

2021-22 Professional Enhancement Grant Project Summaries



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Michelle Barthet, Biology

Identification of a novel intron splicing complex in the chloroplast of rice

The chloroplast is the site of photosynthesis, the conversion of light into chemical energy, and a vital organelle for plant cells. Much is unknown regarding how the chloroplast functions, specifically regarding gene expression. Gene expression, the process of converting nucleotide information in genes to protein products, occurs in two parts: transcription or re-writing of a gene into RNA and translation of RNA into a

functional protein product. Removing introns, which are extra nucleotide regions, is a critical component of gene expression. A failure to remove introns can lead to aberrant protein formation, preventing chloroplast function. In human cells, improper intron excision contributes to some forms of cancer. Without a functional chloroplast, the plant will not be able to reproduce, and grow. The spliceosome, a large protein and RNA complex, is responsible for removing the introns from the nucleus of the plants, but the process is poorly understood. Although, it has been discovered that this work directly impacts agriculture and food production. In this study, a combination of molecular techniques were used to assess the proteins involved in chloroplast intron removal. Potential protein interactions that need further characterization were identified. Through the use of molecular techniques, the evolution of intron excision mechanisms in the nucleus of all eukaryotic cells including that of humans was discovered. Additional research will aid the identification of proteins in this complex contribute to the development of a model of chloroplast intron excision mechanisms and evolution. The accumulated data from Summer 2021 through Summer 2022 were used as preliminary data to support an NSF grant. This study allowed for research opportunities for two undergraduate students, including one research position for a first-generation student. The research opportunity was provided to the first-generation student in Summer 2021. The research also provided background and foundation for this student (Kristen Presnell) to obtain a summer internship at the University of Pennsylvania in Summer 2022 in a leading Plant Biotechnology laboratory.

Andrew Busch, Honors

High Tech Texas

Dr. Busch received funding to visit 12 archives at universities, libraries, and organizations in Texas in support of his upcoming book, *High Tech Texas: Public Institutions, Regional Economic Development, and the Myth of the Free Market*. The book provides a broad political-economic history of postwar Texas and emphasizes the role of the government, state institutions, and regulatory bodies in the growth of the state. Primarily, it explores the rise of the high-tech sector of Texas, a state that many conservatives celebrate as a free-market success story, through the lens of global socioeconomic processes, public-private partnerships, environmental issues, the Reagan-era defense industry, and deregulation. The main argument is that the state's role in economic growth after the 1970s has been undervalued by neoliberal theorists. This case shows that there was an immense amount of government and academic involvement in economic development. A more fine-grained approach to the history of neoliberalism is provided within this study by explaining how political-economic systems are built and augmented at local and state levels and how economic development is supported by public institutions. Rather than theoretically-minded economics departments, it was business people, working within or alongside universities and state governments, who provided the practical application of neoliberalism as well as its rhetoric. High technology development is key to understanding the role government played. With its reliance on public subsidies and geographic proximity to research universities, high tech provides a lens into how businessmen often viewed government not as impediment to accumulation but as a vehicle to facilitate it. Like no other actors, state and federal governments held the key to long term credit for various types of economic development, technology perhaps foremost among them because of its high initial capital costs and relatively long time to market process. He argued that the University of Texas and state of Texas adopted an entrepreneurial approach to growth that, rather than eschewing institutions,

necessitated them. Busch presented his paper at the Business History Conference and hopes to complete the book manuscript, under contract with the University of Texas Press, in 2024.

