to determine the time constant; time constant is indicative of MOC. A t-test will compare MOC between groups. It is hypothesized that collegiate cross-country runners will exhibit a faster time constant which would indicate greater MOC.

Discovery and Investigation of Novel Bacteriophage DuncansLeg *(Poster Session)*

Burbage, Kaitlynn, Riley Melton, Edenborough B. Hibionada, Jr., and Kirsten C. Presnell, Biology
Faculty Research Mentor: Megan Cevasco, Biology

The Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Sciences (SEA-PHAGES) program was formed to conduct research on bacteriophages, viruses that infect bacteria. Using the bacterial host Mycobacterium smegmatis, DuncansLeg was isolated from a soil sample found on August 27th, 2021, at Coastal Carolina University's Campus. The enriched isolate obtained from an environmental distillate was purified via picking a well-isolated plaque and amplified by making webbed plates in preparation for DNA extraction. This isolate's DNA was characterized and analyzed through restriction digests. Once we obtained enough lysate we were able to send in the samples to be sequenced and further reviewed by bioinformatic analyses. DuncansLeg is a temperate phage that is a part of the L3 subcluster with 75,593 base pairs.

Isolation and Analysis of Extracellular Vesicles from Lactic Acid Bacteria *(Poster Session)*

Busby, Laura, Chemistry
Faculty Research Mentor: Brian M. Lee, Chemistry

Membrane Vesicles, also referred to as MVs, are spherical lipid membrane-bound vesicles produced by both Gram positive and Gram-negative bacteria. These vesicles are secreted into the extracellular space and play important functions in cellular and host communication, elimination of competitors, virulence, detoxification of environmental stress, and nutrition sensing. They are often packed with proteins, enzymes, lipids, and nucleic acids like DNA or RNA molecules among other

biological entities. Streptococcus thermophilus is a lactic acid bacterium (LAB), inhabiting the human digestive tract, that has been shown to produce EVs. The bacterial flora has a great impact on the host immune system, metabolism, and neurological processes, however, not a lot is known about the biochemical pathways behind this impact. Since extracellular vesicles are involved in host communication, they play a key role in the impact that bacterial flora has on the biochemical processes of a host.
Therefore S. Thermophilus was grown aerobically at 37° C in M17 media, two other LABs were grown including Lactobacillus acidophilus, and Lactobacillus bulgaricus. The extracellular vesicles will then be isolated through centrifugation, then the EVs content will be analyzed further. Size comparison can be conducted using gel electrophoresis, on various RNA molecules hypothesized to be held within the membranes of EVs. A previous study in this lab isolated the AsdS sRNA molecule, which is 152 base pairs in length, and is involved in quorum sensing. This gene is conserved among Streptococcus species and can be observed in S. pyogenes as the MarS. Since S. thermophilus is a non-pathogenic species the Asd gene cannot be involved in virulence as MarS is responsible for virulence in S. pyogenes. Based on functional predictions, AsdS is responsible for intraspecies communication, biofilm formation, and transport.

Memory in College Students *(Oral Presentation)*
Butts, Kayla, Psychology
Faculty Research Mentor: Terry Pettijohn, Psychology
Today, students are trying every way they can to acquire new study habits. They create flashcards, put paragraphs into text-to-speech websites, and even go through pads of sticky notes and boxes of highlighters. This study was created with the idea in mind that there has to be a better way to retain information. This study looks at short term memory in college students and how the color of words affects the retention rate. One-hundred college students were asked to read the words given to them on the board then to replicate them after the words disappeared. During the first trial, the words were black, during the second trial, the words were red, and during the third trial, the words were blue. Half of the participants were asked their pronouns before looking at the words given to them and the other half were asked after. This was in hopes of getting participants to think about gender schema and perhaps producing a higher or lower word retention number. During this study the prediction of results is that red colored words will produce a greater amount of word recall. Knowing if the color of the word produces a higher retention rate could boost test grades among students.

Georgetown County Workforce Assessment and Survey (*Poster Session)*
Campbell, Dylan, Political Science
Faculty Research Mentor: Pamela Martin, Political Science
Georgetown County is a county located on the east coast of South Carolina and just like other counties in South Carolina is experiencing workforce issues. These issues are due to a variety of situations including the most obvious occurring situation, the Covid-19 Pandemic. While working in the Georgetown County Chamber of Commerce I have been able to work on creating a workforce survey that would be distributed to many businesses within Georgetown County. By creating and distributing this survey will allow the chamber and myself to receive as much insight as possible into some of the

workforce struggles in Georgetown County. This research will not only benefit Georgetown County but to any other counties experiencing the same workforce dynamics by assessing the workforce directly.

Carlson Stepping Out of the Sun: Watteau and Freedom in the Early Eighteenth Century *(Oral Presentation)*
Carlson, Jayme, Political Science
Faculty Research Mentor: Stephanie Miller, Visual Arts
The reign of Louis XIV is characterized by his desire to control based on his political ideology of absolutism. This desire manifested itself in several political and social changes made across the kingdom, and through his parties and expansions at Versailles, which highlighted his sole power. Sovereign for seventy-two years, he personified the idea of divine power and centralized government, which ultimately created a general sense of restriction among the Sun King's court. In other words, the aristocratic class was kept under the tight grasp of Louis XIV.
As the King's reign waned, the French nobility's craving for freedom grew, as did Jean-Antoine Watteau's artistic prowess. Inventor of the fête galante genre and early artist of what would be later defined as the Rococo style, Watteau's skill and novelty won him the attention and patronage of the French elite in the early eighteenth century; he was even accepted into the Royale Academie in 1712. In the year of the Sun King's death, 1715, Watteau created "La Perspective", featuring men and women in the garden of Pierre Crozat, Watteau's influential patron. Made at this political turning point, several of this painting's elements, such as its setting, composition, and depiction of light, can be understood as reflections of the elite class' desire for freedom against the establishment of monarchical control, and foreshadows several themes that would become popular in the Regency era. This paper explores Watteau's work of aristocratic frivolity as being indicative of new ideas of institutional freedom.

Combining Physical and Mental Practices of a Dart-throwing Task Enhances Motor Learning and Impacts Psychological Skills *(Poster Presentation)*
Carlson, Joy, Exercise and Sport Science
Faculty Research Mentor: Marcos Daou, Kinesiology
Determining practical ways to improve motor skill learning is crucial to enhancing behavior. Combining Visualization technique with dart throwing practice could impact positively skill learning. This study aimed to investigate whether the combination of dart-throwing skill practice and visualization would enhance motor learning. Fifty-three participants were divided in two groups ([1] visualization + dart; [2] dart group). Groups performed pretest of 10 trials, followed by 60 practice trials (6 blocks of 10 throws) with 1-minute break between blocks. Importantly, the Visualization + dart group practiced visualization during the 1-min breaks between blocks, while the Dart group read a nutrition paper during breaks to prevent the possibility to visualize the skill. An immediate posttest section (20 min after practice) was performed to assess motor learning. Participants were required to perform a low pressure; high pressure and transfer test conditions. Results showed that the combination of visualization with Physical practice of dart throwing skills enhanced motor learning (improving accuracy on retention and transfer tests) and prevented learners from choking under pressure relative to only physical practice of the skill.
Keywords: Dart-throwing; Visualization, Choke under Pressure; Motor learning.

Organizational, Societal, and Cultural Barriers: Why Woman are Still a Minority in Leadership Positions *(Oral Presentation)*
Cherry, Mackenzie, Recreation and Sport Management
Faculty Research Mentor: Nicholas Schlereth and Don Rockey, Recreation and Sport Management
As society has advanced greatly in the last decade, and while glass ceilings for minorities are broken more often than none, the business industry has found itself sitting in a place of content. The bare minimum is obtained to hold off discrimination accusations, and to make themselves appear as if their company has become more inclusive. However, the reality is that women are still being discriminated against in the leadership positions in a variety of career fields. The purpose of this paper is to explain the reasons behind this continual lack of representation of women in business. By looking at existing theories, norms, and stereotypes present in society the reason behind this divide will become apparent. To get a full understanding of the barriers persistent to women, this research will begin with the gender norms assigned at birth and work its way through more complex ideas till presenting a new theory about this inequality. Only after individuals become consciously aware of these barriers, can true changes start to occur.

A Seat at the Table: Examining Antisemitism and Jewish Representation on Coastal Carolina University's Campus (*Oral Presentation)*
Cody, Savannah, Communication
Faculty Research Mentor: Christina Selby, Communication, Media and Culture
According to an article entitled "Challenge anti-Semitism" in London's Nature publication, antisemitic sentiments are growing and spreading on college campuses. This poses the question: How seriously is antisemitism taken on Coastal Carolina University's Campus? Furthermore, is the Jewish minority on Coastal Carolina University's campus adequately represented and how does this affect antisemitism on campus? In this research, I interview students, both Jewish and non-Jewish, and faculty members to gain their opinions and insight on antisemitism and representation of the Jewish minority on campus. Then, I shall contact the Intercultural and Inclusion Student Services to ask how they combat antisemitism and advocate for the Jewish minority on campus. From this research, it is my hope that I will partner with the Intercultural and Inclusion Student Services to create a seminar in advocating against antisemitism and building allies for the Jewish community on campus.

Solving Electron Spin Drift-Diffusion Equations in Presence of Hyperfine Interactions *(Poster Session)*
Coleman, Dana, Physics
Faculty Research Mentor: Nicholas Harmon, Physics and Engineering Science
Next generation technologies have been proposed where electron spin is used in addition to electron charge in order to improve functionality and efficiency of electronic devices. In this work, we study how nuclear fields, magnetic fields from atomic nuclei, influence spin transport characteristics in semiconductors. Nuclear fields are added to the spin drift-diffusion equation and the resulting spin distributions are calculated. Due to the complicated nature of the nuclear field, the steady state spin drift-diffusion equations are non-linear and must be solved numerically. In this work, we examine solutions for the spin distribution and spin current in the presence of a nuclear field. Lastly, the effect of

magnetic field gradients on steady state spin are explored to show how these gradients affect spin current.

Microplastic Concentration Analysis of Fiddler Crabs (*genus Uca*) in Murrells Inlet, SC *(Poster Session)*
Conner, Caroline, Marine Science
Faculty Research Mentor: Eric Rosch, Marine Science
Microplastics pose a great threat to the natural environment, a threat not aided by their increasing abundance in marine waters. To assess how this is affecting our local area, I examined the microplastic concentration in fiddler crabs, a keystone species in intertidal zones, from two marsh systems in Murrells Inlet. The quantity, color, and type of microplastic found were recorded from each of the 120 crabs sampled. This information is relevant not only in monitoring the health of a species that plays a major role in nutrient recycling and prevention of anoxic conditions, but also as a caution to us. Fiddler crabs are a main food source for many commercially important fish species, and the effects of biomagnification of plastic contamination is becoming a public health issue, as it can damage cells and lead to cancers and cardiovascular diseases. Therefore, the health of this local species provides an insight into our own.

