Scholarship & Arts Symposium 2026

THIEL COLLEGE

SYMPOSIUM SCHEDULE OVERVIEW

8:30 a.m. – 9:00 a.m.

Welcome and Opening Remarks
Dr. Susan Traverso, President
Stamm Hall

9:00 a.m. – 10:00 a.m.

Morning Session 1
Dietrich Honors Institute Thesis Presentations, *Stamm Hall, Pedas 125*
PSY 380: Scientific Inquiry in Psychology - Digital Posters, *Pedas 120*
[9:00 a.m. – 10:30 a.m.]

10:00 a.m. – 10:10 a.m.

Break

10:10 a.m. – 11:10 a.m.

Morning Session 2
Dietrich Honors Institute Thesis Presentations, *Stamm Hall, Pedas 125*

11:10 p.m. – 11:45 p.m.

Morning Session 3
Keynote Address
Sean Oros, MA '15, Lecturer of English
Doctoral Candidate in Composition and Applied Linguistics
"Community, Perspective, and Persistence"
Stamm Hall
PA 516: Evid Based Medicine and Public Health - Posters, *Common Area*
[11:00 a.m. – 12:00 p.m.]

11:45 a.m. – 12:45 p.m.

Lunch

12:45 pm. – 1:50 p.m.

Afternoon Session 1
Fulbright Scholar Presentation
Lana Kulik, Ph.D., Associate Professor of Communication
Stamm Hall
SOC 215: Statistics for Social Sciences - Oral Presentations, *Pedas 125*
BIO 499: Directed Student Research - Oral Presentations, *Pedas 120*
Dietrich Honors Institute Thesis Presentation, *HMSC Art Gallery*

1:50 p.m. – 2:00 p.m.

Break

2:00 p.m. – 3:00 p.m.

Afternoon Session 2
Dietrich Honors Institute Thesis Presentations, *Stamm Hall*
Communications Media Presentations, *Pedas 125*
BIO 499: Directed Student Research - Oral Presentations, *Pedas 120*
EXER 495: Internship - Oral Presentation, *Pedas 120*
BADM 300: Applied Entrepreneurship - Poster Presentation, *Common Area*
[2:00 p.m. – 3:30 p.m.]

3:00 p.m. – 3:10 p.m.

Break

3:10 p.m. – 4:00 p.m.

Afternoon Session 3
Dietrich Honors Institute Thesis Presentations, *Stamm Hall, Pedas 125*
NSCI 202: Introduction to Neuroscience - Digital Posters, *Pedas 120*

MORNING SESSION 1:

ROOM: STAMM HALL

Dietrich Honors Institute Thesis Presentations

9:00 a.m. – 9:20 a.m.

Daisy Jenness
Super Women: An Analysis of Marvel Movies Through a Feminist Lens
Sheila Gross, Ph.D., Associate Professor of English

9:20 a.m. – 9:40 a.m.

Josie Gadsby
Songs That Remember For Us: Personally Meaningful Sad Music, Autobiographical Memory & Emotional Processing
Shannon Deets, Ph.D., Associate Professor of Psychology

9:40 a.m. – 10:00 a.m.

Kendall McLaughlin
From Farm to Phone: Using Social Media to Connect Producers and Consumers in the Beef Industry
Angelo Giannini, M.B.A, Professor of Business Administration and Accounting

ROOM: PEDAS 125

Dietrich Honors Institute Thesis Presentations

9:00 a.m. – 9:20 a.m.

Braelynn Anderson
The Role of Chiropractic Care in Concussion Management and Recovery for Student Athletes
Emily Erb, Ph.D., Assistant Professor of Exercise Science

9:20 a.m. – 9:40 a.m.

Gregory Roae
Exploring the Academic Consequences of Injuries Among College Athletes
Kristina Brzoza-Lewis, Ph.D., Assistant Professor of Biology

9:40 a.m. – 10:00 a.m.

Kaleb McDowell
Legal Supplements vs. Banned Substances: A Comparative Study of Outcomes in College-Aged Populations
Health
Carley Fleck, MSN, FNP-C, Clinical Assistant Professor of Nursing

ROOM: PEDAS 120

Digital Posters

PSY 380: Scientific Inquiry in Psychology

Moderator: Kristel Gallagher, Ph.D.
Associate Professor of Psychology

9:00 a.m. – 10:30 a.m.

Devin Rhoads and Kristina Varion
Conformity Without the Physical Presence of Others

Kierra Smalling
The Effect of a Bipolar Diagnosis on Others' Perceptions

Taryn Vergnola and Taegan Geiser
AI vs. Photoshopped: Objectification of Women in the Media

Sydney Green and Megan Harding
Alone or Together: Group Presence and Willingness to Interject

Emily Ripple
The Emotional and Relational Impact of Handwriting vs. Typing a Letter

Kaylee Diefenderfer and Madalyn Moore
I'm Watching You: The Effects of Social Pressures on Moral Behavior

Sylvia Novak and Shalondra Santos
Perspective & Peers: How the Connotation of Experiences Impacts Perspectives on First-Generation College Students
Neira Laird, Emma Leehan, and Jamie Maxwell
Do You Test Better With Friends?

Cody Maxwell
The Effect of Anonymity on Athlete Evaluations

Delaney Cowger
Heat of the Moment: Temperature and Interpersonal Perception

Jaylen Benjamin and Jacob Wittenberg
The Flavor of Care: The Halo Effect and How Emotions Affect Taste and Perception of Food

Kaylee Diefenderfer and Madalyn Moore
I'm Watching You: The Effects of Social Pressures on Moral Behavior

MORNING SESSION 2:

ROOM: STAMM HALL

Dietrich Honors Institute Thesis Presentations

10:10 a.m. – 10:30 a.m.

Alexis Brown
The Color of Justice: How the US Judicial System Perpetuates Racial Inequality and Injustice
Eric Matthews, Ph.D., Associate Professor of Political Science

10:30 a.m. – 10:50 a.m

Rex Dugan
China: Economic Dependence or Defection
Eric Matthews, Ph.D., Associate Professor of Political Science

10:50 a.m. – 11:10 a.m.

Mila Brdar
The Revolving Cell Door: How Considering 18-25-Year-Olds as "Juveniles" In Criminal Court Proceedings Could Help Lower Recidivism Rates
Cynthia Sutton, Ph.D., Professor of Sociology

ROOM: PEDAS 125

Dietrich Honors Institute Thesis Presentations

10:10 a.m. – 10:30 a.m.

Karigan Hager
Sugar, Spice, and Insulin Advice: Managing Feline Diabetes
Mary O'Donnell, Ph.D., Assistant Professor of Biology

10:30 a.m. – 10:50 a.m.

Tegan Daugherty
Herbs vs. Worms: Natural Approaches to Intestinal Parasites
Michael Balas, Ph.D., Professor of Biology

10:50 a.m. – 11:10 a.m.