Charles Clary, Visual Arts

Memento Morididdle: A Contemporary Take on the Art of Memento Mori

Picture frames are usually reserved for those most cherished of memories: a family outing, birthdays, weddings, or holiday get-togethers. They rarely encapsulate the most influential events: a death in the family, trauma, or abuse. Dr. Clary's work seeks to investigate these moments as they force us to make decisions, decisions that lead to life changing events. This body of found frame and paper sculpture work addressed the loss of both Dr. Clary's mother and father due to smoking related cancers in February of 2013. Their passing left a deep void in Dr. Clary's life that led to his interest in "Memento Mori," remembering that one day you will die, and a reinvestigation of his own childhood trauma, abuse, and mortality. Through these investigations he came to terms with the trauma of his childhood and the lack of memories he has of that time in his life. The objective of this Professional Enhancement Grant was to amass more historical and ornate frames for exploration in hand cut paper sculptural works that addressed contemporary memento mori. Dr. Clary was able to travel across the northeast collecting numerous frames as well as the southeast. He was also able to purchase more than 1000 sheets of paper for his process. During this period, he created 80-100 new pieces exhibited in 8 exhibitions specifically focusing on his found frame work, presented at 2 conferences, and contributed a chapter to a book project. He presented his work at various conferences around the world including DACNET (Death and Culture Network) and DDD (Death, Dying and Disposal Conference) as well an artist talk at the Jasper Community Art Center in Jasper IN that coincided with his exhibition "Memento Morididdle". He was fortunate enough to give a workshop to the local high school art class on the production of his work in Jasper as well. He is also contributing a chapter to Dr. Katie Clary and Dr Trish Beards Edited book titled, "Death Museums and Heritage" which is set to be released later 2023.

Russell Fielding, Honors

Breadfruit Cultivation in Hawai'i

Fieldwork among breadfruit growers, producers, and researchers was conducted in Hawai'i during July 2021. Dr. Fielding visited ten different breadfruit farms, met with five producers of breadfruit-based food products, and consulted with two other breadfruit researchers. Breadfruit (Hawaiian: 'ulu) is a domesticated tree that produces large, starchy fruits. It was introduced to nearly every Pacific Island centuries ago and is a staple of the traditional Hawaiian diet. During the late 18th Century, breadfruit was brought to the Caribbean to feed enslaved colonial sugar plantation laborers. Today, breadfruit is gaining interest among those who study and practice sustainable development; it is a potential tool in efforts against food insecurity, climate change, habitat loss, and soil erosion. Dr. Fielding's research seeks to understand how breadfruit's future potential proceeds from its complex global histories and how its traditional value might inform its use today. The preliminary research supported by PEG led to Fielding's receipt of a research grant (\$50,000) from the Alfred P. Sloan Foundation that will support additional breadfruit research through 2024. The main objective of this study was to investigate breadfruit

cultivation more and discover the linkages to breadfruit's complex global histories and its potential for use in sustainable development work. The data produced during this fieldwork is part of a larger project that investigates breadfruit cultivation more generally and considers both the linkages to breadfruit's complex global histories and its potential for use in sustainable development work. His findings from the PEG-supported fieldwork in Hawai'i are foundational to his broader research on this subject, and his manuscript from this study was accepted for publication in the *Annals of the American Association of Geographers*. He presented in Florida at the American Association of Geographers annual meeting in early 2022 and has two additional journal article manuscripts that were reviewed. Dr. Fielding also completed substantial portions of a scholarly monograph that is envisioned as an end result of this line of research.

Timothy Fischer, Music

Recording Full-Length Album "The Low Country Sessions"

A jazz musician's prize possession is publishing their own full-length jazz album, representing an essential stage in their professional development. Tim Fischer, a composer, and guitarist released his third full-length album, entitled *The Low Country Sessions*. He also continuously performs original compositions and arrangements that contain a rhythm section of excellent musicians from Charleston, South Carolina. While composing his own work, he collaborates with fellow jazz musicians from different parts of the United States. Working with a wide range of talent, Fischer has embraced the lessons that were learned from working with these musicians over the past 5 years. *The Low Country Sessions* was recorded in Charleston, South Carolina with three musicians from the area and was produced by guitarist Randy Napoleon. The funding provided by the Professional Enhancement Grant covered the hiring of musicians, studio time, and the mix and mastering of the final product. In April 2022, they worked on pre-production and tracking, with the Summer of 2022 focused on post-production editing and mixing. They finished the mastering stage at the end of October 2022, which allowed for distribution and promotion in January of 2023. Following the album's release, Fischer plans on playing in concerts in the Southeast to help expand his target audience, including concerts at Coastal Carolina University and several other universities and jazz series in the region. Fischer and his band also worked with industry contacts to garner reviews in print and online journals, and place songs for radio play in traditional and streaming radio. Eventually, they will promote the music and final material with international performances in Europe and Australasia (summer 2023 & summer 2024).

