

# STUDENT SCHOLARSHIP WEEK

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Monday, April 19 – Friday, April 23, 2021

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MONMOUTH  
UNIVERSITY



*Office of the President*

April 19, 2021

Dear Monmouth University Community:

Welcome to Monmouth University's sixth annual Student Scholarship Week. Throughout this weeklong virtual conference, we look forward to showcasing and celebrating the impressive research, creative work, and service accomplishments of our students during a year that none of us will soon forget.

As in years past, this Student Scholarship Week will feature student work and student-faculty collaboration across departments and disciplines. This year, more than 320 students will present their work in more than 57 events including poster sessions, panels, and performances. Each day, one of five themes – the impacts of COVID-19, environmental and geographic studies, academic citizens, diversity, and department and school highlights – will be explored through a mix of live Zoom sessions and asynchronous poster and video presentations.

Despite the challenges and uncertainties of the past year caused by the COVID-19 pandemic, our students continued to flourish and excel under the tutelage of our accomplished faculty and with the support of our dedicated staff. This has been a year that has tested our resolve, but together, we have faced these unexpected challenges with great patience, flexibility, and fortitude. The continuance of Student Scholarship Week – albeit in a virtual environment – is a wonderful example of the strength of the Monmouth spirit when tested.

I am gratified that you have chosen to join us for the 2021 Student Scholarship Week and I am so proud of our students and faculty who have persevered and excelled in their research, scholarship, creative ambitions, and service activities this academic year. I likewise thank and applaud the members of the steering committee whose efforts have enriched our Scholarship Week programming and enabled us to host an inspiring conference in a virtual setting this year.

- Jonathan Daigle, Assistant Professor, Economics, Finance and Real Estate
- Kathryn Lubniewski, Associate Professor, Special Education
- Robin Mama, Dean, School of Social Work
- Lindsay Mehrkam, Assistant Professor, Psychology
- Jaime Myers, Associate Professor, Health and Physical Education
- Mary Anne Nagy, Vice President for Student Life & Leadership Engagement
- Alyson Pompeo-Fagnoli, Assistant Professor, Educational Counseling and Leadership
- Shelley Rigueur, IRB/IACUC Coordinator
- John Tiedemann, Assistant Dean, School of Science
- Katie Urmey, Executive Assistant to the Provost
- Michelle Van Volkom, Lecturer, Psychology
- Rich Veit, Interim Dean, School of Humanities and Social Sciences

I hope to see you at various programs throughout the week, and as we hope for a safe return to near-normal operations in the fall, I look forward to reuniting and thanking you *in person* for your contributions and commitment to our exceptional university community.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Leahy". The signature is fluid and cursive, with a large initial "P" and "L".

Dr. Patrick F. Leahy  
President

April 19, 2021

Dear Students and Colleagues:

On behalf of the Academic Affairs division and as Interim Provost of Monmouth University, I am pleased to welcome everyone to our annual celebration of the academic excellence of our students during our annual Scholarship Week. As an academic institution, scholarly excellence is a cornerstone of the quality academic programs we offer. It demonstrates the dedication of our esteemed faculty to support our students toward gaining research skills and knowledge to help with their academic progress leading up to successful careers.

During this extraordinary year, even as we navigated the challenges of the global pandemic, our dedicated faculty continued to work with our hard-working students on their research and on their creative projects. This year's themes capture the historical year we have had and how as an academic community we have managed to navigate COVID-19, to stand together to answer the call of addressing racial and systemic inequities, environmental justice, and purposeful citizenship.

While the chief attractions of the week are our student projects, this year on Thursday, April 22 at 10:05 a.m. on Zoom, we are excited to bring to you the keynote lecture by Dr. Pedram Daneshgar, Associate Professor in the Department of Biology and Monmouth University's 2019-2020 Distinguished Teaching Award recipient. Dr. Daneshgar has been with Monmouth University since 2010. He has been noted as extraordinarily dedicated to students of Monmouth University, and brings a wide-eyed passion and excitement to the study of plants that excites students to learn more and care more about the environment. His passion for teaching extends into scholarship, engaging numerous undergraduate students in projects that have led to student presentations at national and regional meetings, and co-authorship on peer-reviewed papers. Being a veteran of faculty-student collaborative research, he will share with us tips on mentoring and engaging students in scholarship, insight into the opportunities that research can provide students, and his own personal stories on faculty-student research experiences.

I thank all our students, faculty, and members of the Scholarship Week Committee for their collaboration leading up to the successful launch of this important event celebrating student scholarship, creativity, and leadership.

In essence, the Scholarship Week is a signature event that manifests Monmouth University's academic excellence. The pursuit of scholarship embodies a thirst for intellectual curiosity, deep and critical thinking, creative problem-solving, and service-based leadership. These life-long skills prepare students for their careers and success in life. Through such individual and cumulative knowledge creation, scholarship, and research, we establish our relevance as a university. That is the inspiration of Monmouth University, an academic institution that prepares students for individual success and to serve the public interest.

While we await the time when we can rejoin for in-person celebration of Scholarship Week, this year, the promise of inspiration of the unique and exciting projects and events will not be diminished in any way by their virtual presentation modality. Please join us and show your support for our hardworking and committed students and their professors, academic coaches, and mentors.

The quality and the beauty of the projects featured this week makes me proud of our students and colleagues. Your resilience and tenacity during the pandemic is nothing but inspirational. Thank you for your inspiration to continue your scholarship despite the challenges of the pandemic.

With humility and gratitude for this opportunity to serve as your chief academic officer during this most challenging year, and pledging inclusion and

Education for All,

A handwritten signature in cursive script that reads "Rekha Datta".

Rekha Datta, Ph.D.

Interim Provost/Senior Vice President for Academic Affairs

# MONMOUTH UNIVERSITY

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## SCHOLARSHIP WEEK

Monmouth University's 6th annual Student Scholarship Week: Celebrating the Research, Creative, and Service Accomplishments of MU Students will take place virtually April 19-23, 2021. Student Scholarship Week is a weeklong conference that showcases and celebrates students' academic work inside and outside of the classroom, as well as highlights faculty-student collaboration, across the University. This includes highlighting students' scholarly contributions in research, writing, service learning, clinical experiences (i.e. study abroad, internships), musical and theater productions, art exhibits, student development and leadership, student clubs, etc.

This year, Student Scholarship Week will be held virtually for the safety of our students and staff. Each day of the week will feature one theme with a variety of student projects showcased through a mix of live Zoom sessions and asynchronous posters and videos.

### **Monday, April 19:** *The Impacts of COVID-19*

The global pandemic has impacted the world as we know it in a multitude of ways. These projects and presentations discuss COVID-19 and how it has impacted different industries, human psychology, and society as a whole. Specific projects are in a variety of disciplines including social-emotional learning in students, the film and television industry, local effects in Freehold NJ, virtual speech-language therapies, virtual behavioral animal research, leadership, music, theatre, and violence against women.

### **Tuesday, April 20:** *Environmental and Geographic Studies*

Environmental Science and Geographic Information Systems are two fields that are becoming increasingly important in today's society. These projects and presentations focus on different aspects of biology, environmental science, and geographic studies such as mapping, zoning, and spatial modeling. Specific scholarship and research address an assortment of issues including historical matters, animal and marine conservation and protection, global warming and climate change, water quality, rising sea levels, and sustainable land redevelopment.

### **Wednesday, April 21:** *Academic Citizens*

Students using research and scholarship explore problems and issues in search for a solution. Projects cover a wide range of topics including crime, healthcare burnout, career preparedness for college students, security, creative expression, culture, communication, social justice, eating disorders, social media, mental illness, cost analysis, and accounting solutions.

### **Thursday, April 22:** *Diversity*

These presentations and posters discuss the importance of diversity and its impacts on society, as well as the consequences of its absence. Diversity and inclusivity are discussed for different themes, such as race, gender equality, disabilities and disorders, and more. Specific scholarship

and research in a variety of disciplines explore issues related to socioeconomic status, gender, race, age, ethnicity, intellectual or physical ability, religious or political beliefs, sexual orientation, and mental illness.

We will also hold our keynote speech on Thursday, April 22 at 10:05 a.m. Dr. Pedram Daneshgar, Associate Professor in the Department of Biology and the 2020 Distinguished Teaching Award recipient, will address our community and talk about the importance of faculty-student collaborative research.

**Friday, April 23:** *Department and School Highlights*

Monmouth University has a long tradition of showcasing our student work on a department and school level, and we would be remiss if we did not honor these long standing traditions. This day kicks off Thursday evening with the School of Education's Student Scholarship Exhibition. On Friday we have the School of Science's Student Research Conference, the Honors School's Research Conference, and the Department of History and Anthropology's Senior Research Presentations.

## **Monday April 19, 2021: The Impacts of COVID-19**

The global pandemic has impacted the world as we know it in a multitude of ways. These projects and presentations discuss COVID-19 and how it has impacted different industries, human psychology, and society as a whole. Specific projects are in a variety of disciplines including social-emotional learning in students, the film and television industry, local effects in Freehold NJ, virtual speech-language therapies, virtual behavioral animal research, leadership, music, theatre, and violence against women.

### **Live HawkTalk Presentation: *The Impact of COVID-19 from Leadership to Television/Film to Violence against Women in Latin America***

Monday, April 19, 2:00 p.m. – 3:00 p.m.

**Katelyn Fabian**, Junior, Spanish/Elementary Education

**Denisse Quintanilla**, Junior, Spanish

**Paola Sosa-Siguenza**, Senior, Spanish

**Natalia Zepeda**, Sophomore, Spanish/Secondary Education

*Gender Violence in Latin America*

Violence against women happens all around the world, and it is a violation of their human rights. The United Nations defines violence against women as any act of gender violence that results or may result in physical, sexual, or psychological harm to women (OMS). It is hard to know the exact statistics because it is often not reported. One in three women have been victims of violence, and 38% of the murders of women in the world are committed by their male partners. What happens in Latin America? What are the causes and effects? Has the COVID-19 pandemic made an impact on the number of incidents? Are there any social movements that speak up against this issue?

Latin America is not an exception for this statistic. This violence has many causes and effects, and the COVID-19 pandemic has increased the number of incidents. To fight against this problem, there are many social movements being established. Violence against women is highly prevalent in the region. Oftentimes, cases can be linked back to machismo. Some men tend to believe that women are inferior to them. These abusers frequently have certain stereotypes regarding women, believing women are just there to take care of them, provide them with pleasure, and bear their children. Not only do men believe this but, many women as well. Women have been educated to believe these stereotypes of themselves and it is hard for them to break this cycle that leads to violence. It has also been noted that violence against girls and women cases have surged because of the COVID-19 pandemic.