The Effects of Covid-19 on Coping and Family Experiences *(Oral Presentation)*
Cuba, Kiley, Psychology
Faculty Research Mentor: Terry Pettijohn, Psychology
The question at hand is if there was an effect on siblings' form of coping methods through the COVID-19 pandemic based on their personality traits and birth order ranking. Specifically, if the later born siblings are predicted to have been better adapted to the effects of the pandemic due to certain personality characteristics such as conscientiousness or extroversion. The data was collected through a series of three questionnaires administered through Coastal's SONA Systems and was interpreted and broken up into more detail through Microsoft Excel and SPSS. The study had 61 participants total. With this data collected, it was found that the results did not support the predicted hypothesis. Instead, it gave emphasis on how low stress is for middle siblings (with also having the highest score for agreeableness), and how high stress is for only children. Based on the data, the takeaway would be to develop another study that investigates the findings that were present within this one, but with better additions, such as more details on the participants. For example, adding in more detailed traits on participants such as sex, specific age, race, religion, and more. This would make the data more broad and varied, but also give a better understanding of the participants overall. The following is a research study on these effects and what results were interpreted from the findings.

Birth Order, College Major, and Social Behavior *(Poster Session)*
D'Aconti, Gianna, Psychology
Faculty Research Mentor: Andrew Terranova, Psychology
There are many risk factors for antisocial behaviors. For example, birth order has been linked to personality traits, such as aggression and stubbornness (Fagan & Najman 2003), and these personality traits have been identified as risk factors for antisocial behaviors. More specifically, callousness (lack of

empathy and emotionality) and psychopathy (personality traits associated with being a psychopath), have been linked to antisocial behavior in adolescents and youth, (e.g., Frick & White 2008). These traits can be found in sibling interactions, and are correlated with birth order (Odudu et. al 2020). Furthermore, these same traits, with the addition of Machiavellianism, have been shown to correlate with college majors (Tang & Chen 2008). Using Paul Frick's work on studying callous and unemotional traits that can lead to antisocial personality traits, I will design a study using multiple different subscales to examine how birth order, college major, and personality traits (e.g., lack of empathy and emotionality, unethical behavior, and aggressiveness) relate to antisocial behavior levels in college students.

From the Sidelines: College Athletics from the Perspective of a Collegiate Dance Team Athlete *(Oral Presentation)*
Daniels, Elisabeth, Communication
Faculty Research Mentor: Scott Pleasant, Writing Center Director
My paper discusses the inequalities between collegiate men's and women's athletics. I take my experience as a member of the Coastal Carolina University Chanticleer Girls Dance Team and compare that to the experiences of the athletes on the football team and other men's sports. I also use examples from different colleges and sports to support the idea of disparities in college athletics. In addition, I discuss Title IX and its' failed efforts to mend the disparities in funding and facilities, leadership positions, sports coverage, and respect as a whole.

The Power of Small Local Businesses *(Oral Presentation)*
Devlin, Bridgett, Marketing
Faculty Research Mentor: Pamela Martin, Political Science
As a member of the United Nations Youth Corps Internship program and Georgetown R.I.S.E, I intern at Coastal Media Services located in Pawleys Island, SC. I work to make print and digital advertising content for other local businesses in the County. For the internship and Georgetown R.I.S.E, I am working to also do a sustainability report on my internship experience. By promoting small businesses to the county, I strive to help build a community where locals will support businesses, and these businesses will provide support to the community, so the whole county will benefit. It will be easier for Georgetown County to unite to combat sustainability issues in the community, if there is trust and collaboration between businesses and individuals. In the future, I intend to interview my supervisor and his assistant, because they are a real life example of young leaders working in Georgetown, and a local business that is promoting sustainability. I intend to speak with the owners of the local businesses I advertise for, to get insight of the impact small businesses have in local communities. I hope to create a marketing campaign for these local businesses that are helping the community.

Justice, Reconciliation, and Restoration: An Evaluation of the Gacaca Courts in Post-Genocide Rwanda *(Oral Presentation)*
Dewitt, Nysheim, Computer Science
Faculty Research Mentor: Richard Aidoo, Political Science

Decades after the atrocious genocide, Rwanda is now a model of resilience and progress on the African continent. Though the country still bears the scars from this tragic event, it has moved forward, becoming a place noted for its reconciliation efforts. To achieve this accolade out of a brutal ethnic-based conflict, the known international-based legal arrangements were insufficiently positioned to deliver justice, reconciliation, and restoration as quickly and prudently for Rwanda. Hence, the national-based innovative judicial initiative known as the gacaca courts quickly became a relatively speedy path to accountability for the genocide as well as the needed communal healing to ensure progress toward development. However, has this community-based legal approach to resolving a monumental national crisis achieved its objectives, beyond what the international-based legal and punitive system would have offered? Scholars have strong opinions to this puzzle, and this research work draws largely on the conceptual framework that positions national/community-based legal systems alongside the international-based legal frame for dealing with crimes against humanity. Based on primary and secondary sources, the gacaca court system provides a profound and refreshing context to evaluate the strengths and shortcomings of such a unique and purposeful national/community-based approach to resolving and rebuilding following one of the world's known genocides. The research concludes with the conceptual basis upon which a national/community-based legal mechanism like the gacaca system can succeed and sustain a post-genocidal era.

Compromise, Accommodation, and Collaboration: France during World War Two (*Oral Presentation)*
DiAlesandro, Nico, Intelligence and Security Studies
Faculty Research Mentor: Philip Whalen, History
When discussing France during World War Two, the topic will inevitably shift to collaboration. There was much nuance surrounding Nazi collaboration, as well as the other various compromises and accommodations made by the French for their new tightfisted German rulers. This paper examines those nuances, as well as dissects many people's willingness to collaborate by examining eyewitness accounts of those who survived as well as secondary sources. It also makes comments on the significance of collaboration decades later, and how an unwillingness to reconcile with past atrocities can hurt not only a nation, but that nation's understanding of its own history. Contemporarily, this has broader implications than just France's skewed understanding of its own history as the United States has a similar eyes wide shut strategy regarding our own complicated and problematic history.

When The Road Speaks, The Cars Will Listen! *(Oral Presentation)*
Escandon, Joshua, Communication
Faculty Research Mentor: Carol Borisuk, Communication, Media and Culture
Developed at Coastal Carolina University by student Joshua Escandon, Smart City Technologies is an industrial technology company that specializes in two-way road to car and car to road communications. Ping and blip are two products in development to enable Wi-Fi, radar, lidar, GPS and Bluetooth enabled roads and cities worldwide. Thus, creating opening a conversation with road to car, car to road, car to car, open-sourced real-time, data transfer.
The introduction and integration of this open-sourced technology and communication, all car manufacturers will be able to connect to Ping & Blip. Resulting in a dramatic decrease in accidents, fatalities, regulation of traffic flows and an exponential increase to public safety. Thus, furthering open-

source technology and upgrading cities to Smart Cities, paving the way for autonomous driving with 2-way communication and data transfer. Imagine a fully enabled Wi-Fi country, with solar powered-fully illuminated roadways and highways, safe autonomous driving coast to coast as a net benefit.

Breaking the Barriers of Gender Norms: The Female Musician *(Oral Presentation)*
Gaffney, Ansley, Music
Faculty Research Mentor: Philip Powell, Music
Throughout the course of history of western music, there is a very clear pattern of the figures that were prominent during many of the important eras of music. When most people think about the people who paved the way for music, the first names that come to mind are Mozart, Bach, Handel, Beethoven, etc. It isn't a coincidence that all of the well known composers during these eras are all males. Due to societal norms of many centuries, female composers and musicians did not receive the recognition they deserved for their influential works throughout multiple eras of music. The purpose of this research is to bring recognition and awareness to these female figures whose work heavily influenced the history of western music.

Aligning the 17 UN Sustainable Development Goals to CCU *(Oral Presentation)*
Garthwaite, Hannah, Marine Science
Faculty Research Mentor: Pamela Martin, Political Science
The 17 Sustainable Development Goals as outlined by the United Nations build more sustainable nations. Sizing down the sustainable development goals to a college campus showcases the progress that Coastal Carolina University has made in becoming a more sustainable community, while highlighting gaps in academics, planning, and operations that can be improved in future years. It also demonstrates the university's commitment to transforming the planet by building a more sustainable campus community. Utilizing data from CCU's 2021 STARS report, university factbooks, university offices, faculty, and staff, I have taken this data and visualized it into an interactive dashboard to better communicate our progress, and transparently work toward sustainable partnerships in the future.

The Present Uncanny in Maurice Sendak's "Where the Wild Things Are" *(Poster Session)*
Geddes, Rakaia, English
Faculty Research Mentor: Steven Hamelman, English
Maurice Sendak's "Where the Wild Things Are" is a children's story that evokes the uncanny in mature readers. In Freud's 1919 essay on the uncanny, he stated that "fiction presents more opportunities for creating uncanny sensations than are possible in real life", and that "the class which proceeds from repressed complexes is more irrefragable and remains as powerful in fiction as in real experience… so long as the setting is one of physical reality." Max, the story's main character, is a little boy causing mischief one evening and is sent to bed early by his mother for his rowdy behavior. The story follows Max to his room, where a forest seems to be growing in "physical reality." The reader tags along on Max's journey to the place where the wild things are, where Max meets fellow rowdy creatures he wishes to tame before deciding to return home. The reader is not told directly that Max's journey is a dream, which is what a typical adult reader would suspect to be the case. Max's mingling with the wild

things is a symbol of an infantile wish fulfillment coming to life, a sign of uncanny experience. The creatures he meets and becomes the king of are oddly familiar, representatives of Max's double, and ought to have remained repressed. They emerge nonetheless and are the uncanny personified as beasts. Where the Wild Things Are returns us to a childlike conscious stage, where experience is not so easily differentiated from the dreadful uncanny.

Eating Disorders on College Campuses: Effects of Social Media and COVID-19 Concerns *(Oral Presentation)*

Ghering, Trinity, Adam Bretton and McKinley G. Chapman, Biochemistry

Faculty Research Mentor: Sharon Thompson, Health Sciences

Many young men and women on college campuses struggle with eating disorders such as bulimia nervosa, anorexia nervosa, binge eating disorder, and other forms of disordered eating. The prevalence of eating disorders in women has climbed from 31.8% in 2018 to 51.8% in 2021, while the prevalence of eating disorders in men has jumped from 13% in 2009 to 31.3% in 2021. (Tavolacci et al., 2021). Eating disorders are the second most fatal mental illness in the United States, with around 26% of those affected attempting suicide (Arcelus, 2011). Not only have researchers been unable to ascertain the prevalence of eating disorders on a college campus, but there is also a need to further investigate the consequences of social media and the new concern of COVID-19 on the affected population. As a result of public health attempts to contain the pandemic through quarantine, social media engagement grew considerably by 50% during COVID-19 (Beech, 2020). Researchers for the T.I.D.E.S Project (Treatment, Insurance, Disordered Eating, and Social Media) created a comprehensive survey, which included several self-administrable screening tools including: Stanford-Washington University Eating Disorder Screen, Corona Disease Anxiety Scale, and the Motivations for Electronic Interaction Scale. The survey was administered in undergraduate classes via paper-pencil and also promoted online. Results will follow.

