

Welcome to
Penn State Altoona's

ANNUAL UNDERGRADUATE
RESEARCH
& CREATIVE
ACTIVITIES FAIR

Saturday, April 13, 2024
Steven A. Adler Athletic
Complex
9am - 1pm

Penn State Altoona's 2024 Undergraduate Research and Creative Activities Fair marks 22 years of student presentations of research, creative activities, and internships. Thank you for your support of our students' hard work and dedication.

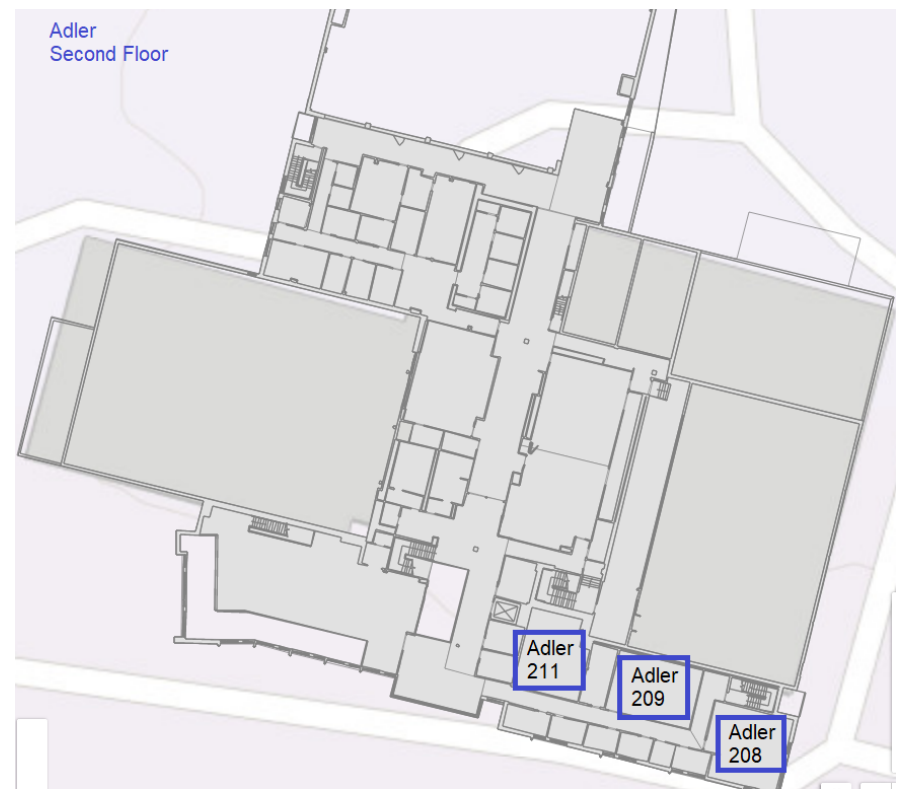
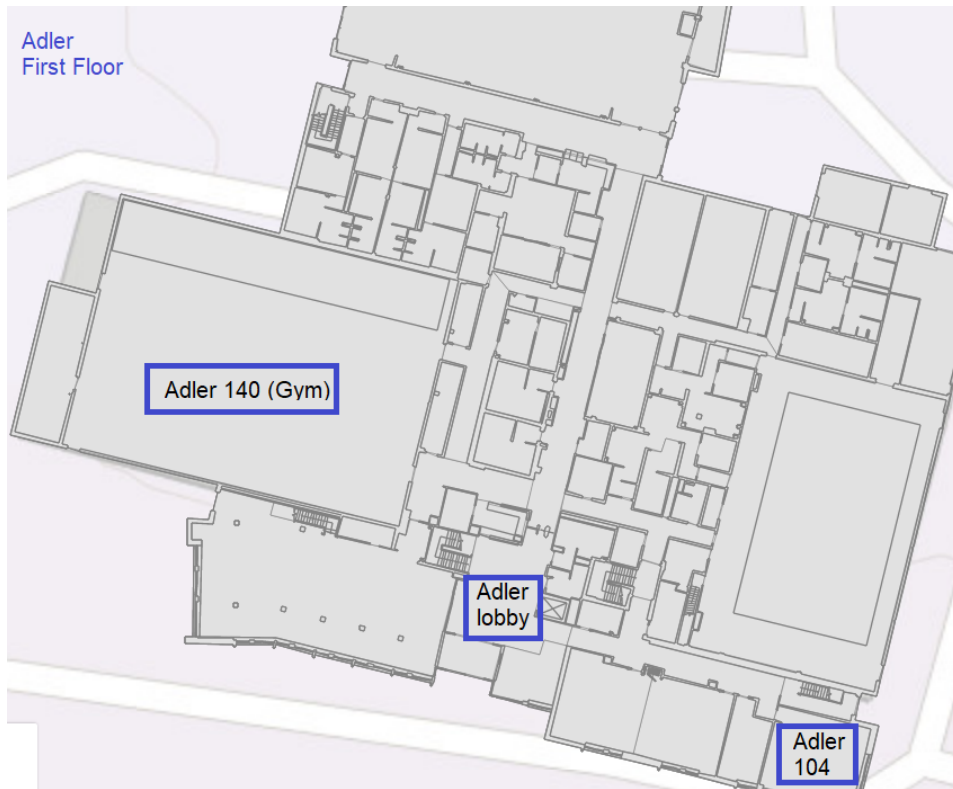
Special thanks to the following for their support of the students and the research fair: student mentors, judges, Peter Hopsicker, Cori Biddle, Dorothee Hendoux-Goodman, Misty Wilt, Nancy Vogel, Laura Rotunno, Jason Vogel, Jeff Reid, Stephanie Wojcik, John Carey, Brent Baird, the CAMP, Strategic Communications, the Sustainability Council, University Libraries, DEI in UR Committee, 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 conducts 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.



Contents

Schedule of Events.....	4
Poster Presentations.....	4
Oral presentations - Research.....	9
Oral presentations – Internships.....	10
Lunch and Awards Ceremony	11
Abstracts	12



Schedule of Events

- 9 am Welcome, Adler Lobby.
9:05 – 11:30am 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

BUSINESS/INFORMATION SCIENCES AND TECHNOLOGY

- (1) Lauren Peng
“Optimizing Managerial Approaches Through Plasticity”
- (2) Taylor Pelissero, Ryan Soission, Ryan Reighard, Jessica Henry, James Davis
“Proactive Healthcare Management: Reverse Engineering with AI Models for Real-Time Healthcare Data Analysis”
- (3) Steven McKimm, Logan Dermont, Cameron Piscioneri, Shane Reigert, Gabriel McFadden
“Evaluating Cybersecurity Challenges in EVSE Systems: From Vulnerability Identification to Prevention Strategies”
- (4) Bradley Kaufman, Anthony Hammill, Hans Esteban, Luke Murray, Justin Moore
“Evaluating and Enhancing Security in Code Generated by ChatGPT: A Baseline for Safer Software Development”

(5) Gabriel McFadden, Logan Dermont, Shane Reigert, Patrick Galante, Ryan Reighard
“Mapping IoT Device-Level Vulnerabilities to NVD and CVSS: A Comprehensive Approach to Security Analysis and Recommendations”

(6) Jessie Pensyl, Zebulun Lego, Lukas Rhyner, Zachary Mckee,
“Analyzing the Moral & Psychological Consistency of Artificial Intelligence”

(7) Zebulun Lego, Connor Galligan, Cameron Piscioneri, Jonathan Bush
“AI -Powered Compliance Assessment & Management Frameworks for Enterprises”

ENGINEERING AND PHYSICAL SCIENCES

(8) Blane Davidson
“Process parameter dependent tensile properties of additively manufactured carbon fiber reinforced polypropylene composite”

(9) Emily Dale, Maria Tomasko
“Spectroscopic Investigations of Deep Eutectic Solvents”

(10) Jack Becker, Houston Hemke
“Tensile and Shear Behavior with Mesoscale Damage Evolution of 3D printed Carbon fiber Reinforced Nylon composite.”

