Welcome to
Penn State Altoona's

ANNUAL
UNDERGRADUATE
RESEARCH
& CREATIVE
ACTIVITIES FAIR

Saturday, April 15, 2023
Steven A. Adler Athletic Complex
9am - 1pm

Penn State Altoona's 2023 Undergraduate Research and Creative Activities Fair marks 21 years of student presentations of research, creative activities, and internships. Thank you for your support of our students' hard work and dedication.

Special thanks to the following for their support of the students and the research fair: student mentors, judges, Corey Gracie-Griffin, Cori Biddle, Dorothee Hendoux-Goodman, Misty Wilt, Nancy Vogel, Teri Boyd, Laura Rotunno, Jason Vogel, Stephanie Wojcik, John Carey, Brent Baird, the CAMP, Strategic Communications, the Sustainability Council, University Libraries, Facilities and Operations, and Port Sky Catering. This event could not have been hosted without the support of the faculty and staff at Penn State Altoona.

The Undergraduate Research and Creative Activities Fair is sponsored by The Office of Research and Engagement. The Office of Research and Engagement supports Penn State Altoona faculty and students in their research, creative practice, out-of-classroom academic activities, and community engagement. Our students and faculty engage in a wide range of research projects and creative activities that benefit our local communities, businesses, and society at large. Our internationally recognized faculty conduct over $1 million in externally funded research every year. We support undergraduate research with over $200,000 in grants awarded directly to students working with faculty on cutting-edge projects that lead to promising careers in all fields.

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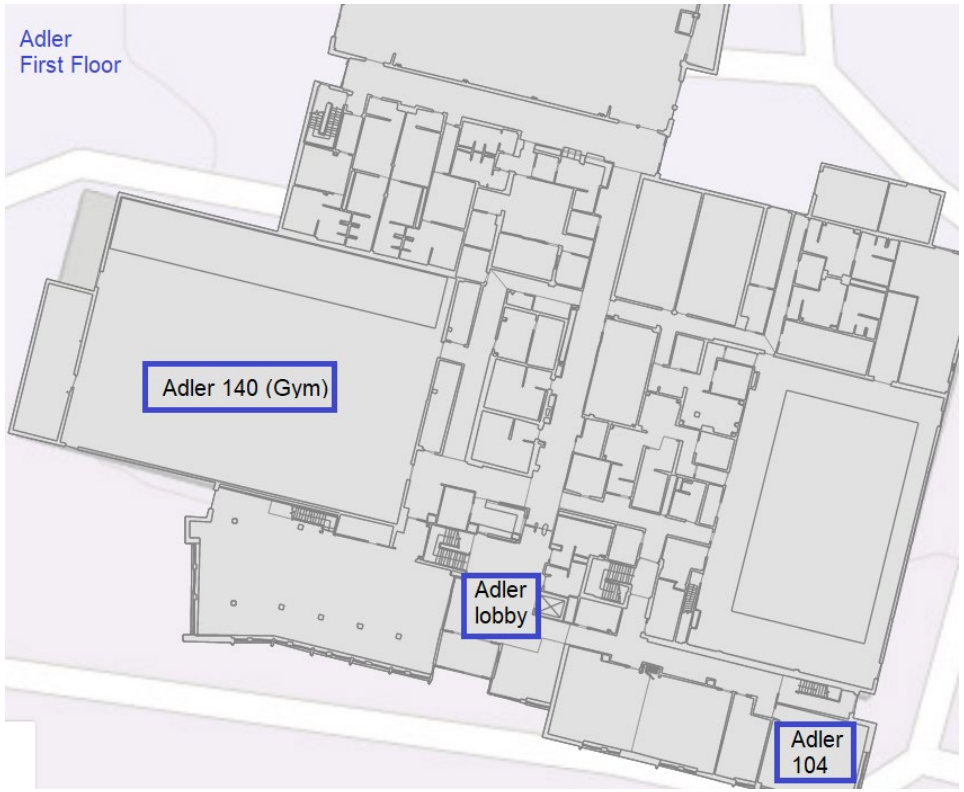

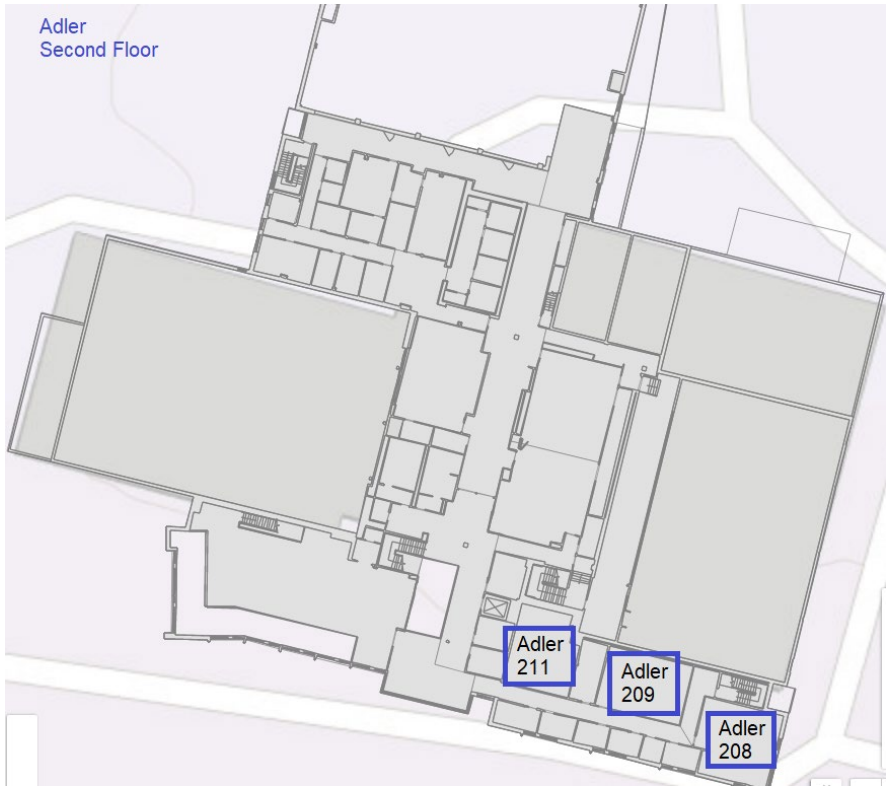

Schedule of Events

9 am	Welcome, Adler Lobby
9:05 am – 11:30 am	Student presentations, see below for locations
11:30 am – noon	Judges convene
Noon – 1 pm	Lunch and awards ceremony, Adler 140 (Gym)

Poster Presentations

Adler 140 (Gym)
Poster number in parentheses

BEHAVIORAL AND SOCIAL SCIENCES I

(1) Ziwei Lin, Kai Watanabe, Shannette Wahor, Marianna Di Balsamo
"Perception of Medication for Opioid Use Disorder"

(2) Jazzmine McCauley, Mykala McGill, Jenea McGill, Riley Fegley
"Analyzing the Impact of COVID-19 Jail Downsizing on County-Level Crime Rates in Central PA"

(3) ~~Reed Keller~~
~~"Perceived Snack Healthfulness and Temptingness Among Undergraduates"~~

(4) Rebecca Reeder, Hailey Burchfield
"Examining Associations Between Fathers' Investment and Adult Sons' Attitudes and Behaviors"

(5) Pamela Lantz, Olivia Ronan
"Parents' Expected Reactions to Sexual Orientation Disclosures"

(6) Amber Hee, Emily Holly, Vincent Restauri
"Comparing Two Approaches of Reducing Proactive Interference in Working Memory"

(7) Olivia Smith
"Characterizing Dietary Intake in Relation to Body Weight and Body Weight Perceptions in Division III Student Athletes"

INTERNSHIPS/PROGRAMMATIC

(8) Olivia Smith
"Dietary at Homewood at Martinsburg"

(9) Sarah Huston
"Dorman's Sports Performance"

(10) Katanna Yohn
"Athletic/Personal Training"

(11) Richard Carey
"ERA sports"

(12) Sadie McConnell
"Inpatient Physical Therapy"

(13) Dawson Luzier, Nicholas Martino
"PSU Altoona Women in Engineering Project 2023"

(14) Amelia Paterno
"Getting Comfortable with the Uncomfortable: Creating a Dialogue Facilitation Program"

(15) Morgan Kennedy
"Translational Research: Older Adults Navigating the Medical System, Finances, and Bridge Employment"

(16) Hannah Nyanko
"Chiropractic Care at American Family Chiropractic"

(17) Christopher Loera
"Phoenix Physical Therapy"

BEHAVIORAL AND SOCIAL SCIENCES II

(18) Hannah Nyanko
"Comparing Imagery Frequency in Young Dancers"

(19) Christopher Loera
"The Relationship Between Time Allocation and Lifestyle Behaviors in Division 3 Student Athletes"

(20) Nicholas Glunt, Lam Tung Vo, Lacee Barnhart, Brooke Colledge
"Guns and Gun Accessories: An Assessment of Gun Owners' Acquisition and Use of Firearm Accessories"

(21) Makaylah Bangura, Deyana Dye, Yursa Haroon, Woodnie Andre, Marianna Di Balsamo
"Examining the Effects of Procedural Justice and Utilitarian Assessments of Police on Racial Differences in Legitimacy Assessments"

(22) Alexis Ordess, Caroline Downey, Elle Garver, Shannette Wahor
"Emotion Work and Princess Performing: The Sociology of Making Magic"

(23) Eemonie Moore
"Motivators and Barriers to Exercise in College Students Compared to Faculty/Staff"

(24) Sophia Rubolino, Eemonie Moore
"Snack Preferences Pilot"

HEALTH AND LIFE SCIENCES

(25) Mallorie Smith
"Preliminary Analyses of Microorganisms Associated with Microplastics Found in Freshwater Sediments"

(26) Nicole Bailey
"Yearly variation in the population density and reproduction of an aquatic invader, *Potamopyrgus antipodarum*"

(27) Gracie Harlow
"Stream chemistry and New Zealand mud snail density and reproduction"

(28) Hannah Eck
"Does parental nest maintenance behavior reduce nestling parasite loads in wild birds?"