Justin Guilkey, Kinesiology

Hemodynamic Responses during Aerobic Blood Flow Restriction Exercise at Different Percentages of Limb Occlusion Pressure

During blood flow restricted low-intensity aerobic exercise, restriction cuffs can be inflated to different pressures which can affect how the body responds to the exercise. This study examined exercise responses to three different pressures of blood flow restriction (no pressure, moderate pressure, high pressure) during low-intensity aerobic exercise. The study will help understand the effect of the pressure

on exercise responses, which lead to a better understanding of the optimal BFR protocol for exercise training. Healthy adults randomly performed three protocols on a stationary bike, each consisting of five low-intensity intervals with 1-min recovery in between intervals. During moderate and high-pressure trials, blood flow restriction cuffs were inflated during INTs to an individualized pressure and deflated during recovery. BFR cuffs were not worn during the no pressure trial. Whole body, muscular stress and cardiovascular stress were measured throughout the exercise to determine the exercise responses. There were no differences in whole body stress during exercise in the three trials. There was increased cardiovascular stress in the moderate and high pressures compared to no pressure, but there was no difference in cardiovascular stress between the moderate and high pressures. Muscular stress was different between all three pressures, in that the high pressure created the highest muscular stress and no pressure created the lowest muscular stress. Muscular stress is one of the primary mechanisms for improving aerobic fitness and increasing muscular strength during blood flow restricted exercise and increased cardiovascular stress may have a negative impact on cardiovascular health, especially in populations with poor cardiovascular health. This study found that the higher pressure increased muscular stress without an added increase in cardiovascular stress. Therefore, higher pressures during blood flow restricted aerobic exercise may result in larger training adaptations, without increased risk of a cardiovascular event during exercise. The project was performed in conjunction with a number of other research projects conducted by Dr. Guilkey and other CCU faculty examining acute physiological effects of changing various aspects of blood flow restriction protocol in healthy adults. The training responses to low-intensity blood flow restriction in older adults were used as preliminary data for a proposal to the National Institutes of Health that is expected to be submitted in the fall of 2023.

Christopher Gunn, History

The War Within: Violence & Military Rule in Argentina and Turkey, 1971-1983

Coups were a relatively common means of regime change during the Cold War, and neither Argentina nor Turkey were strangers to the phenomenon: Argentina experienced three (1955, 1962, & 1966) and Turkey two (1960 and 1971) coups. None of these prior incidents, however, were as violent and severe in the post-coup suppression of civil society as the military regimes brought to power in 1976 and 1980. Of particular interest to this project is why these two events were so violent and destructive, and the extent to which the United States was involved in the coups. In the midst of détente, and faced with popular, grassroots left-wing socialist movements in two strategic Cold War allies, the United States certainly had plausible motives for assisting the military regimes. In 1976, Argentina was the largest and most powerful partner the United States had in the countries of South America's 'Southern Cone' (Argentina, Chile & Uruguay), and, by 1980, Turkey had been a member of the North Atlantic Treaty Organization (NATO) for 28 years, possessed the second largest army in NATO, and was the only member to have a significant border with the Soviet Union. Although strategically important, and possessing considerable economic and military potential, both Argentina and Turkey were on the periphery of Cold War calculations. While the elites in both countries seem to have identified more with Europe than their respective geographical regions, their Western allies felt otherwise. It is precisely this 'relegation' of Argentina and Turkey to the periphery that seems to have facilitated and enabled the military regimes in each country. The recent declassification of documents allowed Dr. Gunn to explore these topics in more detail. He collected documents from the Declassified Documents Reference System at Duke University

while completing a six-week intensive Spanish course in Buenos Aires, and he began preliminary research at the National Library. The material was analyzed and processed for inclusion into a research proposal to be submitted for a Fulbright application in Fall 2023.

Julia Harding, Marine Science

Fish growth rates as a tool to evaluate warming water effects in southeastern estuaries