(11) Casey Hess
“Image-Based Analysis of Spray Droplet Distribution and Combustion Particle Characterization Using High-Speed Macrophotography”

(12) Casey Hess
“Investigation and Determinant Analysis of High-Speed Tennis Ball Impact Dynamics”

(13) Prisha Chanana

“Effect of Ceramics and Energetic Additives on Regression Rate of HTPB-Based Solid Fuels in a Hybrid Rocket”

(14) Alexis Dell

“Oxidative Cross-Coupling of Monolignols and Model Peptides”

(15) Alexis Dell, Mallorie Keith

“Facile Synthesis of Monolignols”

(16) Mallorie Keith

“iPrMgCl-Catalyzed Pinacolborane Reduction of Esters”

HEALTH, LIFE, AND BEHAVIORAL SCIENCES

(17) Eva Gates

“Effects of Dissolved Oxygen on Northern Leopard Frog (*Lithobates pipiens*) Gastrocnemius Muscle Recruitment and Fatigue”

(18) Chloe Mazza

“How Does Repeated Exposure to Testing Conditions and Individual Differences in Temperament Affect Spatial Cognition in the common minnow (*Phoxinus phoxinus*)”

(19) Nicole Flanders

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

(20) Gracie Harlow

“Substrate preference between competing snail species in Millbrook Marsh, Centre County, PA”

(21) Gavin Suter

“A Test of the Enemy Release Hypothesis Using the Invasive New Zealand Mud Snail”

(22) Elle McGregor

“Categorizing the behavior of transgenic Alzheimer Disease zebrafish”

(23) Robert Frankosky

“The Use of Exoskeletons in Industrial Settings: A Scoping Review”

INTERNSHIPS

(24) Robert Frankosky

“UPMC Radiology Technician Internship Experience”

(25) Audrianna Barnes

“Senior Internship: Long-term Care vs Pediatric Physical Therapy”

(26) Lyric Koelle

“Kinesiology Exercise Science Internship”

(27) Hayden Fox

“Phoenix Physical Therapy Internship Overview”

(28) Brandon Maybush

“Student Portfolio on Supporting the Transition Between Active Duty and Civilian Family Life, with Implications for Counseling Services”

(29) Camila Jaramillo

“Kinesiology (exercise science) Internship Houck Family Services”

SOCIAL SCIENCES I

- (30) Camila Jaramillo
“A Scoping Review of Mental Skills Training Programs in Competitive Gymnasts”
- (31) Janine Maxwell
“Effects of Parental Abuse on Children”
- (32) Jahdon Jerome
“Does Imagery Improve Free Throw Shooting Accuracy in Male Basketball Players?”
- (33) Justin Hedges
“Imagery Free-Throw Training in Division III Male Basketball Players”
- (34) Travis Saylor
“Immigration Narratives of Loss and Belonging”
- (35) Rebecca Reeder, Hailey Burchfield
“Examining Associations Between Fathers' Involvement and Adult Sons' Attitudes Toward Relationships”

SOCIAL SCIENCES II

- (36) Makaylah Bangura, Ellee Garver, Yusra Haroon, Lily Reid, Riley Fegley, Shannette Wahor
“Rape Myth Acceptance: Does Endorsement Influence Sentencing Decisions?”
- (37) Lam Vo
“Commodifying Carceral Connection: A Visual Analysis of Privatized Telecommunications in Prisons”
- (38) Lam Vo, Pamela Lantz
“Men's Parental Care and Mental Health Symptoms in Early Fatherhood”

- (39) Ziwei Lin, Lam Vo, Jazzmine McCauley, Ray Ncube, Katelyn Kurtz, Makaylah Bangura
“Building Bridges with the Pennsylvania State Police: An Assessment of Community Outreach”
- (40) Ziwei Lin, Makaylah Bangura, Jazzmine McCauley, Deyana Dye
“Media Exposure vs. Lived Experiences with Police: What Influences Attitudes?”
- (41) Jazzmine McCauley, Lam Vo, Lily Reid,
“Assessing the Effect of COVID-19 Carceral Downsizing on Crime Rates in Pennsylvania”
- (42) Caroline Downey, Olivia Ronan
“Reproductive Information and Fathers’ Negativity Toward their Children’s Sexual Orientation Disclosures”

Oral presentations - Research

Adler 209

Rebecca Reeder

“University Students' Attitudes Towards the Use of AI in Education”

Giovanni Napolitano, Kara Bailen, Robert Ethan Reed,

“Mechanical Roadway System for Capturing Wasted Energy of Vehicles and Conversion to Electrical Energy”

Jesse Pellow

“Empires, Trade Routes, and Pandemics”

Philip Chamberlin

“Estimating Bandgap Energy of Nanoarchitected and Conventional Materials for Solar Cell Application”

Angela Bunk

“Active Noise Canceling Headphones”

Oral presentations – Internships

Adler 208

Pamela Lantz

“Helping Myself and Others: Animal Assisted Care”

Brandon Maybush

“The Balance Between Work and Life: Where to Draw the Line”

Camryn Kurilla

“Therapy Through the Mind of an Intern”

Vanessa Riggle

“Exploring Child Advocates of Blair County”

Clair Rhodes

“The Challenge of Distinguishing Personal and Professional Growth; Working with Older Adults”

Bailie Kyle

“Learning about the challenges high schoolers face”

Anna Dick

“What Lifelong Learning from a Library Looks Like”

Stephanie Dale

“Securing and Mending Families”

Emily Hanes

“Building Therapeutic Relationships”

Maggie Park

“Impact of Sex Education on Adolescents”

Austin Nadolsky

“The Long Road”

Lunch and Awards Ceremony

Adler 140 (Gym)

- Welcome from Dr. Peter Hopsicker, Vice Chancellor of Academic Affairs
- Disciplinary Awards
- Library Awards
- Sustainability Awards
- DEIB Awards
- Excellence in Undergraduate Research and Creative Activities Mentoring Award

Abstracts

Alphabetical by first author's last name

Makaylah Bangura, Ellee Garver, Yusra Haroon, Lily Reid, Riley Fegley, Shannette Wahor

“Rape Myth Acceptance: Does Endorsement Influence Sentencing Decisions?”

Rape Myth Acceptance (RMA) within society has contributed to underreporting of rape and sexual assault victimization. When prevalent in the criminal justice system, RMA negatively influences case outcomes and revictimizes survivors. To date, prior research has not adequately studied RMA prevalence in criminal justice professionals. The current study helps to fill this gap in the literature by measuring RMA prevalence using a nationally representative sample of the general public and criminal justice decision-makers. Furthermore, this research explores the relationship between RMA and simulated juror sentencing recommendations. Policy implications based on findings will be discussed.

Audrianna Barnes

“Senior Internship: Long-term Care vs Pediatric Physical Therapy”

I will be presenting my 270 hours of experience split between a long term care skilled nursing facility and a pediatric setting. The pediatric setting was done through early intervention home health visits as well as outpatient care in the office setting for those older than 3 years old. The long term care facility is the Village of Morrison's cove and the pediatric setting is Milestone Physical Therapy in Fishertown, Pa.

Jack Becker, Houston Hemke

“Tensile and Shear Behavior with Mesoscale Damage Evolution of 3D printed Carbon fiber Reinforced Nylon composite.”

In recent times, additive manufacturing, also known as 3D printing, has gained popularity for fabricating carbon fiber-reinforced thermoplastic composites as it offers the ability to build complex shapes at a lower cost. In this research, an experimental investigation is performed to understand the tensile and shear behavior of additively manufactured short carbon fiber reinforced Nylon composite. Dog bone tensile, and double V notch shear specimens are fabricated by fused filament fabrication (FFF) 3D printing process. To observe the effect of printing temperature and layer height, specimens are printed with different printing temperatures and layer heights. A two-dimensional digital image correlation (DIC) is incorporated with mechanical characterization to explore the mesoscale damage evolution. It is observed that the printing temperature and layer height have a significant impact on the mechanical properties of the additively manufactured composites.