Riley Smith
Prozac, It's Not You, It's Me: Evaluating Natural Product Derivatives for SERT Active Compounds
Neil Lax, Ph.D., Associate Professor of Neuroscience

MORNING SESSION 3:

ROOM: STAMM HALL

Keynote Address

11:10 a.m. – 11:45 a.m.

Sean Oros, MA '15, Lecturer of English
Doctoral Candidate in Composition and Applied Linguistics
"Community, Perspective, and Persistence"

ROOM: PEDAS COMMON AREA

Poster Gallery Exhibit & Presentations

PA 516: Evidence-Based Medicine & Public Health

Research Mentor: Kristel Gallagher, Ph.D.
Associate Professor of Psychology

11:00 a.m. – 12:00 p.m.

The Association Between Poor Mental and Physical Health and Being a Caregiver in the United States
Katie Kearney, PA-S, and Shianne Walker, PA-S

The Association Between Use of Non-Prescription Tranquilizers and Mental Health Among United States Adults
Lilly Nguyen, PA-S, Sarah Gov, PA-S, and Hailey Powell, PA-S

The Association Between Education Level and Sunscreen Use in Adults in the United States
Kristine Hull, PA-S, Jemma DeCrapio, PA-S, and Christopher Rubino, PA-S

The Association Between High School Graduation and Incarceration in Adults in the United States
Jacob Ambach, PA-S, Connor Burke, PA-S, and Natalie Link, PA-S

The Association Between Caffeine Intake and Anxiety in Young Adults in the United States
Alyssa Caruthers, PA-S, Dylan Robis, PA-S, and Hanna Thomas, PA-S

The Association Between Depression and Exercise in Females and Males in the United States
Sydney Sloan, PA-S, Jamie Traub, PA-S, and Elizabeth Walker, PA-S

The Association Between Number of Siblings and Mental Health Diagnoses in Adults Aged 25-34 in the United States
Abigail Fogleman, PA-S, and Mckinley Shreve, PA-S

The Association Between Household Income and Divorce Rates in the United States
Lauren Linkewitz, PA-S, Christen Davidoff, PA-S, and Sebastian Rey, PA-S

The Association Between Anxiety and Alcohol Withdrawal in Adults in the United States
Mai Findlan, PA-S, Emma Sovich, PA-S, and Lauren Wentz, PA-S

The Association Between Sleep and Depression in the United States
Sara Altayyan, PA-S, Tahmina Bakthyari, PA-S, Ayesha Paracha, PA-S, and Lamya Shusmi, PA-S

The Association Between Non-Prescribed Sedative Use and Other Illicit Drug Use Among Adults in the United States
Yasmeen Ramadan, PA-S, Iqra Baig, PA-S, and Mariham Tharwat, PA-S

The Association Between High School Graduation Status and Diabetes in Adults in the United States
Alexandra Enoch, PA-S, and Ashley Bianco, PA-S

The Association Between Familial Economic Status and Heart Attacks in Men and Women in the United States
Blake Gibson, PA-S, Brendan Matyas, PA-S, and Anthony Panko, PA-S

The Association Between Gambling and Prescription Drug Abuse in Adults in the United States
Mary Cook, PA-S, and Alyssa Murphy, MHS, PA-S

AFTERNOON SESSION 1:

ROOM: STAMM HALL

Fulbright Scholar Presentation

12:45 p.m. – 1:50 p.m.

Lana Kulik, Ph.D., Associate Professor of Communication

ROOM: PEDAS 125

Oral Presentations

SOC 215: Statistics for Social Sciences

Moderator: Jared Hanneman, Ph.D.
Professor of Sociology

12:45 p.m. – 12:55 p.m.

Gage X. Howard
The conditional influence of religious attendance on American abortion attitudes across traumatic and elective circumstances

12:55 p.m. – 1:05 p.m.

Gavin M. Zahner
Income inequality: the statistical factors that play into sexism and racism

1:05 p.m. – 1:15 p.m.

George Green
Faith and politics in America: The influence of religious affiliation on political alignment

1:15 p.m. – 1:25 p.m.

Jacob M. Hoffman
Class matters: exploring the relationship between socioeconomic status and trust in government institutions

1:25 p.m. – 1:35 p.m.

Joseph A. Grundy
The relationship between mental health, drug use, and arrests

1:35 p.m. – 1:45 p.m.

Kayley Risser
Education and Income: the effects on happiness, quality of life, and family satisfaction

1:45 p.m. – 1:55 p.m.

Kiley Matters
The relationship between socioeconomic status and self-reported happiness among U.S. adults

ROOM: PEDAS 120

Oral Presentations

BIO 499: Biology Directed Research Presentations

Moderator: Mary Gemmel O'Donnell, Ph.D.
Assistant Professor of Biology

12:45 p.m. – 1:05 p.m.

Alexis DeMarco
Prevalence and Transmission Dynamics of Toxocara in Rural Pennsylvania

1:05 p.m. – 1:25 p.m.

Triston Barr
Dirt to DNA: The Bacteriophage Discovery Process

1:25 p.m. – 1:45 p.m.

Gregory Roae
Discovering a Novel Bacteriophage

ROOM: HMSC – ART GALLERY

Dietrich Honors Institute Thesis Presentation

12:45 p.m. – 1:50 p.m.

Devin Rhoads
The Mere-Exposure Effect: Can it Minimize Bias?
Moderator: Sean McConnor, MFA, Professor of Art

AFTERNOON SESSION 2:

ROOM: STAMM HALL

Dietrich Honors Institute Thesis Presentations

2:00 p.m. – 2:20 p.m.

Ethan Narby
Metal, Mind, and Medicine: Navigating the Clinical, Economic, and Ethical Impact of AI and Robotics in Orthopedics
Mary O'Donnell, Ph.D., Assistant Professor of Biology

2:20 p.m. – 2:40 p.m.

Jordan Wilhoit
Suitability of Computational Drug Discovery in Alzheimer's Disease
Christopher Morgan, Ph.D., Assistant Professor of Chemistry

2:40 p.m. – 3:00 p.m.

Hayden Tucker
Patient Protection or Clinical Progress? Ethical Governance of CNS Regeneration in the United States and United Kingdom
Matthew Morgan, Ph.D., Professor of Philosophy

ROOM: PEDAS 125

Communications Media Presentations

Moderator: Matthew Humphrey, MFA
Assistant Professor of Communication

2:00 p.m. – 3:00 p.m.

Music Videos
Kyleigh Coy - 2:22
Colin Schroyer - 3:17

Audio Documentaries
Robert Doyle - 9:23
Kaden Drew - 4:45
Abby Miller - 5:47

ROOM: PEDAS 120

Oral Presentations

BIO 499: Directed Student Research

EXER 495: Internship

2:00 p.m. – 2:20 p.m.