CCU students collected juvenile spot otoliths and demographic data (n = 440) using standard fishery techniques as part of a multi-decadal collaborative effort to quantitatively document juvenile fish growth in local estuarine nursery habitats. The project provided valuable professional training for 3 CCU undergraduates (Wesley Ritenour, Alexis Reidy, Evan Copestick) and 1 CCU CMWS M.S. student (Anna Deitz). The undergraduates also learned how to age juvenile spot by counting otolith daily growth signatures while helping Deitz age >150 spot for her M.S. thesis. The resulting data contributed to Deitz's CMWS M.S. thesis. These data informed Harding's ongoing collaborative efforts to evaluate spot daily growth rates in North Inlet estuary across a 15-year period during an interval of documented warming winter water temperatures, extreme salinity fluctuations related to rain events (hurricanes), and abnormally high low tides related to wind and local weather patterns in 2019-2020. The data have the potential to establish a comparative baseline for growth rates in relation to a suite of habitat variables that can be applied to Mid-Atlantic, Southeastern, and Gulf of Mexico estuaries since spot are important intermediate food web consumers in all of these regions. Juvenile spot growth rates in estuaries are interesting to fishery as well as natural resource managers responsible for adjacent salt marsh habitats. If growth rates vary across adjacent habitats, estuarine food webs may benefit from management to maintain/protect the high growth habitats because spot are important predators and prey in local and regional food webs. These data have the potential to establish a comparative baseline for growth rates in relation to a suite of habitat variables that can be applied to Mid-Atlantic, Southeastern, and Gulf of Mexico estuaries. The resulting otoliths will be analyzed for daily growth signatures and incremental growth rates by Dr. Harding and future CCU students as part of directed research projects, Honors theses, CMWS M.S. theses, and will inform at least one co-authored primary peer-review publication. These data should support multiple student presentations at regional and national professional meetings. These students presented their results at a local and regional conferences in the Spring and Fall 2023.

Hsing-Wen Hu, Teacher Education

Using High-Quality Supportive Workshops to Help New Teacher Candidates Integrate TPACK into Mathematics Classrooms

This study examined newly graduated high school math teachers' competence in integrating technology into mathematics teaching after receiving supportive TPACK (Technology, Pedagogy, and Content Knowledge) workshops. The researchers also evaluated how their proficiencies of technology integration impacted K-12 students' learning in mathematics, particularly assessing the influence of the supportive workshops on their TPACK levels. In this study the researchers learned how to best measure and support

TPACK growth in participants, using the same rubric for participants to self-rate before and after the workshop. Evidence was gained to do comparisons to find what factors are relevant for participants' self-ratings of their TPACK scores and for increasing their TPACK self-efficacy and confidence. The research results were presented in the following conferences: Twenty-Ninth International Conference on Learning (13-15 July, 2022): "Investigation of newly graduated high school math teachers' levels of TPACK competency through High-Quality Supportive Workshops " Society for Information Technology & Teacher Education Conference (April 11-15, 2022): "Enhancing New High School Math Teachers' TPACK Integration Through a Supportive Workshop." Dr. Hu written two papers related to the project for publication: one investigated participants' TPACK capacity before and after participating in the workshop, and another mainly focused on teacher-related performance indicators and student-related performance indicators. This study examined the differentiation of TPACK levels among participants and seeks to find valuable workshop practices for improving teachers' TPACK capacity. The research results were applied to Mathematics Methods courses for Middle-level and Secondary Mathematics education and recommends that a TPACK expert reviews participants' TPACK work and evaluates the participants' TPACK levels. This expert TPACK evaluation needs to be compared with participants' TPACK self-assessments.

Richard Kilroy, Political Science

Forging New Security Institutions in Mexico

The purpose of this research project was to further previous research conducted on Mexico's National Guard, a new security institution in Mexico created under current president Andres Manuel Lopez Obrador (AMLO) in 2019. That paper was published in 2021 by the Baker Institute for Public Policy's Center for the United States and Mexico at Rice University, where I currently serve as a non-resident fellow. With PEG funding and a scholarly reassignment in Spring 2022, Dr. Kilroy was able to spend that semester furthering his research through interviews and on-line conference attendance in January and February and then spend six weeks as a visiting fellow in Houston at Rice University in March and April. The original paper employed the use of SWOT analysis, a structured analytical technique used in intelligence analysis and taught in our INTEL courses at CCU, to assess AMLO's decision to create Mexico's National Guard, addressing the strengths, weaknesses, opportunities, and threats of such a policy decision. In 2021, AMLO moved the National Guard from civilian control of the Secretariat for Security and Citizen Protection (SSCP) to military control under the Secretary of Defense (SEDENA). The new research methodology used to assess this policy decision was another structured analytical technique called Pros-Cons-Faults-Fixes, where the decision is assessed through the lens of policy analysis addressing the faults to each of the pros associated with the policy decision, along with the cons and the faults to assess each con. Dr. Kilroy's research has been published by Rice University and will be included in a forthcoming book on US-Mexico relations. He also presented his research at the Homeland Defense Awareness Symposium at the US Air Force Academy in Colorado Springs Colorado this past July. The final article on Mexico's National Guard was titled: Reassessing Mexico's National Guard: The Impact on Public Safety in Mexico and the U.S.-Mexico Security Relationship. It was submitted for publication in a peer reviewed journal, *Current Military Studies*, in August 2022.