(29) Haley Hatch
"Colorado Cretaceous Woods"

(30) Luciano Mazzotta
"The Effects of Blowfly Infections On The Fledging Time Of Bluebirds"

(31) Gavin Suter
"A Test of the Enemy Release Hypothesis Using the Invasive New Zealand Mud Snail, *Potamopyrgus antipodarum*"

(32) Joyce Zheng, Jessica Venturi
"Effects of Anthropogenic Noise on *Gryllodes sigillatus*"

(33) Ryan Gladwin
"Does diet predict gut microbial diversity and parasite load in wild birds?"

(34) Cortney McMath
"Improving Focus in ADHD: Non-pharmacological vs. Pharmacological Management Techniques"

(35) Rachel Sleeth, Connor Oakes
"Air Temperature and Diet are not Associated with Oxygen Consumption Rate in Banded Crickets, *Gryllodes sigillatus*"

(36) Alicia Royer
"Effects of food availability and quantity on aggressive behaviors in banded crickets, *Gryllodes sigillatus*"

ENGINEERING AND PHYSICAL SCIENCES

(37) Dillan, Dantos, Kyle Rennell, Emily Dale, Ben Love
"Spectroscopic Investigations of Deep Eutectic Solvents"

(38) Mallorie Keith
"Pinacolborane Reduction of Carbonyl Compounds"

(39) Mallorie Keith, Alexis Dell
"Facile synthesis of monolignols"

(40) Hannah Roesch, Joseph Levri, Rachel Sleeth, Ethan Miller
"Nano-Structured Materials for Use in Fuel Cells"

(41) Sabiha Sultana
"Efficient Synthesis of Lignin Model Compounds"

(42) Thanatat Thanaravisara
"Mechanical anisotropy of carbon/ glass fiber reinforced 3D printed hybrid composite"

(43) James Ertter III
"Fatigue behavior of short and continuous carbon fiber reinforced 3D printed hybrid composite"

(44) Angela Bunk
"Comparison of Steady-State and Dynamic Burning Rates of AP Composite Propellants"

(45) Casey Hess
"Investigation of Coefficient of Restitution (COR) and Deformation of Tennis Ball Impact"

(46) Brennan Heist
"A low-cost 3D printer for fabricating carbon fiber reinforced high temperature space composite"

(47) Prisha Chanana, Angela Bunk
"Effect of energetic additives on regression rate of HTPB-based solid fuels in a hybrid rocket"

MATHEMATICS, COMPUTING, AND INTFORMATION TECHNOLOGY

(48) Kyle Glass
"Electronic Vehicle Charging Stations"

(49) Steven McKimm
"Internet of Everything (IoE): Issues, Challenges, Existing Solutions, and Future Directions"

(50) Anthony Hammill, Steven McKimm, Hans Esteban
"Security Risk of 5G Technology"

(51) Anthony Hammill, Joshua Lower
"Implementation of Machine Learning for the Automation of Compliances"

(52) Joshua Krish, Sarah Kidd, Kaitlyn Estright, Kyle Glass, Alexander Lieb
"Auditing Framework for IoT Devices & Networks"

(53) Alexander Lieb, Sarah Kidd
"Mapping of IoT Security Controls"

(54) Emma Hoover
"On Compositions & Polygon Dissections"

Oral presentations - STEM

Adler 211

Philip Chamberlin
"Nanowire-based Photovoltaics: Enhancing Efficiency"

Ian Eckenrode
"Software for Visualization and Analysis of Lattice Paths with Obstructions"

Oral presentations – Arts and Humanities Division

Adler 208

Mickayla Bennett
"Autoethnography: Beating the Statistics"

Vy Cao, Ayesha Savage
""Play, Pecola, Play": A Commentary, The Irony of Dick and Jane in The Bluest Eye"

Jesse Pellow
"Object Story British History Millstone with Roman Phallus"

Amy Norris
"50 Shades of Orange"

Jordan Alwine
"Good Night, Sleep Tight"

Matthew Hicks
"ACCESS DENIED"

Meghann Mignogna
"State of Mine"

Abraham Onkst
"Abraham Onkst Artist Talk"

Oral Presentations – Internships/Programmatic

Adler 209

Justin Charlton
"Going Full Steam Ahead: Building My Talent While Finding Others"

Alyson Cover
"Fostering Good Health and Wellbeing Through Blended Case Management"

Krystle Cruthers
"Keep Your Sobriety First to Make it Your Last: Working with People who have an Opiate Use Disorder"

Jenna Cumming
"Power to the Students: Creating Awareness for Diversity on Campus"

Chandler Edwards
"Self-care, Other Care: Empowering Youth Through Expressive Movement"

Haven Feathers
"Supporting Students Needs and Successes: My Time as a School Counseling Intern"

Emily Harpster
"Helping Others: The Power of Helping Yourself While Caring for Others"

Danielle Irwin
"Helping Others Help Themselves: Building External and Internal Resources"

Jordan Morral
"Literary Internship"

Anna Quirin
"My Internship Experience: Intensive Case Management of Parenting & Pregnant Teens"

Lunch and Awards Ceremony

Adler 140 (Gym)

- Welcome from Corey Gracie-Griffin, Associate Dean of Research and Associate Professor of Architecture
- Disciplinary Awards
- Library Awards
- Sustainability Awards
- Excellence in Undergraduate Research and Creative Activities Mentoring Award

Abstracts

Alphabetical by first author's last name

Jordan Alwine

"Good Night, Sleep Tight"

Good Night, Sleep Tight is a solo exhibition consisting of artwork inspired by dreams from throughout my life.

Nicole Bailey

"Yearly variation in the population density and reproduction of an aquatic invader, *Potamopyrgus antipodarum*"

The New Zealand mud snail (*Potamopyrgus antipodarum*) is a world-wide aquatic invader that is known to cause significant ecological harm. Densities of the snail in its invaded range vary from hundreds to hundreds of thousands per square meter. The snail has been established in streams in central PA for over a decade, but the population densities of these snails have not been accurately measured. In the first year of a multi-year study, we sampled five sites in the Spring Creek watershed in Centre County PA in May and July of 2022 to determine the density of these snails using stovepipe sampling technique. We also assessed reproductive effort by dissecting each snail recovered and measuring the length, the brood size, and the proportion of females brooding in each site. Preliminary data suggests that the snails exist in the thousands per square meter at most sites and that there is variation in density and reproductive characteristics over time. The data was limited at one site due to the discovery of a very similar snail, *Fontigens nickliniana*, which has made identification difficult. *Potamopyrgus* appears very well established in Spring Creek

Makaylah Bangura, Deyana Dye, Yursa Haroon, Woodnie Andre, Marianna Di Balsamo

"Examining the Effects of Procedural Justice and Utilitarian Assessments of Police on Racial Differences in Legitimacy Assessments"

Discourse on the perceived effectiveness, legitimacy, and justice of law enforcement is prevalent in the United States. Criminologists have long debated the utility of the instrumental and procedural justice models of policing for shaping citizens' legitimacy assessments. Advocates of the instrumental model believe that utilitarian assessments of police matter most in shaping public opinion. Proponents of the procedural justice model argue that how officers treat citizens in interactions matters more for shaping perceptions of law enforcement than the outcomes received during interactions with police officers or utilitarian assessments of law enforcement. Pilot research conducted by our research lab in Pennsylvania showed that collectively these two models work together to explain racial differences in police legitimacy assessments. Building on this literature base, the current study uses nationally representative survey data (n = 1,093) to test the robustness of these findings by seeing if, and to what extent, instrumental and procedural justice assessments of law enforcement can be used to explain racial differences in legitimacy assessments of police officers. Theoretical and policy implications based on findings will be discussed.

Mickayla Bennett

"Autoethnography: Beating the Statistics"

In this autoethnographic paper, I explain my struggles as the child of a parent with an alcohol use disorder. To evoke my experience for the reader and listener, I utilize bricolage, incorporating flashbacks on moments of crisis and supports, liminal reflections and resolutions, recreated dialogue, poetry, and current research on the experience of children of parents with an alcohol use disorder. I also discuss the development of my work, starting with ontological and epistemological foundations, and then continuing with reflection and research in the content area. I developed this paper to bring hope to those who also grew up as children of parents with an alcohol use disorder and who are struggling with moving forward. I hope to support these adult children in their understanding that they are more. There is and always will be hope. I also hope to raise awareness of the need to decrease stigma and increase treatment for parents and other adults with an alcohol use disorder.

Angela Bunk

"Comparison of Steady-State and Dynamic Burning Rates of AP Composite Propellants"

The burning rates of hydroxyl-terminated polybutadiene (HTPB) composite propellants are commonly characterized by individual steady-state measurements using optically accessible high pressure chambers. The benefit of this experiment is that the experimental pressure conditions are controlled while the disadvantages stem from having to test each strand of propellant individually, to not exceed 2500 psig. Another way of determining the continuous burning rate with changing pressure requires a small, closed, intricately designed and manufactured high-pressure parr cell. Dynamic burning rates provide data for a continuous pressure-time profile during the experiment but the disadvantage is that the burning rate has to be derived from the experimental data using a custom code. The transient versus steady state analysis will bring detailed, calculated results on various in-house formulated propellants. The formulation of composite propellants is a balance of art and patience as different chemicals must be carefully combined. HTPB combines the oxidizer, fuel, bonding agent and curative. Once the propellant is completely cured (3 - 7 days), inspection of the propellant's cross-sections determine if the formulation will yield worthwhile results.

Vy Cao, Ayesha Savage

""Play, Pecola, Play": A Commentary, The Irony of Dick and Jane in The Bluest Eye"

A Commentary & a mimicked dark parody illustrated as a graphic book of The Bluest Eye through an excerpt that appears continuously in the book: Dick&Jane.