The Effect of Life and Death Regarding COVID-19 on Criminal Sentencing Judgements *(Oral Presentation)*

Graveline, Jaclyn, Psychology

Faculty Research Mentor: Terry Pettijohn, Psychology

With Coronavirus sweeping the entire world, changes to daily life were made like never before. Everything down the way people think and make decisions has been impacted. When individuals are faced with troubling times, such as this ongoing pandemic, the terror management theory suggests that people will hold on tight to their core beliefs and valued ideologies. It was hypothesized that individuals who are death-focused would render more punitive sentencing judgements than individuals who are life-focused. Through this study, using various surveys and articles, data was collected and interpreted to understand the connection between being life or death-focused and criminal sentencing decisions. This study did not reveal any significant results.

Bioinformatic Investigation into Mycobacterium phage DuncansLeg *(Poster Session)*

Hadwin, Conner and Michael Moore, Biochemistry

Faculty Research Mentor: Megan Cevasco, Biology

Bacteriophage research is increasingly important to perform as antibacterial resistance becomes more common. The novel phage DuncansLeg was isolated and sequenced by students in the HHMI SEA-PHAGES Phage Discovery course in the fall of 2021 at Coastal Carolina University's campus. The DNA sequence of DuncansLeg (75,593 base pairs) was subjected to bioinformatic auto-annotation, which placed the phage into subcluster L3. The scope of this investigation goes beyond lab work and discovery, instead focusing on applying multiple bioinformatic approaches to refine the genomic auto-annotation and assign potential gene functions where possible. To this end, the bioinformatic programs used to identify coding potential and gene starts were DNA Master, GeneMark, Starterator, and Phamerator. For the assignment of gene functions, pBLAST, HHpred, and synteny data were used in combination to provide evidence for functionality if possible. PECAAN software was then used to centralize data for further analytics. The results of these analyses and specific genomic regions will be discussed in this presentation of data.

The Politicization of COVID-19 Reflected in Beliefs and Behaviors *(Poster Session)*
Hough, Corey, Public Health
Faculty Research Mentor: Fredanna McGough, Public Health
According to the health belief, motivation to follow recommendations is determined by perceived sensitivity to a health hazard and perceived effectiveness of prescribed health-protective actions. The Coastal Carolina University (CCU) community participated in a questionnaire survey between the fall 2020 (n=217) and spring 2021 (n=372) semesters, to better understand the relationship between beliefs/behaviors and opinions of leadership at the college, local, and federal levels. The analyses found that opinions of CCU leadership had the least association with actions and beliefs, but views of federal and local leadership have significantly larger correlations with beliefs and behaviors. Furthermore, individuals who positively viewed the local and federal leadership prior to 2020 were less concerned about infected with COVID-19 and were much less inclined to feel that they should do their part to limit the spread of the covid-19 virus. Thus, we conclude that county, state, and federal leadership perspectives strong predictors of a variety of pandemic-related behaviors. More research can be done perspectives to determine perspectives of our campus leadership.

Relationship between Light and Dark Triad Personality Profiles, COVID-19 Vaccine Hesitancy, and Gratification in College Students *(Oral Presentation)*
Howard, Alysabeth, Psychology
Faculty Research Mentor: Terry Pettijohn, Psychology
The rapid spread of the COVID-19 pandemic in the United States was due, or at least in part, to the resistance of health guidelines, and minimal to no safety measures implemented by nearly half the US citizens, and to a lesser extent, the initial lack of understanding into the pathogenic mode of transmission. The present study examines links between the Dark (i.e.., narcissism, psychopathy, Machiavellianism) and Light (i.e.., compassion, empathy, altruism) Triad of personality traits and different gratification measures to predict COVID-19 vaccine uptake and personality correlations to the perceived threat level of COVID-19 in a college sample of xxx (*N*= xx) undergraduate students. Students with marginal scores in compassion, and psychopathy suggests unique environmental and situational circumstances can trigger perplexing reactions.

Identification and Characterization of Small Regulatory RNA in Streptococcus *(Poster Session)*
Hoxha, Klea, Biochemistry
Faculty Research Mentors: Brian M. Lee and Gabriela G. Perez-Alvarado, Chemistry
Background: The human gut is a rich habitat for a diverse population of bacteria. These bacteria play a vital role in a multitude of functions. They affect immune responses, metabolism, and even neurological activities. Some inhabitants of the gut biome include the lactic acid bacteria: Streptococcus thermophilus, Lactobacillus acidophilus, and Lactobacillus bulgaricus. These bacteria are essential members of the flora and are non-pathogenic, however, some of their relatives like Streptococcus pyogenes cause severe diseases such as flesh-eating disease. The metabolic functions of these bacteria are mediated by small regulatory RNAs (sRNAs), which are noncoding RNA sequences that fold into complex stem-loop structures.
Goal of Study: The goal of this project was to identify and characterize sRNAs that mediate bacterial metabolism and host interactions in non-pathogenic, lactic acid bacteria with homologous RNAs in pathogenic strains.
Methods and Results: A small regulatory RNA that is conserved among different streptococcal species was identified. In S.pyogenes, this conserved sRNA, named MarS, is associated with virulence, however, the function of its homolog found in non-pathogenic bacteria, AsdS sRNA, has not been characterized. Computational methods were used to elucidate the function of this sRNA and predict its 2D and 3D structures. The gene containing the target sRNA was isolated and RNA constructs were designed to characterize regions that are part of it.
Conclusions: A conserved sRNA species was successfully identified in S.thermophilus and cloned for synthesis by in-vitro transcription. Future work will be focused on structure determination and characterizing interactions to target sRNA through biophysical methods.

From 2D Images to 3D Virtual Reality: A Digital Application in Cultural Heritage *(Poster Session)*
Hucks, Ronny, Engineering
Faculty Research Mentor: Xiangxiong Kong, Physics and Engineering Science
The digital documentation and preservation of historic and cultural sites are urgent needs for local governments due to concerns regarding structural damage and deterioration over the long term. With new technologies like augmented reality (AR), virtual reality (VR), and mixed reality (MxR), enabling 3D, immersive, virtual experiences become feasible. In this poster presentation, we outline a novel methodology that allows site owners to capture, digitally preserve, and then view these historic sites in the virtual environment. To this end, 2D photographs of a historic site are first taken and then generated into a 3D point cloud in Agisoft. Thereafter, we investigate an affordable online platform (Sketchfab) to allow users to view the 3D point cloud through a VR headset. We further verify the proposed methodology through a historic arch stone bridge in the US Territory of Guam. The workflow presented in this poster would be an effective way to create a 3D virtual experience of historic structures; and is easy to be followed by historic site owners.

Initial Investigation of the Chemical Contribution of Hemp to Beer Aroma *(Poster Session)*
Hunt, Caitlyn, Chemistry

Faculty Research Mentor: Drew Budner, Chemistry

As the availability and consumer interest in hemp materials increases, the production and consumption of products incorporating hemp and CBD oil has increased. The industrial hemp market has seen a steady increase in value of the market and is projected to reach 26.6 billion USD. South Carolina has seen an increase in the cultivation of hemp and the production of CBD oil. There has been some interest in the market for alternative uses for both raw hemp and the leftover material following the CBD oil extraction process. This interest is a result of hemp-flavored beers in the market. The use of hemp during the brewing process is a relatively new ingredient and the impact that it has on the overall flavor profile of the finished beer has not been well established. The purpose of this project is to identify the primary volatile and semi-volatile compounds associated with hemp flavor beer. The analysis of the volatile and semi-volatile compounds extracted via SPME and analyzed by GC-MS using a non-targeted approached. Raw hemp products were analyzed first to determine the overall volatile and semi-volatile flavor profile product of the raw material. The chemical profiles of the beer were analyzed following dry hopping with the hemp material vs standard addition of the hemp during the boil. Statistics were run to determine if differences were present between the volatile and semi-volatile compounds of the hemp (boil vs dry hopping) additions. The results of this work could provide brewers with clarity when selecting starting materials to achieve specific flavor outcomes associated with hemp.

The Japanese Buddhism Shikoku Game: Basic Customs and Language *(Oral Presentation)*

Jinier, Carol and Celina DeCordova, Religious Studies

Faculty Research Mentors: Ronald S. Green, Philosophy and Religious Studies and Susan Bergeron, Anthropology and Geography

The Shikoku Game: Basic Customs and Language is an educational single player game in the style of a 2D interactive visual story that is text-based. The game follows the main character, an English speaker, as they experience a Buddhist pilgrimage in Shikoku, Japan with the help of a native Japanese character. Research was done using the literature written about the Shikoku pilgrimage and language research was done using a standard first-year Japanese language textbook. The game was created through a joint effort of two students and two professors. One student designed characters, did research on the pilgrimage and language, and created the script. This was executed alongside another student who helped create the script and game as well as provided language support. Two professors also aided in the process providing feedback and instruction. This project has two learning objectives. The first objective aims to educate the player in the etiquette, customs, and beliefs that are practiced during a Buddhist Pilgrimage on the island of Shikoku in Japan. The game also aims to teach basic and useful Japanese words and phrases to English speakers with romaji as well as hiragana and kanji. These goals will be met through conversation had between an English-speaking foreigner with their native Japanese guide as well as other characters on the island. The fun visuals and interactive aspect of a video game will serve as a free educational tool for any English speaker interested in both or either Japanese Buddhist practices and the Japanese language.

Striped Blenny Behavior and Shelter Use in a Southeastern Saltmarsh Tidal Creek *(Oral Presentation)*

Johnson, Brooklyn and Juliana Harding, Marine Science

Faculty Research Mentor: Juliana Harding, Marine Science

Temperate estuaries are important habitats for resident species and maturing juvenile transient fishes. The North Inlet estuary, SC resident fish fauna includes the Striped Blenny (*Chasmodes bosquianus*), Freckled Blenny (*Hypsoblennius ionthas*), and Crested Blenny (*Hypleurochilus geminatus*). Individual male blennies occupy habitat shelters year-round. During breeding season, male blennies attract mates to nest and protect developing embryos within the nest. Salinity requirements establish blenny spatial distribution in the estuary. Seasonal spawning activity by these temperate blenny species is related to water temperature and seasonal productivity patterns. Coral reef blenny spawning is positively related to the lunar cycle. Blenny nest site occupancy patterns relative to the lunar cycle, water depth and salinity were quantified during 2020 and 2021 in North Inlet estuary, SC. Underwater time lapse cameras recorded diel blenny activity in and around nest sites from early April until July 2020 and 2021. Videos were analyzed to document resident blenny presence or absence, presence of female mates, and daily time of male nest site occupancy. Male blennies display high site fidelity, exhibit crepuscular activity patterns, and appear to be near or in the nest shelter during most daylight hours. Blenny activity decreased in the presence of large transient species including green sea turtles, sheepshead fish, and blue crabs. The influence of lunar cycle, water depth, and salinity on these metrics will be discussed.