Catharina W. Middleton, Heather N. Hagan, Teacher Education

Learning to Teach Indigenous South Carolina History Through Inquiry and Primary Sources

Drs. Middleton and Hagan designed a common structure and guidelines for a social studies inquiry unit. This assignment required pre-service teachers (PSTs) to work in groups to determine a compelling question about Indigenous history in SC. From there, they searched for primary sources to answer their question and then identified ways to use these as part of a developmentally appropriate inquiry learning opportunity for their students. They completed two cycles of data collection including the pre-survey, classroom activities, the post-survey, and data analysis. The initial quantitative data showed that students were very confident about the inquiry process. However, after engaging in the unit their confidence level decreased slightly. The qualitative data confirm that the unit required students to think deeply about the inquiry process and indigenous history. They found the process challenging yet rewarding. Together, these data indicate that the students did not truly know about using inquiry in social studies when taking the pre-survey. However, at the time of the post-survey and reflection they realized the value in the process but also that they had much more to learn. Additionally, this study also helped them to identify key areas where more support is necessary. For example, PSTs struggled to conceptualize the roles of the teacher and student as well as how to use data as a part of inquiry in social studies, as opposed to using the method in science. The data indicates a strong need for teaching inquiry-based learning in social studies methods courses to prepare PSTs to use this method in the classroom. Currently, the National Council for the Social Studies' C3 Framework and the South Carolina Department of Education Social Studies Standards are centered on inquiry-based learning. But, if they are going to use inquiry-based instruction in social studies, their data indicate that methods courses must address PSTs' understanding of teaching and learning this way. Furthermore, there is a gap in the literature addressing how to prepare teachers to use social studies inquiry.

Rhonda Miller, Educational Studies

Content Acquisition Podcast Library

Content acquisition podcasts are an enhanced type of podcast which delivers instruction through the use of still visual images and audio recordings that explain educational content (Kennedy, 2011). CAPs can be used to teach content to students (Kennedy et al., 2014) and to teach instructional procedures to teachers (Alves et al., 2018; Ely et al., 2015; Kennedy, Rodgers et al., 2017). Within a CAP, a narrator teaches concepts, using explicit instruction with minimal visuals and text on the screen. With only the necessary information on the screen, the viewer/listener's memory is freed up to focus on the important elements being discussed and illustrated. Since CAPs are in video format, they can be used almost anywhere and any time of day. CAPs can be reviewed as often and as many times as needed. The purpose of the grant project was to create a library of content acquisition podcasts (CAPs) that could be used by faculty in the College of Education as supplemental tools which could be used outside of class to enhance instruction of certain concepts, help develop fluency in pedagogical terminology, and to model instructional practices for preservice and in-service teachers. CAPs videos have been developed and recorded. Over the summer of 2022, Dr. Miller developed ten different CAPs that teach vocabulary terms related to educational assessment and descriptive statistics. She used the monitor and the microphone that were purchased with the grant funds to create and publish the videos. Using a second monitor, she

read the script from one monitor while recording the visual portion on the other monitor. This makes the recording process so much easier. Dr. Miller and a colleague recently published a study involving CAPS (Miller & Uphold, 2021) in which they used a single CAP to teach the use of behavior specific praise to preservice teachers as an intervention. The study had positive results. They are expanding the study of how CAPs are being used by developing this set of CAPs, and they used them in their assessment class to test their effectiveness in helping undergraduates learn assessment content vocabulary. Their studies are expanding the use of CAPs and adding research evidence to the field.