Hayden Tucker
Macrophage Context as a Determination of Disease Outcomes: Peripheral vs CNS Macrophage Dysregulation
Kristi Brzoza-Lewis, Ph.D., Assistant Professor of Biology

2:20 p.m. – 2:40 p.m.

Nathaniel Turner
The Impact of Lunar Change on White-Tailed Deer
Michael Balas, Ph.D., Professor of Biology

2:40 p.m. – 3:00 p.m.

Kylee Jordan
The Effects of Low-Intensity Exercise on Executive Function Fatigue *Emily Erb, Ph.D., Assistant Professor of Exercise Science*

ROOM: PEDAS COMMON AREA

Poster Gallery Exhibit & Presentations

BADM 300: Applied Entrepreneurship

Research Mentor: Steven Kandray
Assistant Professor of Business Administration & Accounting

Blaze Movement - Hot Pilates Studio
Makenna Oswalt

Milk & Whiskers Cat Café - Cat Café
Jordan Fiorentini

Blooming Angel - Handmade Art & Gifts
Madison Fiorentini

Gala's Ski and Board Shop - Ski and Snowboard Retailer
Brandon Gala

Zimmerman Sports Performance LLC - Sports Performance Facility
Will Zimmerman

Elevate Fight Club - MMA Training and Recovery Gym
Hunter Crouse

Built with Purpose - Gym with Integrated Physical Therapy Services
Kenna Reinard

Blue Haven Aquarium - Aquarium
Zack Loeser

Double Eight Acres - Agribusiness that sells byproducts of locally owned livestock and crops
Brianna Whaley

Legacy Detailing - Auto Detailing
Da'Mier Clark

Souperior Supplements - Health Supplement Retailer
Franklin Ellis

Sam Draa Roofing - Roofing Company
Sam Draa

Thunder Equipment Technologies - Competitive Dog Training Equipment Manufacturer
Ryan Wilson

Axiom Private Wealth - Investment Advisory Services
Aden Sasala

The Hutch Box - Automated Self-Service Pickup for Local Goods
James Omerzo

Baked Anne's - Café Bakery and Evening Eatery
Callie Gerber

TrueFlow Innovations - Water treatment equipment distributor
Adam Manuel

Kim Tea - Bubble Tea Shop
Isaiah Kim

Rise Athletics - Fitness Gym Focused on Beginning Lifters
Madison Pfleger

Elite Event Eats - Event Catering Service
Fatima Vereen

AFTERNOON SESSION 3:

ROOM: STAMM HALL

Dietrich Honors Institute Thesis Presentations

3:10 p.m. – 3:30 p.m.

Blessing Tete
The Weight of Gender: A Comparative Analysis of Sentencing Disparities in Parricide Cases Involving Childhood Trauma
Shannon Deets, Ph.D., Associate Professor of Psychology

3:30 p.m. – 3:50 p.m.

Gianna Sprecace
Sanctioned Inequality: How Supreme Court Law Reinforces Religious Beliefs
George Branch-Trevathan, Ph.D., Associate Professor of Religion

ROOM: PEDAS 125

Dietrich Honors Institute Thesis Presentations

3:10 p.m. – 3:30 p.m.

Madalyn Triskett
Nothing Down About It: Confronting Barriers to Inclusion for Individuals with Down Syndrome
Kara Schreckenghost, Ed.D., Assistant Professor of Education

3:30 p.m. – 3:50 p.m.

Natalie Hering
Addressing Language Barriers to Reduce Construction Workplace Injuries Among Hispanic Workers Through Spanish-Language Safety Training
Hope Dropp, Assistant Professor of Environmental Safety Management

ROOM: PEDAS 120

Digital Posters

NSCI 202: Introduction to Neuroscience

Moderator: Neil Lax, Ph.D.
Associate Professor of Neuroscience

3:10 p.m. – 3:20 p.m.

Bret Vilage, Tristan Bruckner, Christian Chiaramonte
Using Chromogenic Techniques to Visualize Serotonin 1A Receptors (5-HT1A) in Slices of Mouse Brains

3:20 p.m. – 3:30 p.m.

Joy Hudspath, Lexi Cucunato, and Lauren Pitkins
Visualizing Dopamine Receptors in the Mouse Brain Using Immunohistochemistry

3:30 p.m. – 3:40 p.m.

Auna Diez, Andrew McCloskey, Kristina Varion, Kelsey Wagner
Analyzing the Dopamine D2 Receptor Expression through Immunohistochemical Techniques

3:40 p.m. – 3:50 p.m.

Luke Surface, Makayla Hall, Greg Roae
Immunohistochemical Assessment of 5-HT1A Receptor Distribution in Functionally Distinct Mouse Brain Regions

3:50 p.m. – 4:00 p.m.

Olivia Kehren, Tiffany Mong, Sadey Morris
Spatial Distribution of Metabotropic Glutamate Receptor 4 (mGluR4) in the Mouse Brain

DIETRICH HONORS INSTITUTE THESIS ABSTRACTS

Herbs vs. Worms: Natural Approaches to Intestinal Parasites
Tegan Daugherty
Michael Balas, Ph.D., Professor of Biology

Parasitic infections have been around for ages and cause numerous mortalities around the world. Intestinal parasites in particular cause about 3.5 billion infections and about 200,000 deaths annually. To combat infectious parasites, developed countries discovered or created antiparasitic medications to rid the body of these organisms. Unfortunately, many developing countries are more susceptible to these infections due to unsanitary conditions and do not have access to modern medicine. This makes it more difficult to deal with infections. These developing countries could potentially have access to natural herbs and use natural anti-parasitic herbs as a preventive method for intestinal parasites. While this thesis discusses whether natural herbs could potentially be useful, it should not be in replacement of modern anti-parasitic medication.

This thesis is a literature review of studies related to natural herbs in correlation to intestinal parasites and how effective herbs may be to either prevent them or cleanse the body of them. Reviewing these characteristics will give insight about the prevalence of hookworms, tapeworms, and roundworms. Other discussion topics will be sanitation background, types of parasites, modern medicine, specific herbs, social media influencers, and a critical analysis of studies. The effectiveness of natural herbs is not a widely researched topic. There are many gaps that should be investigated further. Herbs may offer benefits in certain scenarios, but due to their largely unknown effectiveness, it would be better to use herbs to complement an already existing anti-parasitic medicine.

Sugar, Spice, and Insulin Advice: Managing Feline Diabetes
Karigan Hager
Mary O'Donnell, Ph.D., Assistant Professor of Biology

Diabetes mellitus is a metabolic disorder that affects a wide variety of animals, including felines. There are two primary types of diabetes: Type I diabetes, in which the body produces little to no insulin, and Type II diabetes, in which insufficient insulin is produced, or the body becomes resistant to its effects. Diabetes has become a more frequent condition in felines, causing a variety of comorbidities. In feline patients, two main treatment options are commonly used: insulin therapy and oral medications, such as sodium-glucose cotransporter-2 (SGLT2) inhibitors. In recent years, oral medications have gained popularity in veterinary medicine for the management of diabetic cats. This research provides insight that may help evaluate which feline patients are the most appropriate candidates for SGLT2 inhibitor therapy.