During this time of change, the pandemic has impacted different parts of one lives and the rise of violence against women is a dangerous impact. Women have a bigger risk now, due to isolation measures, they cannot find the necessary protection for domestic violence. In the beginning of the pandemic, phone calls to Colombia domestic violence helplines rose 130% in the first 18 days. Chile abuse helpline rose 70% in the first weekend of quarantine.

There have been countless measures taken to reduce gender violence in this region, but it is not enough. A Rapist in your Path is the feminist anthem that has been reprised in many countries

across the globe. It was performed by a Chilean feminist group, Latesis, in hopes to spread the message of an end to violence against women. Some other solutions include being accurate in terms of data collection, raising awareness, and making countries classify the intentional killing of a woman as it is. Although there are many women in Latin America and the world who have been silenced, it is up to each and every one of us to be the change.

**Elissa Scano**, Graduate Student, Social Work: *From Student to Leader*

As we approach the end of an academic year, we are naturally inclined to reflect. Collectively, we can look back and realize that we persevered through a global pandemic, adjusted to a new way of learning, and encouraged each other while navigating our way through uncertainty. This is not a small feat and should not go unrecognized. At some point, we were each called upon to be daring and to take a chance on what we believed in for ourselves and for our futures. We didn't back down, we embraced the suck, as Brene Brown would say, and found the courage to pioneer our way through adversity. This is the true act of a leader. I am proposing an interactive presentation that will spark a mindset shift. In order to do this, we must acknowledge that we have each exemplified the qualities and traits of a good leader, but we rarely ever name it that. It is time to step up and incorporate leadership language as we each embark on our individual and professional journeys. By doing so, Monmouth University will create a culture of leadership and assist future generations in embracing this critical role. To assist me, my presentation will be guided by key concepts from Brene Brown's book, *Dare to Lead*, where she highlights what it takes to be an effective leader. This research and my experience as a graduate student at Monmouth University will help to highlight the need for leadership recognition. The audience will take away tools that will help them to identify the skills that they have acquired in order to lead successfully and to transition from student to leader.

**Roman Smith**, Senior, Management and Marketing: *Creating a Marketable Cost Structure for New York Television and Film Production*

The global pandemic of COVID-19 has forced the film and television industry to dismantle and restructure in order to accommodate the changing dynamics of the world. In this time of reflection and transition, my study indicates a viable way forward for the film and television industry. Using the concentrations of cultural theory, marketing, accounting, and economics, and grounded in original qualitative data collected through interviews with industry leaders, this research hopes to analyze and predict market behavior of the film and television industry to create a new costing-structure for application. The study also explores the value our society places on art, the inconvenience of a production pipeline, and the proposed solutions to the future of media consumption. The result will be a partial business plan and competitive analysis that can be used as applied research for entrance into the entertainment market.

**MU Players Presents: *The Wedding Singer***  
**Monday, April 19, 8:00pm**

MU Players present their annual student produced musical, featuring a celebration of student performers, producers, directors, choreographers and designers; this time on a virtual platform. Students will take four weeks to go through the entire production process, from casting, designing, directing, performing, recording, and editing to make this virtual production happen. Every aspect of the production will be run and produced by students. The final product will

showcase how we are able to keep theatre and performance alive in a COVID-19 world. The production will be available to stream from Friday, April 16th to Monday, April 19th. "The Wedding Singer takes us back to a time when hair was big, greed was good, collars were up and a wedding singer might just be the coolest guy in the room. Based on the hit Adam Sandler movie, The Wedding Singer's sparkling new score does for the '80s what Hairspray did for the '60s. Just say yes to the most romantic musical in twenty years. It's 1985, and rock star wannabe, Robbie Hart, is New Jersey's favorite wedding singer. He's the life of the party until his own fiancé leaves him at the altar. Shot through the heart, Robbie makes every wedding as disastrous as his own. Enter Julia, a winsome waitress who wins his affection. As luck would have it, Julia is about to be married to a Wall Street shark, and, unless Robbie can pull off the performance of a decade, the girl of his dreams will be gone forever." (source: MTIshows.com)

### **Asynchronous Video Presentations**

**Grace Breslin**, Senior, Speech-Language Pathology

**Shelby Davis**, Senior, Public Health

**Cassie James**, Junior, History/Secondary Education

*Analysis of Technological Mobile Application Use in the Speech Teletherapy Environment*

In contemporary times, the rise of technology has influenced the way modern speech therapy is delivered among various client populations. Speech-language pathologists (SLP) have utilized technological devices, such as iPads, as a digital tool for service delivery (e.g., assessment, data collection) and as a motivator towards interactive learning in order to facilitate speech language activities during therapy sessions. The COVID-19 global pandemic has brought an increased use of various mobile applications (apps) by SLPs; however, there has been a lack of research in examining SLPs use of mobile apps for pediatric speech-language therapy. This study investigates how SLPs use different genres of mobile apps and other digital tools to skillfully provide therapy to different age groups of pediatric clients across various clinical settings (e.g., school, private practice, hospitals) via both in-person and teletherapy. Through qualitative thematic analysis of 24 semi-structured interviews with SLPs, we created clinician user personas to develop an understanding of the intertwined relationship between clinician, client, and app-based intervention. The findings demonstrated diverse techniques of how clinicians skillfully implemented and integrated various mobile apps (e.g., augmentative alternative communication apps, speech-language apps, game apps, utility apps) across different clinical settings, populations, and ages. Many of these apps that are used in their practice have led to different perceived effectiveness depending on the client's abilities, the clinician app use techniques, and app usability. Clinician interviews provided additional insights for both positive and negative outcomes from the use of mobile devices and apps, and also offered suggestions for creating digital tools for teletherapy and in-person speech therapy. This study contributes to the established literature of apps used by SLPs and sheds light on multiple areas for future research (e.g., finding appropriate apps for different clients, understanding app usability challenges, investigating new app design opportunities).

**Dillon Schindler**, Sophomore, Music: *Dancing: The Application of Music Industry Practices*

On January 31st of 2020, I released my debut single, Dancing, on Spotify, Apple Music, and 150 other professional streaming services internationally. 2020 was extremely difficult for all of us. As students, musicians, and aspiring professionals, we lost opportunities, missed out on

experiences, and were forced into unfamiliar changes. We protested against injustice, handed our faith over to science, and relearned the meaning of gratitude. Most importantly, we adapted. We learned new ways of innovating, curating, and participating. Throughout 2020, I wrote Dancing, a song that puts all of this into perspective. It describes and exemplifies all of the beautiful things we have done this past year and all of the incredible moments we have to look forward to. After months of working virtually with friends, professors, and mentors from Monmouth University, I was able to share it with the world.

I set forth with this goal using the knowledge from my classes and the advice of my professors. I thought about how Songwriting I with Professor Flannery taught me the significance of my words and the power of my voice. I remembered how Applied Music Industry with Professor Cruz encouraged me to always make smart decisions about my royalties and contracts. I recalled Professors Tripold and Wurzbach describing the emotions that can be provoked by a beautifully arranged melody. I used the same processes as I did when releasing projects alongside Professor Rapolla under Blue Hawk Records. With the support of my department and a collaboration with Professor Flannery on the production of Dancing, I was able to practice all of the elements of my music industry major. It has been a powerful experience to see the interconnectedness of my academic efforts, passions, and career goals as I make my listeners feel hopeful and happy during this incredibly trying time.

### **Asynchronous Poster Presentations**

**Ashley Farrell**, Senior, Psychology

**Cristina Naha**, Senior, Psychology

**Nicholas Quinn**, Senior, Psychology

*Unleashing Humane Training and Enrichment Education through a Virtual Companion Animal Behavior Clinic*

Animal labs can offer students of behavior analysis a unique, hands-on learning experience. However, COVID-19 restrictions - while put in place to protect both human and animal health - have presented challenges to traditional brick-and-mortar lab classes. During the fall 2019 semester, the Human-Animal Wellness Collaboratory (HAWC) conducted a pilot study to evaluate the use of a virtual Applied Animal Behavior Research Clinic as a method to teach undergraduate students humane training and education techniques based on behavior analytic principles with companion animal dogs and cats remotely. Training sessions included instruction, modeling, and rehearsal for modules on habituation, Pavlovian conditioning, preference assessments and reinforcer assessments, matching law, shaping, and environmental enrichment techniques. Future directions to evaluate the efficacy of the virtual clinic on student learning outcomes and social validity are needed and will also be discussed.

**Madison Kutschman**, Senior, History/Elementary Education: *Strengthening Healthy Child Development (During/Post COVID-19): Research-Informed Approaches to Implementing Social-Emotional Learning in the Classroom.*

This project presents research-informed approaches to implementing Social-Emotional Learning in the classroom for in-service and pre-service teachers to foster positive, inclusive, supportive learning environments that recognizes the whole child, developmental and academic. I propose

that students can benefit from teachers learning how to better model social and emotional learning skills, as the stress of the pandemic has heightened social and emotional concerns. The COVID-19 pandemic has changed life overall and access to participation in the education system, as there is likely a greater need to understand enhanced means of embedding SEL and systems of support in classrooms. Children have been learning in remote settings, without traditional peer interaction; therefore, this project centers on SEL and the support teachers can foster in their classrooms, as well as developing research that can aid initial thoughts on implementing SEL. As more data and research is being gathered on remote/virtual learning, the utilization of apps, technology, and websites as resources for teachers are critical to be examined, in-depth. In addition, more research may be needed on the use of face-masks in classrooms combined with how to better anticipate and recognize social cues simultaneously. Stress, trauma, and additional compounded adverse impacts are all considerations that may affect student learning. As educators, we must make sure student's basic needs are met, while also unpacking the link of student reception to academic learning. It is in the best interest if educators continuously plan and prepare for SEL within the context of learning, pedagogy, and classroom engagement as it relates to developing the whole child. It is essential to implement SEL in the classroom in the coming years as students will need multiple developmental competencies to be addressed in the aftermath of the pandemic, in order to provide healthy development in our students.