Michael Promisel, Political Science

Form Dissertation to Book Proposal: Prudence and Political Leadership

The activities of this PEG were completed over the course of Summer 2021. It funded two activities: 1) the editing and revision of Dr. Promisel's dissertation manuscript, and 2) support for a student employee to provide research assistance. Thus, it embodied the ideal of the Teacher-Scholar model that CCU professors aspire to, supporting both faculty research and the direct mentorship and training of an undergraduate student in conducting political science research. The objective of Dr. Promisel's dissertation was to investigate the intellectual history and essential principles of a characteristic once understood to be central to the practice of leadership befitting a democracy. This project delved into what was once a mainstay of political science: the crafting of handbooks for ethical political leadership. More specifically, Dr. Promisel studied an oft-neglected tradition of political thought often referred to as the "mirror for princes" genre. These "mirrors" were written to be "held up" to actual political leaders as an idealized portrait of ethical leadership and used as a guide for their conduct. This genre spans large swaths of time, geography, identity, and ethical commitments.

Sara Rich, Honors

SciArt field School

The HTC Honors College's Sci-Art Lab and Field School offers a unique opportunity for students to make new observations, conceive of original ideas, and experiment with cross-disciplinary ways to put them into action. The Sci-Art Lab is the first of its kind in this area, possibly in the whole of the Southeast. The objective of this study was to stock the sci-art lab with basic science and art supplies and equipment so that students would not have to fund their own supplies, and so that basic lab equipment would be available for project use. The Sci-Art Lab in Kearns Hall 108 is now fully equipped with microscopes and imaging software, rechargeable field microscopes, and various portable art and science supplies. This equipment was used by students for the first time in Maymester 2022. The work/research produced by students in the lab pushes boundaries and opens new areas of inquiry, while inspiring a sense of place and purpose. Students were able to develop more intimate relationships with the land, water, and wildlife on and surrounding campus and used the PEG-funded tools to research and represent their finds in novel, innovative ways. The field school will be held here locally, as it was in 2022, for the foreseeable future. Keeping learning local enhances students' commitments and awareness of the amazing place where they live and inspires them to support local sustainability measures. It also keeps costs even lower for students, which supports DEI initiatives on campus. Dr. Rich plans to present on these endeavors at

the National Collegiate Honors Council conference in 2023. An Honors Research Fellow acted as the lab assistant, and kept track of needed materials. External grant funding was sought to procure these items, including Horry County Higher Education Commission funds, with College support.

Jessica Richardson, English

Seeding Climate Narratives: Novel Research and Beyond

PEG funding enabled Dr. Richardson to gather research for writing projects while assisting biodiversity scientists on a week-long acoustic and visual survey of cetaceans in the Hebrides, contributing to a unique 10-year data set that has served as a source for numerous international studies and successfully negotiated new conservation areas for threatened species. The hope is that the data will continue to introduce and expand these important protected ecosystems. She worked on translating the volunteering process and “citizen science” model learnings into original creative material, seeding new projects and influencing works-in-progress. Dr. Richardson embarked on a journey for a unique volunteer opportunity aboard the Silurian Research Vessel on Scotland’s Hebridean Islands. On the trip, they surveyed a variety of marine mammals, including grey seal, common seal, harbor porpoise, common dolphin, Rissos dolphin and Minke whales. These were exciting, significant numbers for the Hebridean Whale and Dolphin Trust as they indicate that conservation wins are working and more cetacean presence lends negotiating power for their expansion. As for Dr. Richardson’s work, her observations and insights on the boat have already contributed to three new scenes in her new novel draft, a significant revision of her old novel draft, content in four new short works, and writing for the organization’s blog. It also influenced her approach to process in surprising, unexpected ways. Along with the rest of the team, Dr. Richardson helped survey over 200 cetaceans and nearly 50 seals and their environments, contributing to conservation efforts in critical habitats. She learned to discern Manx shearwaters from guillemots in flight, whales from porpoises by dorsal fin placement, and the sound of dolphin clicks from snapping shrimp on a hydrophone. The process helped seed new creative work, and more imaginative approaches to drafting, revising, and teaching writing that interacts with ecologies. She applied for further support from the Granum Foundation, the Jan Michalski Foundation, the Graham Foundation and others.