The objective of this thesis is to assist feline owners in making informed decisions regarding diabetic treatment options. This is accomplished by examining two diabetic feline patients to compare the effectiveness of SGLT2 inhibitors in different clinical scenarios. The comparisons include the advantages and disadvantages of each therapy, associated costs, required education for administration, and lifestyle adjustments owners may need to adopt.

Nothing Down About It: Confronting Barriers to Inclusion for Individuals with Down Syndrome
Madalyn Triskett
Kara Schreckenghost, Ed.D, Assistant Professor of Education

Down Syndrome (DS) is a condition that has gained more acceptance in society; however, there are still significant barriers that prevent these individuals with DS from flourishing. Despite significant court cases and legislation designed to implement inclusion in education and society, there are still major factors separating those with DS from their peers. These barriers often stem from a lack of knowledge, limited exposure, or inadequate resources. Inclusive educational environments are often a child's first opportunity to interact with someone with Down Syndrome, shaping their perceptions and understanding of people with this condition. However, the quality of inclusion varies depending on the environment and school, contributing to the social and educational divisions between those with DS and their peers.

To examine this notion through a mixed-methods study, an anonymous survey was conducted that examined public perception of inclusion and knowledge of resources and opportunities for individuals with Down Syndrome. This survey was open to the general public and collected data on perceived inclusion within both educational and community settings along with participants' geographic location, their age, and knowledge of resources as it relates to those with DS. Participants were also provided with the opportunity to share additional information on the topic.

Results revealed improvement on the perception of inclusion, yet most participants perceive minimal impactful inclusion in schools. This lack of significant integration directly correlates with the deficit in resource awareness. Overall, this research highlights the need for targeted advocacy to diminish barriers and bridge the information gap by providing essential resources to the public and to those with Down Syndrome and their families that need it most.

Sanctioned Inequality: How Supreme Court Law Reinforces Religious Beliefs
Gianna Sprecace
George Branch-Trevathan, Ph.D., Associate Professor of Religion

Freedom of religion is a core value on which the United States was founded. However, many policies violate both the religious freedom and bodily autonomy of women. This thesis investigates the historical and contemporary influence of religion on United States policies that restrict women's rights, with a focus on suffrage and reproductive healthcare. Through analysis of various Supreme Court case documents, Christian doctrinal texts such as Humanae Vitae and Human Sexuality, religious-political advocacy such as the work of James C. Dobson, and contemporary public health data from the National Library of Medicine, this study traces the integration of theological concepts into constitutional interpretation and legislative debates. It asserts that religiously informed moral reasoning has been selectively employed in American policymaking to reinforce traditional gender roles and justify limitations on women's civic participation, contraceptive rights, and bodily autonomy. This thesis aims to bring awareness to the injustices encountered by women due to the unclear separation of church and state, to invite reconsideration of constitutional principles, and to protect women's rights in a religiously diverse democracy

Prozac, It's Not You, It's Me: Evaluating Natural Product Derivatives for SERT Active Compounds

Riley Smith
Neil Lax, Ph.D., Associate Professor of Neuroscience

Clinicians widely prescribe selective serotonin reuptake inhibitors (SSRIs) to manage depressive and stress-related disorders. By targeting the serotonin transporter (SERT), SSRIs increase available serotonin within the synaptic cleft, though their clinical utility is often limited by slow onset and side effects. Natural products have historically served as the basis for drug discovery and augmentation. Alternatives to SSRIs, including Hypericum perforatum (St. John's wort), saffron (Crocus sativus), 5-HTP, and curcumin, have emerged as promising candidates exhibiting antidepressant activity. Clinical and mechanistic studies indicate that standardized Hypericum extracts are as effective as synthetic SSRIs in mild-to-moderate depression, primarily through hyperforin, which modulates neurotransmitter levels via ion-channel activation rather than direct SERT inhibition. Similarly, saffron's bioactive constituent, crocin, enhances serotonin availability while providing antioxidant and neuroprotective effects comparable to those of conventional treatments. 5-HTP is a direct biochemical precursor that bypasses the rate-limiting step in serotonin biosynthesis, thereby effectively elevating neurotransmitter levels.
Furthermore, curcumin, the primary polyphenol in turmeric, can potentiate conventional SSRIs such as fluoxetine by inhibiting monoamine oxidase and modulating dopamine pathways through a synergistic pharmacodynamic interaction. Structural analysis of these natural compounds suggests they interact with the SERT and associated signaling proteins through diverse binding modalities. Unlike the competitive inhibition characteristic of synthetic SSRIs, these natural scaffolds often utilize allosteric modulation and multi-target interactions, offering a broader therapeutic window. Collectively, these findings highlight natural products as potential alternatives or adjunct therapies for mood disorders. However, challenges, including extract standardization, mechanistic clarification, and long-term safety evaluation, remain critical for clinical translation.

The Weight of Gender: A Comparative Analysis of Sentencing Disparities in Parricide Cases Involving Childhood Trauma

Blessing Tete
Shannon Deets, Ph.D., Associate Professor of Psychology

Parricide is frequently the climax of a cycle of violence, where the defendant has endured years of childhood abuse at the hands of their parents. While the legal system is increasingly recognizing the psychological toll of the trauma, the judicial application of mitigating circumstances remains a site of gendered mediation. Existing research on parricide often treats the act as a gender-neutral response to the abuse; however, the sentencing outcome suggests that the weight of a history of trauma is filtered through the lens of societal expectations of gender. There is a need to examine how judges and jury members interpret the victim-to-offender path differently when the defendant is male versus female.
This thesis utilizes a comparative case study methodology, analyzing an intentional sample of parricide cases involving documented histories of childhood abuse. By examining sentencing remarks, psychiatric evaluations, and court transcripts when available, the study analyzes key themes to identify how gender-based narratives influence the final judicial decision. Specifically, this thesis focuses on two well-known cases, Gypsy Rose Blanchard and the Menendez brothers, as well as two lesser-known cases, Andrew Janes and Deborah and Richard Jr. Jahnke. In these cases, people tend to perceive women as vulnerable and are more likely to side with them than men. Furthermore, people find it hard to believe that men could be victims of abuse. The purpose of this thesis is to bring awareness to the underlying prejudice that people may have towards male and female victims of childhood abuse who commit parricide.