Use of Loop-Mediated Isothermal Amplification (LAMP) for the Detection of Tomato Mosaic Virus *(Oral Presentation)*

Jones, Caleb, Biology
Faculty Research Mentor: Michelle Barthet Parker, Biology

Tomato Mosaic Virus (ToMV) is a rapidly spreading single-strand RNA virus that can quickly infect and destroy entire crop yields. As there is no cure for ToMV, early detection is key; the infected plants must be identified, isolated, and destroyed before the infection spreads. Our aim was to develop a testing strategy that not only had the specificity to detect ToMV but could also be implemented in the field and quickly determine infection. Prior to this study, the most common form of detection was by use of polymerase chain reaction. While accurate, this testing method is costly and takes time, leading to greater crop loss. Our method used Loop Mediated Isothermal Amplification (LAMP) with specifically designed primers to target the coding region of the viral RNA responsible for the production of coat proteins. We were able to identify infected plants in as little as five minutes and with limited equipment. Currently, testing is underway to determine the limits of detection for this method. We are also determining if this method will retain specificity across various tomato species.

The Muslim World: Democracy, Transition, and Terrorism (*Oral Presentation*)

Joyce, Kevin, Intelligence and Security Studies
Faculty Research Mentor: Matthew Cobb, Intelligence and Security Studies

In the 21st century, the Muslim world is continuously growing, in which Muslim's make up approximately 24% of the world's population. With this, the Muslim-majority countries, of which 50% or more of the population identify as Muslim, have lagged behind historically in democratizing. In many of these Muslim-majority countries, terrorism is an active occurrence as well. In this study, I expect to find that a country who transitions towards a democracy will experience increased levels of terrorism. I also expect to find that any change in a countries POLITY score will result in more terrorism in that country.

And lastly, I expect to find that a Muslim-majority country that successfully transitions to a democracy will experience increased levels of terrorism. Overall, I am looking to answer if a change in governance type in a Muslim-majority country will affect terrorism levels in that country. I will be utilizing different military and political factors in this empirical study.

Accessibility and Productivity within Primary Healthcare during a Global Pandemic *(Poster Session)*
Kerns, Hannah, Intelligence and Security Studies
Faculty Research Mentor: Pamela Martin, Political Science and Michelle Dzurenda
The World Health Organization defines primary healthcare as a whole-of-society approach to health that aims to ensure the highest possible level of health and well-being and their equitable distribution by focusing on people's necessities and as early as possible along the continuum from health prevention and disease prevention, and as close as feasible to people's everyday environment (WHO, 2021). This study will examine the impact of Tidelands Health Family Medicine during the COVID-19 pandemic from a productivity and accessibility standpoint, while connecting findings to the United Nations Sustainable Development goals. Through qualitative and quantitative data, I measure the benefits of a centralized scheduling call center. As primary healthcare ensures healthy lives and promotes well-being for all at all ages, the addition of a call center promotes inclusive and sustainable economic growth, employment and decent work for all. Furthermore, I aim to connect the increase in productivity to increased patient satisfaction and improved accessibility to healthcare.

Private Funding, Public Space *(Oral Presentation*)
Ludwig, Frances, Arts
Faculty Research Mentor: Elizabeth Baltes, Visual Arts
Portrait monuments are often displayed in prominent, public spaces so they can be viewed easily. Larger-than-life bronze figures tower atop marble pedestals as symbols of virtue to the general public. While most are undoubtedly familiar with this motif, much information about these statues is not made readily available- who decides which figures are honored in this very public, very expensive, way? This research explores these unknowns as an extension of work done for the Edwards Center for Inclusive Excellence, by examining monuments on the South Carolina State House grounds. Although the monuments found at the seat of the state's democracy are usually described as "public monuments," many are funded, at least in part, by private donations. A monument of Strom Thurmond, for example, received funding from Bank of America, Bellsouth, and Blue Cross and Blue Shield, among other private donors, in an amount totaling $850,000. Such large sums of money are not donated without cause. By examining primary sources and historical documents, along with the monuments themselves, I seek to unveil these motives, in order to better understand how private funding has shaped this public space. Using money to determine motivation, this project elucidates the private decisions that affect the public these grounds are meant to serve.

The Religious Relations of Gender Roles in America *(Oral Presentation)*
Mack-Bingham, Brianne, Women's & Gender Studies
Faculty Research Mentor: Michael Promisel, Political Science

Throughout American history, we have seen religion used to allow unfair and oppressive practices to continue, especially in the formation of gender roles. It is often believed that the formation of gender roles originates from a Protestant interpretation of the Bible and other religious matters. The goal of this study is to determine if religion is truly a defining factor in creating the long-lasting gender norms in American culture or if American culture and values are the basis of gender norms and religion is used to justify said practices. To explore this topic, the research conducted will be referring to historical and contemporary sources from the United States and the United Kingdom to do a comparative analysis of how Protestantism and gender roles function in another country. The United Kingdom will provide a way for us to see if these practices persist outside America with a country similar in protestant population and impact. Overall, the conclusion of this paper will work to explain if the basis of gender roles in America is religiously related or if religion has been used as mere justification.

The Internal Contradictions of the Vichy Regime: Women Collaborators and Resistors *(Oral Presentation)*

Maddalena, Michaella, History

Faculty Research Mentor: Philip Whalen, History

This paper examines the rise and fall of France's Vichy Regime from 1939 to the early 1940s, specifically focusing on the ways women collaborators and resistors revealed the internal contradictions of the Vichy Regime. During its reign, the Vichy Regime implemented a series of traditionalist and exclusionary policies to restore France to a patriarchal society. The implementation of such policies and the regime's call to collaborate with Germany thus resulted in varying responses amongst the French public, including women. Through my analysis of various primary and secondary source documents, it became apparent that women were unable to uphold the conventional expectations of the Vichy Regime due to the various circumstances of World War II, including the challenges posed by France's agreed collaboration with Germany. Women's inability to uphold these expectations thus resulted in varying responses amongst them, as they were forced to engage in acts of collaboration and/or resistance. After providing a thorough analysis of France and the roles of women during the Vichy Regime, my paper will then explore how the regime's inability to deliver on its stated agenda catalyzed the evolution of two myths: collaboration and resistance. Within my paper, I demonstrate how women's acts of collaboration and/or resistance are what undermined these claims by the Vichy Regime. Thus, their actions revealed the regime's internal contradictions and its failure to deliver on its stated agenda, additionally proving women to be a critical part of the fight for France and its integrity.

Never Forget: The Two 9/11s and the Power of Memory *(Oral Presentation)*

Maddalena, Michaella, History

Faculty Research Mentor: Shari Orisich, History

For the past 21 years, Americans have utilized the phrase “Never Forget” to commemorate the horrific events of September 11, 2001. Often unheard of by most Americans is the events of September 11, 1973, in Chile, a day when thousands of Chileans bared witness to the CIA-backed coup of Salvador Allende, their democratically elected president. This coup, supported by the United States, had forced the nation into a dictatorship led by Augusto Pinochet, resulting in much pain and anguish for Chileans. September 11, 2001, though separated by time and place, resonated with Chileans as they too had

experienced similar horrors, searching for their loved ones through utter madness and debris. Though both Americans and Chileans have struggled to understand the truths behind these events, Chileans have especially struggled due to the United States' failure to acknowledge their involvement in the coup and claim any responsibility for the horrors that transpired under Pinochet's dictatorship. This paper examines American determination to "Never Forget," applying its meaning to the events in Chile and to Chileans who experienced what they know to be "The first September 11th." Through this examination, it becomes apparent that the United States' neglect of Chilean history and memory not only furthered the divide between these two nations, additionally revealing the hypocrisy of the 'Never Forget' mantra, but that this failed acknowledgment has hindered Chile's ability to form a collective memory around the tragic events of September 11, 1973, and truly commemorate this moment in their history.

What Lives On Offshore Artificial Reefs In South Carolina? An Analysis of Epifaunal Reef Communities and How They Vary With Reef Age *(Poster Session)*

Madden, Sydney, Marine Science
Faculty Research Mentors: Ryan Rezek and Paul Gayes, Marine Science

Artificial reef structures have been deployed across the coast of South Carolina in an effort to increase fish habitat and provide other ecosystem services. There are approximately 45 artificial reef systems established by the South Carolina Department of Natural Resources (SCDNR) over several decades. The hard structure—frequently composed of concrete, old boats, or other structures—forms unique high relief hard-bottom habitat in the otherwise largely low relief coastal shelf. Currently, there is little published on the species composition of the epifaunal communities in this region, how much biomass they support, and how they develop over time. We studied two established artificial reefs that vary in age, Ron McManus Reef (PA-04) and Jim Caudle Reef (PA-01). Scrapings from these structures were collected to identify the abundance, biomass, and species composition of these structures. Younger reef structures were dominated primarily by barnacles (*Cirripedia*), and older structures (10 years+) tended to support more diverse communities composed of sponges (*Porifera*), bivalves, and coral species. This study demonstrates the process of community succession on these habitats and serves as a baseline for understanding how potential services provided by these structures, such as habitat provision and potential prey resources that they provide for fish, may increase over time.

Understanding Military Takeovers in post-Cold War Africa: The Cases of Mali and Burkina Faso *(Oral Presentation)*

Mazzone, Casey, Intelligence and Security Studies
Faculty Research Mentor: Richard Aidoo, Political Science

Recently, Africa is experiencing a gradual rise in military takeovers – a turnaround in a pro-democratic era of the post-cold war Africa. This phenomenon harkens back to earlier years of surge in military takeovers that destabilized post-independent African states. Scholars have been intrigued by the nature of political regime types that have encountered this sudden displacement of government, as well as the underlying sociopolitical and economic causes and effects of military takeovers. The recent tide of military removal of duly elected governments seem to be prevalent in Western Africa, and at a moment of global socioeconomic strain resulting from the COVID-19 pandemic. What are the proximate causes to this known political disruption in Africa? This research effort examines military takeovers at a time of

post-cold war democratic progression in Africa, based on the examples of Mali and Burkina Faso. Given this periodic context, this work considers some significant causes within a conceptual framework that highlights two schools of thought in the causes of military takeovers: the state's socioeconomic and political environment versus the indiscipline of the military in question. Based on gross domestic product (GDP) values, corruption perception index (CPI), and fragile states index (FSI) for a decade, the study affirms the socioeconomic and political causes, but with much needed nuance.

On the periodicity of a modified Fibonacci sequence (*Oral Presentation)*
Meade, Jensen, Mathematics
Faculty Research Mentor: Prashant Sansgiry, Mathematics
The Fibonacci sequence has the following recursive relationship: $x_{n+2} = x_{n+1} + x_n$ with $x_1 = x_2 = 1$. The modified relationship we analyze is: $x_{n+2} = imx_{n+1} + x_n$ with $x_1 = x_2 = a + bi$. Here m is a parameter, a and b are real numbers and i is the complex number $\sqrt{-1}$. These relationships are classified as second order difference equations, and we use techniques from difference equations to analyze the behavior of resulting solutions to this equation. Here we study the relationship for real number values of m. We notice that the recursive relationship is periodic for $-2 < m < 2$. In this presentation we will explain results related to this behavior. For different values of m we observe that the sequence, when plotted in the complex plane, has a surprising geometric relationship that connects to the conic sections: ellipses and hyperbolas.