**Marc Rosamilia**, Graduate Student, Education: *Student Contributions on Positive Mental Health & Wellness in their Local Community*

Youth participatory action research (YPAR) is an instructional model that enables youth to research and engage in community-based projects. Throughout the process, involved students are supported, motivated, and mentored in exploring social justice issues affecting their communities (Mirra, Garcia, & Morrell, 2016). This case study presentation explores YPAR in the setting of an 11th-grade health and physical education course. In this class, the students chose to focus on three specific areas of mental health and wellness: (1) local resources to support those struggling with mental health issues, specifically related to the pandemic's effects, (2) local organizations that prepare packaged food and other goods for those struggling with food insecurity and lack of resources due to lost jobs and wages and (3) the positive mental, emotional, and immune benefits of physical activity on mental health and wellness. Through interviews with students working in all three groups, we demonstrate the positive self-efficacy and social-emotional impacts of YPAR on involved high schoolers.

## **Tuesday April 20, 2021: Environmental and Geographic Studies**

Environmental Science and Geographic Information Systems are two fields that are becoming increasingly important in today's society. These projects and presentations focus on different aspects of biology, environmental science, and geographic studies such as mapping, zoning, and spatial modeling. Specific scholarship and research address an assortment of issues including historical matters, animal and marine conservation and protection, global warming and climate change, water quality, rising sea levels, and sustainable land redevelopment.

### **Live Zoom Event**

**Tuesday, April 20, 12:30 – 1:30 p.m.**

*Urban Coast Institute Heidi Lynn Sculthorpe Scholars Seminar*

**Aidan Bodeo-Lomicky**, Junior, Marine Environmental Biology Policy

**Breana DiRenzi**, Senior, Marine Environmental Biology Policy

**Avery Jackson**, Graduate Student, Computer Science

**Nicole Owenburg**, Graduate Student, Clinical Mental Health

**Johanna Vonderhorst**, Senior, Chemistry

The Urban Coast Institute (UCI) offers competitive funding opportunities for students of all disciplines to work with the UCI as a Heidi Lynn Sculthorpe Scholar. UCI Heidi Lynn Sculthorpe Scholars form a cohort of student-faculty collaborative researchers at Monmouth University who have strong potential to make significant contributions to address future environmental, societal, and economic challenges along the world's coastal margins and further healthy and productive coastal ecosystems and resilient and economically vibrant coastal communities through their research. In 2020, the UCI supported 12 students on 9 different research projects. The proposed 1½ hour virtual seminar will highlight the research results from 6 of the supported projects (the remaining 3 projects will be presented at the School of Science Scholarship Week event). Each student will prepare a brief abstract of their project that will be posted on the UCI event website in advance of the seminar. During the seminar, each presenter will provide a 10-minute overview of their research topic followed by a 5-minute question and answer period. The seminar will be hosted by the UCI through Zoom. The UCI will advertise the seminar both internally and externally, including through the UCI mailing list to reach as broad an audience as possible. A recording of the seminar will be posted on the UCI webpage.

### **Asynchronous Video Presentations**

**Kerry McFeeters**, Junior, Marine & Environmental Biology & Policy: *Tracking Movements and Migrations of Sandbar Sharks (*Carcharinus plumbius*) Along the East Coast Using Acoustic Telemetry Data*

The sandbar shark (*Carcharinus plumbius*) is a large coastal shark and widely distributed shark along the East Coast. A lot is known about their movements in nursery grounds, but there is limited knowledge about their coastal movements. This project focuses on examining movements and migrations of these species of sharks, using acoustic telemetry with long-term 10-year acoustic tags. Acoustic telemetry will give the information needed to find out the long-term movements and migrations of these sharks. The focus is on previously collected (unanalyzed) data of forty female and ten male sandbar sharks, ranging from 114.3-226cm total length, that are being tracked with tags by Monmouth as well as collaborators in the Atlantic Coast Telemetry Network up and down the coast of the US, tagged from 2016-2019. R-Program

and Google Earth are used to create maps of the movements of all these sharks individually. These sandbar sharks tend to stay local to New Jersey in the months of June-August, which is where they are all tagged. From November-April, they migrate south mainly to North Carolina, but all the way to Florida. 96% of the tagged individuals were detected in or around Delaware Bay which is a major nursing ground and is near where they were tagged. This project gives insight on their coastal movements and their survival after being released from land-based fishing. Over time, this research project can lead to ideas for management and conservation of habitats and give insight on populations, so in the future, populations of threatened and endangered coastal sandbar sharks can increase.

**Amanda Prascsak**, Senior, Chemistry: *Intermolecular Interactions of Liquefied Petroleum Gas-Alcohol Mixtures with Phyllosilicates*

Recently, with fracking, the issue of borehole failures arising from shale instability has been increasing. Shale instability is caused by the intermolecular interactions of polar water-based drilling fluids (DFs) with shale minerals. Therefore, DFs formulated from liquefied petroleum gas (LPG) have been proposed as an alternative to those water-based DFs used in fracking. LPG is a mixture of propane, butane, isobutane, and other nonpolar substances that can be safely recovered from the borehole. This project aims to solve the issues of shale instability by improving upon this waterless fracking method via polyol alcohol additives, like ethylene glycol and glycerol, which can be incorporated with the LPG to advantageously increase its polarity. Intermolecular interactions between components of LPG-alcohol mixtures and phyllosilicates were identified and analyzed using computational chemistry methods, such as density function theory (DFT) and fragment molecular orbital theory (FMO). Quantum DFT calculations provided the geometric optimizations for each of the six orientations of the LPG component-phyllsilicate systems in the gas-phase. Following optimization, the FMO investigation employed pair interaction decomposition analysis (PIEDA) to calculate the energy values of non-covalent interactions, which included Coulomb, polarization, dispersion, quantum exchange repulsion, and charge transfer in solvation under the polarizable continuum model (PCM). PIEDA was utilized to predict which intermolecular interactions are most prevalent in each of those six orientations of the LPG component-phyllsilicate systems. These intermolecular interactions were studied further by examining the bond length and bond angles between the LPG-component and phyllosilicate in all six configurations. The results obtained reveal that interactions of the nonpolar LPG components with domination of dispersion-driven and weak electrostatic interactions (C–H...O) have little preference to a particular phyllosilicate face, while polar molecules with domination of hydrogen bonding (O–H...O) have higher affinities to faces of the phyllosilicate cluster that represent imperfections or cracks in an ideal crystal.

**Ariel Zavala**, Senior, Chemistry: *Environmental Control on Harmful Algal Bloom (HAB) Toxicity in Coastal Lakes*

Reports of HABs in freshwater environments have been surfacing nationwide in news, leading to concern among researchers, environmental managers and citizens. Monmouth County's coastal lakes often experience summertime HABs due to nutrient pollution. These lakes benefit the surrounding communities economically and environmentally, but when HABs occur state regulatory actions are taken resulting in loss of a valuable community resource. The phytoplankton that commonly cause HABs are classified as cyanobacteria and some are known to produce toxins. A common toxin known to cause illnesses in humans and animals is

microcystin. However, microcystin is not always produced by HABs because HAB toxicity can be influenced by the environment in which they are growing. The goal of this study is to get a better understanding of the relationship between HABs and toxins and to determine whether the coastal lakes containing HABs also have toxins present. In order to study this relationship, it must first be determined what nutrients are causing the increased levels of cyanobacteria. Water samples were obtained from Deal Lake in the summer of 2020. Three sets of nutrient addition bioassays were performed by adding Ammonia (N) and Phosphate (P) along with a combination of N+P to Deal Lake water, including a control. Phycocyanin (PC) and chlorophyll levels were measured daily throughout the four-day incubation period and was later compared to the control. The results showed that growth of cyanobacteria within the lakes is due to high levels of nitrogen. The chemical structure of microcystin is composed of a lot of nitrogen so it can be assumed that microcystin production should be limited in nitrogen-limited lakes. Further research will target the growth of microcystin under these conditions. The understanding of toxicity in these lakes is important because they are located in urbanized areas where a lot of people are exposed.

### **Asynchronous Poster Presentations**

**Rebecca Berzins**, Senior, Marine & Environmental Biology & Policy: *Counting Diamondback Terrapin (*Malaclemys Terrapin*) in an Aerial Drone Image over Water Using Supervised Image Classification*  
The diamondback terrapin (*Malaclemys terrapin*) is a brackish water turtle found along the east coast of the United States. It is currently listed as a vulnerable species on the International Union for the Conservation of Nature Red List. Its conservation status varies by state, with the study area of Massachusetts listing *M. terrapin* as threatened. *M. terrapin* populations are suspected to be declining throughout its range, and monitoring this species is essential for population persistence. Traditional monitoring methods often include capture-mark-recapture. However, due to extremely low detection, these methods often fail to provide reliable estimates of population state. Because *M. terrapin* is a semi-aquatic species, found in salt marsh habitat, it can be difficult to sample in its native habitats. Unmanned aerial vehicles, or drones, are an emerging technology used more frequently to gather data on wildlife, and present an innovative way to count *M. terrapin* with limited interaction. An aerial drone survey was conducted over a coastal inlet in Cape Cod, Massachusetts, and the present study applies geographic information systems (GIS) image analysis to count *M. terrapin* in the aerial image. A manual count of *M. terrapin* in a drone image is conducted first. A subset of manually counted *M. terrapin* is then used alongside a sample of other land-cover types in the image (e.g. water) to train a supervised image classification. The classified image groups 8-millimeter image pixels into classes, including a class for *M. terrapin*. The *M. terrapin* class is then used to count *M. terrapin* in the image, and the automated count is compared to the manual count for an accuracy assessment. It is expected that the manual count is more accurate, but the automated count is a viable alternative for wildlife management agencies that do not have the personnel to conduct a time-consuming manual count.

**Mark Cianciosi**, Graduate Student, Anthropology: *Mapping War Memorials and Monuments Relative to Population and Demographic Attributes in New Jersey*

The presence of memorials and monuments to commemorate America's military history and the memory of those that fought in our country's many conflicts and wars has long been a staple of American communities. While these objects have long been a familiar part of our nation's cultural landscape, we often give very little thought to the much larger historical and cultural

forces that ultimately serve as the chief driving forces behind the creation, and sometimes destruction, of monuments and memorials. In this research, I will map where the largest concentration of military monuments/memorials exist in the state of New Jersey, particularly in relation to major towns and cities, and assess the geographic distribution of monuments relative to key demographic attributes, such as war veteran population percentage, average income, and other important elements. The number of war monuments will be totaled by urban area and mapped relative to population (e.g. monuments per 10,000 people). This is expected to show that monuments are most concentrated around urban centers, and an analysis of distances between monuments and United States Census metropolitan areas is expected to further substantiate the connection between populated areas and war commemoration. A similar analysis will be conducted using major military installations and battlefields, and it is expected that war monuments will be concentrated near these major military features. Finally, the relation between monuments and veteran populations will be assessed using World War II because there are a large number of these monuments and a record of the World War II veteran population can be compared to the establishment dates of monuments. Maps of World War II monuments and veteran populations are expected to show high concentrations of monuments around high concentrations of World War II veterans. The end product of this research shows some driving forces (e.g. population centers and veterans) of military commemoration in New Jersey.