The Color of Justice: How the US Judicial System Perpetuates Racial Inequality and Injustice
Alexis Brown
Eric Matthews, Ph.D., Associate Professor of Political Science

This study examines how the United States Judicial system contributes to ongoing racial inequality as well as how the public's perceptions of this inequality are shaped. While the American legal system is founded on ideals of freedom, fairness, justice, and equality, historical and contemporary evidence suggests that these basic ideals are not equally experienced across all racial groups. From slavery to the enforcement of Black Codes and Jim Crow laws to more modern disparities in policing, sentencing, and incarceration, racial inequality has remained embedded within the structure of our judicial system. This research argues that such is not a result of isolated incidents, but rather a systemic issue. By using a mixed-methods approach, this study combines both a qualitative analysis of key court cases with quantitative survey data to better understand institutional patterns as well as public opinion. The qualitative portion examines cases revolving around jury selection, trial proceedings, evidence handling, and sentencing, and applies a "funnel framework" to demonstrate how inequalities narrow into specific legal outcomes. The quantitative component uses an original survey to measure public perceptions of fairness and racial bias. By comparing legal findings with survey responses, the study evaluates whether public opinion reflects or contradicts patterns of inequality. By adding on to existing research, this study is not meant to answer a discrete question, but more so to add onto existing literature. Ultimately, the findings emphasize that addressing racial inequality requires not only policy reform but also increased public awareness and engagement with the realities of our system.

Metal, Mind, and Medicine: Navigating the Clinical, Economic, and Ethical Impact of AI and Robotics in Orthopedics
Ethan Narby
Mary O'Donnell, Ph.D., Assistant Professor of Biology

The growing integration of artificial intelligence (AI) and robotic technologies into orthopedic surgery signals a major shift in surgical practice, offering the potential for unprecedented levels of precision, improved patient outcomes, and shorter recovery time. Robotic-assisted systems enable more accurate and minimally invasive procedures as AI-driven algorithms enhance planning, guide decision-making, and support monitoring after the procedure is completed. Together, these technologies promise to redefine the standard of care within orthopedic medicine. However, their rapid adoption also raises substantial economic and ethical concerns, including disparities in access, high start-up costs, algorithmic bias, and questions regarding clinical responsibility. This thesis examines both the transformative capabilities and the challenges associated with AI and robotics in orthopedic surgery, highlighting implications for medicine, ethics, and healthcare economics. As someone aspiring to work as an orthopedic physician assistant, understanding these advancements is essential for navigating future surgical landscapes and for contributing to informed, responsible integration of emerging technologies in patient care.

Songs That Remember for Us: Personally Meaningful Sad Music, Autobiographical Memory & Emotional Processing

Josie Gadsby
Shannon Deets, Ph.D., Associate Professor of Psychology

Music is often used to cope with difficult emotions, yet the role of sad music in emotional regulation remains debated. While some research suggests that listening to sad music may reinforce negative mood or rumination, others indicate it can foster reflection, emotional understanding, and connection to meaningful memories. This study examines whether personally meaningful sad music—particularly music tied to autobiographical memory and experiences of loss—functions as maladaptive mood congruence or as intentional emotional processing, especially for individuals drawn to emotionally intense music. Using a survey (N = 222), participants reported how frequently they engage with meaningful sad music during distress, their level of emotional intensity prior to listening, and whether specific songs are associated with significant life events, relationships, or bereavement. Participants also provided optional written reflections describing these connections. Findings indicate that most respondents turn to meaningful sad music during moderate to high emotional intensity and report strong ties between music, memory, and identity. Across both quantitative and qualitative responses, participants more often endorsed outcomes such as emotional clarity, validation, connection, and grief processing than rumination or mood worsening. However, these benefits were not universal. Outcomes varied depending on emotional awareness and intentional engagement, with some participants reporting prolonged distress when emotions were overwhelming or listening was less reflective. Overall, the findings suggest that personally meaningful sad music can create a structured emotional space for revisiting memories, maintaining continuing bonds, and actively engaging with difficult emotions, highlighting the importance of autobiographical meaning and individual differences in emotional coping.

Patient Protection or Clinical Progress? Ethical Governance of CNS Regeneration in the United States and United Kingdom

Hayden Tucker
Matthew Morgan, Ph.D., Professor of Philosophy

Injury to the central nervous system (CNS) remains one of the most significant challenges in modern medicine, particularly in stroke rehabilitation, where functional recovery is often limited and incomplete. Despite decades of research, the inability of CNS neurons to regenerate effectively has constrained clinical progress. This thesis investigates how current scientific understanding of CNS axon regeneration can inform stroke rehabilitation practices in the 21st century, while also evaluating the ethical and regulatory challenges that surround emerging therapies. Using a systematic narrative literature review, this project synthesizes research spanning molecular neuroscience, clinical trials, and neuroethics. Key biological barriers to regeneration, including myelin-associated inhibitors such as Nogo-A, glial scar formation, and intrinsic neuronal growth limitations, are analyzed alongside experimental strategies such as PTEN/mTOR pathway modulation and stem cell-based interventions. While these approaches demonstrate promising advances in promoting neural plasticity and partial functional recovery, their translation into clinical practice remains limited due to both scientific and ethical constraints.
This thesis argues that meaningful progress in stroke rehabilitation requires combinatorial therapeutic strategies through an integrated ethical framework that prioritizes patient safety, autonomy, and equitable access. Building on a comparative analysis of existing regulation models, this project proposes a synthesized governance approach designed to balance innovation with oversight in the global advancement of regenerative medicine. By bridging neuroscience, clinical application, and bioethics, this work demonstrates

that the future of CNS regeneration depends not only on what is biologically possible but also on how to responsibly implement these possibilities within society.

The Role of Chiropractic Care in Concussion Management and Recovery for Student Athletes
Braelynn Anderson
Emily Erb, Ph.D., Assistant Professor of Exercise Science

Concussions are a common form of traumatic brain injury that can impair proper physical, cognitive, and emotional functioning and can be experienced by both students who are athletes and students that do not participate in athletics. All students experience high cognitive demands within academic settings. As such, if a student experiences a concussion, they could have negative learning outcomes in the classroom. Because of this recovery, protocols are necessary for the proper management of concussion symptoms. While there are current protocols that aid in the treatment and management of concussions, the role of chiropractic care in concussion recovery and management is under researched. The purpose of this mixed method, literature-based-review is to investigate the effectiveness of chiropractic care by spinal manipulation and multimodal therapies in managing post-concussion symptoms and improving recovery times in student athletes.

The present study utilizes existing literature, as well as qualitive insights from interviews of members of the Thiel College Concussion Management Team and Doctors of Chiropractic, to better determine what role chiropractic care plays in the management and recovery of concussions. Information reveals that chiropractic care may offer benefits in addressing symptomatology with the cervical spine, such as headaches, vertigo, dizziness, and others that occur post-concussion. Based on numerous case studies and clinical reports, multimodal chiropractic interventions show great success rates. These interventions consist of manual therapy, at home exercises, and nutritional changes to reduce post-concussion symptoms and speed up recovery. However, due to a lack of understanding regarding chiropractic treatment, chiropractors are often under-utilized in the treatment and management of concussions despite evidence that supports the potential role of chiropractic care in managing and improving recovery times for students, specifically, student athletes. Further research is needed to establish proper guidelines and potentially strengthen collaboration amongst healthcare providers and collegiate institutions.