Arbovirus Project *(Poster Session)*
Mickey, Carson, Biochemistry
Faculty Research Mentor: Paul E. Richardson, Chemistry
Mosquitos are known to spread diseases throughout communities, including viruses, referred to as arboviruses. In 2017, DHEC reported 158 incidents of arboviruses in South Carolina, including West Nile, Dengue Fever, and Zika virus. The infections rate was up from the year before when 124 incidents of arboviruses were reported. Monitoring these infected mosquitos can be an asset for proper health protection in our community. Understanding what the mosquitoes are feeding on can help us better monitor the zoonosis threats that our community faces. A series of primers have been developed that target unique sequences in the cytochrome b gene in mammals, reptiles, amphibians, and birds, as well as sequences in the gene for human hemoglobin. With these primers, we were able to detect one or more possible blood meals that the mosquito had fed from. Thus, this project wants to determine what the mosquitoes in our area are feeding on to better understand the *zoonosis* threat to our community. Over this past year, our goal was mainly to identify whether the mosquito specimen had fed on human blood or blood that came from something other than a human, or in some cases, whether it had fed on both a human and something else. This data can then be combined with our future goal of developing techniques to detect arboviruses in the mosquitoes and identifying the bloodmeal source of those diseases.

Cloning and Overexpression of Phayonce Genes to Assess Cytotoxicity in Mycobacterium Smegmatis (*Poster Session)*
Montoya, Abbey and Olivia R. Sundman, Biology

Faculty Research Mentors: Daniel Williams and Michael Pierce, Biology
Bacteriophages, viruses that infect bacteria, posses the potential to be utilized for therapeutic purposes. Despite being the most abundant biological entity, the biological function of many phage genes has not been established. Our lab is analyzing each gene of the phage Phayonce, which infects Mycobacterium smegmatis. First, individual genes are inserted into an inducible expression vector. Then, these plasmids were used to transform M. smegmatis and determine if individual genes have toxic effects on host cells. Because functions of gene number 35 and 52 of Phayonce cannot be inferred by sequence comparison, they were selected for analysis. These genes were cloned into the pExTra inducible expression vector and used to transform M. smegmatis. We assessed cytotoxicity of these gene products by assaying host cell growth rates on media that induces expression of the phage genes. Our results will establish a biological role of these bacteriophage proteins that could be developed into therapeutic strategies to combat bacterial diseases.

Across Time and Many Waters *(Oral Presentation)*
Morgan, Jesse, Communication
Faculty Research Mentor: Pamela Martin, Political Science
This project highlights the contributions African American's have made to Georgetown County, South Carolina, through oral history and the creation of an exhibit at the SC Maritime Museum. Research is conducted and gathered through the SC Maritime Museum and features content on Gullah-Geechee culture in the local area through interviews with residents. The goal of this research is to sustain their culture in Georgetown County and educate others about the Gullah-Geechee and their existence and contributions to the community.

COVID-19 Threat and Music Preferences in College Students *(Poster Session)*
Myers, Molly, Psychology
Faculty Research Mentor: Terry Pettijohn, Psychology
COVID-19 has caused many changes in society and people's everyday lives. These changes may have given rise to new levels of fear and stress among many. For those more affected by the pandemic, a shift in music taste may have occurred. During the semesters of Fall 2021 and Spring 2022, data from over 100 students has been collected. Participants rated the level of threat they feel because of COVID-19 and what music they have been listening to, using music categories from the Short Test of Music Preferences (STOMP). It is predicted that people who feel more threatened by COVID-19 will prefer to listen to Reflective and Complex music (classical, jazz, and blues music). Implications will be discussed.

Identifying Conditions for Indole Additions to Aldehydes to be applied to the Synthesis of Phidianidine Analogues (Poster Session)
Newton, Lindsay and Anna M. Tingler, Biochemistry
Faculty Research Mentor: Bryan Wakefield, Chemistry
Phidianidines are natural products originally isolated from *Phidiana Militaru*, a shell-less mollusk. The compounds are comprised of an indole, a 1,2,4 oxadiazole ring, and an aminoalkylguanadine group on the C-3' position of the ring. They have been found to neutralize reactive oxygen species and are agonists of the μ-opioid receptor. Other groups have synthesized analogues of the phidianidines that

have substituted the aminoalkylguanadine group for a biaryl ring system, which has been shown to have neuroprotective properties. The current synthetic routes make substitution of the indole and changing the oxadiazole difficult, so our goal is to create a synthesis that allows for variations of these groups to determine the impacts on the biological activity. Our approach to these analogues hinges on the addition indole to an aromatic aldehyde. We are using simple aldehydes to identify reaction conditions that can then be used to complete the synthesis.

Sustainable Planning, Protecting Social, Economic, and Environmental Interests of Coastal Communities *(Poster Session*)

O'Hara, Daniel, Marine Science
Faculty Research Mentor: Pamela Martin, Political Science

When thinking about sustainable planning in coastal communities it is important to think about the connections between humans and nature. Creating low-impact developments, using native plant species, non-impervious surfaces, and adequate buffers between developments and water sources. Successful coastal planning and development can help ensure that economic, social, and conservation interests are protected. Wetlands represent 5.5% of the total land area in the United States (Dahl 2011). The Coastal Watersheds of the Eastern United States have 212 million acres of wetlands which represents 38% of the total wetlands in the United States (Stedman and Dahl 2004). The Atlantic region has 89 million acres of wetlands approximately 42% of the total coastal watersheds of the eastern United States. This region represents one-third of the United States total population (US Census 2017) which makes this the most populated coastal region in the US. This type of population density can create serious consequences for coastal areas. Understanding the connection between humans and wetland environments is imperative to coastal planning. This project looks to gather information from local, regional, federal, and international levels as well as scientific studies into wetland protection and preservation. To improve policies and practices in Georgetown County, using United Nation Sustainable Development Goals to create more sustainable and healthier environments in urban coastal areas.

Environmental Bacteriophage Detection on Coastal Carolina University Campus *(Poster Session)*

Oldfield, Hailey, Marine Science
Faculty Research Mentor: Paul E. Richardson, Chemistry and Madison Gentilo

The purpose of this study is to utilize bacteriophage as an environmental indicator of the presence of harmful bacteria in waterways on Coastal Carolina's campus and to identify bacteriophage that could be used to control bacterial blooms. Bacteriophages are viruses that infect bacteria. These viruses are found ubiquitously in the environment and are the most abundant organism on Earth. Eleven sites are designated for weekly sample collection. Water samples are filtered and amplified using strains of E. coli B and E. coli K12 to allow potential viruses in the sample to proliferate to detectable levels. Plaque assays are used as a microbial screen for the presence of bacteriophage. Samples that test positively using the microbial test are analyzed through a molecular test using PCR and gene specific primers, which identify the viral families and confirm the presence of the desired bacteriophage. The results of this study illustrate the presence of bacteriophage on the Coastal Carolina's campus and the identification of at least one of the desired viral families.

The Association between Parental Relationships and the Marital Views and Relationships of College Students *(Poster Session)*

Oswald, Emma, Psychology
Faculty Research Mentor: Andrew Terranova, Psychology

Divorce is a prevalent issue in the United States, even though research suggests that a healthy marriage is beneficial to children's development and well-being (Ribar, 2015). Children having divorced parents (Potter, 2010) and parents in unhappy marriages are associated with more difficulties with psychological well-being of children (Bannon, et al. 2018). The goal of the present study is to determine whether or not parental divorce and relationship quality are associated with the marital views and relationships of college students. Participants will be asked to complete a series of online survey scales measuring parental relationship status, age of parental divorce (if divorced), parental marriage quality, parental conflict, participant relationship status, participant relationship satisfaction, and participant marital attitudes. It is hypothesized that parental divorce and parental conflict will be linked to less traditional marital views and less favorable marital attitudes. An association between parental conflict and participant relationship satisfaction will also be explored. Participants whose parents divorced during adolescence are predicted to have less traditional marital views and stronger, negative marital attitudes than if divorce occurred at other developmental periods. Findings of this study lay grounds for future research, such as longitudinal studies that could provide stronger evidence of causational relationships.

Caring For the Environment in Georgetown County, SC: Using SDGs, Environmental Ethics, and Attitudes to Highlight Triadic Socioeconomic Barriers *(Oral Presentation)*

Ownby-Connolly, Briar, Marine Science
Faculty Research Mentor: Pamela Martin, Political Science

The behavior of littering is one that has proliferated deviance and social disorder theories throughout academia, particularly since why people litter remains an unresolved question. Taking a drive through Georgetown County, SC presents a range of littering magnitudes, with certain communities noted as hotspots for roadside trash. Addressing this issue is one of the primary concerns at the Georgetown County Office of Environmental Services. But to accurately address littering in the County, we must first understand the environmental attitudes held by residents, since attitudes are rudimentary in solving environmental issues. Along with the utilization of specific criteria within the UN Sustainable Development Goals (SDGs) and local litter index data, we implemented an art contest that would allow for us to conduct pre- and post- assessments to gauge the environmental attitudes of three art class within the Georgetown County School District, as well as allude to sustainability within their education system. This allowed us to highlight the connections between poverty, education, and the environment, as well as analyze effectiveness in approaches to litter awareness. This emphasized the cross-disciplinary foundation of the issue, in essence, the epitome of social ecology. To solve environmental issues, we must first solve social ones. The solution to roadside litter is therefore found in addressing socioeconomic barriers: poverty and quality education.

The Use of Time-Lapse and Photography to Document the Effects of Seasonality on Dune Morphodynamic Evolution in Corolla, NC. *(Oral Presentation)*

Ownby-Connolly, Briar, Marine Science

Faculty Research Mentor: Till J.J. Hanebuth, Marine Science

With climate change altering established seasonal and weather phenomena, understanding the behavior of barrier islands and the processes driving such physical changes, specifically within their dune zones, is crucial in promoting their resiliency. With myriad ecosystem services provided by dunes to coastal economies and wildlife habitat, promoting dune conservation will serve to advance the benefits of these systems, within a changing climate. Current findings by the Army Corps of Engineers Field Research Facility in Duck, NC, suggest the significance of local aeolian transport in interplay with storm intensity in effecting dune stability, and that anthropogenic impacts, like the installment of wooden beach accesses versus paved walkways can either aid or harm the strength of these natural systems, falling on the decisions of local communities. We used Time-Lapse and standing Photography to monitor and document the morphodynamic evolution of 45m and 20m dune sections in Corolla, NC, within a one-year timescale. Monthly elevation measurements were established to quantitatively emphasize the processes being illustrated within the footage and photographs captured. We found that scarping recovery time aligned with the storm impact scale established by Sallenger (2000), and that summer and winter profiles matched understandings of seasonal variations: stronger wind and wave energy in the winter. This supports modern dune studies, providing visual demonstrations of subtleties within dune dynamics so to provide future guidance to coastal homeowners.