**Hannah Craft**, Senior, Marine & Environmental Biology & Policy: *Ranking Migratory Areas around Vernal Pools for Spotted Salamander (*Ambystoma maculatum*) based on Spatial Metrics*  
Terrestrial amphibians such as the spotted salamander (*Ambystoma maculatum*) rely on temporary ponds that provide critical breeding habitats, known as vernal pools. The spotted salamander and other terrestrial amphibians migrate from upland forests to vernal pools located in critical wetland systems. Upland forests, from which they migrate, are often fragmented by roads posing a major threat to the migration of the spotted salamander. Throughout New Jersey, few of these critical wetland or upland forest habitats are legislatively protected. The New Jersey Department of Environmental Protection has confirmed the location of 1,453 vernal pools throughout the state, however, framework for the conservation of these pools in relation to amphibian migration patterns has not been developed. The present study applies such framework for the spotted salamander in a proof-of-concept study. Migratory areas around the 1,453 vernal pools in New Jersey are mapped based on documented ranges of the spotted salamander from the literature. Conservation priority rankings are then assigned to migratory areas based on (1) the distance of roads in the migratory area, (2) the size of the area immediately surrounding vernal pools, not fragmented by roads, and (3) the percent coverage of upland forest in the area not fragmented by roads immediately adjacent to vernal pools. Combined, the different spatial metrics account for scenarios in which a migratory area is largely clear of roads, fragmented by roads that are not in the immediate vicinity around a vernal pool, and fragmented by roads in the immediate vicinity around a vernal pool. Each metric is converted to the same units using a z-score, and the sum of metrics is a conservation prioritization ranking. Hotspots (i.e. areas of high rankings) could be used to allocate conservation resources. The rankings developed here could be extended to other species for more comprehensive terrestrial amphibian conservation framework.

**Breana DiRenzi**, Senior, Marine & Environmental Biology & Policy: *Aerial Drone Survey and High-Resolution Terrain Examination of a Revolutionary War Era Shipwreck Site at Crosswicks Creek, New Jersey*

Historical records of the American Revolutionary War indicate a number of ships were sunk to avoid British seizure in tributaries of the Delaware River, including Crosswicks Creek, New Jersey. The shipwreck sites could tell the story of boats used in the campaign to fight the British, but the location of shipwrecks in Crosswicks Creek is not known. On-the-ground archaeological surveys are limited in the ground that they can cover. An aerial approach can expand the survey area, but existing data may not represent the terrain exposed at a low tide in Crosswicks Creek. Thus, the present study employs an unmanned aerial vehicle (drone) survey of a low tide in Crosswicks Creek on September 19, 2020. The drone survey was completely conducted by a Monmouth University student licensed to fly a drone by the Federal Aviation Administration. Monmouth University's Urban Coast Institute supplied a DJI Phantom 4 Pro drone with a low-cost, consumer-grade camera mounted aboard the bottom of the drone. The drone flew at a height of about 30 meters in transect lines across Crosswicks Creek in a 15-hectare area. High-resolution aerial photos were taken perpendicular to the ground such that photos of the same area overlapped. Photos of the same location taken at different viewing angles were stitched together using open-source software called WebODM, which automatically identified reference points of the same location in different photos and then merged the photos to create an orthophoto (map) of Crosswicks Creek. The stitching process also generated a terrain model as heights of the land surface were estimated using a structure from motion approach. The orthophoto and terrain model were visually inspected for anthropogenic features, such as linear objects that are not part of the natural terrain. Results of this analysis will be presented in a poster for Student Scholarship Week.

**Sarah Gillogly**, Graduate Student, Geographic Infosystems: *Mapping the Migratory Range of Striped Bass (*Morone Saxatilis*) Based on Catch-and-Release Data from New Jersey*  
Striped bass (*Morone saxatilis*) play an important role ecologically and in supporting the recreational fishing industry in New Jersey and more broadly along the east coast of the United States. Because of their broad geographic range and importance to local fisheries, the conservation of striped bass requires an understanding of their migratory patterns. Catch-and-release studies in which a person catches, tags, and then releases a fish are low-cost and effective means of documenting the migratory patterns of striped bass. Prior catch-and-release studies have documented the migration of striped bass from a fixed location, like the Chesapeake Bay, and have not normally compared the migration of striped bass from multiple locations. The present study employs catch-and-release data from the Berkeley Striper Club to compare striped bass migratory patterns from multiple locations along the New Jersey shore. This rare form of analysis is possible because the catch-and-release data has been collected since 1988 and has a record of approximately 700 recaptured striped bass. Because migratory distance cannot be calculated (i.e. the route a fish traveled between locations is not known), the migration of striped bass is quantified using latitudinal migratory zones fit to key geographic features, such as New York Bay. The number of fish recaptured in each zone is calculated based on a given tagging location, such as Island Beach State Park. The distribution of fish from a tagging location is mapped at different recapture intervals (e.g. greater than a month) and from season to season (e.g. spring to fall) within a year. Results show the number of zones traveled by a fish and percentage of fish recaptured in each zone, which is expected to follow certain documented patterns regardless of the tagging location, such as high percentages of fish traveling from south to north between the spring and fall seasons.

**Richard Kane**, Junior, Marine & Environmental Biology & Policy: *Spatially Explicit Wave Modeling of the Navesink River, New Jersey*

The Navesink River is a 12-kilometer long estuary known for its recreational uses (e.g. boating) and habitat for a variety of marine species, such as winter flounder, a popular commercial and recreational fish. A number of marinas and boat docks line the Navesink River, and boat traffic can be heavy. Despite this, an operational wave model of different weather scenarios (e.g. onshore or offshore wind) has not been applied to the Navesink River, and a tool to model wave action based on user input does not exist. Such a model is not only useful for navigational purposes, but also sedimentation studies for potential dredging and marine habitat conservation projects. The objective of the present project for Monmouth University's Student Scholarship Week is to apply a United States Geological Survey wave model on the Navesink River, and embed that model in an interface that allows the user to input their own wave model parameters, such as wind direction and speed. The wave model applies equations from the United States Army Corps of Engineers Shore Protection Manual, and maps wave height, length, and velocity based on wind direction, speed, fetch (i.e. the distance that wind travels over water to a given location), and a bathymetric surface of water depth. Wave maps are generated and presented for situational weather conditions common in the Navesink River, which may be used by recreational boaters. It is expected that nearshore inlets and coves subject to shorter wind fetch distances will have less wave action than exposed shorelines subject to longer wind fetch distances. The tool interface developed for this project will be shared with a representative of the United States Army Corps of Engineers for their consultation and feedback on the application of the tool for navigational and scientific use.

**Logan Murphy**, Senior, Marine & Environmental Biology & Policy: *Mapping Water Quality Parameters Related to Red Tide Events in the Gulf of Mexico*

Red tide events can cost the United States (US) upwards of \$100 billion annually due to financial losses in tourism and fishing, and this does not include the cost to human health of coastal residents exposed to harmful toxins of a red tide. The Gulf of Mexico is particularly prone to red tide events due to excess nutrient inputs from agricultural operations in the Mississippi River watershed. The nutrients feed algae blooms, which consume oxygen and release toxins that kill fish and harm the human respiratory system. The algae of a red tide is often not directly measured at water quality monitoring stations due to limited budgets, and instead, less expensive physical water quality parameters, such as dissolved oxygen, are collected on a more regular basis. A number of water quality parameters are related to red tides, and it is not clear which parameter, or sets of parameters, are effective at signaling the onset of a red tide. The present study for Monmouth University's Student Scholarship Week addresses this problem using a variety of water quality parameters, such as dissolved oxygen and total nitrogen, collected before and during a known red tide event in the Gulf of Mexico area around the Mississippi River Delta. Water quality parameters that show a statistically significant change via a Mann-Whitney U test are effective diagnostic tools for monitoring the onset of a red tide. For example, a statistically significant decrease in dissolved oxygen may be a sign of a red tide in which algae are consuming oxygen. The water quality data will be collected from the US Environmental Protection Agency's newly formed Water Quality Portal, a consortium of water quality data released by agencies at the local, state, and federal levels. That data will be mapped and used for subsequent statistical testing.

**Nicholas Occhiogrosso, Junior, Marine & Environmental Biology Policy: *Assessing the Relation between Historic Sea Surface Temperatures and Damage to Coral Reefs in the Caribbean Sea***

Coral reefs are ecosystems of great importance to both ecological functions (e.g. marine habitat) as well as socioeconomic functions (e.g. reef fisheries). Increasing heat stress due to global climate change and warmer sea temperatures are among the primary causes of mass bleaching of coral in the last few decades and are thus threats to the protection of coral reefs. The Caribbean Sea is especially vulnerable to heat stress and many of the coral reefs within the region are at risk. Annual sea surface temperature data derived from the Advanced Very High Resolution Radiometer satellite is analyzed using the first year (1985) and last year (2006) of the Pathfinder version 5.0 product in 4-kilometer grid cells. The annual averages are mapped and changes between the two years are assessed. An analysis of geographic clusters in the temperature data is performed using the Getis-Ord statistic. These results are compared to National Oceanic and Atmospheric Administration virtual station coral bleaching alert levels. Findings show that statistically significant clusters of increasing temperatures off the coast of Venezuela coincide with elevated alert levels at virtual stations. However, contradictory results are found in reefs around Caribbean islands to the east and south of Puerto Rico, where increasing temperatures coincide with low alert levels. This indicates reefs in more open waters may be more resilient to temperature increases, or factors other than temperature, like runoff, may be contributing to high alert levels off the coast of Venezuela. Overall, sea surface temperatures increased regionally across the Caribbean and locally in reefs. Because of regional temperature increases, clusters of high temperatures are smaller in 2006. Future work should compare virtual station alert levels to various environmental factors, including temperature, to address the contradictory results found here and assess the greatest threats to coral reefs.