From Farm to Phone: Using Social Media to Connect Producers and Consumers in the Beef Industry
Kendall McLaughlin
Angelo Giannini, M.B.A, Professor of Business Administration and Accounting

In the last seventy-five years, the United States beef cattle herd size has shrunk significantly, recently reaching its lowest point since 1951 at 86.2 million head. This decline is attributed to an increase in input, labor, and land cost. The reduction of herd size has passed issues onto consumers, too, with the price of beef reaching record highs. Despite the increase in consumer cost, producers receive on average only 36.9% of each dollar a consumer pays; in 1980 a producer received 60% of each dollar. As such, short food supply chains (SFSC's) and the direct sale of beef from producers to consumers can serve as an important tool to help producers keep more of the consumers' dollar, while also offering beef at a lower price for the consumer. While viable and presently used, a major setback remains—consumers' decline in agricultural experience and exposure has decreased consumers' understanding of where beef comes from and how it reaches the table. Simply put, most consumers do not know how, where, or from whom to purchase beef directly. By adopting agritourism principles to support SFSC's, the use of social media can create better informed consumers and more financially stable producers. To understand how to implement and combine these themes, this study

consists of a three-part methodology including: a survey measuring experiences in agriculture, preferences towards beef, and social media usage; a social media schedule and plan for optimal implementation; and informational and entertaining social media posted to measure the actual response to the specific marketing. With a total of nearly eighty thousand views on twenty-five posts across three social media platforms in forty days, this study illustrates how it can be used as an important tool for small producers to effectively communicate their story to consumers.

Super Women: An Analysis of Marvel Movies Through a Feminist Lens
Daisy Jenness
Sheila Gross, Ph.D., Associate Professor of English

This study analyzes four different Marvel movies in order to determine how women are portrayed in the franchise. Of the four movies, I focus on two female-feature films, Captain Marvel (2019) and Black Widow (2021), and two male-feature films, Captain America: Civil War (2016) and Spiderman: No Way Home (2021). By applying a feminist approach through the Bechdel test and interrogating the films through postfeminist ideology, I determine whether women in these films are portrayed realistically and fairly. Specifically, I examine the complexity of the characters, their wardrobes, and potential gender microaggressions they may face. All of these points serve as evidence to prove whether the film has postfeminist ideology and if there is realistic and fair representation of the female characters. Realistic and fair representation means women are portrayed as human, not symbols of marriage or sex, while still emphasizing the modern feminist issues they face daily. Postfeminist media paints feminist issues as issues of the past, which can be damaging to viewers' perspectives of women. I argue in my thesis that accurate female representation is incredibly important because of how prevalent popular media is in society today. Many people gain their perception of the world and even themselves through the media; therefore, regardless of the genre of movie, screentime, or nature of the character, women should be represented fairly and realistically.

The Mere-Exposure Effect: Can it Minimize Bias?
Devin Rhoads
Sean McConnor, M.F.A, Professor of Art

Individuals are taught the ways they see, react, and feel about others who are different from them through socialization. Although this is inevitable, I wanted to understand a way to reduce these biases in real-world scenarios. In my presentation, I will discuss the mere-exposure effect and how one′s bias can change over extended exposure. While there is a plethora of research discussing the mere-exposure effect, I found that there is little research done on gender, race, and ethnicity, and how the mere-exposure effect can be used to limit bias. That said, this project will consist of a series of six drawings I made using references of individuals I found in Pittsburgh, Pa. Through these drawings, I analyzed my bias toward individuals using a questionnaire to test the mere exposure effect. The purpose of this study is to determine if the mere-exposure effect can limit bias, prejudice, and discrimination against other races/ethnicities and genders. Through this process, I will be documenting my thoughts, feelings, and reactions of the people I am drawing, along with the questionnaire, to see my original biases about them and my biases after prolonged exposure during the drawing process. That said, this study is significantly important as an example for the future of limiting bias, prejudice, and discrimination against minorities in the United States using the mere-exposure effect.

Addressing Language Barriers to Reduce Construction Workplace Injuries Among Hispanic Workers Through Spanish-Language Safety Training

Natalie Hering
Hope Dropp, Assistant Professor of Environmental Safety Management

The construction industry relies heavily on Hispanic workers to meet the growing demand for skilled labor. Despite their significant role in the workforce, language and educational barriers often limit access to effective safety training and regulatory information. These barriers present challenges for employers seeking to maintain compliance with Occupational Safety and Health Administration (OSHA) regulations and reduce the risk of workplace injuries and fatalities. Hispanic construction workers experience disproportionate injury rates, emphasizing the need for training programs that address language and cultural barriers. The purpose of this thesis is to examine the impact of language barriers for Hispanic workers on construction sites while developing a comprehensive training framework tailored to Hispanic workers. This project presents ten targeted safety training modules addressing common construction hazards, including fall protection, struck-by incidents, equipment-related risks, and other high-risk activities frequently observed on construction sites. The program also incorporates toolbox talks and best-practice reference materials to support implementation by safety professionals in a variety of construction settings. This framework aims to enhance hazard recognition, strengthen compliance efforts, and reduce injury rates on construction sites by improving accessibility to safety education and regulatory knowledge. Ultimately, this research highlights the importance of inclusive safety programming and reinforces employer responsibility in ensuring all workers are properly protected and trained.

Exploring the Academic Consequences of Injuries Among College Athletes

Greg Roae
Kristina Brzoza-Lewis, Ph.D., Assistant Professor of Biology

This presentation takes a deeper dive into the relationship between musculoskeletal sports injuries and their impact on academic performance in student athletes. The scope of this research is specifically on student athletes as they are more likely to obtain a musculoskeletal injury and are typically more impacted by these injuries for a variety of reasons. This topic is important to study as existing research on the connection between sports injuries and impaired academics is dominated by concussions. As a result, other types of athletic injuries are relatively understudied in relation to academics. The goal of this research was to show how the impact of musculoskeletal injuries in student athletes can often cause side effects that lead to struggles academically. This question was answered from several angles through a comprehensive literature review. The first approach is how musculoskeletal injuries cause physiological symptoms, and how the side effects of this can predispose student athletes to struggling academically. The other main section investigates how injuries negatively impact student athletes' mental health, and how this puts student athletes at a higher risk of struggling with school. Lastly, this presentation will discuss why this topic is important and what can be done to help this problem.