Richard Carey

"ERA sports"

ERA sports is a sports facility to help younger athletes to improve their ability to become better at baseball. This place holds different clinics and private lessons for baseball players wanting to further their dream in this sport. They work on all aspects of baseball weather it be pitching, fielding or hitting. Pitching has many steps starting from the basics all the way to throwing off the mound to live batters. Fielding consists of coaches throwing ground balls or pop ups to the athletes and throwing into a net trying to be accurate. Heading is the same way starting with the basics and facing live pitching at the end of the clinics. These younger athletes can choose to invest in a 10 week winter clinics or spring 6 week clinics. This place also offers travel ball opportunities to go play around the nation to get looks possibly from college scouts wanted to take their career a step further. It is a great joy watching younger athletes become better over a short amount of time and the willingness to learn the sport in many different ways.

Philip Chamberlin

"Nanowire-based Photovoltaics: Enhancing Efficiency"

To produce more efficient solar panels and thus limit our dependence on fossil fuels and their detrimental effect on the climate, nanostructures (such as nanotubes and nanowires) are being investigated due to their potential to exceed the efficiency limit of bulk solar cells. Theoretically, increasing surface area using nanostructures allows for an increase in absorption and conversion efficiency. This project investigates silicon nanowires as a prototype by simulating their interaction with solar radiation in COMSOL Multiphysics with post-processing in MATLAB. The longtime goal of this project is to simulate radial core-shell nanotube/nanowire geometries, which serve as an alternative approach to already established vertically stacked solar panels. The COMSOL simulation is run for silicon nanowires of diameter 20, 40, 60, and 80 nm, with lengths of 100, 200, 300, 400, 500 nm each, showing an increase in the attenuation wavelength of absorption associated with both diameter and length and an overall increase in absorption associated with length. A general increase in efficiency is associated with increases of both diameter and length. This serves as a starting point to model even more exotic photovoltaic nanomaterials in the future, eventually being able to model CNT-Si core-shells and other radial multilayer geometries. By advancing clean energy, this project addresses UN Sustainability Goal 7: Affordable and Clean Energy and secondarily addresses Goal 13: Climate Action by addressing a major source of climate issues.

Prisha Chanana, Angela Bunk

"Effect of energetic additives on regression rate of HTPB-based solid fuels in a hybrid rocket"

Hybrid rockets possess certain advantages over solid and liquid rocket systems, such as the ability to throttle, having fuel and oxidizer physically separated, and the ability to abort during emergencies. The focus of this research is to evaluate hydroxyl-terminated polybutadiene (HTPB)-based solid fuel with additives and their overall performance with gaseous oxygen on a lab-scale hybrid rocket engine using oxygen as the oxidizer and nitrogen as the purge. The system used gaseous oxygen with initial flux ranging from 100-900 kg/m^2-s, target chamber pressure of 300 psig, and a nozzle expansion area ratio of 5. The gaseous oxygen will be delivered at mass flow rates of 5 to 30 g/s. Parameters such as specific impulse and combustion efficiency are determined for each test for H-10 aluminum, S-10 aluminum silicone, and boron carbide additives at a weight a weight percent of 20%. Others may also be considered.

Justin Charlton

"Going Full Steam Ahead: Building My Talent While Finding Others"

Going into my internship I consistently asked myself "what am I doing?" That has been an ongoing question that I have asked myself for years. I started my college career as an elementary education major, knowing that it wasn't for me but hoping I could prove myself wrong. Every morning until the day I switched majors I would ask myself that question. Then the day came, I switched majors. Though, I still often had that same question in my head. Months had gone by where I was very confused on what I was supposed to do in my life. Many days passed where I felt I had very little purpose. Finally something clicked, I was lucky enough to find an internship in Human Resources, and I was hopeful I would enjoy it. I did not have much experience with it but I was willing to learn. I walked in day one and hit the ground running, with a lot of work going towards recruiting. It was a learning process, and will continue to be one. But I finally felt like I knew what I was doing, that question finally had an answer. I am now lucky enough to wake up and try to gain talent for myself while also acquiring the talent of others in a variety of areas.

Alyson Cover

"Fostering Good Health and Wellbeing Through Blended Case Management"

Throughout my internship at ACRP, I have been able to observe and interact with several Blended Case Management sessions, therapy sessions, supervisions, and trainings. The Blended Case Management sessions have shown me how BCM works, what they do, how the individuals that receive it are benefitted, and how it affects their health and wellbeing. Blended Case Management has a purpose of helping individuals with struggles and obstacles they are facing, that get in the way of them working on their mental health. These sessions can cover a wide variety of topics ranging anywhere from doctors appointments to doing taxes to finding low income housing. Many of the clients I have seen in their session with a BCM have said how beneficial it has been to them and how much they appreciate all of the work that BCMs do. Although sometimes it takes time to make progress, these individuals are greatly benefitted by this service. Taking care of things such as taxes, finding jobs, finding housing, scheduling appointments, etc. makes it so the individual can focus on more important things such as their health and wellbeing. This speech will review some of the activities and experiences I had during my time at ACRP, how they taught me about good health and wellbeing through their services, and my professional development from these experiences.

Krystle Cruthers

"Keep Your Sobriety First to Make it Your Last: Working with People who have an Opiate Use Disorder"

This presentation will encompass a brief overview of my internship at Pyramid Healthcare. Working in behavioral health for years requires a lot of self-care and introspection. This presentation will provide an overview of learning objectives, core issues, and reflection of these two requirements for the HDFS 2023 Senior Seminar.

Jenna Cumming

"Power to the Students: Creating Awareness for Diversity on Campus"

The Office of Diversity and Inclusion Programming provides a community of diverse and inclusive thought, service, leadership, and learning. During my internship experience in this office, I implemented multiple strategies and initiatives to boost diversity on campus. I was able to do this through creating and facilitating diversity related programs, discussions, and initiatives. I had the understanding and ability to do these with my knowledge on a variety of theories like Maslow's Hierarchy of Needs and Bandura's Social Learning, as well as previous course concepts.

Dillan Dantos, Kyle Rennell, Emily Dale, Ben Love

"Spectroscopic Investigations of Deep Eutectic Solvents"

Deep eutectic solvents (DESs) are a class of liquids under investigation as inexpensive, benign, and environmentally friendly replacements for conventional organic solvents in the chemical industry. Unlike conventional solvents, which are composed of a single type of molecule, DESs are a combination of two or more compounds whose mixture has a melting point below room temperature. We have created DESs that are made up of various ratios of hydrogen bond acceptor bond donor with varying rates of success. So far, we have had favorable results in creating 4 DES in 3 different ratios using the ammonium salt choline chloride with 4 other hydrogen bond donors: urea, oxalic acid, glycerol, and ethylene glycol. All 4 DES are made in mole ratios 1:1, 1.5:1, and 2:1; the changing concentration being the hydrogen bond donor. Now that a protocol for synthesizing DESs has been established, we have begun investigating fundamental chemical and physical processes in these solvents. Such processes include studying the effect of solvation dynamics on intramolecular electron transfer (ET) reactions, using fluorescent molecular rotors to study the local viscosity of DESs in contrast to their bulk viscosity, and use dual-emissive chromophores to examine excited state intramolecular proton transfer reactions.

Hannah Eck

"Does parental nest maintenance behavior reduce nestling parasite loads in wild birds?"

Parasites can play a large role in influencing behavior and fitness in avian organisms. Fledging is a significant event in a young bird's life, where they will leave the nest and become independent from the parents. Hosts may use compensatory strategies pre or post fledging to reduce parasite loads. Nest maintenance, where the parent bird moves nest material around with their beak is an important behavior because it may relate to the nest cleanliness or parasite load. Eastern bluebirds (*Sialia sialis*) are a common and easily observable organism to study parental effort behavior due to varying parasite loads in the nest. Nest maintenance was observed through 23 nest cameras where data was collected on behavior type and length of behavior (more than 30 seconds). Nests were collected and analyzed for parasite taxonomy after fledging. Data analyses were performed in R. I predicted that there will be a negative trend between parasite load and overall time spent by the parents (male and female) performing nest maintenance behavior. In return this could also affect chick feeding rate and growth rates. This research of possible fitness consequences and behavioral tradeoffs is important for species of conservation concerns. Understanding how parasites affect their hosts is important to goal 15 of the United Nations sustainable development goals, because of human impacts to wildlife parasite loads.

Ian Eckenrode

"Software for Visualization and Analysis of Lattice Paths with Obstructions"

Lattice paths are mathematical structures that travel along a two-dimensional rectangular grid from a starting point to a destination. In the real world, these mathematical objects are used to model various processes. Applications range from communication infrastructure and urban road planning to biomedical research studying protein structures of the COVID-19 virus. By counting the number of paths through all points in the grid, we gain valuable insight into their distribution. The point with the most traffic, for instance, indicates that a communication node should be reinforced. However, very little is known about lattice paths with obstruction. How does the distribution shift if a connection to a particular server node is severed? Recent work has been done for an isolated obstruction, but what happens when more than one node is blocked? Currently, no methods exist to address lattice paths with multiple obstructions. Here, I present a solution: a custom software application to visualize and rapidly test these obstruction changes. In this presentation, I will formally introduce lattice paths, provide an overview and demonstration of my program, and delve deeper into some applications of obstructed lattice paths.

Chandler Edwards

"Self-care, Other Care: Empowering Youth Through Expressive Movement"

I will explore my internship implementation through the power of yoga, to build personal coping skills in a group therapeutic setting. The intent is to empower at-risk youth to assemble personal coping skills and strategies for self-awareness. Throughout the weeks, evaluating pre and post assessments based on feelings and stress levels before and after mediative activities.

James Ertter III

"Fatigue behavior of short and continuous carbon fiber reinforced 3D printed hybrid composite"

Additive manufacturing has become a popular method for material fabrication due to its ability to easily design a virtual model and physically print it in layers. However, as the popularity of this manufacturing method increases, the strength of the printed parts needs to improve as well. One approach to achieving this is by decreasing the porosity of the parts, which can be accomplished by reinforcing them with continuous unidirectional carbon fiber fabric. Despite research in this area, there has been no investigation into the use of continuous plain weave carbon fiber reinforced composites. This study aims to fill this gap by developing a novel additive manufacturing technique that reinforces continuous plain weave carbon fiber between short carbon fiber reinforced ABS polymer laminates. After a successful fabrication, a comprehensive experimental investigation to observe its mechanical properties under quasi-static and cyclic loading. The results indicate that the continuous carbon fiber reinforced hybrid composite exhibits 77% higher strength than neat ABS polymer. Furthermore, the S-N curve shows that four layers of continuous carbon fiber reinforced hybrid composites have a higher fatigue strength than one-layer reinforced composite. Interestingly, one-layer reinforced hybrid composites have a higher fatigue life than four-layer composites at high normalized fatigue strength, while four-layer composites exhibit a superior fatigue life under low normalized fatigue strength conditions. Fiber-dominated failures were observed for all stress values in one-layer composite. At higher loads, four-layer specimens had fiber-dominated failures, while lower loading resulted in matrix cracking with increasing delamination at decreasing loads.