How the Sustainable Development Principles May Protect the Gullah Heritage Corridor *(Oral Presentation)*

Peck, Brandon, History

Faculty Research Mentors: Pamela Martin, Political Science and Gillian Richards-Greaves, Anthropology and Geography

The Waccamaw neck and the Sea Islands of South Carolina were historically productive agricultural lands where slave-based plantation agriculture was utilized for rice and indigo cultivation from the Sixteenth century onward. The communities of enslaved peoples in the South Carolina low country were primarily brought from the rice cultivating regions of west Africa, primarily Angola, Senegal, the Gambia and Sierra Leone. Following abolition, community and cultural ties were formed to these lands that their ancestors were once enslaved upon starting in the 16th century. This community stretching from Jacksonville, North Carolina all the way to Jacksonville Florida is known as the Gullah, or Geechee. Like all cultures found around the world, Gullah culture is incredibly rich and complex. Family ties, local food and basket weaving are just a few of the important facets of Gullah culture. Arguably the most important tenant of Gullah culture and identity is the land, but maintaining these sacred lands has become an increasingly tedious struggle for Gullah leaders in recent decades. Starting in the late 1930s, the Sea Islands in Southern and Eastern South Carolina faced a storm of land development for the purpose of attracting white tourists and wealthy retirees. Encroachment by land developers is not the only threat to Gullah landscapes. The low lying lands and sea islands that Gullah people call home are incredibly susceptible to our changing climate and rising oceans. Hurricanes over the years have been particularly destructive. The impact of these social and environmental changes mean Gullah people now are finding it harder to maintain their community ties and cultural identity. Because of the complexity of

these issues, a holistic solution is necessary; One that takes into account the interconnected social, environmental and economic issues. The United Nations Sustainable Development Goals, applied at a local level, may go a long way in helping preserve the cultural heritage of the Gullah peoples of South Carolina.

The Incarcerated VOICE Initiative: How to Successfully Elevate Incarcerated Students in Higher Education *(Oral Presentation)*
Pertell, Adonya, Sociology
Faculty Research Mentor: Jennifer Schlosser, Sociology
An individual convicted of committing a crime is expected to be sentenced, serve a punishment proportionate to the crime, and then reintegrated back into society. However, according to the criminological research, as an individual is processed through the criminal justice system, the odds become stacked against them to successfully participate in a "normal" life within society, post-incarceration. Individuals with a criminal record continue to be punished upon release for the crimes they committed by being stripped of rights and opportunities. For instance, individuals that were incarcerated are dehumanized in the eyes of other citizens and treated like they don't belong, making it difficult to build connections and relationships, further isolating them from society. Job opportunities and the chance to obtain higher education are difficult due to the restrictions, misconceptions, and disparities imposed by society. Individuals released from prison are rarely offered the resources to support them when they get out. Coastal Carolina University currently offers a sociology course called the Jail Experience that consists of traditional CCU students as well as incarcerated students involved in a rigorous drug rehabilitation program. This course is in the process of being made into a program where the incarcerated students can continue taking college courses and obtain an undergraduate degree and education despite their criminal background. The following research consists of a content analysis of similar programs at universities around the country in order to analyze emerging themes in creating a successful prison college program through understanding the unique challenges of post-incarcerated life.

Detecting Potential Neurotoxic Pseudo-nitzchia Species in the Grand Strand *(Poster Session*)
Price, Chesney and Sean P. Ferrano, Biology
Faculty Research Mentor: Megan Cevasco, Biology
Pseudo-nitzschia is a globally distributed diatom genus which contains 26 neurotoxin (domoic-acid) producing species. In shallow coastal waters these diatoms are associated with both the development of harmful algal blooms and the bioaccumulation of toxins in shellfish that can impact human health. Environmental DNA (eDNA) samples drawn from the public shellfish harvesting area at Huntington Beach State Park (SC) during the summer of 2021 were PCR- screened for *Pseudo-nitzschia* species using genus specific primers. The sequences of the recovered amplicons are used to molecularly characterize the species of Pseudo-nitzschia present and their potential to produce domoic acid.

Classification of Shock and Vibrational Data Using Contemporary Machine Learning Techniques *(Oral Presentation)*

Przybylski, Nicklaus, Computer Science
Faculty Research Mentors: William Jones, Computer Science, and Nathan DeBardeleben, LANL
Our funding sponsor, Los Alamos National Laboratory (LANL), is interested in automatic anomaly detection and classification applied to highly instrumented flight shock and vibrational data for the purpose of providing insight into operational safety. In this work, we apply well-known Machine Learning (ML) techniques to a publicly available motor vibrational data set that serves as a proxy to the actual LANL data. We successfully train a random forest to classify anomalous motor states using the dataset, and use this model to simulate real-time anomaly detection and event classification. Furthermore, we perform a suite of computational studies to determine optimal parametric settings for our framework and evaluate the cost-benefit of these parameters.

Georgetown County: The Issue of Land Litter and Pollution *(Poster Session)*
Rainwater, Nicole, Marine Science
Faculty Research Mentor: Pamela Martin, Political Science
Land litter and pollution are a large issue in current society. Georgetown County in South Carolina is no exception to this with excess amounts of litter lining the streets due to a lack of municipal solid waste management, and possibly a lack of education in sustainability. Litter not only harms the environment but also affects the community and its people while driving businesses and tourists away from the location. This paper aims to explore the litter issue of Georgetown County and its lack of sustainability through a litter index. To achieve this study a heat map of the land pollution will be compared to maps of the county's poverty levels and flood zones.

Examining Health Disparities among Healthcare Workers in South Carolina *(Oral Presentation*)
Restuccia, Hailey, Public Health
Faculty Research Mentor: Pamela Martin, Political Science
The health of an individual is greatly impacted by the area they live in. Individuals living in an economically disadvantaged neighborhood are at an increased risk of developing diseases that impact their daily life. The focus of this study is to examine the connection between the location where an employee resides and the impact it has on their health. The results will provide deeper context into barriers that inhibit employees from making a lifestyle change, which can be used to improve wellness programs in the future.

Knowledge, Attitudes, and Perceptions towards Condoms among College Students *(Oral Presentation)*
Restuccia, Hailey, Public Health
Faculty Research Mentor: John Yannessa, Public Health
Although any population is at risk of contracting sexually transmitted diseases, young adults between the ages of 20–24 years are at a higher risk of contracting these infections. Apart from abstinence, which is the only method that is 100% effective in preventing STIs and unwanted pregnancies, consistent condom use has been found to be the next most effective way to prevent STIs. Attitudes towards condom usage is an important predictor of consistent condom use. The purpose of this study is to examine how attitudes towards condoms impact safe sexual behaviors. It is expected that the results

will provide deeper context into barriers that exist that prevent college students from engaging in protected sex. This will give further insight into how safe sex programs can be created and implemented on campuses to get impactful results.

Fish Identification through Video Motion Tracking From a Publicly Available Live-Streaming Camera *(Oral Presentation)*
Rhodes, James, Engineering
Faculty Research Mentors: Xiangxiong Kong, Physics and Engineering Science and Erin Burge, Marine Science
According to the National Ocean Service, only 5% of the oceans have been explored. New behaviors of underwater species call to question how much we even know about what little we have discovered. With so much left to discover, the call for novel methods of marine observation is an urgent research need. The accuracy and availability of the automated observation option through computer vision and image processing have shown great potential to assist marine observation. In this study, we proposed a computer vision-based methodology to program a system to extract, identify, and report fish movements that may not be easily seen by human eyes. Our method has been validated through the MATLAB computer vision toolbox using field images taken from video footage of a live-streaming underwater camera installed beneath Frying Pan Tower in North Carolina. Results indicated our method can successfully identify and track movements of fishes from the video frames.

A Study of Student Perceptions of Inclusive Teaching in A Higher Education Setting *(Oral Presentation)*
Roach, Harleigh, Marketing
Faculty Research Mentor: Monica Fine, Marketing
The purpose of this paper is to examine how inclusive education practices are perceived by college students and how these actions can potentially benefit all students. While researching, many topics are examined to narrow the focus on which factors benefit students' awareness, comprehension and overall campus climate and success in the classroom. Some of the key variables investigated are teaching modality since COVID, disabilities in the classroom, and demographics of college students including gender, age, and socioeconomics. While the research was not limited to these topics the categories mentioned are critical aspects to the impact of the classroom environment. COVID's impact alone has been significant with, "around 89.9% of students in a traditional university suffered from abnormal anxiety during the strict confinement process" (Parte & Herrador-Alcaide, 2021, p. 3). It is important to understand all aspects the pandemic has had on students, whether mental health or academically, to narrow down the path in which inclusive education can benefit most. Collecting this data provides insight for professors, to then adapt their material to accommodate students under all circumstances.

Remote Work and its Sustainability Impact *(Oral Presentation)*
Sanker, Sydney, Intelligence and Security Studies
Faculty Research Mentor: Pamela Martin, Political Science
Working remotely has huge sustainability impacts locally and globally. Though remote work is not a new concept, mandated lock-down restrictions at the beginning of the COVID-19 pandemic prevented most citizens from working in their business offices. As a result, companies were challenged to re-evaluate

their practices and determine whether their employees could work from home. In reviewing all the benefits of remote work, such as less commuting, flexible work schedules, lower fuel emissions, less office building space, and a more diverse workforce, we experienced these changes first-hand interning remotely for the Mercom Corporation. This research is followed by first-hand experience interning remotely for Mercom Corporation. Mercom Corporation is a technology firm specializing in providing solutions to the Federal government. The Sustainability Development Goals (SDG): nine; industry, innovation, and infrastructure, eight; decent work and economic growth, and seventeen; partnerships to achieve the goal; all reflect what remote work is doing in meeting these goals locally and globally. While interning at Mercom, SDG goal nine innovation is actively implemented while supplying the federal government's IT needs. This, in turn, fosters innovation by allowing the government to have the right equipment to grow. SDG goal eight is impacted by remote work by allowing flexible work schedules and lower fuel emissions to affect the economy positively. SDG goal seventeen is implemented by allowing a more diverse workforce. Remote work allows inclusivity for different minds, ideas, and approaches to come together. This research will highlight how employers shift to a remote workforce and the positive effects on the environment and employees.

Fulfilling the UN Sustainable Development Goals in Georgetown, South Carolina: Economic Development in a Post-COVID World *(Oral Presentation)*
Sheridan, Maggie, Political Science
Faculty Research Mentor: Pamela Martin, Political Science
Before the COVID-19 outbreak in 2020, Georgetown County, the poorest of South Carolina's coastal counties, was undergoing a period of post-recession economic growth that brought businesses, industries, and jobs to the county. COVID-19, however, ground this growth to a halt in 2020 and two years later, the county is still trying to piece its economy back together again. Using Georgetown County as a case study, I will be analyzing the history of rural southern economies, the modern rural southern economy, and the effects that COVID-19 had on these economies within the context of sustainable development. My research will include a deep dive into the United Nations Sustainable Development Goals (specifically SDG Goal 8, Decent Work and Economic Growth, and SDG Goal 9, Industry and Innovation) and how rural southern economies, including Georgetown County, struggle or succeed in accomplishing these goals.