Angela Bunk

“Active Noise Canceling Headphones”

In partial fulfillment of the Bachelor of Science degree in Electro Mechanical Engineering Technology, the design and development of active noise canceling (ANC) headphones aims to cancel more than 32 decibels utilizing a feed-forward approach. The term 'feed-forward' relates to the design of the control system and also pertains to the placement of microphones, which are positioned facing away from the user to gather real-time data. This presentation dives into the experimental design, data collection, programmable circuit board (PCB) design, post processing of data, and an overview of the final control system. Active noise cancellation is a desirable

feature in headphones, with brands like Apple, Beats, and Bose producing some of the industry's top-selling models. However, the effectiveness of commercial noise cancellation remains undefined.

Philip Chamberlin

“Estimating Bandgap Energy of Nanoarchitected and Conventional Materials for Solar Cell Application”

Exotic materials designed for applications in energy, electronics, optics, and optoelectronics are becoming more intricate than ever before, exploiting their unique properties for various uses, such as energy storage and conversion systems for combatting climate change. As these structures increase in complexity, determining their bandgap also poses a growing challenge. The bandgap energy is a material-specific value that quantifies the minimum amount of energy needed for an electron to transit from the valence band to conduction band. While numerous methods exist to assess bandgap energy, the Tauc plot method stands out as one of the most commonly employed. Recognizing the need for versatile and user-friendly software capable of accurately deriving bandgap values from either measured or simulated absorbance data using the Tauc plot method, we introduce the results of a program developed in MATLAB that requires minimal material data. This program has been validated through the analysis of absorbance data for conventional bulk semiconductors—specifically silicon, germanium, gallium arsenide, and gallium phosphide—simulated using COMSOL Multiphysics. The resulting bandgaps reveal remarkably excellent agreement within three significant figures between the values obtained by our program and those of reference materials. This not only validates the accuracy of our software but also indicates its potential extension to novel, complex, and exotic materials and geometries. This project relates to the United Nations’ Sustainable Development Goal 7: Clean and Affordable Energy.

Prisha Chanana

“Effect of Ceramics and 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/m²-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, magnesium, magnesium, silicon carbide, tungsten carbide, titanium carbide, and boron carbide additives at a weight percent of 20%.

Emily Dale, Maria Tomasko

“Spectroscopic Investigations of Deep Eutectic Solvents”

A deep eutectic solvent (DES) is the combination of a hydrogen-bond donor and acceptor that become a liquid at a temperature less than their individual melting points. DESs are green chemistry friendly as they are quick and inexpensive to prepare, produce little waste, and can be ideal substitutes for conventional dipolar solvents and ionic liquids. In order to optimize applications of DESs, a thorough understanding of the solvent environment presented by these liquids is needed.

Our group has been investigating solvent friction and local viscosity in ethylene glycol, glycerol, glyceline, and ethylene was investigated using an overall neutral rotor probe trans-2-[4-[(Dimethylamino)styryl]benzothiazole (DMASBT). A temperature dependent experiment was performed to analyze fluorescent intensity due to the viscosity and heterogeneity of the solvent. The absorption of DMASBT did not change significantly with the temperature or the solvent. However, the emission intensity changed based on temperature and excitation wavelength. Now, 4-DASPI (trans-4-[4-(Dimethylamino)styryl]-1-methylpyridinium iodide), the charged analog of neutral DMASBT, will be characterized using the same instrumentation (absorption and emission spectrometers) as completed for the investigation of DMASBT. The research focuses on whether 4-DASPI will experience its surroundings differently in a negatively charged environment compared to a neutral molecule. Another project of interest focuses on intramolecular electron transfer using a probe synthesized last summer called 9-(4-biphenyl)-10-methylacridinium hexafluorophosphate (BPACPF6). This probe is a dual emissive fluorophore, with both a locally excited and charged transfer state, allowing one to track the electron transfer reaction using time-resolved spectroscopic measurements. The goal will be to take time-resolved measurements using an ultrafast laser to perform picosecond spectroscopy for the DMASBT, 4-DASPI, and BPACPF6 samples. This will allow us to observe the fluorescent lifetime decay in real-time and uncover the detailed mechanisms of excited-state solute processes in DESs.

Stephanie Dale

“Securing and Mending Families”

I will provide an overview of my experiences working as a family counselor and parent educator, as well as discuss projects I completed to assist and educate those in my community. My internship provided rich opportunities to connect real families and their stories to my understanding of Maslow's Hierarchy of Needs, Lifespan Theory, Social Learning Theory, and my concept of what it truly takes to provide services.

Blane Davidson

“Process parameter dependent tensile properties of additively manufactured carbon fiber reinforced polypropylene composite”

This study aims to investigate the effects of process parameters on the tensile properties of fused filament fabricated (FFF) carbon fiber reinforced polypropylene composite. The tensile test was conducted by following the ASTM standard incorporated with two-dimensional digital image correlation (DIC). The parameters of printing temperature, layer height, raster orientation, and printing speed were varied to determine their effects on the tensile properties of the material. It is observed that the material incurs higher tensile strength and Young's Modulus at higher printing temperatures. However, the increasing of layer height had an inverse effect on the strength and modulus of the material. Printing speed showed minimal influence on tensile strength, but significantly improved the failure strain with its increase. Regarding raster orientation, a downward trend in both tensile strength and Young's modulus was observed as the angle increasingly deviated from the loading direction, becoming more perpendicular.

Alexis Dell

“Oxidative Cross-Coupling of Monolignols and Model Peptides”

Lignin is an essential biopolymer in the cell walls of vascular plants. The process of lignin polymerization is well-known; however, the general mechanism of lignin nucleation on the cell walls remains elusive. We propose that p-coumaryl alcohol, one of lignin's monomers, can cross-couple with the tyrosine residues of cell wall proteins to form H-lignin-protein complexes, which serve as general nucleation sites to direct lignin deposition on plant cell walls.

Alexis Dell, Mallorie Keith

“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. Here we report a borohydride-based facile synthesis of monolignols from the cheap and readily available cinnamic acids.

Anna Dick

“What Lifelong Learning from a Library Looks Like”

This presentation analyzes the long-term skills and well-rounded experiences that one can gain from working in and/or utilizing a public library. I recorded the possible developmental benefits for those in the community that are attending the library. I noticed many family dynamics of the library patrons as well as individuals with varied identities, familial roles, disabilities, methods of communication, and social behaviors all through natural observations and interactions. The results of my notes revealed that there was a relevant correlation between those in the community and the holistic approach that the library maintains to provide an inclusive, fruitful, creative, and safe environment for ages across the lifespan to use as a multifaceted resource.

Caroline Downey, Olivia Ronan

“Reproductive Information and Fathers' Negativity Toward their Children's Sexual Orientation Disclosures”

It is common for parents to react negatively when their child discloses an LGBQ+ orientation. Children who receive negative parental reactions are more likely to engage in risk taking behaviors and experience higher mental health risk. This study aims to identify ways to reduce negative parental reactions to child sexual orientation disclosures. Past research has found that parents express concerns about their child's disclosure diminishing potential opportunities for grandchildren. Therefore, we predicted that parents who received information about reproductive assistance would report less negative expected reactions compared to parents who received control information. We conducted an online survey available to fathers with children ages 0-5. The fathers were randomly divided into two groups: the experimental group (received information about reproductive assistance) and the control group (received an article about GMO tomatoes). We then measured fathers' expected initial reactions and attitudes. Fathers who received the article about reproductive assistance reported less negative attitudes and expected initial reactions toward their child's possible LGBQ+ disclosure compared to fathers who received control information. Two outcomes did not produce significant results. In all, we observed partial support for the hypothesis; if reproductive information is used to promote more accepting parental reactions, then it could reduce children's risk of adverse outcomes when disclosing their sexual orientations.