Haven Feathers

"Supporting Students Needs and Successes: My Time as a School Counseling Intern"

For this presentation I will be discussing my experience at the Bellwood Antis School District. During this internship I had the privilege of working with an experienced and supportive counselor and social worker. I was given the chance to be a part of many hands-on activities such as support groups and counseling sessions. During this presentation I will highlight my experiences at Bellwood as well as what I have learned during this process. I am very grateful to have the opportunity to work with the exceptional staff and students in the Bellwood School District.

Ryan Gladwin

"Does diet predict gut microbial diversity and parasite load in wild birds?"

Diet during development may be an important determinant of individual quality and ultimately fitness. The diversity of bacteria in the intestinal tract is influenced by diet and may play a role in the resistance to parasites. I hypothesize there will be a correlation between higher microbial diversity in feces from Eastern bluebird (*Sialia sialis*) nestlings and higher-calorie food. I hypothesize the number of parasites found in the nest material will decrease for nestlings with higher-calorie food. The footage of 23 nests were analyzed and each prey type was documented and the percentage of each prey type was calculated. In addition, using the literature the caloric value was determined for each prey type. On days 8 and 15 after hatching, fecal samples were obtained by allowing chicks to defecate inside a clean paper bag. DNA from the feces was extracted for microbial analysis. This study will investigate whether nestlings that receive higher-calorie food will have more resistance against parasites and will be healthier overall compared to those that receive poor-calorie food.

Kyle Glass

"Electronic Vehicle Charging Stations"

Worldwide growth in electric vehicle use is prompting new installation of private and public electric vehicle supply equipment (EVSE). EVSE devices support the electrification of the transportation industry but also represent a large area for power systems and transportation infrastructure. Cybersecurity researchers have recently discovered and identified many different vulnerabilities and risks that exist in EVSE devices. Most of the issues occur within the communication between the charging stations and the vehicles. Many different types of attacks are vulnerable at this time. The potential impact of these attacks on these systems can stretch from localized minor effects to long-term national effects. As of right now, there are zero security standards for EVSE and that is why many researchers are looking into the problems. Fortunately, there is a strong and expanding collection of information technology and operational technology that can be applied to EVSE to help secure the equipment and the cars. In this paper, we talk about the research that is being done and why there is still an ever-rising cybersecurity issue within these EVSE systems. We compare many different researchers' work and also add in our own solutions to try to be able to stop these hackers from collecting data and shutting down the power grids.

Nicholas Glunt, Lam Tung Vo, Lacee Barnhart, Brooke Colledge

"Guns and Gun Accessories: An Assessment of Gun Owners' Acquisition and Use of Firearm Accessories"

Recent incidents of gun crime have raised questions about the potential need for more-restrictive forms of gun control in the United States. Proponents of gun control argue that more-restrictive firearm regulation will help reduce gun crimes. Opponents of gun control believe that more restrictive measures would infringe on constitutional rights and merely "punish" law-abiding citizens. While an increasing number of studies have looked into the prevalence of gun ownership in the United States, as well as the relationship between firearm restrictions and gun crime, little research has examined gun accessories. Using survey data collected from a nationally-representative sample of gun owners (n = 1,946) this study examines the prevalence of gun accessory ownership and gun accessory acquisition, as well as the motivations for purchasing gun accessories. Policy implications based on these findings will be discussed.

Anthony Hammill, Joshua Lower

"Implementation of Machine Learning for the Automation of Compliances"

We have seen significant advancements in automation and AI technology since the turn of the decade, and as such, the adaptation of automation, machine learning, and AI into security contexts. In this paper, we are proposing an implementation of a series of algorithms to automate the verification and implementation of compliances. This algorithm would be intended for use across a variety of domains, ranging from healthcare to financial. The algorithms would help check for computational errors, mismatched data, and other variables to measure against for compliance auditing. Also, an algorithm would be able to correctly list the relevant compliances to the specified domain. Being a Machine Learning framework, the algorithm would be able to learn from potential mistakes and be able to use correct identifications to bolster its own strength and accuracy in detecting errors. The end goal of this Machine Learning based framework is to ease the workload on management and employees and enable an extra layer of security with automatic auditing of compliance enforcement.

Anthony Hammill, Steven McKimm, Hans Esteban

"Security Risk of 5G Technology"

This paper examines the ever-evolving change of information technology through an analysis of the potential security risks of the new 5G network. 5G, the newest generation of mobile communications, has for a variety of reasons, been controversial. Officially introduced in 2016, it did not achieve mainstream prominence until around 2019. Whilst 5G has received negative press due to misinformation (such as 5G caused COVID-19), there are legitimate concerns about 5G besides misinformed conspiracy theories. Security issues are a common discussion point of any emerging technology. With 5G being relatively young, especially compared to its older counterparts (LTE and 4G), security issues are once again emerging alongside the new technology. With the increase of network usage comes the increase of vulnerability. This is amplified by the fact many users of cellphones do not have antivirus software or some form of firewall/malware protection on their cellphones. Since 5G is expected to become the predominant form of cellular communications relatively soon, it is imperative research is undertaken to identify and rectify security issues in this field before irreparable damage may be done to organizations and individuals.

Gracie Harlow

"Stream chemistry and New Zealand mud snail density and reproduction"

New Zealand mud snails (NZMS), *Potamopyrgus antipodarum*, are a highly invasive aquatic gastropod that have become established in multiple drainages in Pennsylvania. While data exists on physical and chemical factors that influence their abundance, few studies have focused on NZMS in the Eastern US. This study measured the pH, conductivity, the concentrations of magnesium and calcium ions, and nutrient runoff in the Spring Creek watershed in Centre County PA in May and July of 2022 and related those variables to NZMS density and reproduction. To conduct the research, water samples were taken from Spring Creek and its tributaries at five sites and tested using LaMotte water testing kits, a LaMotte SMART colorimeter, and Vernier electrodes. NZMS density and reproductive effort in the form of proportion of snails brooding and average brood size were recorded. Preliminary results show significant positive correlations between NZMS density and concentrations of nitrate and calcium in Spring Creek. These results are consistent with the expectations that calcium can be a limiting nutrient for mollusks and nitrogen can influence algal growth which is a primary food source. Relationships between other variables and density did not yield consistent trends.

Emily Harpster

"Helping Others: The Power of Helping Yourself While Caring for Others"

I plan to discuss the importance of self-care while working in the helping field. I will share ways to sneak self-care into your busy routine like breathing, walking/walking with a friend/eating more nutritious.

Haley Hatch

"Colorado Cretaceous Woods"

Angiosperms, or flowering plants, dominate the plant kingdom today, but they only evolved during the Early Cretaceous. Fossilized wood specimens from the Late Cretaceous, Maastrichtian (68 million years ago), were found in Berwind Canyon, Colorado. Of the 19 specimens studied, 13 were gymnosperms. Each fossil wood specimen was analyzed using the standard IAWA (International Association of Wood Anatomists) checklist of characters through microscopic examination and high-resolution photos. These characteristics, including tracheids, pits, vessels, and both axial and ray parenchyma, can be used to help identify the specimens by comparing them to published literature and a database of modern and fossil woods. The 13 gymnosperm samples were preliminarily categorized based on their distinguishing features (e.g., ray and axial parenchyma composition and arrangement) and measurements (e.g., ray height medium 5-15 cells). Most specimens had growth interruptions, tracheids in the range of approximately 11.7-40.5 Âµm in diameter and diffuse axial parenchyma. At least two 'groups' of gymnosperm wood types are present; most specimens are part of one group that is characterized by growth interruptions and medium ray height. However, there are a few specimens that contain notable differences. For example, one specimen (2020.1) has very low (4 or less cells) average ray height, a different specimen (2017.2A) has evidence of crystals in axial parenchyma, and another (2018.1A) lacks growth interruptions. These characteristics could prove beneficial in delineating different taxonomic groups (e.g., families). Understanding the diversity and taxonomic composition of this wood flora will provide insight into this Late Cretaceous ecosystem.

Amber Hee, Emily Holly, Vincent Restauri

"Comparing Two Approaches of Reducing Proactive Interference in Working Memory"

Proactive interference (PI) occurs when previously learned information interferes with one's ability to learn and remember new information. Importantly, it seems that PI typically builds across trials in working memory tasks, hurting participants' recall ability. However, research has shown that PI can be reduced, and memory improved, by increasing the distinctiveness of trials; in the visuospatial domain, Rowe, Turcotte, and Hasher (2010) and Lilienthal and Denz (2019) used different approaches to increasing distinctiveness and both reported positive effects. The purpose of the present study was to directly compare the effectiveness of these two different approaches. Participants completed three conditions of a location memory task, across which distinctiveness was manipulated. In the Baseline condition, the target (to-be-remembered) locations were always red and the nontarget locations were always white, presumably leading to high PI. In the Array Color condition, the target locations were always black and the color of the nontarget locations changed on each trial (similar to what was done in Rowe et al.). In the Target Color condition, the color of the target locations changed on each trial and the nontarget locations were always white (similar to Lilienthal & Denz). Results showed that changing the appearance of target locations across trials was more effective at reducing PI and improving memory than changing the appearance of nontarget locations. This study extends our current understanding of PI and distinctiveness, and may have important implications for future research utilizing working memory tasks.