**Skylar Post, Senior, Biology: *Comparing Phytoplankton Biomass and Species Composition of Branchport Creek to Surrounding Shrewsbury Tributaries***

Harmful algal blooms (HABs) negatively affect water quality in coastal estuaries both locally and globally. In previously conducted studies, Branchport Creek had 10-100 times higher chlorophyll levels than any other site along the Shrewsbury River, Navesink River, and Sandy Hook Bay, chlorophyll levels high enough to constitute a HAB. The dominant species in these Branchport Creek HABs was a potentially toxic dinoflagellate called *Akashiwo sanguinea*. This raised questions about the ecology of the surrounding tributaries in Shrewsbury. The goal of this study was to test the hypothesis that the biomass and species of phytoplankton in adjacent Shrewsbury tributaries is similar in composition to that of Branchport Creek. After analyzing several stations in the upper Shrewsbury tributaries and comparing them to the stations in Branchport Creek, similarities in species composition were evident, with *Akashiwo sanguinea* remaining as the dominant species in both Branchport Creek and the Shrewsbury estuaries. While the species composition was similar amongst sites, there were some differences in the biomass, as chlorophyll levels tended to escalate more in the Shrewsbury tributaries than the Branchport Creek stations. To further this study, annual sampling should be continued, as well as potentially expanding the analysis to other analogous sites.

**Matthew Pringle, Junior, Homeland Security: *Mapping the Wildland Urban Interface and Buildings at Risk of Wildfire in Monmouth County, New Jersey***

Wildfires can cost the United States economy up to \$150 billion annually (nearly 1% of gross domestic product), and are among the major threats of climate change. The study of wildfires is often focused in the western United States, but wildfires at a smaller scale are also a risk to eastern states, such as New Jersey. The risk of wildfires is particularly pronounced in suburban areas like Monmouth County, New Jersey where buildings are directly adjacent to large sources of wildfire fuel known as the wildland urban interface (WUI). The WUI is often defined by means of land cover analysis (e.g. densely developed areas within a given distance of dense vegetation). However, not all forms of vegetated areas pose the same wildfire risk, and for this reason, the New Jersey Forest Fire Service has developed a map of wildfire fuel hazard. The present study applies the wildfire fuel hazard layer to propose an operational definition of the WUI (e.g. developed areas with greater than 50% coverage of buildings within a mile of a high wildfire fuel hazard area). The WUI is mapped in Monmouth County, and an inventory of buildings in this high-risk area is conducted. Buildings are also ranked relative to their distance from high wildfire fuel hazard areas. The results of this analysis are expected to show that developments in western Monmouth County are more at risk of wildfire than those in eastern Monmouth County. From an emergency management perspective, this places Monmouth County at the intersection of two natural hazards: wildfires in the suburbanized and wooded western part of the county and floods along the Atlantic coast in the eastern part of the county. Emergency management resources could therefore be distributed according to the presence of these different threats.

**Jessica Wistowaty, Junior, Homeland Security: *Sea Level Rise Inundation Mapping of Vulnerable Populations in Atlantic City, New Jersey***

Sea level rise poses an immediate threat to coastal populations in the 21st century. In the United States, New Jersey is experiencing sea level rise at a higher rate than any other state in the country. Atlantic City is a densely developed part of the New Jersey shore that is currently experiencing sea level rise. The residents of Atlantic City are not all equally prepared for the effects of sea level rise, thus it is important to map vulnerable populations in areas expected to be impacted by sea level rise. In this study, the vulnerable populations of Atlantic City are mapped relative to expected sea level rise inundation areas. The inundation areas are locations where projected sea level rise (e.g. one foot) is higher than the land-surface elevation as mapped by a high-resolution light detection and ranging (LiDAR) survey from the year 2019. Vulnerable populations are quantified using United States Census survey data of income, education, and age as proxies for a household's capacity to relocate in the event of catastrophic sea level rise. Each household attribute of vulnerability is classified into quartiles (e.g. the first quartile is most vulnerable). Maps are generated for each household attribute, and combined into one map of sea level rise vulnerability. It is expected that vulnerable populations live in inundation areas, and a comparison of vulnerable populations inside versus outside inundation areas show the disproportionate effects of sea level rise on vulnerable people. The maps of this study will show where those effects are expected to occur and areas of vulnerable populations in need of special assistance due to the effects of sea level rise.

### **Wednesday April 21, 2021: Academic Citizens**

Students using research and scholarship explore problems and issues in search for a solution. Projects cover a wide range of topics including crime, healthcare burnout, career preparedness for college students, security, creative expression, culture, communication, social justice, eating disorders, social media, mental illness, cost analysis, and accounting solutions.

#### **Live HawkTalk Presentations**

**Wednesday, April 21, 1:15 p.m. – 2:00 p.m.**

***Public History in Practice Live Event***

**Matthew Berger**, Senior, History

**Gillian Demetriou**, Senior, History

**Rowan Elrais**, Junior, History/Elementary Education

**Samantha Walton**, Sophomore, English

Students will discuss experiential public history projects that are preparing them for life after Monmouth, preserving and disseminating untold stories, and benefitting significant partners such as the National Guard Militia Museum of NJ, the Asbury Park Historical Society and Museum, and more. The session will also be recorded and posted to the Department of History and Anthropology YouTube channel for later viewing.

Gillian will discuss her Urban Coast Institute-funded work conducting interviews about life in Asbury Park, NJ, to include the wrenching experience of the COVID-19 pandemic. This is a part of the Paradoxical Parade: Asbury Park project.

Matthew will discuss his internship with the National Guard Militia Museum of NJ, where he is processing interviews for the Library of Congress Veterans History Project.

Samantha will discuss The Julian Abele Project, the capstone project of Monmouth's fall 2020 Museums and Archives class. This digital humanities projects shines light on the life and work of pioneering African American architect Julian Abele, the driving force behind the design of Monmouth's own Great Hall.

Rowan will discuss the intersection of historic preservation and archives, based on a presentation she will have recently delivered at the Mid-Atlantic Regional Archives Conference annual meeting, Suffrage Legacies: Civil Rights, Political Activism, and Archives.

The students will then discuss lessons learned from their work, and answer questions from the audience.

**Wednesday, April 21, 4:30 p.m. – 5:30 p.m.**

*Diverse Student Performances Exploring Culture, Resistance, and Social Justice*

**Manny Christian**, Senior, Communication

**Penelope Elliott**, Senior, Communication

**Daviyon Johnson**, Sophomore, Communication

**Jalen Jones**, Junior, Communication

**A'Liah Moore**, Junior, Communication

**Eben Owusu**, Senior, Communication

**Janelle Ramirez**, Sophomore, Communication

**Brian S. Salinas**, Sophomore, Communication

This showcase of diverse student performances and presentations from 3 Communication courses taught by Dr. Deanna Shoemaker features moving family interviews, courageous cultural narratives, and socially engaged poetry that represent academic research, a creative process of inquiry, and impactful communication skills. This cross-fertilization of student voices and experiences also serves to build student community across campus, highlight qualitative and arts-based forms of research, and celebrate student work devoted to resistance and social change.

### **Asynchronous Video Presentations**

**Joey Bartusek**, Junior, Accounting

**Allen Gonsalves**, Senior, Accounting

**Anthony Granite**, Senior, Accounting

**Daniella Messercola**, Junior, Accounting

**Kostandinos Tsoukalis**, Junior, Accounting

*Rook Coffee's Cost Behavior*

In this project, my group and I have worked diligently to disclose pertinent activities and costs Rook Coffee has to account for in their daily-business model. After we reveal the costs of the firm, we need to decipher which costs are fixed, variable or mixed. Distinguishing this allowed us to better comprehend their company's strategy as well as better evaluate the firm's performance.

**Alexis Gerbasio**, Junior, Marketing: *The Detrimental Effects Body Image and Beauty Standards Has on Young Athletes*

My project will consist of explaining how eating disorders including anorexia nervosa and bulimia begin at early ages in many children and young teens due to the pressures they feel and face from outside perspectives. Many young teens from 12, feel as if they have to be a specific body type to perform well. Thirteen percent of athletes in judged sports including gymnastics and dancing will develop eating disorders rather than sports with referees like soccer and football. Therefore, the perception and the quality of having to look a certain way influences those who are involved in these sports.

There is also the misconception of having a certain body type to perform well. Those who are runners and swimmers are expected by coaches to have a specific weight and that is usually lean with a small percentage of body fat. Another major part of my presentation will include how these unrealistic body expectations will lead to unhealthy dieting. This is seen in the sport of

wrestling where athletes in the smaller weights are told to skip meals and only drink water to meet their weight requirements for that week of competition.

I will also evaluate the effects of long-term effects for young athletes and how it can harm them for years to come. The National Eating Disorder Awareness website explains how in more cases for young women they can lose their periods due to lack of nutrients and can put their ability to reproduce on the line. There is also the fear that they will never have the same ability to eat and keep food in their system as they once did. Overall, the project will highlight how certain words and beliefs will live in young children's minds and affect them for years to follow.

**Tyler Gordon**, Senior, Accounting: *Outsourced Portal for Accountants*

I am working with Doctor Li to create an outsourced portal for accountants. I currently work in an outsourced accounting firm and have firsthand experience with the outsourcing industry. The purpose of this project is to create a portal that will help increase the communication between the client and the firm that is providing the outsourced services. The client will have access to important information at their disposal. This will make the transition from an in-house accountant to outsourced accountant that much easier.

The portal will include various key aspects which are financial statements, payrolls, billing payment processing, accounting data transactions, and a discussion. These features are all essential that the client can readily access to. Having all the financial information consolidated in one location will help the client feel more at ease with an outsourced firm.

Although the portal will not be made as a website since that will require many weeks of coding, the layout will be created in PowerPoint. In the layout in PowerPoint, there will be various examples of accounting information that occur on a day-to-day basis. The layout will reveal what an outsourced portal for accountants will consist of.

Overall, the portal will have key accounting aspects that will improve the communication between both the client and the firm they are outsourcing from. With the rise of outsourcing taking place, having an effective portal will make the transition easier.

**Jenae Louis-Jacques**, Sophomore, Mathematics: *"Came To Win": Songwriting for Film and Television*

As a music industry major, I aspire to write music for film, TV, and commercials. In order to deepen my understanding of the subject, this fall I took the initiative to offer my services to a director and landed my first music placement in an upcoming indie feature film entitled Boxer. Based on a brief given to me by the director I wrote a song entitled "Came To Win." The song is sung from the perspective of the underdog lead characters who slowly make their way back to the top of their game after suffering setbacks from injury and mental illness. With this opportunity, I have navigated the world of sync placements firsthand and learned so much along the way. Using the foundational skills I acquired from my music industry classes, I gained a deeper understanding of the artistic, technical, and business processes needed to produce a professional song for sync placement. The challenge of writing a song for a specific scene in a film is not only to capture the ideas that the director wants expressed lyrically, but to capture the emotional impact needed for the scene musically. Sonically, the finished production has to meet

industry standards for technical aspects such as EQ and loudness, and professionally I needed to make sure that I understood all of the details of the contract that I entered into. With all this in mind, I enlisted the help of my fellow classmate William Biedbach, a.k.a BJ Bied, to produce the song. I had multiple meetings with professor Cruz to understand exactly what I should be looking for in a sync contract and how to protect both myself and my music from a legal standpoint and I worked with professors Flannery and Rapolla to prepare the recording for professional release.