The Role of Greek Life Participation on Student Risk Taking Behaviors and Perceptions *(Poster Session)*
Smith, Margaret, Psychology
Faculty Research Mentor: Terry Pettijohn, Psychology
The current study will explore how participation in social Greek life organizations influences risk taking behavior, intentions, and expected benefits. Previous research has shown that participation in social organizations, like Greek life, correlates with an increased usage in substances and substance-related behaviors like driving under the influence or engaging in unprotected sexual intercourse. For this study, it is predicted that members of fraternities and sororities would also be more likely to engage in other risky behaviors as compared to their non-Greek peers. Approximately 100 undergraduate students will complete the Domain Specific Risk-Taking Scale (DOSPERT) to measure their likelihood to engage in risky

behaviors as well as their perception of how risky those same behaviors are and the benefits that could be received from them. Implications will be discussed.

The Effects of Human Behavior on Staphylococcus and Escherichia Bacteriophage Presence at Coastal Carolina University *(Poster Session)*

Smith, Owen, Biochemistry
Faculty Research Mentor: Paul E. Richardson, Chemistry

Antibiotic resistant bacterial infections cost the US healthcare system roughly $21 billion each year and more than 35,000 deaths, according to the CDC and the Infectious Disease Society of America. This global health threat has initiated new outlooks for antibiotic resistant bacterial infections, such as bacteriophage therapy, to be explored. Bacteriophages are naturally occurring, nonpathogenic viruses which can lyse and kill bacteria. The direct isolation of bacteriophages will, hopefully, allow for the natural sourcing of bacteriophages to be employed against antibiotic resistant bacterial infections like Methicillin Resistant Staphylococcus Aureus (MRSA). At Coastal Carolina University, the Staphylococcus Aureus and Escherichia Coli population of students and faculty were monitored and scrutinized. During the COVID-19 pandemic (2020-21), annual monitoring indicated an absence of phage presence on humans. In 2021-22, as COVID-19 restrictions diminish, bacteriophage presence was further studied to understand the radical change in bacteriophage presence from 2020-21. Each participant provided a postauricular and nasal swab, along with completing a survey regarding their perceived stress levels and daily hygiene habits. Each sample was put through microbial and molecular tests to establish the presence of bacteriophages. The aim for this study was to isolate and scrutinize the Staphylococcus Aureus and Escherichia Coli bacteria and to determine potential correlations between participant hygiene and perceived stress to bacteriophage presence.

Defining Consensual Sex: Exploring the Mentality of College Aged Men *(Oral Presentation)*

Spletzer, Devi, Psychology
Faculty Research Mentor: Melissa Paiva-Salisbury, Psychology

Sexual assault is a rampant epidemic in the United States, with the most affected group being women during the time they attend college (Jozkowski, 2015). Sexual assault prevention programs found at universities nationwide have the potential to lower rates of sexual assault. Unfortunately, most programs exist to meet federal funding stipulations rather than effecting notable change. The national rates of sexual assault have remained stagnant for over 50 years due to lax requirements necessary to receive this funding that result in subpar curriculum. Consequently, many college students lack a clear understanding of sexual consent. Data from the US Department of Justice (2002) shows nearly 99% of sexual assaults are committed by male identifying individuals. This data drove this qualitative research design to focus on college students identifying as men and led to the focal research question: how do male-identifying Coastal Carolina University (CCU) students understand sexual consent and sexual assault? Qualitative focus group data will be gathered, and a code book will be developed using transcribed audio recordings to do a thematic analysis. Results from the study will be used to create a proposal for CCU's sexual assault prevention program coordinator, Amanda Masterpaul. This research aims to identify the gaps in CCU's student body's sexual education and utilize that information to adjust and improve the sexual assault prevention program presented during freshman orientation sessions. It

endeavors to improve the efficacy of these prevention programs by grounding them in real student experiences.

The Gendered Views of Professionalism within Real Estate Sales *(Oral Presentation)*
St Louis, Jamesia, Communication
Faculty Research Mentor: Deborah C. Breede, Communication, Media and Culture, Melissa Paiva-Salisbury, Psychology, and Ina Seethaler, Women's & Gender Studies
Real estate has become a lucrative business option; however, women still face challenges associated with their gender. Those seeking employment in the real estate market may not realize that their gender identity and/or performance may lead to discrimination within their chosen field. This study will inform students about common perceptions individuals may have of real estate agents who are female, based on gender identity and/or gender performance. Perceptions of professionalism and leadership can be biased and often based on stereotypical gendered assumptions. Qualities associated with leadership are often perceived as traits of masculinity (Black, 2019). The language used in the working industry ignores the intersectionality of race and class within the workspace and indirectly highlights hegemonic masculinity. In the workforce, an individual's skill set was found to be heavily associated with gender (Rasmussen, 2001). These assumptions can hinder an individual's professional growth as they limit the number of opportunities presented. The way in which gender is discussed in media-related fields suggests that they further fuel hegemonic views in the workplace, (Black, 2019). Applying Uncertainty Reduction Theory to perceptions identified through interview methodology, the findings will be incorporated into a two-part radio series targeted specifically toward university students, particularly in resort, tourism, and hospitality programs. A radio series would best suit my targeted audience as college students are more likely to listen to something easily accessible on their phones. This study will hopefully give students confidence and the capacity to manage situations in their chosen work field.

Video Modeling vs. Video Prompting with Task Analysis: Which one do students with ID respond better to? *(Oral Presentation)*
Still, Patricia, Special Education
Faculty Research Mentor: Nicole Uphold, Special Education
Video modeling and video prompting have been used throughout the history of education. Video modeling is used to demonstrate the target skill to the student and have the student model the skill. Video prompting is used to show the student a certain portion of the target skill and have each of them perform the target skill after all video prompts are seen. Students with an intellectual disability have shown progress when educators have used either of these methods. Within the current research for the comparison for video modeling and video prompting, there has been only one study utilizing a task analysis. This research study is being conducted to investigate which method, video modeling or video prompting, students with an intellectual disability respond better to when the educator is teaching life skills. Since the teaching of life skills is a big component of the transition services within school systems, the researcher thought that it would be beneficial for there to be evidence of which method works better with students with disabilities of varying abilities. The researcher is collecting the data within a classroom for students with moderate or severe disabilities located in a rural middle school in the state of South Carolina. The researcher will have different students each day complete the task utilizing the

video model or video prompt and then have students used the other method for a different task. This will allow the student to learn the skill rather than memorize what they are supposed to be doing. The researcher also used the method of constant time delay for the student with an intellectual disability to process the information being presented to them if they need more intensive instruction.

Examining the Interrelations between Anxiety, Covid-19 Worries, Social Support, and Intimate Partner Violence during the Pandemic *(Oral Presentation)*
Sullivan, Casey and Alyssa R. Simpson, Sociology
Faculty Research Mentor: Sharon Thompson, Health Sciences
Intimate Partner Violence (IPV) is defined as physical and sexual violence, stalking, or psychological harm by a current or former partner. According to the Centers for Disease Control and Prevention ([CDC], 2020), 25% of women and roughly 10% of men in our country have reported IPV, and of those individuals, 35% of women and 11% of men reported physical injury. Due to quarantine guidelines brought about by COVID-19, many people have felt increased stress and uncertainty, which has escalated mental health problems. For example, during the pandemic, 40.9% of people in the U.S. reported at least one mental health condition with 30.9% of those reporting anxiety or depression (CDC, 2020). These isolation mandates and mental health struggles may have also increased rates of IPV; therefore, this research was conducted to examine how those experiencing risk factors for IPV may be affected by worries about COVID-19, anxiety, and social support. In 2021, an online and paper-pencil survey was developed that was distributed to a southeastern coastal community. Participants (N=660) were mostly female (68%), <30 years (84%), and for those currently in a relationship (47%), 34.5% reported at least one positive response for an IPV risk factor. The findings were analyzed with JMP software using frequencies, means, odds ratios, and the General Linear Model (GLM) Analysis of Variance. Results will be discussed.

The Relationship between Alexithymia, Callous Affect, and Aggressive Behaviors in Emerging Adulthood: Are Aggressive Acts Related to Not Feeling or Not Knowing How You Feel? *(Poster Session)*
Sutz, Grace, Psychology
Faculty Research Mentor: Andrew Terranova, Psychology
During emerging adulthood, it is common for young adults to experience elevated levels of psychopathy in order to develop a sense of identity (Smits, et al. 2011). Psychopathic traits such as callous affect, impulsivity, and narcissism have been known to be a risk factor for aggressive behaviors (Marsee, et al. 2005). In prior research, callous affect has shown to be a driving factor in predicting aggression. Callous affect and Alexithymia are similar in the fact that they both hinder empathy (Young & Kyranides. 2021). Alexithymia, or difficulty accessing one's emotions and understanding how one feels, appears to be another trait that has some predicting value when looking at aggression (Farah, et al. 2018). This study is intended to examine the relationship between Alexithymia, callous affect, aggression, and emerging adulthood. It is expected that subjects who are experiencing lower levels of emerging adulthood would be associated with higher levels of Alexithymia, and would also be associated with a higher level of aggression across all forms of aggressive behaviors measured in the current study (i.e., Proactive, Reactive, Direct, and Indirect). It is also expected higher levels of callous affect and Borderline Personality traits would be associated with higher levels of aggression. It is also expected that those who

score higher levels of alexithymia would be associated with lower levels of callous affect and Borderline traits. It is also expected that subjects who score higher in aggression, Callous Affect, Borderline traits, and Alexithymia would be associated with lower levels of emotional regulation.

Molecular Cloning of Genes from the Bacteriophage, Phayonce *(Poster Session)*
Walsh, Kelly, Biochemistry
Faculty Research Mentor: Daniel Williams, Biology
Bacteriophages, or phages, are viruses that infect bacteria, and have one of the most vast and diverse global populations of all biological entities. Despite this immense population size, the roles, and functions of individual phage genes within their genome, are widely unknown. The first, and one of the most important steps, toward elucidating the function of a phage gene, is molecular cloning. Because gene expression is easily influenced by other genes, it is essential to isolate and clone each individual gene into a plasmid expression vector. Once a single gene insert is cloned into a plasmid, we can introduce the recombinant DNA into a bacterial host and purify it. Performing molecular cloning of a phage's entire genome results in a sort of library of purified plasmids, which is an extremely valuable tool, needed for further investigation and downstream purposes. In our research we used genes from the Mycobacterium smegmatis phage, Phayonce, cloned into the plasmid vector, pExTra, and introduced to into the host bacteria, Mycobacterium smegmatis mc2 155. This beginning process is essential because without it, we could not definitively determine any phage gene functions because our gene of interest's expression would likely change due to influences from outside factors, like expression and interactions of other genes.

Empirical Analysis of the Impact of Land Use and Development and Potential Solutions for Remediation in Georgetown County *(Oral Presentation)*
Whitehead, Brittany, Engineering
Faculty Research Mentor: Pamela Martin, Political Science
The county of Georgetown, SC envelops lush natural landscapes and complex water systems that host a diverse network of plant and animal species. This region is continuously threatened by natural disasters like flooding and stormwater issues, which inhibit the local economy and jeopardize the well-being of its inhabitants. Within the last decade, Georgetown County has been experiencing a consistent growth in population and development, specifically in vulnerable coastal areas. This growth must be addressed in order to provide a safe and resilient place for the community and nature to live in harmony. Through a case study of my experience in a local engineering firm working with future developments, this research examines the correlation between land management practices and sustainable development goals to assess the current conditions and the future state of the county, with implications for national and international best practices and challenges.