Brennan Heist

"A low-cost 3D printer for fabricating carbon fiber reinforced high temperature space composite"

High-temperature materials are highly demandable in NASA because of their wide range of potential applications from aerospace structures (e.g., aircraft engine and airframe components, space transportation airframe and propulsion systems, and missiles) to bushings and bearings for non-aerospace applications (e.g., oil drilling, rolling mill). Recently, NASA has shown interest to manufacture a huge amount of their required spare parts in space to support spaceflight missions in International Space Station by additive manufacturing which is commonly known as the 3D printing process NASA's additive manufacturing efforts for the International Space Station have focused mostly on the 3D printing of polymers or plastics by using desktop printers. Parts made by pure polymer are cheap and reliable but strong enough for load bearing application. Fiber-reinforced significantly improves the mechanical property of the composites However, existing high-temperature material printing units are very expensive and cannot print fiber reinforced composite. In this research a low-cost 3D printer is developed by modifying an existing open source printing facility for manufacturing carbon fiber reinforced high temperature space composite.

Casey Hess

"Investigation of Coefficient of Restitution (COR) and Deformation of Tennis Ball Impact"

The endurance of athletics in society is sustained by a growing understanding and application of equipment safety and dynamics. For the sport of tennis, the elements of concern are the tennis ball, tennis racquet, and interaction between them. This project is an analysis of the factors that comprise the typical tennis ball "impact," which are the ball's incident impact force, deformation, velocity, and most significantly, its coefficient of restitution (COR) or "bounciness." The testing procedure for all factors utilizes an air-pressure system that launches a tennis ball with a defined pressure through a series of light gates and into a force-sensitive rigid surface. The digital outputs of the light gates and force sensors can be converted to obtain analog values for the ball's velocity and incident impact force. By varying the launching pressure and subsequent ball velocities, the resultant data can be used to define relationships between pressure, velocity, impact force, deformation, and COR. Furthermore, a tennis racquet is introduced as an impact surface to investigate its effect on the tennis ball. Both the rigid and stringed impacts are captured via high-speed cinematography to visualize the ball and string deformation. The overall goal of this project is to define the

relationships of fundamental tennis dynamics through empirical data, allowing for a greater understanding of the performance and safety of tennis equipment and its users.

Matthew Hicks

"ACCESS DENIED"

Artist talk on current exhibition.

Emma Hoover

"On Compositions & Polygon Dissections"

In this poster we explore two classes of combinatorial objects that are of independent interest in enumerative combinatorics. On the one hand, we consider the set of integer compositions (ordered tuples of positive integers whose parts add up to a given integer), and on the other hand we consider a certain set of polygon dissections. Specifically, we study the connection between compositions of n having k parts and (n+2)-gons with (k-1) dissecting lines. These sets are not equinumerous, so the main goal is to find a way to naturally modify them in order to achieve a bijective map that can be used to pass from one class to the other.

Sarah Huston

"Dorman's Sports Performance"

I specifically had the opportunity to shadow Ambrose Aquadro with also getting the ability to see Zach Haulman who is a physical therapist in the same facility participate in his field. Sports performance is designed to guide student athletes and adults' functional movements that will help build strength, endurance, speed, and explosiveness. During this program you will have multiple training sessions throughout the week, this will include individual/ one on one training to help the athlete advance in skill as well as sport specificity. In this facility they offer a variety of coaching staff specified for different trainings. They have multiple CrossFit coaches, a registered dietician, a functions coach, barbell coach, and a sports performance coach (Ambrose). Sports performance is normally multiple sessions per week for however long the client wishes to continue. These sessions consist of compound and circuit exercises, instead of doing one exercise all the way through before moving onto the next. Depending on each day if a client may be feeling pain or soreness in a specific area, they may spend more time or modify exercises to cater to this specific area of pain or soreness. Through my experience at Dorman's Sport Performance I have seen patients of all ages young and older working on specific things such as strength, endurance, and or speed.

Danielle Irwin

"Helping Others Help Themselves: Building External and Internal Resources"

As part of my internship with Kids First Affiliated Services, I work with low income families with intensive family services such as reunification. I will focus on the resources that a lot of our families are provided for external assistance to help them become a strong parent and provider. I will also focus on internal resources since a lot of our parents struggle with mental health and confidence issues.

Mallorie Keith

"Pinacolborane Reduction of Carbonyl Compounds"

This project focused on screening tests for the best conditions and catalysts for the pinacolborane (HBpin) reduction of cinnamic acids and esters to form lignin monomers. As an alternative route for carbonyl reduction, pinacolborane has attracted great interest due to its operational simplicity, stability, and low toxicity. During this process, six different catalysts were tested to determine the best yield and highest efficiency. Appropriate concentration, internal standard, and quenching conditions were also determined during this research in order to get quantitative results with GC/MS. The LaNTMS catalyst showed the best result in converting cinnamic acid and ethyl cinnamate to cinnamyl alcohol.

Mallorie Keith, Alexis Dell

"Facile synthesis of monolignols"

Monolignols are the monomers of lignin and lignans, two important classes of biorenewables. Access to pure monolignols is critical for exploring the biological and engineering processes involving these bioresources. Traditionally, monolignols are prepared by DIBAL reduction of the corresponding ethyl cinnamates. However, due to the reactivity of the monolignols to strong acids and bases, this route is plagued by extensively extracting the desired products from a gelatinous precipitate of aluminum salts. An alternative approach is by borohydride reduction of the corresponding cinnamaldehydes, which are either expensive or commercially unavailable. Here we report a borohydride-based facile synthesis of monolignols from the cheaper and readily available cinnamic acids.

Morgan Kennedy

"Translational Research: Older Adults Navigating the Medical System, Finances, and Bridge Employment"

This poster showcases my translational research product, in the form of a poverty narrative, to be utilized by the Healthy Blair County Coalition website, for the purpose of promoting community awareness on navigating the medical system, finances, and bridge employment as an older adult. The project is based on community conversations and research literature informing about medical, financial, and work contexts for older adults. As part of this translational project, I utilized both storying methods and research-based analysis, to evoke curiosity and concern in the larger community about these critical topics. The poster will also present the process through which I worked with university mentoring to develop my work to be a Web-ready narrative that would be relatable to the general public seeking to understand more about social needs in the community.

Joshua Krish, Sarah Kidd, Kaitlyn Estright, Kyle Glass, Alexander Lieb

"Auditing Framework for IoT Devices & Networks"

The Internet of things (IoT) is a large network of devices that are connected to the Internet and communicate with each other. These devices are growing rapidly in popularity in today's age. These devices are starting to be used more frequently in the business setting. Today's auditing standards are not created to audit these devices. Auditing is very important due to its ability to help prevent attacks on businesses and companies. In this paper, we outline a new auditing framework for these devices.

Pamela Lantz, Olivia Ronan

"Parents' Expected Reactions to Sexual Orientation Disclosures"

When an adolescent or young adult discloses a minority sexual orientation ("comes out") to their parents, they are usually faced with negative responses (D'augelli et al., 2008). Although there is much research revealing associations between political affiliation, religion, and familial conflict (on one hand) and parents' negative reactions (on the other), there is little research examining this issue from an evolutionary psychological perspective. The current study will test for associations between parents' inclusive fitness concerns and their expected unfavorable reactions to their children's hypothetical sexual orientation disclosures.

Alexander Lieb, Sarah Kidd

"Mapping of IoT Security Controls"

As we enter a new era of technology, we try our best to adapt to the ever changing world of Information Technology. The Internet of Things (IoT) covers a vast variety of devices, from gadgets consumers use at home, to big industry players, to even being integrated with infrastructure itself. IoT is quickly becoming a part of people's everyday lives, as it impacts many domains of life. Currently billions of objects and entities are connected to the internet that share a lot of information that can be used to predict applications and products. As a result of this integration many IoT domains were born, attempting to categorize every Smart aspect involved. We have split these domains as such: Home Automation, Smart Water, Smart Metering, Smart City, Retail, Industrial Control, Smart Animal Farming, Smart Agriculture, Logistics and Supply Chain Management, Security and Emergency, eHealth, and Smart Environment. This paper aims to organize and map common threats, vulnerabilities, and solutions for IoT devices. This will serve as a jumping off point for other practitioners to use, demonstrating a viable framework.

Ziwei Lin, Kai Watanabe, Shannette Wahor, Marianna Di Balsamo

"Perception of Medication for Opioid Use Disorder"

Medications for Opioid Use Disorder (MOUD) have proven to be the "gold standard" treatment for the management of opioid use disorder (OUD) with research showing reductions in opioid use, overdoses, and criminal activity following the use of MOUD. Despite these research findings, MOUD has been

underutilized as treatment for OUD in the community and in the American Criminal Justice System; many substance use treatment programs in the community, and within the system, still rely on abstinence-based methods of treatment. Arguably, the biggest barrier to responding to the opioid crisis, and fully implementing MOUD, has been stigma. This project uses a mixed-method analysis from three data sources to study barriers to MOUD treatment access in Pennsylvania and Maryland. Findings demonstrate a relationship between professional treatment providers' attitudes toward OUD/MOUD and the availability/use of MOUD, with results showing stigma inversely related to support for MOUD.

Christopher Loera

"Phoenix Physical Therapy"

Phoenix Physical Therapy works one on one with those who had a variety of injuries, diseases, and accidents. This clinic is a smaller facility, but is always busy with new clients/patients. The goal of the exercise programs offered is to provide personalized care to treat the individual back to as close to normal as possible. Patients who have Multiple Sclerosis, stroke, knee and hip replacements, as well as neuromuscular related injuries tend to choose Phoenix Physical Therapy. One thing that is interesting is that the therapists offer a workout program for when the time is up at the clinic. I have built relationships and have had one-on-one experience with these patients and their stories. This experience can open a lot of avenues for expanding on one's career opportunities and resume.