**Victor Montanaro**, Senior, Psychology: *Music, the Voice, and Emotions*

The project to be presented in this event is an undergraduate thesis study on the relationship between singing ability and emotion recognition in speech prosody, on track for completion in early April of 2021. It is based on past research that identifies shared acoustic qualities between music and speech (e.g., pitch glide, rate, duration, loudness, etc.), outlines how those features convey emotions in speech, and demonstrates how different qualities of those features are specific to different emotions. The current study specifically addresses conflicting results in existing research on the relationship between musical experience and emotion recognition in speech prosody. Musical experience tends to be measured by self-report and does not account for individual differences in actual musical ability, leading to conflicting results. Instead, the current study uses a singing task in order to provide a more direct behavioral measurement of musical ability by examining the voice, an instrument common among musicians and non-musicians. The study utilizes a mixed-factors quasi-experimental design in which singing accuracy is the between-subjects variable (grouped by inaccurate, moderate, and accurate singers, based on percentages correctly sung notes), emotion type is the within-subjects variable (neutrality, happiness, sadness, anger, fear, and disgust), and emotion recognition is the dependent variable (based on the percentage of correctly identified emotions). The procedure involves participants listening to a sequence of four-note melodies and singing them back, completing a pitch discrimination task, identifying the conveyed emotion in speech-based stimuli, and answering a questionnaire on musical experience and participant demographics. It is hypothesized that participants with higher singing accuracy will demonstrate higher accuracy in the ability to recognize emotions in speech and that this ability will vary by emotion type. A positive correlation between singing accuracy and emotion recognition is also hypothesized.

**Mary Pomponio**, Junior, Nursing: *In nurses who experience higher rates of burnout, does the implementation of self-care strategies and stress management interventions as opposed to seeking no treatment options reduce the rate of turnover among nursing staff?*

As the healthcare industry continues to expand and the need for well-trained nurses increases, so does the rate of burnout and turnover among nursing staff. Nurses have always been expected to take on the responsibility for employing their own personal coping strategies. However, studies suggest that the work environment and on-the-job stress have played a large part in nurses experiencing burnout severe enough for them to leave the profession. Therefore, a significant responsibility lies within the healthcare organization to provide stress management interventions for nurses to overcome burnout. Research is needed to address this problem and identify ways that employers can help to diminish the effects of stress causing nurses to leave the profession. This study will focus on newly graduated registered nurses who are still adjusting to the switch from nursing student to professional nurse. This presentation details a research proposal for a study that simultaneously investigates how newly graduated registered nurses perceive their

general work environment and what coping strategies and avoidance behaviors they personally utilize when faced with workplace stressors. The aim of the proposed study is to explore and describe stressors prevalent in the work environment and what techniques new nurses find as beneficial towards reducing the negative effects of these job-related stressors. Data collection methods employed in the study will be semi-structured interviews, focus groups, personal journals of the participants, and self-reports of precipitating factors of workplace stress. Keywords: new graduate registered nurses, nursing burnout, workplace stressors, coping strategies

**Lauren Abreu**, Senior, Communication

**Josh Miller**, Senior, Communication

**Shimriya Richard**, Graduate Student, Communication

**Darci Santella**, Graduate Student, MA Communication/Interactive Digital Media

**Skylar Smith**, Junior, Communication

**Abbey Vergata**, Senior, Communication

*IDM (Interactive Digital Media) Research Lab Student Projects 2020-2021*

This presentation will focus on projects created in the IDM Research Lab.

IDM Research Lab (IDMRL) fosters interdisciplinary experimental projects and random acts of creative expression. As academic citizens, we critically engage with cultural production both historical and present. We inspire and support learners from any discipline over the threshold of doing the unknown with technical tools in the context of interactivity and digital media arts. Our methods consist of routine creative practices, tool-building, playfulness, inclusivity, futurism, exploration, and the importance of making.

IDM Lab is a production facility bridging the collaborative visions of researchers, artists, and media creators. We invite collaborators of any background and any skill-level to help us imagine the world yet-to-be. This statement was co-written by IDM Research Lab faculty and graduate and undergraduate students.

## **EN 102.H2: College Composition II**

*Using Rhetoric to Connect with Digital, Public Audiences*

In this presentation, students discuss a task-based, experiential group writing project in which they have to apply their rhetorical knowledge and skills to assessing, evaluating, improving, and creating social media channels for local non-profit organizations in Asbury Park, NJ.

## **Asynchronous Poster Presentations**

**Patrick Anderson**, Senior, Accounting

**Nicholas Gagliardi**, Senior, Accounting

**Dylan Grafton**, Junior, Accounting

**Andrew Laspina**, Junior, Accounting

**Thomas Waring**, Junior, Accounting

*The Cost Behavior of Amazon*

Our project examines the cost behavior of Amazon. The project analyzes the major costs and activities of the online merchandising company. The contents of our presentation briefly discuss the description of Amazon and the wide variety of products they offer. After listing 10 major

costs that Amazon incurs to operate successfully, we will categorize them into fixed, variable, or mixed costs depending on their classification. Another important distinction between costs is whether they are product or period costs. Product costs can be classified to an even smaller designation: direct materials, direct labor, and manufacturing overhead. The next assessment of Amazon will be examining the company's cost drivers for the mixed and variable costs. It is important to determine the cost drivers for Amazon so that the company has an indication of the factors that cause a change in an activity's cost. We will include how Amazon determines the classification of each cost. The final aspect of our presentation will be discussing how the cost behavior of Amazon is unique compared to other companies and industries.

**Jacqueline Barton**, Senior, Accounting

**Breanna Harkin**, Senior, Accounting

**Ryan Mohabeer**, Junior Accounting

**Farangiz Ortikova**, Senior, Accounting

**Joseph Pascotto**, Sophomore, Accounting

*Commvault Cost Behavior*

In this project, we are analyzing the costs of the company Commvault. Commvault is a service company that offers cloud data storage along with data protection and security to protect against viruses and malware. We also discuss the major costs of the company and classify them as either a fixed, variable, or mixed cost. We explain why each cost of the company is classified the way it is and the process of how companies may determine how costs are classified the way they are. Knowing how these costs are classified is important because it is crucial information to assist in making management decisions and analyzing the performance of a company. The cost drivers for each of the costs we have listed will also be discussed along with the reasoning behind them. Finally, we talk about our overall experience working on this project about the costs of Commvault and interesting issues about cost behavior.

**Michael Dimino**, Junior, Accounting

**Maggie Lippincott**, Sophomore, Accounting

**Kirsten Taylor**, Junior, Accounting

**Derek Vander Woude**, Junior, Accounting

*Uber Technologies: Cost Analyses*

Our presentation analyzes the costs of the service company Uber Technologies. We discuss the services that are provided from the company along with the major costs that are incurred. These costs may come from multiple departments in the company such as sales, human resources, and accounting. Due to the fact that Uber Technologies is a service only company, all of these are service costs instead of product costs. We categorize each of the incurred costs based on whether it is a fixed, variable, or mixed cost. Each of the listed costs are explained as to why they are classified as they are. For each of these variable and mixed costs, we explain the potential cost drivers that are behind them. We also explain why the cost driver is deemed appropriate for the cost. Lastly, we analyze the level of difficulty that it took to identify and describe each cost. The techniques that were used to determine these costs was a key factor in knowing the difficulty level each cost had. All in all, our presentation discusses the service costs that Uber Technologies endures, and how these costs are measured. By analyzing these costs, we get a better understanding of the cost breakdowns.

**Alyssa Dowd, Junior, Homeland Security: *Geographic Cluster Analysis of Violent Crimes in Detroit, Michigan***

Detroit is frequently noted as one of the most violent cities in the United States. Understanding where violent crimes occur is critical to policing and distributing preventative resources. For that reason, a cluster analysis of violent crimes (e.g. homicides) is conducted in this study to map areas where high concentrations of crime occur. A spatial statistic known as Ripley's K function is used to assess statistically significant clustering of violent crime points at different distances in Detroit (e.g. are violent crimes significantly clustered at 500 meters, 1,000 meters, and so forth?). A distance at which violent crimes are strongly clustered is then applied to (1) create heat maps and (2) conduct a hot spot analysis, both of which require a search radius (distance) to map geographic clusters. Heat maps show the spatial density of violent crimes as the number of violent crimes within a given distance of a location per unit area (i.e. number of violent crimes per square kilometer). Darker colors in the heat map signify a higher density of violent crimes, and locations that rank in the top five percent of violent crime density are shown as a separate class in the map. The results of the heat maps are then compared to that of a hot spot analysis, which assesses the violent crime rate (e.g. number of violent crimes per 1,000 people) in United States Census survey tracts, roughly the size of a small neighborhood including between about 1,000 and 8,000 people. The hot spot analysis identifies tracts that have a significantly high violent crime rate relative to surrounding tracts, and geographically contiguous groups of high-crime tracts form geographic clusters. It is expected that geographic clusters in heat maps and the hot spot analysis are in economically disadvantaged neighborhoods of Detroit.

**Dylan Fallis, Senior, Accounting**

**Shaun Rauschenberger, Junior, Accounting**

**Justen R. Samiljan, Junior, Accounting**

**Dana Terman, Junior, Accounting**

**Madeline C. Weber, Senior, Accounting**

*Medify Air: Cost Drivers of a Local Company*

We have researched a company called Medify Air. This company distributes/sells multiple products and resides with one of our group members, Madeline. Madeline's father is employed by this company where they provide things like purifiers, filters, and other small items which are all available for sale. This group project is giving us the chance to analyze a real company. Medify Air is helping us configure the major costs and processes that go with the company as a whole. This company is easy to work with because it has a perfect amount of costs and products listed. The costs will be classified as either fixed, variable, or mixed; being easy to split them up. We will be dealing with potential cost drivers within the variable and mixed costs and once we dig deeper, we will be able to differentiate between which cost driver is appropriate and why. It will also be fun to recognize the issues within this company. A lot of times companies think they are flawless and run effortlessly, but most of the time that is not the case. This scholarship week we will be able to dive deeper into a local company and comprehend the inner workings that go along with the company and its products.