China: Economic Dependence and Defection
Rex Dugan
Eric Matthews, Ph.D., Associate Professor of Political Science

This thesis exams whether economic dependence on China predicts defection from Western-aligned voting blocs in the United Nations General Assembly (UNGA) following 2016. Drawing on panel regression data covering over 190 countries from the years 2010 to 2023, my study uses bilateral trade flows tracked through the IMF's Direction of Trade Statistics and countries participation in Chinese Belt and Road Initiative. Utilizing participation data from Aid Data to measure Chinese economic influence, with UNGA ideal point estimates serving as the primary dependent variable. The thesis hypothesized that countries with greater trade dependence on China and BRI membership will exhibit measurable shifts in voting alignment away from Western and US positions. This is expected to be heavily influenced by regime types with the thesis arguing that autocracies will show greater responsiveness to Chinese economic leverage than democracies. This reflects fewer restraints on the implementation of foreign policy and lower opportunity costs. Initial analysis shows support for these expectations, with BRI members showing a visible drift toward Chinese voting positions beginning one to two years after signing a memorandum of understanding. This trend is seen most clearly with resource stressed countries like those members found in sub-Saharan Africa. The findings contribute to debates on asymmetric economic interdependence, the geopolitical consequences of the Belt and Road Initiative, and the structural transformation of the post-Cold War international order.

Suitability of Computational Drug Discovery in Alzheimer's Disease
Jordan Wilhoit
Christopher Morgan, Ph.D., Assistant Professor of Chemistry

Alzheimer's disease (AD), first described in 1907, is the most prevalent neurodegenerative disorder worldwide. Although the primary mechanism of disease progression remains elusive, several neuropathological hallmarks associated with AD have been identified and targeted for current drug development. Existing medications treat symptoms of the disease rather than modifying an underlying mechanism, creating the need for new treatment options. The traditional drug research process is time-intensive, costly, and often does not produce drugs that pass FDA approval. In contrast, computational methods reduce both time and cost and has shown the ability to procure drugs that proceed to late stages of clinical trials. This thesis evaluates the suitability of computational methods in drug discovery for AD by assessing the cost reduction and time saving attributes as well as detailing the decreased risk of failure. Although findings indicate that very few drugs were aided in creation by computational methods, results suggest computational methods are a valuable and suitable resource for AD drug development.

Legal Supplements vs. Banned Substances: A Comparative Study of Health Outcomes in College-Aged Populations
Kaleb McDowell
Carley Fleck, MSN, FNP-C, Clinical Assistant Professor of Nursing

Scholarly research on banned performance enhancing substances has increasingly focused on Selective Androgen Receptor Modulators (SARMs), which are often marketed as safer alternatives to anabolic steroids but remain unapproved for human consumption. SARMs function by selectively binding to androgen receptors in skeletal muscle and bone tissue to stimulate anabolic activity while theoretically minimizing androgenic effects in other tissues. However, clinical and experimental evidence demonstrates

that SARMs still suppress endogenous testosterone production and disrupt the hypothalamic-pituitary-gonadal axis. Reports have also linked SARMs to hepatotoxicity, including drug induced liver injury, and adverse lipid profile changes that may increase long-term cardiovascular risk. Despite being promoted online as "research chemicals," SARMs lack long term safety data, and their endocrine disrupting properties raise significant concerns for young adults whose hormonal systems are still stabilizing. Anabolic androgenic steroids (AAS), which are synthetic derivatives of testosterone, exert more widespread systemic effects and have been extensively studied in relation to cardiovascular and endocrine harm. Chronic AAS use has been associated with suppressed natural testosterone production, infertility, gynecomastia, and long-term endocrine dysfunction due to feedback inhibition of the hypothalamic-pituitary-gonadal axis. Cardiovascular complications are particularly concerning, as AAS use has been linked to hypertension, left ventricular hypertrophy, arrhythmias, and dyslipidemia characterized by reduced high-density lipoprotein (HDL) cholesterol and elevated low-density lipoprotein (LDL) cholesterol. These structural and functional cardiac changes increase the risk of atherosclerosis and sudden cardiac events. Collectively, the literature indicates that both SARMs and anabolic steroids pose significant endocrine and cardiovascular risks, undermining claims that these substances provide performance enhancement without substantial health consequences.

The Revolving Cell Door: How Considering 18-25-Year-Olds as "Juveniles" In Criminal Court Proceedings Could Help Lower Recidivism Rates

Mila A. Brdar
Cynthia Sutton, Ph.D., Professor of Sociology

The juvenile justice system in the United States was initially created to provide more restorative practices to the offending youth in the country but only includes people up to 18 years old. For 18-25-year-olds, recidivism rates (in particular for those occurring up to 3 years after first incarceration) currently sit at about 50-65% for first time offenders. This rate is above national averages (39%), which suggests that these emerging adults (18-25-year-olds) have little connection to restorative efforts as they once did as juveniles. These restorative efforts include prevention studies, rehabilitation, and education for all offenders, which helps them reintegrate into society and learn from the consequences of their actions. Adult offenders are faced with harsher and more punitive measures, such as probation or incarceration, which do not provide any healing or educational outcomes. To mitigate these rapidly increasing recidivism rates, neurological studies and findings have been utilized to prove that brain development for emerging adults is continuing to progress and is not finished, which is similar to the gradual development for juveniles. This neurological similarity proves that decision making skills and overall understanding of delinquency do not morph into maturity when someone turns 18, but continue to develop until the age of 25. For this group of emerging adults, recidivism rates will only continue to rise if they are treated as adults in the criminal justice system due to their lack of sound decision making and understanding of consequences. Implementing preventative measures by considering this group as juveniles within the justice system would provide these offenders with a chance for more restorative efforts which would help lower recidivism rates for not only the particular group, but for the nation as a whole.

ORAL PRESENTATION ABSTRACTS

BIO 499: Directed Student Research

Prevalence and Transmission Dynamics of Toxocara in Rural Pennsylvania
Alexis DeMarco
Mary O'Donnell, Ph.D., Assistant Professor of Biology

Roundworm infections caused by Toxocara canis in dogs and Toxocara cati in cats are common intestinal parasitic diseases with significant veterinary and public health implications due to their zoonotic potential, meaning they can be transmitted from animals to humans. This study aimed to (1) compare the prevalence of roundworm infections between dogs and cats in rural Pennsylvania (Sharon, Hermitage, and New Castle) and (2) evaluate how differences in transmission influence infection rates. It was hypothesized that dogs would exhibit a higher prevalence of infection due to transplacental transmission of T. canis, which allows puppies to be infected before birth. In contrast, T. cati is not transmitted transplacentally and instead infects kittens after birth through milk, environmental exposure, or ingestion of paratenic hosts. Fecal samples were collected from 10 dogs and 10 cats, ranging from 5 months to 1 year of age, during routine veterinary visits, and analyzed by an external laboratory using direct smear and flotation techniques. Animals in this age range may be exposed to multiple transmission routes, so it cannot be definitively determined whether infections originated from transplacental, lactational, or environmental sources.
Results showed that 50% of both dogs and cats tested positive for roundworms, contradicting the initial hypothesis. Additional parasites, including Giardia and hookworms, were observed more frequently in dogs, while cats primarily exhibited Giardia co-infections. These findings suggest that environmental exposure and parasite control practices may play a more significant role in infection rates than species-specific transmission routes alone. Overall, this study demonstrates that both dogs and cats contribute equally to roundworm prevalence in this population and reinforces the importance of routine fecal screening and deworming protocols. Given the zoonotic risk associated with Toxocara species, these findings emphasize the need for continued parasite prevention strategies to protect both animal and human health.