Christopher Loera

"The Relationship Between Time Allocation and Lifestyle Behaviors in Division 3 Student Athletes"

There are approximately 460,000 national collegiate athletic association (NCAA) student athletes in the United States. Student athletes are a unique population that spend nearly half of their time on athletic (20-24%) or academic (24-26%) activities. Student athletes have less time to spend in other areas including working a job, other extracurricular activities, socializing/relaxing/family time, or sleeping, and it is well established that lack of time influences healthy eating, physical activity, alcohol consumption, and sleep. Objective: Determine how Division 3 collegiate student athleteâ€™s time allocation is related to physical activity, dietary, and social behaviors. Methods: Males and females, ages 18 years or older, who were Division 3 student athletes at a Pennsylvania State University campus were emailed a link of the 85-question survey which was deployed using Qualtrics survey software and available from February 20-March 3, 2023. The survey asked questions about demographics, dietary intake, physical activity habits, alcohol consumption, sleeping habits, and how they allocate their time. Significance: This research will inform academic leadership, athletic directors, athletic trainers, and coaching staffs on how time demands of athletics and academics interact with behavioral and social factors in Division 3 student athletes.

Dawson Luzier, Nicholas Martino

"PSU Altoona Women in Engineering Project 2023"

We, as a team of Rail Transportation Engineering students, are leading the Women in Engineering design competition this year, which is sponsored by the Norfolk Southern Railway, and is hosted by Penn State Altoona. The competition is for current first or second year students at Penn State. Goals of this competition

include (1) Expose and broaden women engineering students' perspective and interest in engineering, especially in railroad engineering, (2) Challenge women engineering students in critical engineering skills, and (3) Expose women engineering students to the exciting and rewarding career paths available in railway engineering. This year, we are collaborating with the Altoona Railroaders Memorial Museum to center the competition theme as the famous "Horseshoe Curve". For the first round of the competition, online quiz bowl questions were created with topics ranging from basic engineering concepts to project background to engage participants' interest and select candidates in the next round of competition. After submitting a research paper on the engineering aspects of the Altoona Horseshoe Curve, students will be invited to participate in the final round of competition held on Penn State Altoona's campus. We brainstormed as a group and decided to set the problem as designing a track layout for the Kittanning Point, a topographic terrain before the World-Famous Horseshoe Curve was built. To facilitate this project and prepare physical models to allow the WE competition participants to work on, a plaster model was agreed upon. This would allow for modification of the terrain easily. The next step was planning the method to make the mold. Many options were considered such as clay, Styrofoam, and papier-mâché all of which would need hand carving and could be extremely time consuming. Finally, the team sought help from the Innovation Commons at Penn State Behrend to use a 3D-printedted reusable plastic mold to cast the models. With help from the Altoona Railroaders Memorial Museum, a 3D scan was obtained from a preexisting terrain model of the Horseshoe Curve. From this scan, Innovation Commons was able to create a 3D-printed mold. The takeaway from this experience is the availability of resources, the importance of communication and coordination in addressing new challenges, and the increasing capabilities of three-dimensional scanning and printing technology.

Luciano Mazzotta

"The Effects of Blowfly Infections On The Fledging Time Of Bluebirds"

Blowfly species across the world have parasitized birds since their inception. The effect from this parasitic relationship on the birds, through the lens of developmental delays, is poorly understood. A strong marker for the health of developing birds is the time it takes them to fledge, or leave the nest. With the parasitic relationship that the blowflies have with bluebirds we hypothesize that fledging time will increase as the number of blowflies collected increase. The more severe the infection, the less healthy the birds, and the longer it will take for them to make a very expensive first flight. The effect that blowfly infections have on the fledging time of bluebirds will be determined by comparing the time it takes young bluebirds to fledge in parasitized nests to the time it takes to fledge in

Jazzmine McCauley, Mykala McGill, Jenea McGill, Riley Fegley

"Analyzing the Impact of COVID-19 Jail Downsizing on County-Level Crime Rates in Central PA"

Downsizing within correctional facilities has started to gain popularity due to COVID-19, as well as concerns related to overcrowding and underfunding. Advocates of downsizing argue that strategically decarcerating low-level, non-violent offenders will free up our very expensive prison space for more violent offenders. Further, they suggest that funds saved from downsizing can be reallocated toward better vocational training, mental health care, and substance use treatment for our correctional population. Opponents believe downsizing could result in an increase in criminal activity and threaten the safety of our communities. Using official data, this study examines the effects of COVID-19 related jail downsizing on county-level crime rates, as reported by the Federal Bureau of Investigation (FBI) in their annual Uniform Crime Reports (UCRs). Policy implications based on findings will be discussed.

Sadie McConnell

"Inpatient Physical Therapy"

Encompass Health Rehabilitation Hospital specializes in stroke, brain injury, orthopedic, cardiac, and spinal cord rehabilitations, as well as advanced stages of diabetes. This rehab facility has a great number of staff including rehabilitation nurses, physical therapists, occupational therapists, rehabilitation physicians, respiratory therapists, speech language pathologists, dietary and nutritional counselors, and case managers. Inpatient physical therapy is where someone comes after an event occurs in which causes the patient to need extensive physical therapy. Patients will stay at the Encompass Health facility for the length of their rehabilitation. The average stay for this rehabilitation facility is approximately 2 weeks, but their stay may be shortened or lengthened depending on the severity of their injuries. Lengths of stays may also be determined by the type of insurance they may have. Patients are required to participate in three hours of various types of therapy per day. Throughout my time shadowing inpatient physical therapy, I have observed patients who have suffered strokes, those with general weakness, fractured hips/pelvis, people who have been in car accidents, traumatic brain injuries, and spinal cord injuries.

Steven McKimm

"Internet of Everything (IoE): Issues, Challenges, Existing Solutions, and Future Directions"

The Internet of Everything (IoE) are multiple networks seamlessly working together to provide a unique user experience. These devices collect, interrupt, and transmit large amounts of data from People to People (P2P), People to Machine (P2M), and Machine to Machine (M2M). The more devices linked together, the greater need for privacy and security. In this paper we will look at the way the IoE interacts with smart devices, the type of data the devices receive, and the vulnerabilities that arise from these connections. The methods used to examine this research will be by looking at the architecture, perception layer, application layer, network layer, and how Traffic Analysis Attacks could put the end user at an increased risk of privacy and security vulnerability. For this paper, IoE will cover both individual and organization alike as they provide the same vulnerabilities. The difference between the two would be the size of the Internet of Things (IoT) and network security firewalls emplaced. This is so the focus remains mainly on the vulnerabilities of the architectures and layers and not the firewalls.

Cortney McMath

"Improving Focus in ADHD: Non-pharmacological vs. Pharmacological Management Techniques"

Attention- deficit/ hyperactivity disorder (ADHD) is a common neurodevelopmental disorder, affecting both children and adults. This disorder may also be referred to as ADD (attention deficit disorder) and is a result of both genetics and the environment, according to the Centers for Disease Control and Prevention [CDC] (CDC, 2021). The CDC (2021) states there are over six million children, ranging from the ages of two to 17, who have been diagnosed with ADHD. To help improve focus, ADHD can be treated with both non-pharmacological and pharmacological management techniques. The American Academy of Pediatrics (2019) recommends combining behavioral therapy with a medication treatment regimen. Pharmacological approaches approved by the Food and Drug Administration typically include stimulants as a first line therapy of choice before non-stimulants. However, with medication treatment there are various potential side effects. The purpose of this Evidence Based Practice article review is to investigate if non-pharmacological approaches are as effective as pharmacological methods to improve focus in children diagnosed with ADHD. Four evidence-based articles were utilized, and all were experimental randomized control trials. Overall, based upon the

cumulative findings, nonpharmacological treatments are not superior to pharmacological treatment. Data is showing improved functional outcomes when the two treatments are combined, but more research is needed to back these findings of a multi-modal approach to managing ADHD.

Meghann Mignogna

"State of Mine"

State of Mine features 2D and 3D works derived from Mignogn's personal experience with mental health. She emphasizes the importance of acknowledging one's personal emotions, or lack thereof, by creating tangible representations of those feelings that are more expressive than words. She says, I believe in self-expression and self-awareness. I think it is very important to know yourself, or at least know that you don't know yourself, and explore that. Above all, I value the importance of authenticity and truth and being able to show that through art. I am interested in translating these feelings in a visual format as a way of coping.

Eemonie Moore

"Motivators and Barriers to Exercise in College Students Compared to Faculty/Staff"

Only 48.7% of college students and 24.2% of adults meet the recommended guidelines for physical activity. Therefore, it is important to identify barriers and motivators to physical activity in the University setting. Objective: Compare the barriers as well as intrinsic and extrinsic motivators to exercise in faculty/staff compared to students. Methods: Students, faculty, and staff who were currently enrolled or employed at Penn State Altoona were emailed a link to a 91-question online survey using QualtricsÂ®. The survey collected information on demographics, physical activity habits, and recreational facility use on and off campus. The survey also included the Barriers to Being Active Questionnaire, Motivations for Physical Activities Measure, and Behavioral Regulation in Exercise Questionnaire. Results: Ninety-seven students and 69 faculty/staff were included in analysis. Faculty/staff were significantly older and had a significantly higher BMI than students (both P<0.001). There were no differences in physical activity habits between groups. Of participants who reported engaging in exercise, students reported significantly greater use of on-campus recreational facilities (P=0.04); whereas faculty/staff reported significantly greater use of off-campus recreational facilities (P=0.004). Faculty/staff reported social influences being a significantly (P=0.02) greater barrier to physical activity than students. Students reported that appearance (P=0.002) and competence (P=0.02) were significantly higher motivators compared to faculty/staff. On average students and faculty/staff reported moderate self-determined motivation. Conclusion: By identifying the motivators and barriers to physical activity in students, faculty, and staff, appropriate strategies can be employed to increase physical activity among college communities.

Jordan Morral

"Literary Internship"

In January 2023, as an English major at Penn State Altoona, I started my first internship with Martin Literary Management, a literary agency based in the state of Washington. My presentation will outline all that I have learned about the inner workings of the publishing world, along with the benefits that come from working under someone with experience in a career related to my major and interests. Besides the specifics of answering author queries, researching the market,

and developing relationships with authors and editors, I want to describe the unique opportunity that an internship provides. Coming from a Penn State student, I hope my words will encourage others to seek out these opportunities and gain experience in the working world.