**Robert Merten, Senior, Homeland Security: *Geographic Risk Assessment of Terrorist Attacks in New York City***

The terrorist attacks of September 11, 2001 began the age of homeland security in the United States (US). Although the portfolio of the Department of Homeland Security has diversified

since its inception, a core function is still the risk assessment of terrorist attacks and prescribing preventative measures. Risk assessment describes an analysis that quantifies the probability of an event (i.e. a terrorist attack) and the expected losses of that event. If this form of analysis is conducted geographically in a map, then it can be used to inform the distribution of resources to prevent a terrorist attack (e.g. an area of high risk receives more police trained in counterterrorism). The present study conducts this very form of analysis in New York City using the University of Maryland's Global Terrorism Database for the entire period of the dataset. The first phase of the analysis maps the geographic distribution of terrorist attacks (i.e. events) weighted by population density (i.e. possible losses) estimated by the US Census at a given point. The result is a heat map of areas that are both prone to terrorist attacks and densely populated. The next phase of the analysis employs a risk assessment at the scale of US Census survey areas including (1) the probability of a terrorist attack in a survey area over the study time period and (2) the possible losses of an attack in a survey area based on population density. The two measures of risk (i.e. probability and loss) are presented in separate maps, and then combined into one map of terrorist attack risk. The findings of this study will show areas with a high-risk of terrorist attacks, and it is expected these areas will be in parts of the city known for heavy foot traffic and mass transit, such as Midtown Manhattan.

**Pedro Sanchez**, Sophomore, Homeland Security: *Military Base Security Prioritization based on Surrounding Critical Infrastructure in the Contiguous United States*

A history of explosions at military installations in the United States, such as the Black Tom explosion, illustrates the need for military base security. The Black Tom explosion occurred during World War I, damaged property (e.g. broken windows) as far as 25 miles away, and cost an estimated \$20 million at the time (nearly half a billion dollars in today's money). A similar if not larger geographic extent of an explosion could occur today given modern developments in military munitions. The military has finite resources to protect its facilities against an explosion and should distribute those resources strategically according to munitions stored at military bases and surrounding critical infrastructure (e.g. power stations) that could be impacted by a potential explosion. An inventory of munitions stored at military bases is not publicly available, thus the present study for Monmouth University's Student Scholarship Week prioritizes security at military bases based on critical infrastructure in a proposed blast zone. Critical infrastructure in the form of power stations, fire stations, and hospitals is overlaid on blast zones around military bases in a geographic information systems (GIS) map. The GIS overlay analysis quantifies the number of critical infrastructure assets in the blast zone of each military base in the contiguous United States. A separate map for each form of critical infrastructure is produced, and the total number of power stations, fire stations, and hospitals in each blast zone is shown in a final map. The maps demonstrate a flexible security prioritization framework that could be applied to different critical infrastructure (e.g. evacuation shelters) and different scenarios (e.g. a chemical release instead of an explosion). In the current case, focused on critical infrastructure in developed areas, it is expected that military bases closer to population centers will have more critical infrastructure and require more security.

**Harry Termyna**, Graduate Student, Educational Counseling: *Career Advising Internship Experience*

This poster will highlight my journey as a Career Advising intern at the New Jersey Institute of Technology. This experience has provided me with the opportunity to guide approximately 10

STEM students each week through the professional development process. In turn, students have received many beneficial services such as resume reviews, job search assistance and interview preparation. I am also tasked with co facilitating our novel career services peer-mentoring program. The objective of this poster will be to demonstrate the significance of understanding the essentials of career preparation for college students regardless of the area of student affairs one is working in. From my personal experiences there is a noticeable shift within higher education from merely taking classes and regurgitating information on exams towards attaining transferrable and employable skills through hands on experiences outside of a traditional classroom. Thus, it is critical for any student affairs professional to be able to help bolster leadership and professional efficacy within all students who they advise and support. Applying key social justice and counseling tenets makes this endeavor even more effective as well as utilizing the assumptions of core student development theories which focus on personal identity status and coping with transitions.

## **Thursday April 22, 2021: Diversity**

These presentations and posters discuss the importance of diversity and its impacts on society, as well as the consequences of its absence. Diversity and inclusivity are discussed for different themes, such as race, gender equality, disabilities and disorders, and more. Specific scholarship and research in a variety of disciplines explore issues related to socioeconomic status, gender, race, age, ethnicity, intellectual or physical ability, religious or political beliefs, sexual orientation, and mental illness.

### **Keynote Speech Live Zoom Event**

10:05 a.m. – 10:30 a.m.

Dr. Pedram Daneshgar, Associate Professor in the Department of Biology and the 2020 Distinguished Teaching Award recipient, will address our community and talk about the importance of faculty-student collaborative research.

### **Live HawkTalk Presentations**

**Thursday, April 22, 1:15 p.m. - 2:00 p.m.**

*Diversity in Law Enforcement, Education, and Healthcare*

**Kayla Delnero**, Graduate Student, Physician Assistant Program

**Nidhi Parekh**, Graduate Student, Physician Assistant Program

*Racial Bias in Healthcare: Management of Pain*

Racial inequality is an unfortunate part of society and the inequalities are evident in healthcare settings as well. This presentation discusses the evolution of biases and highlights biases held by healthcare professionals. It is also an accumulation of studies representing disparities in healthcare, specifically in pain management, due to these biases. It ends with a call to action, encouraging people to explore their own implicit biases and challenge themselves to address them.

**Paula Echeverria**, Senior, Criminal Justice: *Law Enforcement Officials' Perceptions of Growth Through Opportunity*

This study examines law enforcement perspectives on the Growth Through Opportunity Program, which was implemented within four police municipalities and the Prosecutors Office in Monmouth County, New Jersey. The program aimed to provide individuals with intellectual disabilities (ID) the opportunity to partake in a 16-week internship program with the goal of gaining practical professional work experience. The study evaluated outcomes witnessed by law enforcement officials such as an increase in personal and professional skills, a sense of belonging within an organization, social skills, and interactions for law enforcement officers with the ID community that surpassed traditional training.

**Angello Villarreal**, Graduate Student, EdD: *From Teacher Resident to Doctoral Candidate and Educator*

With hard work and the collaboration of Dean John Henning, I was able to transition from being a Teacher Resident (Intern) at Long Branch High School, to now an Ed.D. candidate and leader at Long Branch High School. With these opportunities I collaborated as a speaker at different

events such as Partnership Events, AACTE, NJEA, and NAPDS showcasing the work of the School of Education. Also, I had the opportunity to publish a peer-review article with Dean Henning to the NAPDS (National Association of Professional Development Schools). Being an immigrant student, educator, and English language learner, the opportunities given by Monmouth University and the SOE are essential to share to our community.

**Thursday April 22, 2:50 p.m. – 4:00 p.m.**

***The Portrayal of Gender in Television Commercials: Critical Reflections on Representation***

**Eva Apuzzio**, Senior, Communication

**Anna Maida**, Junior, Communication

**Shannon McGorty**, Senior, English

**Hayley Sullivan**, Senior, Communication

Television commercials sell much more than products and services. Pay close attention and you will find persuasive messages intended to socialize viewers how to think about the world around them, especially ideas about gender. This panel will explore some of the dominant messages about gender identity conveyed to viewers during a commercial break and their implications.

### **Asynchronous Video Presentations**

**Sarah Cooper**, Senior, Psychology: *Public Perception of Mental Health Assistance Animals*

The objective of this psychology senior thesis project was to explore how the public perception differs between different types of mental health assistance animals, specifically the categories of emotional support, therapy and service animals. Furthermore, we evaluated whether there were associations between public perception, trust, gender of participant, presence of mental illness in participant and whether they have or know someone who has an assistance animal. Participants recruited from Facebook and SONA read vignettes, viewed images and a chart, and answered questionnaires. It was hypothesized that public perception would vary based on the category of assistance animal. Then, exposure to assistance animals and presence of mental illness in the participant separately would lead to a more positive perception. It was also hypothesized that females would be more trusting of the animals in general and emotional support animals would have the least amount of trust overall. Chi Square, One-Way ANOVA and Independent Samples T-Test analyses suggest there is a significant difference in perception and trust of all mental health assistance animals between genders, presence of mental illness and exposure to assistance animals. There was no significant difference found between emotional support, therapy or service animals in trust or perception which may be attributed to a lack of prior knowledge about assistance animals and understanding of the categories. It can be inferred that those who reported being exposed to assistance animals or having a mental illness tend to empathize more with the vignette, giving a higher rating of trust and perception. To conclude, further research is necessary to understand the differences in perception between the categories of mental health assistance animals through possibly including a control condition, pre and post knowledge assessment or adding more information in the vignette about the alternative options for mental health assistance animals other than that condition.

**Melani Kovacs**, Graduate Student, Educational Counseling: *Educational Opportunity Fund Student Success Coach Internship at Stockton University*

This poster will reflect my work as a Student Success Coach intern in the Educational Opportunity Fund (EOF) department at Stockton University. Since September 2020, I have assisted a caseload of forty-one first-year EOF scholars and one senior scholar as they navigate college and prepare for graduation. Meetings are conducted with each scholar twice per semester and on an as-needed basis. The meetings consist of assisting students with academic coaching, providing information about EOF funding and scholarships, connecting students with valuable resources critical to their academic and personal success, as well as providing general assistance. Individualized assistance and guidance are provided to EOF students as they work to accomplish their goals and overcome barriers to their success. In addition to these responsibilities, administrative assistance is provided to the Executive Director of Educational Opportunity and Success Programs to accomplish departmental goals that contribute to the achievements of EOF students.

**Delaney Mestey-Jones**, Senior, Biology/Secondary Education: *Ensuring the Equity and Inclusion of Diverse Students Inside and Out of the Classroom*

Diversity is understanding that each student brings unique experiences, strengths, and ideas to our classroom. These differences can reflect dimensions of race, ethnicity, sexual orientation, gender, socio-economic status, age, ability, religious or political beliefs, or other different ideologies. Cultural diversity in education is pivotal to enhancing conversations within the classroom as students from different backgrounds bring alternative perspectives and ideologies. Though it is inevitable, it is not always acknowledged by educators. Instead, educators sometimes end up diluting a student's sense of cultural pride by trying to create a sense of uniformity within the classroom, not unity. From the year 2000 to 2016, the number of English language learners increased by 1.5%; jumping from 3.8 billion to 4.9 billion students (National Center for Education Statistics) and educators became more and more overwhelmed by the presence of ELL students. A recent study conducted on teachers discovered that when teachers from levels 9-12 reported diversity being a problem, the results demonstrated higher diversity-related burnout amongst educators during the school day. Taking this data into account, educators who both effectively incorporated ELL students while also highlighting their cultural background had easier and much more enjoyable experiences within the classroom and greater job satisfaction. If the effort is put forth by educators, administration, and faculty, there are strategies to both effectively incorporate ELL students and ensure equitable distribution of the resources required for every student to succeed in the learning experience alongside their peers.