Paul Richardson, Chemistry

Perceived Stress Levels and Bacteriophage Presence on the campus of Coastal Carolina University

Bacteriophages are viruses, whose unique ability to infect and lyse bacterial cells may provide valuable insight for evading the repercussions of a post-antibiotic era in medicine. This study isolated and characterized *Escherichia coli* and *Staphylococcus aureus* bacteriophage on students and faculty at Coastal Carolina University as a means to understand the viability of human bacteriophage reservoirs for bacteriophage therapy. From September 2021 to March 2022, nasal and postauricular swab samples and a behavioral survey were collected from ninety-three randomly selected participants. Additionally, sixteen participants contributed nasal and postauricular swab samples and a behavioral survey on a

monthly basis in a longitudinal study. The purpose of this study was to establish insight into behavioral factors, namely face mask wearing, handwashing/ sanitizing, and perceived stress levels, that potentially contribute to the *E. coli* and *S. aureus* bacteriophage dynamics. During the current collection cycle, 2021-2022, there has been a reemergence of bacteriophage since their disappearance the previous collection year. Results indicate participant engagement in mask wearing or handwashing/ sanitizing does not affect coliphage presence, but participants with coliphage presence generally had lower perceived stress levels than those lacking coliphage. Data was limited and correlations could not be made between *S. aureus* bacteriophage presence and the aforementioned behavioral factors. However, limited data suggests face mask wearing may be correlated to a lack of *S. aureus* bacteriophage presence on a host. The research was presented at the South Carolina Academy of Science and Coastal Research Competition. The procedures and techniques developed were used to start a new study looking at Papillomavirus in the male population on campus.

Eric Schultz, Music

Debut Album Recording: Eric Schultz, Clarinet

Clarinetist, Eric Schultz recorded his debut solo album, *Polyglot*, featuring new works. The album was released late 2022. The music supported by PEG funding was extraordinary. Two commissions come from composer Iván Enrique Rodríguez, and his music is the central focus of the album. Schultz met Rodríguez after his chamber orchestra, the Victory Players, commissioned him to write for them as an ensemble. Over the pandemic, Rodríguez' chamber orchestra commissioned him again for a virtual concert with New England Public Media (Jan 2021). One piece they commissioned, *Despojo*, was a short piece for clarinet and piano. *Despojo* has now been expanded into a full three-movement work titled *Sonata Santera*. Inspired by *Santería* (a syncretist Caribbean religion between the Yoruba and Catholic traditions), the work uses the *Holandé* rhythm of *Bomba* as its genetic material, a musical art form that has survived on the island of Puerto Rico as a form of storytelling, protest, community, and celebration. Schultz continues to be in high-demand around the country performing new music. He had in the previous season artist residencies at the University of Illinois Urbana-Champaign, Conservatorio de Música de Puerto Rico, and many recitals from Napa Valley to New York City.

Nicole Uphold, Educational Studies

Special Education Teachers' Views of Community-Based Instruction

Students with an intellectual disability and/or autism have difficulty generalizing skills learned in the classroom into the community setting in which they are used. For example, teachers will create simulation activities for the classroom to mimic purchasing items at a grocery store. Research suggests that while students can make purchases in a classroom, they have difficulty doing so at the grocery store (Ayres & Langone, 2002); however, when the classroom simulations are paired with community-based instruction (CBI), students are able to make a purchase in the community (Cihak et al., 2004). While CBI is important for students learning community-referenced skills, there are several barriers that prevent CBI from occurring, which include a lack of transportation, money to purchase items, and staff; an

emphasis on teaching academic skills; and student behaviors (Agran et al., 1999; Hopkins & Dymond, 2020; Langone et al., 2000.) More research is needed to determine the factors that influence if and how much CBI is occurring for students with an intellectual disability and/or autism and how CBI is related to classroom instruction. Dr. Uphold developed a survey to ask teachers of secondary students with developmental disabilities about their views of community-based instruction (CBI). The survey asked about what skills are taught in the community and how frequently, the benefits and barriers to CBI, and influences on the amount and type of CBI that occurs with students. Dr. Uphold anticipates that teachers will report they are not able to spend as much time in the community to meet all of the needs of their students. Additional research is planned to determine how classroom simulation can be used in conjunction with CBI.

Misti I. Williams, Communications, Media & Culture

Public Relations Society of America Membership and Certificate in Digital Communication

With the support of PEG funding, Misti Williams completed the Digital Communication Certificate for the Public Relations Society of America and received six accreditation credits in Public Relations. As strategic communication rapidly changes with new advances in digital technology, it is necessary that instructors remain current with contemporary practices in the field. This certification enhances the education of students enrolled in the subfield of public relations and strategic communication by ensuring that they learn relevant skills, alongside theory and critical inquiry.