Amy Norris

"50 Shades of Orange"

My name is Amy Norris and I expect to graduate in May of 2023 with a B.S. in criminal justice and a B.A. in visual arts studies. My presentation is about my senior art exhibition called "50 Shades of Orange". The exhibition is about issues surrounding the criminal justice system. The course project is one way I have been able to combine both of my areas of education.

Hannah Nyanko

"Chiropractic Care at American Family Chiropractic"

This semester I have been completing an 180 hour internship at the American Family Chiropractic office in Hollidaysburg, PA. I will be attending chiropractic school after I complete my studies at Penn State University therefore, I decided to do my internship at a Chiropractic office. This internship provided a great experience for me and I have learned so much with only 70 hours in so far. My poster presentation will include what I have learned from this experience and what I was able to do in the office as an undergraduate student. I will also include the benefits of chiropractic care and why it is an important field as many people view it as unimportant. I believe this to be a very informational and possibly persuading to ones beliefs about Chiropractic care. I hope to spread my knowledge of the importance of the field to those who attend the fair.

Hannah Nyanko

"Comparing Imagery Frequency in Young Dancers"

Qualitative research has found young dancers to use various types of imagery (e.g., technique/feedback, goal, environmental, and mastery) to improve dance performance. However, the frequency of these imagery types has yet to be explored among this population. The purpose of this study was to compare young dancers' imagery frequency based on 1) age (i.e., 7-11 years compared to 12-14 years), 2) number of dance classes attended each week (i.e., 1-4 classes compared to 5-9+ classes), and 3) dance style (i.e., one style compared to multiple styles). It was hypothesized that dancers in the younger age group as well as those attending fewer classes per week would engage in more imagery. Additionally, dancers who participated in multiple styles were hypothesized to use imagery more frequently compared to those in one dance style. Participants included 109 dancers (Mage= 11.06, SD= 2.01, 104 female, 3 male, 2 non-binary) across four countries. The Dance Imagery Questionnaire for Children (DIQ-C) was administered to measure dancersâ€™ frequency of five imagery types. Independent samples t-tests were performed to identity differences between groups. No significant differences were found between the two age groups as well as number of classes attended each week. However, dancers who participated in multiple styles used metaphorical/role (p= .02) and goal (p= .03) imagery significantly more than those

who participated in one style. Future research is needed to determine the imagery types most effective in achieving their desired outcome (e.g., improved technique, arousal regulation).

Abraham Onkst

"Abraham Onkst Artist Talk"

Presentation on Abraham Onksts artwork and his current body of work.

Alexis Ordess, Caroline Downey, Elle Garver, Shannette Wahor

"Emotion Work and Princess Performing: The Sociology of Making Magic"

Emotion Work an Disney Princesses now have a real life counterpart: princess performers. These performers "make magic" for children as they act, gesticulate, and portray versions of commonly known characters. These performers can be found in the Disney Parks, as well as in a private industry of entertainment companies. They necessarily give-up a part of themselves to become the character, suppressing their feelings and managing those of the children for whom they perform. This is "emotion work" to sociologists. While sociologists have explored this phenomena widely, to date, there has been no empirical assessment of princess performers and "emotion work". To fill this gap in the literature, this study utilizes a grounded theory approach to explore how princess performers deploy emotion work to "make magic." Our study shows the path to "making magic" is one filled with emotional regulation and the management of feelings, across performers from a variety of backgrounds and experiences.

Amelia Paterno

"Getting Comfortable with the Uncomfortable: Creating a Dialogue Facilitation Program"

Recent social and political events have shifted how students view race and racism, perhaps due to pervasive current issues students are unable to escape. Students have been confronted by controversies raised by Donald Trump's presidency, along with the policies and performances of his administration. Additionally, students have been able to question the administration's differing attitudes and reactions towards protests and civil disobedience between white perpetrators and those led by African Americans (Edwards & Rushin, 2018; Papakyriakopoulos & Zuckerman, 2021). Today, students are more likely to understand and acknowledge racial implications of political events as social media continues to play a role in their awakening to racial issues. These virtual networks allow people to stay in touch and interact with others, support the process of creating and sharing new information, ideas, and other expressions. It has become evident how consumption of social media shapes perceptions of the world (Anderson, 2020). With various outlets introducing the idea of racial issues to students, there has been a need for creating a place for students to have productive and civil dialogue amongst each other. As such, a program to train students to facilitate dialogues about race and racism was created to fill this need. This project focuses on the process of creating the dialogue facilitation program on Altoona's campus and the goal of extending program services across campus.

Jesse Pellow

"Object Story British History Millstone with Roman Phallus"

Myths are stories created to pass on and educate people about something meaningful or important. They are a part of every culture. Spoken language came before historians started writing down their beginnings through storytelling. Rudyard Kipling said, "If history were taught in the form of stories, it would never be forgotten." (Speech to the CLAUSA) History is brought to life by objects from past civilizations. They tell the story of the people living at that time and can help inspire new lines of inquiry to historical interpretation of important events and how people reacted and adapted to the uncertainty of times. The problems of the future can be solved by understanding the problems of the past that our ancestors. Mythology originates with the environment we live in. Not only does mythology connect us to the divine, but it is also a way to give meaning to the unexplained. The people of Britain have their own myths and legends told down through the ages. Britain is an island nation that has sparked mystery and intrigue since the Roman Empire. This mystery is what would define the evolution of English mythology throughout it's history and beyond. I argue, 'even though the industrial revolution helped in a large part to create the current climate, we have to find the roots of the agricultural revolution and development of the British people to reveal the historical truth behind the myths that impede science. It will take human solutions to solve human problems.

Anna Quirin

"My Internship Experience: Intensive Case Management of Parenting & Pregnant Teens"

Through my internship, this presentation examines families who are in the cycle of generational poverty. This presentation also examines how generational poverty impacts the families, and the next generation.

Rebecca Reeder, Hailey Burchfield

"Examining Associations Between Fathers' Investment and Adult Sons' Attitudes and Behaviors"

Paternal investment theory (Draper & Harpending, 1982) claims that low paternal investment, a feature of relatively polygynous mating systems, promotes psychological changes among men that shape how they compete with one another and interact with partners and children. For example, research suggests that low (versus high) paternal investment (including, though not limited to, absence of the father from the home) predicts increases in men's aggressive and/or risky behaviors (for example, substance use) (e.g., Anderson et al., 2002; Veneziano, 2003; Vitz, 2010). A father's absence/low involvement also predicts problematic behaviors and attitudes in boys that can increase the risk of poverty and incarceration later in life. The current study aims to further investigate the connections between low paternal investment and psychological changes that might contribute to men's important life outcomes. Specifically, this study measures men's dominance striving and risk taking, aggressive tendencies, achievement motivation and career aspirations, the quality of their relationships with parents during childhood and adolescence, and their attitudes towards women and parenting. The participants for this study were heterosexual cisgender men between the ages of 18 and 36 recruited online from across the United States. The men completed an online survey assessing whether those who received lower (versus higher) paternal investment earlier in life would, as young adults, report more risky and competitive attitudes and behaviors, and reduced interest in investing in their own relationships with partners and children.

Hannah Roesch, Joseph Levri, Rachel Sleeth, Ethan Miller

"Nano-Structured Materials for Use in Fuel Cells"

The purpose of this project is to develop a new gas diffusion/catalyst layer for hydrogen fuel cells. Hydrogen and oxygen gases enter different ends of a hydrogen fuel cell and are dissociated from their electrons. The electrons then pass through an external circuit and then returns to the fuel cell to recombine with the hydrogen and oxygen atoms to produce water, the only emission product. The current gas diffusion layer is composed of porous, conductive carbon cloth in which the platinum catalyst is applied to the surface of the cloth. Replacing the carbon cloth with a structured metal nanowire mesh is expected to improve the efficiency of the fuel cell in two ways: increase the electrical conductivity at lower pressures and prevent the contamination of the catalyst layer by carbon monoxide. To form the desired nano-structured mesh, an aluminum plate is anodized by placing it in a polyprotic acid solution and passing a current through the sample. This process causes a porous aluminum oxide (alumina) structure to form. By varying the purity of the aluminum and changing the acid during the anodization process, various structures can be formed. The porous alumina then serves as a template that is filled with a material(s) of choice using electrodeposition. After deposition the alumina is dissolved leaving behind the metal nano-structure to be used as the diffusion/catalyst layer.

Alicia Royer

"Effects of food availability and quantity on aggressive behaviors in banded crickets, *Gryllodes sigillatus*"

Aggressive behaviors in animals are due to many environmental and social factors and are often influenced by limited resources within the environment. While we know limited food resources can induce aggression, it is unclear if varying the quantity of food can change aggression patterns in insects. The current study subjected banded crickets, *Gryllodes sigillatus*, to a five-day food deprivation period, then measured aggression upon the introduction of varied quantities of food. We hypothesized that when banded crickets were presented with less food after food deprivation, more aggressive behaviors would be exhibited compared to the crickets presented with greater amounts of food. We found that crickets were more aggressive after reintroduction of food but there were no significant differences based on the amount of food present. This suggests that, at least in the current study, aggressive behaviors increase when food is presented after a period of deprivation but are not influenced by food quantity that we provided.

Sophia Rubolino, Eemonie Moore

"Snack Preferences Pilot"

Healthy eating is important because it can decrease the risk of developing many non-communicable diseases including cancer, diabetes, cardiovascular disease, and even depression (Kim & Basu, 2016). This current study wished to determine if when faced with tempting snacks, does one's construal level influences their decision and self-control. Nonetheless, we are faced with a more pressing issue, can this be tested in an online format? While the Why-How manipulation seems effective in an in-person format, it tends to be very time-consuming and inconvenient. Therefore, the goal of the present study was to determine if the Why-How manipulation could be effectively self-administered in an online format. Undergraduate students were recruited to participate in a survey-based research study on healthy eating. Participants completed a Why-How manipulation, where they were asked ""why"" they do or ""how"" they will participate in healthy eating

practices. Participants in the why condition were asked repeatedly four times why their previous answer is important, whereas those in the how condition were asked how they plan to achieve their previous answer four times. Research assistants then determined whether each answer was focused on a global construal-level (thinking more long-term and abstract) or a local construal-level (more short-term, specific, and concrete) without knowing which manipulation the participant was in. An independent samples t-test revealed that the coder-rated abstract was significantly higher in the Why condition, compared to the How condition (Why=51.927, How=51.791), so Why-How manipulation in an online format does produce differing answers. Therefore, the Why-How Manipulation appears to be valid for online self-administration.

unparasitized nests. The severity of the blowfly infections in parasitized nests will be determined by the number of blowflies collected. By determining the extent of developmental delays in bluebirds parasitized by blowflies we can better understand the risk that blowflies pose to the already declining bluebird populations.