**Asynchronous Poster Presentations**

**James Allan**, Senior, Computer Science: *Drinking Water Quality by Income and Race in New Jersey*

Drinking water is a basic need of the United States (US) populace. However, as the Flint, Michigan water crisis revealed in 2015, drinking water quality can vary in communities of different demographic characteristics. New Jersey has demographic divides in the form of income inequality and racial segregation, which warrant an investigation of water quality disparities in low-income communities and communities of color. The present study relates water quality data collected by the New Jersey Department of Environmental Protection, such as lead concentrations, to demographic attributes of the US Census Bureau, such as poverty rate. Water quality data are aggregated by census survey areas (e.g. mean measurements by urban

areas), and a ranked correlation analysis (i.e. Kendall's tau) of water quality versus census survey attributes is conducted. The expected correlations are that of higher water quality contaminant concentrations in census survey areas of lower income (negative correlation) and larger minority populations (positive correlation). Because New Jersey's population has been described as geographically segregated, both in terms of economic status and race, census survey areas are classified as primarily low income and primarily populated by minorities. Low-income and minority census survey areas are then compared to other census survey areas in terms of water quality measurements using a Mann-Whitney U test. It is expected that water quality contaminants are significantly higher in low-income and minority census survey areas. The geographic distribution of these results throughout the state are mapped, and displayed in a research poster for Monmouth University's Student Scholarship Week.

**Abigail Carroll**, Graduate Student, Certificate in Geographic Information Systems: *Geographic Analysis of Police use of Force by Race in Chicago, Illinois, USA*

Black individuals are significantly more likely to be killed by the police than white individuals in the United States. Historically, data on police use of force in Black communities was unavailable, either because it was not collected or because it was not released to the public. Literature on police brutality therefore often lacked the data necessary to make substantive claims of institutional violence and meaningful change to violent institutions. As the Black Lives Matter Movement has grown in popularity over the past decade, the issue of racialized police violence has been brought to the attention of mainstream media and political discourse. While some police forces have been pressured to provide use of force statistics to the public after misconduct, others have been exposed by extra-governmental data collection efforts. The current study draws on such data from the Invisible Institute's Citizens Police Data Project (CPDP), which offers a record of police use of force in Chicago that is otherwise not available on government websites. The CPDP data are applied here to map police use of force cases in Chicago and relate that data to percent Black and white population in zip codes. Maps show the rate of police use of force relative to population and race, and a univariate correlation analysis of police use of force and race is conducted in the entire map area. The geographic variation in the correlation between police use of force and race is shown using a geographically weighted regression, which is expected to show that police use of force is more strongly tied to race in majority-Black neighborhoods. Finally, police use of force is compared in majority-Black and majority-white zip codes using a Mann-Whitney U test, and it is expected that the median rate of police use of force is higher in majority-Black zip codes.

**Charly Cushing**, Senior, Psychology

**Michaela Diaz**, Senior, Psychology

*Student Perceptions of Faculty of Color at a Predominately White Institution*

This study examined student perceptions of professors of different ethnicities. Past research comparing white professors to professors of color found a strong white bias (e.g., Morehouse Mendez & Perez Mendez, 2018). This study instead performed a comparison of underrepresented ethnicities. It was hypothesized that there would be differences between perceptions of professors of different ethnicities. One hundred and twenty-seven individuals from a primarily white northeastern university, found on campus through a convenience sample, participated. In this study, participants read through a vignette with a description of a fictitious Anthropology professor. There were three different conditions of the professor's race an African American professor, a Latinx professor, and an Asian American professor. A questionnaire on

perceptions of the professor they read about was filled out by the student participants. The mixed methods design did not find a significant difference among students overall perceptions in the different conditions ( $p = .20$ ) or likelihood of taking a class with the professor they read about ( $p = .06$ ), however the latter result was approaching statistical significance. This means the hypotheses were not supported. There was also a manipulation check to see if participants correctly remembered the ethnicity of the professor they read about, and this check was successful ( $p < .01$ ). The results of this study give new insight into the lack of student racial biases in the present day.

**Romina Generali**, Graduate Student, Educational Counseling & Leadership: *EOF Scholars: Resiliency & Excellence in a Virtual World*

This poster will highlight my work as a part-time EOF Retention Specialist at Middlesex College and the role our office plays in supporting and uplifting the voices of historically underrepresented students. I joined the EOF team over a year ago and saw first-hand the resiliency our scholars demonstrated in transitioning into virtual learning due to the Covid-19 pandemic. A number of retention initiatives were carried out over the last twelve months with the goal of seeing EOF scholars thrive as they complete the program. A comprehensive Passport Program, which has shifted since the COVID-19 pandemic, offers virtual workshops in which students are engaged in academic, personal, and professional development. Individual meetings are conducted with students to support them in their academic and professional journey at Middlesex and help them plan their next steps. In my field placement, my students and I discuss the ways in which their academic aspirations, family and life responsibilities, and intersecting identities come together to shape their academic journeys. The office connects students with services to help them achieve their academic and personal goals and works to foster a safe and inclusive environment in which they can learn and grow. My work in this role has further solidified my understanding of EOF students; that they are talented, resilient students deserving of spaces in higher education that will celebrate and support them.

**Alyssa Rupnarain**, Graduate Student, Education: *First-Year Academic Advising Internship Experience*

I began my internship at Rutgers School of Engineering in the summer of 2020, I have worked as an Academic Advising Intern for three semesters now. Upon graduation, I intend to complete over 800 hours of supervised practiced experience within the advising department. A main portion of my internship experience is to advise and support students about academic requirements and selection of courses under the first-year curriculum. My goal throughout my internship experience has been to be a support system for each student I'm working with. By fostering an open environment for understanding and working with a diverse student population, this has aided me in assisting students from various backgrounds and being that support that every student needs. Another portion of my experience is to implement and oversee the first-year peer mentorship integration program, I've worked closely with this program and the students upon entering my internship experience at Rutgers School of Engineering. Within my internship, I have participated in various new student and transfer orientations, peer mentorship trainings and group advising sessions, all of which have given me the ability to work in a large group setting with students. I have been able to gain so many new skills, knowledge, and training in my internship. My poster will highlight my experiences and accomplishments during this experience.

**Darci Santella**, Graduate Student, Communication/Interactive Digital Media: *Inequity LGBTQIA+ Data Collection*

In the United States, approximately 4.5% of American adults identify as part of the Lesbian Gay Bisexual Transgender Queer (LGBTQ) community (McCarthy, 2020). But, according to a Gallop Inc. poll (2020), American's believe that this number should be closer to 25%. Which one is correct? We don't know because data collection on the LGBTQ community is scarce and underfunded. These statistics, like all statistics, are based on an estimate from a sample. There is no significant data from a population survey, such as the census or National Health Interview Survey (NHIS) to show the true population of the LGBTQ community. When you read about LGBTQ data collection one word always comes up: estimate. Usually, when you see data it will use the word estimate when referring to large numbers, such as the number of people in the country. Most data you see in the paper or on television comes with a margin of error, usually around 1-3%. Statistics are taken as facts for many things in this country, but when you are talking about a specific population of the country, estimates are not seen with the same confidence. Due to the lack of proper identifiers in polls, surveys, and health records, the LGBTQ community is being underrepresented. The lack of data collection of LGBTQ identifiers has led to many inequities for LGBTQ citizens in government, employment, education, and healthcare.

**Ashley Zingillioglu**, Freshman, Software Engineering: *Optimizing Effectiveness of Emotion/Self Regulation Apps for Children with ASD*

Many individuals with Autism Spectrum Disorder (ASD) lack a functional level of self and body awareness as well as the ability to detect and attend to internal bodily sensations, also called interoception. Because of this, additional prompts and schedules are often necessary to complete tasks of daily living. In order to assist with independence in these skills, companies have created apps that can be used by individuals with ASD. Focusing on these apps, this paper sought to research the available applications focused on self-regulation/emotions and bodily awareness and identify aspects that are advantageous and detrimental to this population based on the core deficit areas within the DSM-V. Results suggest that, although there are many apps available focused on these topics, some of these apps include abstract concepts and the voiceover speaks too many words too quickly. To optimize the effectiveness of these apps an app needs to be created that is sensory friendly, limited in abstract concepts and thinking, and accustomed to slower auditory comprehension level.

**Karen Blaney**, Senior, Communication

**Linda Cranmer**, Junior, Communication

*Gender in the Media: Representation and its Consequences*

This Poster presentation will address contemporary representations of gender in the media and the implications of their consumption by viewers. The poster will demonstrate that although depictions of gender in various forms of media have evolved, a critical examination reveal portrayals continue to be informed by stereotypes, heteronormativity, and binary conceptions of gender and sex.

## **Friday April 23, 2021: Department and School Highlights**

Monmouth University has a long tradition of showcasing our student work on a department and school level, and we would be remiss if we did not honor these long standing traditions. This day kicks off Thursday evening with the School of Education's Student Scholarship Exhibition. On Friday we have the School of Science's Student Research Conference, the Honors School Research Conference, and the Department of History and Anthropology Senior Research Presentations.

### **Thursday, April 22, 6:00 p.m. – 7:30 p.m.**

#### ***School of Education Student Scholarship Exhibition***

The SOE Scholarship Exhibition is a virtual poster session hosted by the School of Education. The purpose of this event is threefold:

1. Highlight student scholarly endeavors within our school and celebrate research that is completed or underway.
2. Create an opportunity for the School of Education students at all levels to think about research and how it improves our respective fields.
3. Recognize and appreciate the work of student peers.

Online viewing and voting on posters from all categories occur throughout the week, Monday, April 19 through Wednesday, April 21.

On Thursday, April 22 at 6 p.m. is the live streamed Research Panel Event with Scholarship Ceremony & Awards.

### **Friday, April 23**

#### **School of Science Student Research Conference**

#### **Honors School Research Conference**

#### **Department of History and Anthropology Senior Seminar Presentations**

1:15 p.m. – 4:45 p.m.