Dirt to DNA: The Bacteriophage Discovery Process
Triston Barr
Mary O'Donnell, Ph.D., Assistant Professor of Biology

Bacteriophages (phages) are viruses that infect bacteria and are a promising alternative to traditional antibiotics. Their study has become increasingly important due to the rise of antibiotic-resistant bacteria, driven in part by the overuse of antibiotics, specifically, in veterinary medicine and agriculture. Agriculture accounts for a large proportion of annual antibiotic use, especially in food animals, and as such, alternative antimicrobial therapies are urgently needed. The purpose of this experiment was to isolate a novel bacteriophage through the Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science (SEAPHAGE) program. A suspected novel bacteriophage was isolated from a soil sample using a direct isolation technique. Purification and amplification of the bacteriophage was carried out through successive serial dilutions and plaque assays. The resulting experiments generated plaque morphologies that were drawn out until they reached concentration of 1.42 x109 PFU/mL, held a purity of 33.9 ng/uL, and a 260/280 value of 1.83. Future work will include DNA processing for sequencing and genome annotation. Sequencing will allow for comparison of this phage's genome to previously identified phages allowing to aid in determining its potential utility in future therapeutic research. This work contributes to ongoing research into phage therapy as a safer and potentially effective alternative to antibiotics, with possible applications in reducing the development of antibiotic resistance.

Macrophage Context as a Determination of Disease Outcomes: Peripheral vs CNS Macrophage Dysregulation

Hayden Tucker
Kristi Brzoza-Lewis, Ph.D., Assistant Professor of Biology

Macrophages are essential immune cells that maintain tissue homeostasis through phagocytosis, cytokine signaling, and regulation of inflammation. While these functions are conserved across various organ systems, their dysregulation produces significantly different outcomes depending on tissue context. In peripheral tissues, macrophage dysfunction contributes to chronic inflammatory diseases such as atherosclerosis, fibrosis, and impaired wound healing. These conditions typically develop gradually and involve prolonged inflammatory signaling and structural remodeling, but are often partially mitigated by the regenerative capacity of peripheral organs.

In contrast, within the central nervous system (CNS), macrophage dysregulation has more immediate and irreversible consequences. Microglia, the resident macrophages of the CNS, are critical for synaptic maintenance and neuronal support; however, excessive or sustained activation can cause synaptic loss and neuronal death. In diseases such as Alzheimer's disease, ischemic stroke, and multiple sclerosis, this dysregulation accelerates neurodegeneration due to the CNS's limited regenerative capacity and reliance on precise neural networks. This work demonstrates that macrophage-driven pathology is shaped not only by shared molecular mechanisms but by the structural and biological environment in which these cells operate. These findings highlight the importance of developing precision immunomodulatory therapies that can account for tissue-specific vulnerabilities while preserving essential immune function.

Discovering a Novel Bacteriophage

Gregory Roae
Mary O'Donnell, Ph.D., Assistant Professor of Biology

In this research, a novel bacteriophage was successfully discovered from an environmental sample and then purified until it was possible to extract its DNA. A bacteriophage is a type of virus that can destroy bacteria cells, while also not damaging other cells. Researching novel bacteriophages is important due to the increasing demand for alternative treatments for antibiotic resistant bacteria. This research was carried out through several methods. An environmental sample was collected and then filtered. The novel bacteriophage was discovered through this isolation process. This Bacteriophage was purified through a series of serial dilutions. The lysate from this series of dilutions was used for the process of DNA extraction. The DNA extraction confirmed the concentration of DNA within the sample was 41.4ng/uL with a 1.61 purity value. The next step for this research is to send it to the University of Pittsburgh to have its genome sequenced and enter this phage into the Actinobacteriophage database.

The Impact of Lunar Change on White-Tailed Deer

Nathaniel Turner
Michael Balas, Ph.D., Professor of Biology

A widely talked about concept within the outdoors and deer hunting communities is the idea that one should hunt during a full moon. The concept lies within the idea that white-tailed deer are more likely to be active and move during a full moon phase than during any other moon phase. One could question the legitimacy of said concept. Wildlife of all types move depending on many other factors, excluding lunar progression. So, is there in fact a relationship between the two, or is this another tall tale created by hunters? Prior tests have proven inconclusive. One source that tested using camera traps claims that there is a relationship between phases and deer movement. Another study that used radio collars claims the opposite. This study used camera traps to test if there is a relationship between moon phases and deer movement. Seven cameras were placed across three separate counties and five different townships in western Pennsylvania. The cameras were monitored sparingly across a period of seven lunar months (201 days) The total number of deer seen per day was totaled and sorted into a data table. Those numbers were used in a regression analysis. The analysis showed very little regression. An examination of the plotted data further showed a lack of association between the day in the lunar cycle and deer movement. It was worth noting that there were multiple instances of deer patterns repeated across isolated two or three-day periods. This could indicate a habitual movement pattern of deer regardless of environmental factors.

EXER 495: Internship

The Effects of Low-Intensity Exercise on Executive Function Fatigue
Kylee Jordan
Emily Erb, Ph.D., Assistant Professor of Exercise Science

Executive functions are utilized daily to respond to one's environment. These functions can include working memory, inhibitory control, and cognitive flexibility, and enable the ability to process higher levels of information experienced throughout the day. However, these functions can become fatigued when needed for longer durations or higher intensities. This leads to a depletion of cognitive resources which can limit one's ability to retain and recall information. Due to this, executive function fatigue can negatively affect individuals within educational settings. Because of this, modalities to mitigate executive function fatigue could benefit students and educators. One such modality could be exercise; however, more research is needed to better determine the intensity and duration of exercise needed to reduce executive function fatigue. Therefore, the purpose of the present study was to investigate the impact of low intensity, short-duration exercise on executive function fatigue. We hypothesized that walking at a light intensity for 10 minutes would reduce executive function fatigue. To investigate this, participants volunteered to come into the laboratory for two visits. During each visit, executive function was assessed via the Go-No-Go Task and N-back Task. These assessments were completed after 10 minutes of quiet rest, completion of a series of cognitively demanding tasks, and after an intervention. The cognitively demanding battery of executive function sequences included: the Flanker Compatibility Test, Oddball (visual), and Choice Reaction Time. The interventions consisted of sitting for 10 minutes, or walking at a low intensity for 10 minutes on a treadmill. Results from this study may be highly beneficial for students and faculty members because walking in-between classes is an accessible resource available to most individuals.

NOTES

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