Rachel Sleeth, Connor Oakes

"Air Temperature and Diet are not Associated with Oxygen Consumption Rate in Banded Crickets, *Gryllodes sigillatus*"

All living organisms acclimate to their environment, with ectothermic species particularly susceptible to environmental change, specifically temperature. Ectothermic insects like crickets directly alter their physiological processes depending on the environment in which they live. Temperature is vital in regulating processes like metabolism, respiration, and reproduction among other things. What remains unclear is how a change in the environment, specifically extreme temperature change and dietary alterations, affects physiological processes. In this study, we performed experiments on ectothermic banded crickets, *Gryllodes sigillatus*, to examine the effects of temperature change and the interaction of temperature and diet on oxygen consumption. For both experiments, we did not find an effect of temperature change or diet on oxygen consumption, and we were unable to correlate diet or temperature to oxygen consumption rate. We recommend more research to fully understand how temperature change and diet affect oxygen consumption rate.

Mallorie Smith

"Preliminary Analyses of Microorganisms Associated with Microplastics Found in Freshwater Sediments"

Microplastics are abundant pollutants in freshwaters and freshwater sediments impacting the health of not only ecosystems but humans as well. While microbial degradation of plastics has been studied since the 1970s, many questions remain. We hypothesize that microorganisms form biofilms on microplastics (aka the microplastic microbiome) to use the plastic as a carbon and energy source, thus contributing to microplastic degradation in the environment. Identifying the species and genes present in the microplastic microbiome through DNA sequencing can help us understand how microplastics and their microbiomes change as the microplastics move through ecosystems. In this preliminary study, we aim to demonstrate that bacterial DNA can be obtained from microplastic microbiomes. Microplastic fibers and fragments were obtained from freshwater sediments in a small stream that feeds into the city reservoir in Ebensburg, PA. DNA was extracted from individual microplastics using the MoBio PowerLyzer PowerSoil DNA Isolation kit. Because a small amount of DNA was expected, the polymerase chain reaction (PCR) was used to assess the presence of bacterial DNA by amplifying the 16S ribosomal RNA gene. Some individual microplastics yielded the correctly sized amplification product (~ 1500 bp) confirming that DNA was obtained and that microplastics had associated bacteria (species unknown at this time). Controls (positive and negative) behaved as expected, indicating the validity of results. The next step will be to sequence the DNA from the microplastic microbiomes, which would broaden our understanding of microplastic microbiome composition and metabolic potential for plastic degradation.

Olivia Smith

"Characterizing Dietary Intake in Relation to Body Weight and Body Weight Perceptions in Division III Student Athletes"

Collegiate athletes represent about 0.14% of our population. Student athletes spend nearly 50% of their time on athletics or academics. Lack of time is an established barrier of healthy eating, and prior work has shown cost barriers, limited knowledge of how to prepare healthy food, taste preference, and food availability influences dietary behaviors in college students. Research has shown that student athletes are not meeting the U.S. dietary guidelines for fruit and vegetable intake as well as do not intake adequate amounts of carbohydrates. Ultimately, these factors contribute to body weight and body weight perceptions in student athletes. Objective: Evaluate dietary intake as it relates to factors that drive food choices, body weight, and body weight perceptions in Division III collegiate student athletes. Methods: Division III student athletes over the age of 18 years who were enrolled at a Pennsylvania State University campus were emailed a link of the 85-question survey which was deployed using Qualtrics survey software and available from February 20- March 3, 2023. The survey asked questions about demographics, dietary intake, factors that drive food choices, body weight, and perceptions of body weight. Significance: Inform individuals who oversee and support intercollegiate athletics on how dietary intake in collegiate student athletes is related to factors that drive food choices, body weight, and perceptions of body weight. This could ultimately lead to the development of interventions to improve dietary intake in collegiate student athletes.

Olivia Smith

"Dietary at Homewood at Martinsburg"

Homewood at Martinsburg is a non-profit continuing care retirement community. Homewood provides multiple senior living options such as independent living apartments, cottages and assisted lifestyle apartments. They also offer healthcare accommodations such as short-term rehabilitation, long-term skilled nursing care, and a secure memory care unit. The length of stay for a patient depends on their health as well as their preference and the desires of their family. Length of stay may also vary depending on rehabilitation needs as well as insurance differentials. Many individuals choose to retire and reside at Homewood long-term, however, for individuals choosing to use Homewood as a rehabilitation center, there are many amazing opportunities for optimal recovery offered to them. Homewood offers 24-hour nursing, specific dietary needs, and rehabilitation such as physical therapists and speech therapists. Throughout my interning experience, I have observed the dietary department at Homewood where I was able to work alongside the dietitians to assist in making daily meal tickets for residents, as well as picking the diets that patients may need to be on depending on their specific health issues.

Sabiha Sultana

"Efficient Synthesis of Lignin Model Compounds"

The aim of this research is to develop a new and efficient synthesis of lignin model compounds. Lignin is one of the Earth's most abundant biopolymers. It derives primarily from 4-hydroxyphenylpropanoids and constitutes a major barrier against effective utilization of plants, particularly their cell walls, for agricultural and industrial end-uses, such as ruminant digestibility, lignocellulosic biofuels, and pulp and papermaking. Because of the high heterogeneity of lignin structures, model compounds, particularly Î²-O-4"dilignols, have been an indispensable tool in lignin research. Key to our method is a stereospecific bromohydrin formation. If

successful, this will be the first stereospecific synthesis of Î²-ÎŸ-4dilignols. The method also allows for modification to synthesize optically pure lignin model compounds."

Gavin Suter

"A Test of the Enemy Release Hypothesis Using the Invasive New Zealand Mud Snail, *Potamopyrgus antipodarum*"

New Zealand Mud Snails (NZMS), *Potamopyrgus antipodarum*, are an invasive species of snail that are found throughout the world. The most prominent hypothesis to explain why invasive species thrive outside their native range is the enemy release hypothesis. The enemy release hypothesis states that invasive species outcompete native species due to the absence of natural parasites and predators in the invaded environment (Torchin et al. 2003). The purpose of this study was to examine populations of NZMS and native snails from multiple locations in the mid-Atlantic US for infection by digenetic trematodes and compare both infection rates. Our original hypothesis was that NZMS would be less parasitized than native snails. We collected 1,605 NZMS and 346 native snails from 3 sites in the Musconetcong River, NJ, and 1 site in the Boardman River, MI. The results of the study concluded that 1 native snail was infected by a digenetic trematode, a total of 15 out of the 1,605 NZMS collected were infected with a mix of *Chaetogaster limnaei vaughini* and *Chaetogaster limnaei limnaei*, and a total of 107 native snails out of the 346 collected were infected by the same mix of *Chaetogaster limnaei* species. The infection rates of the NZMS and Native snails were 0.935% and 30.9% respectively. These results suggest the enemy release hypothesis holds true for *Potamopyrgus antipodarum* as its infection rate was significantly less than the native snail infection rate. This is also the first recorded case of *Chaetogaster limnaei* infecting *Potamopyrgus antipodarum* to our knowledge.

Thanatat Thanaravisara

"Mechanical anisotropy of carbon/ glass fiber reinforced 3D printed hybrid composite"

Hybrid composite materials are becoming more and more popular in engineering applications due to their numerous advantages and enhanced properties when compared to traditional composite materials. In this research, an experimental investigation is performed to observe the mechanical anisotropy response of glass and carbon fiber reinforced 3D printed hybrid composite. The hybrid composite is fabricated by alternating depositing of glass and carbon fiber reinforced ABS. An experimental investigation is performed to observe the effect of raster orientation on the tensile, shear, and flexural properties of the hybrid composite. Dog bone tensile, V notch shear, and rectangular beam specimens with five different raster configurations are considered for mechanical characterization. Additionally, digital image correlation (DIC) is incorporated with mechanical characterization to obtain the full-field strain distribution. It is observed that the mechanical properties of the hybrid composites vary with the change in the raster orientation.

Katanna Yohn

"Athletic/Personal Training"

Dormans Sports performance specializes in many areas. They have a nutritionist, 2 physical therapists, many personal trainers, and a barbell club. The staff here is amazing and is very educated in what they do. They are constantly getting recommendations from clients and everyone is always smiling when they are in

there. The personal trainers take into consideration what the client can do and what sport they are training for. Many people still come on during their off season so they do not lose what they have gained throughout the in-season months. In my time interning with Dormans I have learned a lot from everyone there. I have observed both the trainer and both the therapists. With the PTs I have seen ACL tears, neck pain from car accidents, back pain, and other sports injuries. With the AT I have got to see how they create the workouts and the great relationships they have with all of their clients. I really enjoy going in almost everyday. From day one they made me feel included!

Joyce Zheng, Jessica Venturi

"Effects of Anthropogenic Noise on *Gryllodes sigillatus*"

Insects use vibrational components to produce and sense air-borne sounds in intraspecific communication. These signals are important in courtship as well as defensive behavior against predators. For example, insects can detect the presence of nearby predators using vibrations. With an increase in anthropogenic activity, processing these signals and the constant threat they represent may increase stress on insects, subsequently affecting their behavior. Our experiment was designed to determine whether anthropogenic noise will decrease the body mass of banded crickets, *Gryllodes sigillatus*, likely due to stress. It was expected that the anthropogenic noise will stress the crickets, leading to decrease in food intake, decrease in body mass, and increase in mortality rate. In this study, we subjected crickets to three different levels of anthropogenic activity for three days: high, low, and negligible. We found that there was no significant difference in body mass or mortality throughout the duration of the experiment.