Nicole Flanders

“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 two years of a multi-year study, we sampled five sites in the Spring Creek watershed in Centre County PA in May, July, and October 2022 and 2023 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. 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. This was reconciled in the 2023 data. *Potamopyrgus* appears very well established in the Spring Creek watershed. Comparison of data shows exponential growth in one year at one site while populations in other sites maintained stable levels.

Hayden Fox

“Phoenix Physical Therapy Internship Overview”

Robert Frankosky

“UPMC Radiology Technician Internship Experience”

Radiology technicians take medical exams by using X-rays on patients that take images of the human body. Radiology techs also can also continue their education to go into different subfields including CT (computed tomography), MRI (magnetic resonance imaging), nuclear medicine, ultrasound, and many others. I am taking part in 180 hours of internship hours shadowing and learning about aspects of radiology in many of the different subfields. I plan to go to Mount Aloysius after I graduate to pursue a degree in medical imaging to get myself into the field. Participating in this internship will help me learn and understand aspects of the radiology field. It will also help me narrow down which subfield I would potentially want to pursue while going through radiology technician school. At this point CT is the subfield that I am most interested in pursuing.

Robert Frankosky

“The Use of Exoskeletons in Industrial Settings: A Scoping Review”

Exoskeletons are wearable equipment that enhance the human body by supporting and assisting in the wearer's movement. Given the evolution of research in this field, an up-to-date synthesis of knowledge is critical to informing effective exoskeleton use in industrial settings (e.g., factories and construction sites). Therefore, a scoping review was conducted to examine the following research questions: 1) What is known from the literature about the use of exoskeletons for employers and employees working in industrial settings? and 2) What practical considerations are provided for using exoskeletons in industrial settings? To search for relevant studies, several key terms were selected including powered and passive exoskeletons, wearable robots, robotic suits, blue-collar and industrial workers, construction and factory workers, workforce, and manual labor. Selected key terms were then used to search for studies across five databases (e.g., Web of Science, Engineering Village) and three journals (e.g., Applied Ergonomics, Journal of Manufacturing Technology Management). A total of 5,431 articles were yielded from the electronic database (n=4491) and journal (n=922) searches. After removing duplicates, 2,712 articles will be used for title/abstract screening and full-text screening. Data pertaining to the country of origin, aims/purpose, setting, participant demographics, exoskeleton types, assessment, main findings, and key considerations from the included studies will be presented. The benefits and challenges of exoskeletons gleaned from this scoping review can guide effective implementation of this novel tool in industrial settings. Therefore, it attributes to the sustainable development goal of promoting inclusive and sustainable industrialization and fostering innovation.

Eva Gates

“Effects of Dissolved Oxygen on Northern Leopard Frog (*Lithobates pipiens*) Gastrocnemius Muscle Recruitment and Fatigue”

Dissolved oxygen levels in aquatic systems have decreased due to the temperature alterations of climate change, which in turn has affected wildlife and ecosystems. Oxygen is essential in supporting nutrient levels in these bodies of water, and many physiological processes in aquatic organisms also require oxygen. Previous studies have linked muscle performance to dissolved oxygen levels in a variety of aquatic species, but less research has been dedicated to amphibians. Since amphibians engage in cutaneous respiration, dissolved oxygen levels may have a greater impact on muscle performance in this taxon. This experiment investigated the effects of dissolved oxygen and time in vitro on frog skeletal muscle contractile force and fatigue. Results did not vary significantly when dissolved oxygen was altered, but fatigue and contractile force experiments did correlate with time in vitro. An understanding of the effects of dissolved oxygen on muscle performance could be beneficial as climate change alters the oxygen content of aquatic systems, with the potential to affect physiology and behavior.

Emily Hanes

“Building Therapeutic Relationships”

Building therapeutic relationships is essential to working with children and their families. One core issue would be focused on the issue of not having a stable relationship with your clients. I will talk about how I am “coming and going” at the internship and this is not a job I will be at forever. The students know this which makes them upset. Also, having a stable relationship will allow me to understand the children’s triggers to help them if they are having an episode. Another issue is stigma, families see the way you dress in the homes as a sign that you “have no personal issues.” In reality, we might not have our life together but we are here to help. Families tend to believe that they are getting the services because their family has "issues." I will also be mentioning information about my internship experience.

Gracie Harlow

“Substrate preference between competing snail species in Millbrook Marsh, Centre County, PA”

New Zealand mud snails (NZMS), *Potamopyrgus antipodarum*, and *Fontigens nickliniana* are two competing invasive snail species found in Millbrook Marsh in Centre County, PA. While NZMS are known to outcompete most snail species found in their invaded ranges, the presence of *F. nickliniana* has managed to maintain itself when found at the same location. To begin exploration in how these species coexist we examined the distribution of each species based on habitat at one location in the marsh. In this study, separate samples were collected from the aquatic vegetation and the muddy substrate at the study site. Each snail collected from each habitat was dissected to identify it as NZMS or *F. nickliniana*, determine sex, determine brood size, and detect parasitism. Preliminary results show that NZMS appear to prefer the muddy substrate and *F. nickliniana* appears to prefer being on vegetation. We also found that male *F. nickliniana* seem to prefer to be on the vegetation more than females and that infected *F. nickliniana* are more likely to be found on vegetation compared to uninfected individuals. These results are consistent with our expectations that a preference for substrate habitat exists between the two competing snail species.

Justin Hedges

“Imagery Free-Throw Training in Division III Male Basketball Players”

The effects of imagery training on athletes’ frequency and ability to image free-throw shots have yet to be assessed with male basketball players at the Division III level. Therefore, the purpose of this study was to: 1) examine the impact of imagery free-throw training on athletes’ frequency and ability to image, and 2) compare frequency and ability among those engaging in cognitive imagery compared to motivational imagery. A total of 20 athletes (Mage= 20.23, SD= 1.73; Mplaying experience= 2 years, SD= 1.05) agreed to participate in the study. Imagery training occurred over three weeks wherein athletes were randomly assigned to two groups: 1) cognitive imagery group (images of technique and strategy; n= 11), and 2) motivational imagery group (images of confidence and mental toughness; n= 10). Each group received an imagery script, which they were asked to read four times weekly, for ten minutes each. The Sport Imagery Questionnaire (SIQ; Hall et al., 1998) and the Sport Imagery Ability Questionnaire (Williams & Cumming, 2011) were administered pre-post intervention to measure imagery frequency and ability, respectively. ANOVAs were computed to examine changes pre-to-post intervention. No significant differences were found between the cognitive and motivational imagery groups. Manipulation checks were administered weekly to assess where, when, and for how long participants read the script. Most athletes read the script during the week (Monday to Friday) for an average of 4 minutes each time. They noted reading the script in the locker room before practices and games as well as in their bedroom before going to sleep. A larger sample is needed to verify the findings from the current study.

Casey Hess

“Image-Based Analysis of Spray Droplet Distribution and Combustion Particle Characterization Using High-Speed Macrophotography”

The focus of this research is to explore the applications of combining conventional macrophotography and high-speed imaging practices to identify more affordable and versatile methods of combustion particle and spray droplet characterization. Macrophotography and high-speed imaging respectively enable the visualization of macroscopic objects and events that occur at speeds beyond human discernment. Thus, the combination of these practices permits the systematic visualization of phenomena containing objects of high velocities on the macroscopic scale. The characterizations of post-combustion oxidized propellant particles and atomized spray droplets present themselves as such phenomenon. Imaging framing rates of several thousand frames per second (fps) and multi-microsecond exposures enable a comprehensive frame-by-frame capture of particle and droplet movement. Furthermore, microscope objectives of relatively low magnification

(5x/10x) can provide the definition of particles and droplets on the order of microns. Given the high framing rates, this combination of macrophotography and high-speed imaging can acquire several thousand frames of a definable particle and droplet presence per second of combustion and spray events, respectively. With software-based image analysis, the thousands of frames produced by each video can be individually analyzed for particle and droplet metrics, including area (for non-circular particles), diameter, size distribution, and size-location relationship. The particular analyses for this investigation involve framing rates between 2800 and 3200 fps, exposures between 1 and 3 microseconds, and magnification factors ranging between 5x and 10x. Finally, test results are analyzed relative to a Gaussian distribution such that each “characterization” can be defined by a mean and standard deviation.