The Reformation of the Monetary Bail System in South Carolina for Non-violent Individuals *(Oral Presentation)*
Whitmire, Jana, Political Science
Faculty Research Mentor: Michael Promisel, Political Science

Pre-trial detention and monetary bail have been and continue to be debated at length across the country as certain states are considering reforming their bail systems. Both pre-trial detention and bail were created to accomplish certain goals: (1) to keep individuals considered a 'flight risk' detained pre-trial, (2) to maintain appearance at all scheduled court dates, and (3) to keep individuals who would be considered a danger to themselves or the community detained pre-trial. As of 2020, roughly 320,000 individuals accused of non-violent crimes were held in pre-trial detention across the United States (Prison Policy Initiative, 2020). This staggering percentage means that most people in local jails have not been convicted of any crimes. Following the arrest of an individual, their ability to leave pre-trial detention hinges on their ability to pay their bail. However, for low-income and minority individuals, the disparate effects of the bail system perpetuate negative outcomes within these communities. By cross-analyzing data in localities similar to South Carolina in terms of income and demographic factors, I will assess the community needs and make a feasible policy recommendation on the reformation of the cash bail system in South Carolina. Furthermore, I will suggest the best course of action to solve the glaring issue of pre-trial detention among minority communities and low-income individuals to ensure that the policy recommendation could positively affect the net jail growth within the state.

Effects of COVID-19 Isolation on College Students *(Oral Presentation)*
Williams, Tyler, Sociology
Faculty Research Mentor: Craig Boylstein, Sociology, Michael Promisel and Jacqueline Kurlowski, Political Science
COVID-19 is traumatic, overwhelming, and intensive. College students are amongst the millions of Americans impacted by the unprecedented challenges that this microscopic, 7.18 × 10−4% sized particle have caused. Many students were evacuated from college campuses, forced into online learning modalities, lost their jobs, and were expected to continue the same graduation path with such a large shift in personal life. Out of 98,000,000 Americans who tested positive in 2021, over 1.6 million were between the ages of 18 and 24. This research used a survey method analysis of CCU students that included loneliness and depression variables. A critical understanding of how many students who were once organically surrounded by their peers almost every day were inorganically quarantined into isolated environments is necessary within this research.
Both social loneliness and emotional loneliness are indicators that our intimate relationships are either suffering because of one's social participation or, in this case, "situations in which the number of existing relationships is smaller than is considered desirable or admissible" (De Jong Gierveld 1987:120). During a time when there was much uncertainty, there were many traumatizing events and negative emotions individuals had to deal with alone. By Mid-April, 80% of college students across the country reported that COVID-19 negatively affected their mental health, with 20% reporting that their mental health had significantly worsened. This study examines the impact of COVID-19 loneliness in conjunction with the negative emotions dealt with while being disconnected from their typical peer groups.

United Nations Sustainable Development Goals in Local Stores and the Impacts of Reusable Bags *(Oral Presentation)*
Willis, Bailie, Sustainability
Faculty Research Mentor: Pamela Martin, Political Science

The United Nation's Sustainable Development Goals are important indicators for sustainable development on all scales of human civilization. Through research and hands-on observation at a local retail store in Pawley's Island, facilitated through my participation in the UN Youth Corp Internship program, I studied the science behind sourcing sustainable products. I also studied the science between implementation of community-wide reusable bag programs; I researched the statistics between reusable bags, their production, and their usage. I utilized SDG standards in coordinating a community event in which community members participate in the upcycling of old fabrics into reusable bags. Sustainable development starts at a local level, and the facilitation and support of local stores and events surrounding sustainability foster sustainable growth and create intelligent, resilient communities.

Murrells Inlet Sustainability and Risk Assessment *(Oral Presentation)*
Willis, Bailie and Amanda Giambi, Sustainability
Faculty Research Mentor: Pamela Martin, Political Science
Through a semester long group research project, we outlined and studied the community of Murrells Inlet, South Carolina according to the United Nation Sustainable Development Goals. Through extensive research and data triangulation, we used several scientific tools and hands-on community involvement to learn about the community and the stakeholders within it. We focused our research into a pyramid framework that includes planetary boundaries, nature, people, and economy; these areas were then grouped into different levels of risk. We found that through a healthy relationship between each of these levels, the community has potential to meet criteria for a more sustainable future.

Cloning and Overexpression of Phayonce Genes 12 and 77 in M. Smegmatis *(Poster Session)*
Wilson, Amber, Biology
Faculty Research Mentor: Michael Pierce, Biology
Bacteriophage or phage are a diverse class of viruses that infect and reproduce in bacterial cells. Their diverse genomes represent an immense source of novel protein functions and a deeper understanding of phage genes will contribute to emerging treatments for antibiotic resistant bacterial infections. The goal of the research described here is to isolate and study individual genes from the bacteriophage Phayonce. Gene specific primers were used to PCR amplify Phayonce genes 12 and 77 (Phayonce 12 and Phayonce 77). The PCR products were then ligated into a plasmid vector by isothermal assembly. Following confirmation of the cloned gene by colony PCR, plasmids were transformed by electroporation into the Phayonce host bacterium, Mycobacterium smegmatis. To determine if the isolated phage genes interfered with cellular function, Phayonce genes were overexpressed from an inducible promoter in the host M. Smegmatis. Three isolated colonies overexpressing Phayonce 12 or Phayonce 77 were tested and comparted to toxic and non-toxic control strains of M. Smegmatis. Phayonce 12 overexpression did not result in a cytotoxic phenotype while the overexpression of Phayonce 77 did produce a cytotoxic phenotype. Future experiments will attempt to identify specific host proteins that interact with the proteins encoded by Phayonce genes 12 and 77.

Flood-Event Sediment Distribution within Oxbow Lakes in the Pee Dee River, SC Floodplain (*Oral Presentation)*

Worrell, Virginia, Marine Science
Faculty Research Mentor: Zhixiong Shen, Marine Science
Extreme flooding is one of the costliest natural disasters happening around the world today and its effects have been intensifying over the past century. To produce reliable paleoflood record and study its long-term variability, the spatial distribution of flood-event deposits and their hydrodynamic and geomorphic controls in river floodplains needs to be better understood. The purpose of this project was to identify those controls and the usefulness of sedimentary paleoflood records from floodplain oxbow lakes. This was accomplished by taking sediment core samples from two oxbow lakes in the Pee Dee River, SC floodplain with a piston corer. The core sediments were examined in detail and analyzed with a CILAS 1190 laser-diffraction particle-size analyzer to identify and study the coarse event deposits of the Hurricane Florence (2018) flood, the largest in the area since 1948. The coarsest and thickest sediment facies near the core top was assumed to be Florence deposits. Each lake exhibited dramatically different degrees of facies presence and thickness, presumably due to river morphology and the availability of sand in that area. Additionally, a correlation was identified between the thickness of the event deposits and the core's proximity to the river; where cores collected from the distal side of the lake showed minimal down-core variation in mean sediment coarseness and cores proximal to the river exhibited thick facies of coarse sediment that were clearly identifiable as paleoflood events. The information gained here is invaluable for better analysis of sedimentary records of flood-event deposits.

Investigating Temporal Groundwater Interactions between a Barrier Island and High Marsh Environment *(Poster Session)*
Wrobel, Dean, Marine Science
Faculty Research Mentor: Rich Viso, Marine Science
Saltmarsh hydrogeology can be characterized as exceptionally dynamic, with a diversity of pore water salinities, sediment porosities, and varied hydrologic inputs and outputs such as groundwater, precipitation, and tidal cycles. Of the studies done in these systems, much attention has been focused on the low marsh with regard to tidal pumping and the consequent horizontal pressure gradients which affect the subsurface hydraulic head. Perhaps, an equally dynamic boundary is expected at the groundwater interface of the barrier island and high marsh. Here, electrical resistivity tomograms were generated in a back-barrier, high-marsh site landward of Waties Island, South Carolina. Co-located transects of 112 meters and 17 meters in length provided maximum depth penetration (30 m) and best possible shallow resolution, respectively. The electrical signal is sensitive to changes in lithology, porosity, and pore water chemistry. Tomograms were collected over a twelve-month timeframe in order to image sediment horizons and possible groundwater mixing between the barrier island and high marsh throughout the year. The remarkable stability of the electrical signal throughout the seasonal, meteorological, and tidal events during the study period, suggests that fresh, island-derived pore water and salty high marsh groundwater interflow consistently. Small deviation and anomalies in this signal are possible responses to increased precipitation events or increased evapotranspiration rates affecting the high marsh pore water.

Comparison of Body Condition in Commonly Sampled Species Found in Oxbow Lakes and Main River Habitats along the Upper and Middle Waccamaw River *(Oral Presentation)*

Wrobel, Dean, Marine Science
Faculty Research Mentor: Derek Crane, Marine Science
Oxbow lakes are common fluvial features found throughout many coastal and meandering river systems. Although these lakes have been previously overlooked in past river assessments across the southeast, they have increasingly been studied for their importance in the recruitment of fish populations in fluvial ecosystems. Oxbow lakes offer a refuge from predators and nursery habitat for young-of-year fish. Here, fishes were collected via boat electrofishing from twelve oxbow lake and backwater locations along the middle and upper Waccamaw River and from the Waccamaw River proper during June through September of 2021. We compared body condition utilizing the length and weight measurements of five commonly sampled species from oxbow and adjacent river habitats to investigate the difference in length-weight relationships and distribution between sample sites.

Tourism and Sustainability in the City of Georgetown *(Poster Session)*
Zheng, Ya, Marketing
Faculty Research Mentor: Pamela Martin, Political Science
I am working on improving and increasing tourism in the city of Georgetown. These plans that I will implement will relate to SDG goals. Works will include creating social media posts to attract tourists, promoting jobs to spread job opportunities, encouraging sustainable tourism through creative content, and much more.

Bucksport and the Sustainable Development Goals (*Oral Presentation*)
Zimmerman, Katelyn, Takiah Anderson, Mac Hall, Jairan Parker, Catherine Bauer and Kalina Faulks, Sustainability
Faculty Research Mentor: Pamela Martin, Political Science
The purpose of the project was to gather information that relates to the sustainability of Bucksport and the issues facing the town and use that information to find sustainable courses of action that the community may take. The group worked to gather information on several topics and issues including the culture, economy, politics, and natural attributes of the area. Through research, interviews, and collaboration the students gathered information that was examined through the lens of sustainable development in order to find potential solutions and provide data to the community for their dealings with the Horry County and Federal governments. A focus was placed on the United Nations Sustainable Development Goals, a set of global and local interlinked goals and indicators adopted by all member countries of the UN, the idea being “a blueprint to achieve a better and more sustainable future for all.” The group began finding which issues and factors related to which of the 17sustainable development goals. These goals were then used as a guide and template for determining the best actions for the community to take moving forward. Rather than only looking for quick and temporary solutions, the group worked to figure out more sustainable routes that will do more to support the community in the long term and help it to endure through both current and future issues.