Casey Hess

“Investigation and Determinant Analysis of High-Speed Tennis Ball Impact Dynamics”

In sports science, proper modeling of equipment dynamics allows governing organizations to optimize player safety and ensure accurate representations of critical dynamic events. For the sport of tennis, the dynamic events of greatest importance are those which occur on every point: the impacts between racquet, ball, and court surface. Following international testing standards, this investigation aims to identify key relationships between the ball, racquet, and a rigid surface by examining dynamic impact metrics such as the ball’s coefficient of restitution and deformation. The experimental setup utilizes pressurized air, an air cannon, and a control program to launch a tennis ball at desired velocities into a rigid surface. Light gates and force-sensitive load cells are included to allow for the calculation of inbound/outbound ball velocities and impact force, respectively. Furthermore, the ball-racquet interaction is analyzed by mounting a tennis racquet in place of the rigid impact surface. All impacts are visually captured with a high-speed camera shooting at 3200 frames per second and 1 to 3 microsecond exposures. With the high-speed imaging capability and the application of MATLAB image analysis, analyses of additional metrics such as the ball’s cross-sectional area and volume throughout impact are introduced. Beyond impact durability testing, balls and racquets from various manufacturers are subjected to identical test conditions in an effort to identify performance deviations between manufacturers. As this project is a continuation of previous work, focus is also placed on system improvements, especially those regarding the control program, data acquisition, and post-test data analysis processes.

Camila Jaramillo

“Kinesiology (exercise science) Internship Houck Family Services

Houck Family Services is a local company that serves the purpose of providing support to the elderly and disabled to enable them to remain in their homes or facilities they reside in. With providing specialized care, non-skilled services are unique to every client based on their care need that facilitates the consumer’s health, safety, and welfare in addition to the ability of living independently. Assisting the clients may consist of but not limited to meal preparation, shopping, errands, light housework (vacuuming, dusting, changing linens), laundry, telephone use and transportation. When getting to know the clients, things such as meal preparation or a bedtime routine becomes more familiar as time passes by. This specific workplace allows for making new relationships with not only other interns or coworkers, but with the clients as well. When discussing specific expectations or deliverables I expect to see, I prioritize learning and relationships. I hope to see that this workplace will teach me how to manage the clients of all different ages and disabilities, in addition to how I may be able to adjust myself to their needs and personalities. I expect to really get to know the clients and see it as spending time with them and being there for them with whatever they may need besides simply just “interning”. As my future career path is nursing, I believe this internship will allow me to gain experience with home care and being responsible for daily living activities.

Camila Jaramillo

“A Scoping Review of Mental Skills Training Programs in Competitive Gymnasts”

Mental skills training involves teaching athletes' cognitive strategies (e.g., relaxation, attentional focus, imagery) to help them enhance performance quality (Weinberg, 2019). Research in this area has examined athletes training in traditional sports such as soccer, hockey, and football. However, aesthetic sport performers, particularly gymnasts, are often overlooked. Aesthetic sports (e.g., dance, synchronized swimming) encompass the athletic and competitive elements in traditional sports, but there is also an artistic element in which physique and appearance are emphasized. A review of mental skills training programs with gymnasts would shed light on the skills most effective for these athletes and directions for future research. Therefore, a scoping review was conducted to examine the following research questions: 1) What mental skills training programs have been conducted in gymnastics? and 2) What are the characteristics (e.g., level, age) of participants in these programs? To search for relevant studies, several key terms were selected such as psychological skills training, sport psychology interventions, imagery, goal setting, self-talk, self-regulation, aesthetic sport performers, and gymnasts. Selected key terms were then used to search for studies across five databases (e.g., SportDiscus, ScienceDirect, PsychInfo) and five journals (e.g., Sport, Exercise, and Performance Psychology, Journal of Applied Sport Psychology). Title/abstract and full-text screening of included studies are underway. Data pertaining to the study purpose, psychological skills assessed, program duration and activities, delivery mode, and key findings from the included studies will be presented.

Jahdon Jerome

“Does Imagery Improve Free Throw Shooting Accuracy in Male Basketball Players?”

The effects of imagery training on free-throw shooting have primarily been assessed with female collegiate athletes (e.g., Carboni et al., 2002). This study examined the effects of cognitive and motivational imagery training on free-throw shooting accuracy in male division III basketball players. A total of 20 athletes ($M_{age} = 20.23$, $SD = 1.73$; $M_{playing\ experience} = 2$ years, $SD = 1.05$) participated in the study. Imagery training occurred over three weeks wherein athletes were randomly assigned to two groups: 1) cognitive imagery group (images of technique and strategy; $n = 11$), and 2) motivational imagery group (images of confidence and mental toughness; $n = 10$). Each group received an imagery script focused on their imagery type. Athletes were asked to read the script four times weekly, for ten minutes each. Free throw shooting accuracy was tracked during games and practices. Three points were allotted for shooting the ball into the basket without hitting the rim, two points for shooting into the basket after hitting the rim, and one point for hitting the rim and not going into the basket. In games, the average number of shots taken was four, while the average total points each game was 8.5. Over the course of three games, free throw shooting accuracy was 87%, 82%, and 74% respectively. Greater decreases in free throw shooting accuracy were found for the motivational group compared to the cognitive group. Several explanations for the study findings will be offered.

Bradley Kaufman, Anthony Hammill, Hans Esteban, Luke Murray, Justin Moore

“Evaluating and Enhancing Security in Code Generated by ChatGPT: A Baseline for Safer Software Development”

Our research is for a publication that tests and empirically measures for insecure code that ChatGPT generates. By requesting code and building out a project, a vulnerability scanner can be used to show potential vulnerabilities or insecure code that ChatGPT provides. If successful, the research would be a baseline for other academic research to build on how the artificial intelligence tool can be used to create more secure code for end users. With the prevalence of the tool, and the amount of people using it for coding, this creates a gap that is widening by users implementing insecure code without proper testing and vetting.

Mallorie Keith

“iPrMgCl-Catalyzed Pinacolborane Reduction of Esters”

Reductions of esters to alcohols are an important organic transformation. Traditionally, such reactions employ either flammable or potentially explosive reducing agents, such as aluminum hydrides and hydrogen gas. Here we report our development of pinacolborane reduction of esters to alcohols. Key to this protocol is the use of isopropylmagnesium chloride as a pre-catalyst, presumably with magnesium hydride as the reactive species. Some advantages of this protocol include the use of a stable reducing agent, ambient reaction temperature, simple procedure, clean results, and modest functional group tolerance.

Lyric Koelle

“Kinesiology Exercise Science Internship”

My experience at Drayer Physical Therapy Institute as a Physical Therapy Student Intern. My goal was to gain valuable knowledge about the business and how to engage with patients. I learned valuable skills such as communication, organization, and transparency during my 180 hours. I also got to see a vertigo test be performed on a patient and see what indicates a positive test which was interesting. My goals are to pursue Physical Therapy or go into medical sales and use the skills I obtained from this internship there.

Camryn Kurilla

“Therapy Through the Mind of an Intern”

My oral presentation will include a description of my internship site, description of responsibilities, tasks, and projects, my learning objectives during my internship, a human development and family studies theory relating to my experiences, core issues I came across, an internship summary, and finally my future directions.

Baillie Kyle

“Learning about the challenges high schoolers face”

My name is Bailie Kyle, and I am completing my internship at the Altoona Area High School in the Counseling office. My experiences involve: seeing and counseling students, sitting in on group therapy sessions, helping to schedule classes for the next school year, and sitting in on administrative meetings pertaining to classes and graduation requirements. I helped plan Teen Power Day for students, which is a field trip where the students learn to live healthy and meaningful lives. I oversaw meeting with students to see if they were interested and giving them information about the trip, distributing, and collecting permission slips, and making sure students are eligible to go. My presentation is about my experience learning about the everyday challenges high schoolers face and how I can help them to overcome and cope with them.

Pamela Lantz

“Helping Myself and Others: Animal Assisted Care”

This presentation will focus on a 300-hour internship at Evolution Counseling Services, LLC. The intern will describe their work in the various therapeutic programs and the implementation of Animal Assisted group therapy.

Zebulun Lego, Connor Galligan, Cameron Piscioneri, Jonathan Bush

“AI -Powered Compliance Assessment & Management Frameworks for Enterprises”

In today's business landscape, enterprises navigate a complex web of regulations and legislations, each tailored to address specific concerns in various industries. Compliance with these regulations is not just a legal obligation but a strategic imperative, fostering trust, safeguarding sensitive data, and mitigating risks. Organizations that effectively manage compliance gain a competitive edge, fostering customer confidence, and ensuring sustained success in a dynamic regulatory environment. To effectively address the challenge of compliance management within the ever-evolving regulatory landscape, there is a pressing need for a comprehensive Compliance Assessment and Management Framework. Such a framework should aim to streamline and, to a certain extent, automate the complex processes associated with compliance assessment and management for enterprises. By integrating automation into these procedures, organizations can enhance efficiency, reduce manual errors, and ensure a more consistent and proactive approach to compliance. A well-designed Compliance Assessment and Management Framework can provide a systematic and organized method for navigating the multitude of regulations, allowing enterprises to assess their compliance status, identify potential gaps, and implement corrective measures promptly. This not only reduces the burden on organizations in terms of time and resources but also fortifies their ability to demonstrate and maintain compliance seamlessly in the face of evolving regulatory requirements.

Ziwei Lin, Lam Vo, Jazzmine McCauley, Ray Ncube, Katelyn Kurtz, Makaylah Bangura

“Building Bridges with the Pennsylvania State Police: An Assessment of Community Outreach”

Public trust in law enforcement in the United States has deteriorated to record low levels. High-profile cases of excessive use of force and misperceptions in the media have contributed to what criminologists are calling a “legitimacy crisis” in policing. In response, the Pennsylvania State Police created the Building Bridges program in an effort to improve police-community relations, that is, relations between law enforcement and local residents. The current study provides a multi-year pre-

and post-test empirical assessment of the Building Bridges program to determine if it improves perceptions of trust, confidence, and legitimacy of police. Policy implications based on findings will be discussed.

Ziwei Lin, Makaylah Bangura, Jazzmine McCauley, Deyana Dye

“Media Exposure vs. Lived Experiences with Police: What Influences Attitudes?”

Recently, in the United States, police interactions with the public have gained considerable attention in the media. Prior research has emphasized how television news media and drama series consumption alters public perceptions of police. However, there is little empirical research on the relationship between specific categories of news, lived experiences with police, and attitudes toward police. Using self-report survey data collected from a cross-sectional, nationally representative sample of 1,093 Americans, this study aims to empirically examine the simultaneous effects of news media consumption and lived experiences on public perceptions. Policy implications will be discussed.

Janine Maxwell

“Effects of Parental Abuse on Children”

A literature review of the effects of parental child abuse on children. Taking a look at the different types of abuse, the risk factors for abuse, the results of child abuse, and successful interventions throughout the lifespan for children who have gone through abuse,

Brandon Maybush

“The Balance Between Work and Life: Where to Draw the Line”

As a parent, I find it difficult to find where to draw the line. This is especially true at my current job/internship site. As a drug and alcohol counselor, I must be available for clients. This includes being emotionally available to clients while I am at work. I have found it difficult to do when leaving the house before my daughter gets on the bus and walking past a sink full of dishes from last night's late dinner. The same is true for my family when I retire home for the evening. I must be emotionally available to my children as well as prepare dinner, help with homework, give rides to and from baseball practice, laundry, and constant cleaning. I find myself in a constant anxious state thinking about tasks awaiting at home and then how to help clients while sitting at the dinner table. I have been a semi-absent parent since becoming a fulltime employee at my internship. Many nights, I have just ordered pizza to satisfy dinner rather than cooking a decent meal for the kids. I am also behind in my assignments for my last and only class to finish my degree. It has been extremely difficult to muster the will and energy to read and complete writing assignments after working for 8 hours and then performing the duties of both a mother and father to two very different children.

Brandon Maybush

“Student Portfolio on Supporting the Transition Between Active Duty and Civilian Family Life, with Implications for Counseling Services”

The objective of this poster is to showcase my three-part portfolio from which I provide recommendations and next steps to support the transition between active duty and civilian family life, with implications for counseling services. My portfolio rests on a three-part foundation of 1) autoethnographic work as a veteran returning to family civilian life, 2) my white paper with recommendations to support this transition, and 3) exploration of existing alternative therapies to support veterans in this transition. The significance of this work rests in the numbers of veterans needing more supportive infrastructure in their return to communities. The US has just recently ended the wars in Iraq and Afghanistan after 20 years, and the needs of returning veterans have been insufficiently treated. This conflict has been the longest war in American history and has left its mark on the many men and women who fought. “One in three of the nation’s 19 million veterans report having been arrested and jailed at least once, and more than 181,000 are behind bars” (Hagel, 2022, Time Magazine). A great deal of these incarcerated veterans have struggled with substance use disorder, PTSD, depression, and anxiety because of their service, but have not received adequate treatment. Future directions include developing and implementing counseling strategies toward identification and treatment of issues before they become a major problem, continuing to build knowledge and availability of veterans’ benefits, and advocating for treatment over punishment for struggling veterans.

Chloe Mazza

"How Does Repeated Exposure to Testing Conditions and Individual Differences in Temperament Affect Spatial Cognition in the common minnow (*Phoxinus phoxinus*)"

Neophobia, an aversive response to novelty, presents a significant experimental design challenge for animal behavior studies as it can mask cognitive performance. Individual variation and the ability to respond flexibly to environmental challenges is known to influence neophobic reactions. Habituating animals to testing conditions can reduce neophobic reactions and is characterized by neural adaptation as exposure is repeated, enhancing the ability to detect acute environmental change. The current study investigated the behavioral response of common minnows (*Phoxinus phoxinus*) to repeated exposures of the first phase of a cognitive test, and the influence of behavioral flexibility on cognitive performance. The spatial cognition test comprised two phases: a sample phase in which 3 identical objects were presented, and a choice phase in which two of the objects were replaced with one object in a novel location. Thus, individual fish were required to learn one object was in a different location (demonstrated by differences in exploration around each object). The results show that the distance moved (total exploration) during the sample phase increased with the number of exposures, suggesting increased exposure reduced neophobia. There was no discernible correlation between exposure frequency and the total number of object encounters during the sample phase, suggesting that exposure does not significantly impact the fish's interaction with objects. Activity levels during the choice phase increased significantly with exposure frequency, suggesting increased habituation to testing conditions. The group exposed to the sample phase five times demonstrated a significant preference for the object in the familiar location, implying a learned ability to distinguish between novel and familiar object locations. Further research will explore the impact of individual variation on these results, but the initial evidence strongly suggests that increased exposure to testing conditions plays a crucial role in shaping fish behavior.

Jazzmine McCauley, Lam Vo, Lily Reid,

“Assessing the Effect of COVID-19 Carceral Downsizing on Crime Rates in Pennsylvania”

Downsizing of correctional facilities was adopted by various institutions during the COVID-19 pandemic to aid with social distancing and alleviate the spread of Coronavirus. In addition to helping with health-related outcomes, advocates of downsizing maintained that strategically releasing low-level, non-violent offenders would reduce correctional stress while allowing saved resources to be reallocated toward better care for the correctional population. Opponents argued that downsizing would negatively impact community safety by increasing criminal activity. Our preliminary studies found that downsizing saved taxpayers' money and did not increase crime rates at the county level. An extension of our previous work, this study analyzes the effects of downsizing in state prisons on state-level crime rates, as reported by the Federal Bureau of Investigation's (FBI) Uniform Crime Reports (UCR). This project is meant to bring awareness to the capability downsizing has to create strong institutions centered around justice, one of the goals of the United Nations. Policy implications based on findings will be discussed.

Elle McGregor

“Categorizing the behavior of transgenic Alzheimer Disease zebrafish”

The aim of this project was to categorize anxiety, social, and cognitive behaviors in transgenic (Tg) Alzheimer Disease (AD) zebrafish to validate them as a viable model for AD. This was accomplished via light-dark, sociality, and novel object recognition tests that measured each behavior respectively. Anxiety and sociality behaviors in Tg fish deviated from predictions, while cognitive behaviors were consistent with predictions. These results create a foundation for future research involving these specific Tg fish.

Gabriel McFadden, Logan Dermont, Shane Reigert, Patrick Galante, Ryan Reighard

“Mapping IoT Device-Level Vulnerabilities to NVD and CVSS: A Comprehensive Approach to Security Analysis and Recommendations”

In the ever-evolving landscape of the Internet of Things (IoT), the security challenges at the device level are intricate and abound with vulnerabilities that warrant meticulous attention. This research embarks on a systematic exploration of these security issues, aiming to provide a comprehensive understanding of vulnerabilities, threats, and the corresponding security measures. A key objective is to establish a robust mapping framework that elucidates the intricate connections between device vulnerabilities, potential threats, and the necessary security controls. Moreover, this study seeks to contribute by mapping identified threats to the STRIDE (Spoofing, Tampering, Repudiation, Information Disclosure, Denial of Service, and Elevation of Privilege) model and the CIA (Confidentiality, Integrity, and Availability) model. Through this focused research, our goal is to offer valuable insights to enhance device-level security practices, providing a nuanced comprehension of threats and vulnerabilities to both the academic community and industry practitioners. The beneficiaries of this research encompass a wide spectrum, including device manufacturers, security professionals, policymakers, and society at large, all of whom rely on secure and resilient IoT infrastructures. Furthermore, this project entails mapping identified IoT device-level vulnerabilities to CVE and NVD to generate CVSS and recommend security controls. This involves developing a systematic process to map identified vulnerabilities to Common Vulnerabilities and Exposures (CVE) entries, ensuring the accuracy and completeness of the CVE mapping process by cross-referencing multiple security databases, establishing seamless integration with the National Vulnerability Database (NVD) to contribute identified vulnerabilities, developing an automated mechanism to feed vulnerability information into NVD for continuous updates, investigating available security controls (i.e., patches and updates) for each identified vulnerability, and assigning severity scores using the Common Vulnerability Scoring System (CVSS) to quantify the potential impact of vulnerabilities.

Steven McKimm, Logan Dermont, Cameron Piscioneri, Shane Reigert, Gabriel McFadden

“Evaluating Cybersecurity Challenges in EVSE Systems: From Vulnerability Identification to Prevention Strategies”

The global surge in electric vehicle adoption is driving the installation of both private and public electric vehicle supply equipment (EVSE). These EVSE units play a pivotal role in advancing the electrification of the transportation sector, yet they also introduce significant considerations for power systems and transportation infrastructure. Recent focus by cybersecurity experts has led to the identification of numerous vulnerabilities and risks inherent in EVSE devices. Most of these vulnerabilities arise from the communication between charging stations and vehicles, rendering them susceptible to a variety of potential attacks. These security concerns encompass a broad spectrum of attack vectors, raising the specter of impacts ranging from localized disruptions to potential nationwide ramifications. Significantly, the current landscape lacks standardized security protocols for EVSE, underscoring the urgency of ongoing research in this domain. Encouragingly, the realm of information technology and operational technology offers a wealth of tools that can be harnessed to enhance the security of both EVSE units and the vehicles they serve.

Austin Nadolsky

“The Long Road”

Giovanni Napolitano, Kara Bailen, Robert Ethan Reed,

“Mechanical Roadway System for Capturing Wasted Energy of Vehicles and Conversion to Electrical Energy”

A fully mechanical system that turns kinetic energy from cars into electrical energy.

Maggie Park

“Impact of Sex Education on Adolescents”

Research conducted with students and staff of local high schools to evaluate the effectiveness of their sex education programs.

Taylor Pelissero, Ryan Soission, Ryan Reighard, Jessica Henry, James Davis

“Proactive Healthcare Management: Reverse Engineering with AI Models for Real-Time Healthcare Data Analysis”

In our project, we aim to revolutionize healthcare delivery by seamlessly integrating smartwatch technology, data analytics, and artificial intelligence (AI) to empower individuals to proactively manage their health and well-being. Central to our endeavor is the development of a centralized platform that collects and analyzes health data exported from popular smartwatches in real-time. Leveraging advanced data analytics tools, we analyze the data to identify patterns and trends, employing

techniques such as reverse engineering to gain deeper insights into the underlying health metrics. Additionally, we utilize ChatGPT to interpret the data and provide medical diagnoses, enhancing the accessibility of healthcare information for users. A critical aspect of our project is the implementation of a real-time notification system. When anomalies or potential health risks are detected in the data, users are promptly notified via email, SMS, or other channels. Furthermore, with user consent, alerts containing findings are transmitted to primary care providers, facilitating timely intervention and personalized care. Through this proactive approach, we aim to bridge the gap between data collection and actionable insights, empowering users to take control of their health journey. Beyond data analysis and notifications, our project also prioritizes user engagement and education. By providing users with access to visual representations of their health data and personalized recommendations, we seek to foster a culture of proactive health management. Through educational channels, users gain the knowledge and resources necessary to interpret their health data effectively and make informed decisions about their well-being. Ultimately, our project endeavors to empower individuals to actively engage with their health data, leading to improved health outcomes and enhanced overall well-being.

Jesse Pellow

“Empires, Trade Routes, and Pandemics”

The 1910-11 Manchurian Plague can help us understand the nature of human growth and movement and its impacts on the spread of diseases like plague and more recently, novel coronaviruses. A better understanding of the historical and sociopolitical influences, especially empires and trade, will help dispel the myths, perceptions, and stigmas associated with the origin of the 1910-11 plague, modern day novel corona viruses, and the development of state sponsored preventive measures that China and other countries implemented during and after controlling its spread.

Lauren Peng

“Optimizing Managerial Approaches Through Plasticity”

The recent shifts in workplace values due to the COVID-19 pandemic and remote work have led to discrepancies in managerial approaches. The widening gap between managers and personnel, driven by changing values, partly results from the absence of strategies for adapting to evolving workplace values and the lack of emphasis on nurturing neuroplasticity in managerial practices. This study aims to address the development of plasticity among managers, enabling them to better navigate contemporary work environments and enhance internal branding to align with the emerging workforce expectations. Any discrepancies between managers and personnel serve as focal points for enhancing plasticity within the context of internal branding. The literature review evaluates existing managerial practices, identifying gaps in current research that could be addressed in the formulation of a comprehensive model, the Plasticity Model, for measuring managerial plasticity. This study also culminated in the development of a structural model, the Internal Branding Plasticity Model (IBPM), which proposes the relationships between internal branding, plasticity, employee engagement, job satisfaction, and employee loyalty. This comparative analysis aimed to shed light on managerial plasticity. The paper offers valuable insights into the importance of neuroplasticity development in fostering inclusive and innovative work environments for the benefit of all stakeholders.

Jessie Pensyl, Zebulun Lego, Lukas Rhyner, Zachary Mckee,

“Analyzing the Moral & Psychological Consistency of Artificial Intelligence”

Large Language Models (LLMs) such as ChatGPT and Bard which can form their own opinions and suggestions through the influence of others. The immediate access to credible information, answers, and opinions that these technologies produce can prove to be a strong electronic tool, but such tools are not immune to issues surrounding bias or hurtful information that could inadvertently lead to harm. Recent studies and reports have been published that point to harmful usage of Large Language Models when professionally applied in real-life industries and scenarios. Recent reports and studies show dramatic associations between how technology influences the way people behave and feel. To test whether these Large Language Models can be harmful to end users, an analysis was conducted through a series of tests to understand their thought process and decision-making skills. Throughout the research, an analysis on the consistency of the responses determined what would be the most likely response from these Large Language Models, placing the results into graphs. Collaborative perspectives and opinions from individuals in psychological industries were considered. The research conduct will contribute to both information technology sectors as well as to psychological and social sectors. The overall purpose of this research is to spread awareness about the influence of these machines and to determine if their responses could be harmful to society.

Rebecca Reeder, Hailey Burchfield

“Examining Associations Between Fathers' Involvement and Adult Sons' Attitudes Toward Relationships”

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 interact with their partners and children. The current study aims to investigate associations between low paternal investment (including fathers' absence from the home) and psychological changes that might affect men's romantic relationships. Specifically, this study measures men's quality of their relationships with parents during childhood and adolescence, and their attitudes towards women and parenting as adults. 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 reduced interest in investing in their own relationships with partners and children.

Rebecca Reeder

“University Students' Attitudes Towards the Use of AI in Education”

The use of generative artificial intelligence (AI) tools in the educational domain has grown in recent years and has presented new opportunities and challenges for educators. The modern literature contains numerous anecdotal articles from the educators' viewpoint, but little is written with the students' thoughts at the focal point. This study aims to expand our understanding of these challenges from the university students' use and viewpoints of using AI in the scholastic setting. An 18-question survey was sent to PSUA students, and 130 students (n=130) responded from various disciplines. The survey asked respondents to discuss their personal use of AI in coursework, the ethics and understanding in classwork, and their anticipated future use of AI in their careers. This study should help instructors address ethical considerations, provide background on developing guidelines for using AI in the classwork, and stress the urgency in understanding and working with this technology for responsible integration and regulation in educational institutions.

Clair Rhodes

“The Challenge of Distinguishing Personal and Professional Growth; Working with Older Adults”

In this presentation I will talk about my internship at Garvey Manor Nursing Home located in Hollidaysburg, PA. I was in the Activities Department in the Skilled Nursing Facility. At Garvey Manor, the residents all are at different abilities. It is our job as the activities department to get to know them for who they were and who they are and create activities and interventions that provide them with a sense of purpose and happiness. In this presentation I will talk about what leisure can look like in a skilled nursing facility, the importance of engagement and leisure on older adults, and the impact of leisure/engagement on older adults in a long-term care facility. Throughout this presentation, I will touch on my core issues and learning objectives I have come across during my internship and the theories I used along the way to help me better understand my population. Finally, I will touch on my personal and professional development while navigating through my internship at Garvey Manor Nursing Home and how that has guided me to where I am now and my future plans and decisions. I have grown as a student, intern, and person and I am excited for what is next in store.

Vanessa Riggle

“Exploring Child Advocates of Blair County”

Child Advocates of Blair County is a Head Start program for families with children ages 3-5 in Blair County. The agency offers case management to families and intensive case management to families who are in high need. The agency has me cycling through many of the departments to gain a well-rounded experience. I will be gaining experience in Human Resources, case management, program administration, and education. So far, I have spent most of my time in the case management department, gaining insight on how the agency assists families who are in need.

Travis Saylor

“Immigration Narratives of Loss and Belonging”

"The purpose of this study is to understand how first and second-generation immigrants, as well as those generally interested in their immigration history, narratively construct leaving behind homes, cultures, and ways of life, and adapting to new lives in the United States. The study aims to connect the vast body of research on immigration with the emergent interest in “sociology of loss” (Jakoby 2015). To the degree that the topic of loss has been explored in connection with immigration, the focus has been on mental health, psychology, and sentiments such as nostalgia. Relatedly, narratives of loss, perhaps with the notable exception of Polish Peasant in Europe and America (Thomas and Znaniecki 1927), have not been fully explored in the context of immigration. Open-ended qualitative interviews, along with field observations from ethnic festivals, reveal various styles of narrating loss and belonging. Of particular interest are typologies of loss in the context of immigration stories.

Gavin Suter

“A Test of the Enemy Release Hypothesis Using the Invasive New Zealand Mud Snail”

New Zealand Mud Snails (NZMS), *Potamopyrgus antipodarum*, are an invasive species of snail that are found widespread throughout the world and cause large-scale ecological damage. There are several hypotheses to explain why this invasive species is more successful in its invaded territory when compared to their natural habitat: the most prominent hypothesis being the enemy release hypothesis. The enemy release hypothesis states that invasive species are able to outcompete native species due to the absence of natural parasites and predators in the invaded environment. The purpose of this study was to examine populations of *Potamopyrgus antipodarum* from multiple locations in the mid-Atlantic region for infection and compare the rates of infection to the infection rates of native snails found in the same locations. We hypothesized that NZMS would be less parasitized when compared to native species collected from the same site. In 2022, we sampled NZMS and native snails, collected from 3 sites of the Musconetcong River, NJ, and 1 site in the Boardman River, MI; In 2023, we sampled NZMS and native snails, collected from only 3 sites of the Musconetcong River, NJ. Both years, native snails had a significantly higher average infection rate of *Chaetogaster limnaei* and *Chaetogaster limnaei vaughini* than NZMS. These results support the enemy release hypothesis for *Potamopyrgus antipodarum* as its infection rate is significantly lower than the native snail infection rate. This appears to be the first recorded case of *Chaetogaster limnaei* infecting *Potamopyrgus antipodarum*.

Lam Vo

“Commodifying Carceral Connection: A Visual Analysis of Privatized Telecommunications in Prisons”

Employing a visual criminology approach, this research investigates tactics that private telecommunication service providers (PTSPs) use to sell their services to correctional facilities, the incarcerated, and their loved ones. It analyzes how PTSPs commodify communication and connection to the outside world through visual representation. Through an analysis of PTSPs’ online marketing materials and promotional videos, this research identifies four key strategies used to sell their services: (1) emphasizing affordability and convenience, (2) promoting a sense of normalcy and connection, (3) presenting themselves as necessary partners in the correctional process, and (4) avoiding discussions of the exploitative nature of their business model. We argue that these tactics not only commodify the communication of incarcerated individuals, but also reinforce the racialized and class-based hierarchies of the criminal justice system. By analyzing the visual and discursive elements of PTSPs’ marketing strategies, this research contributes to a better understanding of the ways in which private companies operate within the criminal justice system and perpetuate systemic inequalities. It also highlights the need for alternative models of communication and connection within the carceral context that prioritize the agency and well-being of incarcerated individuals.

Lam Vo, Pamela Lantz

“Men's Parental Care and Mental Health Symptoms in Early Fatherhood”

Mental health symptoms are both common and understudied among fathers. The current research considers how fathers’ behavior and other family-level variables relate to fathers’ psychological well-being. Data were collected within an online survey administered to fathers of young children. First, we test for associations between fathers’ investment in childcare (indexed by daily hours) and their symptoms of depression and anxiety. Then, we examine the interactive effects of paternal care and investment cost in predicting fathers’ mental health symptoms. This research aims to identify novel factors related to fathers’ mental health and may guide future research on this topic.

