

Scholarship  
& Arts  
Symposium  
2024



THIEL<sup>™</sup>  
COLLEGE



# SYMPOSIUM SCHEDULE OVERVIEW

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**8:30 a.m. – 8:45 a.m.**

**Welcome and Opening Remarks**

Susan Traverso, Ph.D., President

*Stamm Hall*

**9 a.m. – 12 p.m.**

**Morning Session**

Dietrich Honors Institute Thesis Presentations, *Stamm Hall*

Oral Presentations, *Pedas 125, Pedas 120*

Digital Posters, *Pedas 120*

PA 516 Posters, *Common Area*

**12 p.m. – 1 p.m.**

**LUNCH BREAK**

**1 p.m. – 1:30 p.m.**

**Keynote Address:**

**Streptothricin F and the Fight Against Antibiotic Resistance**

Christopher Morgan, Ph. D., Assistant Professor of Chemistry

*Stamm Hall*

**1:30 p.m. – 3 p.m.**

**Afternoon Session**

Dietrich Honors Institute Thesis Presentations, *Stamm Hall*

SOC 215 Digital Posters, *Pedas 120*

**3 p.m. – 4 p.m.**

**Library Research & Writing Awards**

Closing Reception

*Stamm Hall*

# MORNING SESSIONS

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*ROOM: STAMMHALL*

**Dietrich Honors Institute Thesis Presentations**

**Moderators: David Buck / George Branch-Trevathan**

**9 a.m. – 9:20 a.m.**

**Marlon Ellerbee**

Dunking into the Data: Exploring the Prevalence of Lower Extremity Injuries on Division III College Basketball Team

*G. Kingston, Ed.D., Assistant Professor of Biology*

**9:20 a.m. – 9:40 a.m.**

**Bethany Brodock**

Melodic Intonation Therapy Via Teletherapy: A Case Study with an Adult with Non-Fluent Aphasia

*M.B. Mason, Ph.D., Professor of Communication Sciences and Disorders*

**9:40 a.m. – 10 a.m.**

**Laci Dezern**

Psychoanalyzing the Greek Gods: How Greek Gods and their Myths can be used to explain Psychological Theories and Disorders

*S. Deets, Ph.D., Associate Professor of Psychology*

**10 a.m. – 10:20 a.m.**

**Katherine Aaron**

The Importance of a Greater Understanding of Blue Whale Seasonal Movements to Create More Informed and Efficient Conservation Measures

*A. Reinsel, Ph.D., Professor of Environmental Science and Chemistry*

**10:20 a.m. – 10:40 a.m.**

**BREAK**

**10:40 a.m. – 11 a.m.**

**Gwynne Fuhrer**

The Ethics, Misconceptions, and Future Directions of Stem Cell Research

*M. O'Donnell, Ph.D., Assistant Professor of Biology*

**11 a.m. – 11:20 a.m.**

**Alexander Kovalyak**

What's Better? One or Two? Optometry v. Ophthalmology: The Legislative Battle for America's Vision

*M. Morgan, Ph.D., Professor of Philosophy*

**11:20 a.m. – 11:40 a.m.**

**Connor Lovic**

Autonomous Philanthropy: A New Model for Charity

*J. Gomolchak, Esq., Associate Professor of Business Administration and Accounting*

**11:40 a.m. – 12 p.m.**

**Hailey McClain**

Renewing Representation: The Case for Maximum Age Limits for Congressional Members

*M. Courtemanche, Ph.D., Professor of Political Science*

**ROOM: PEDAS 125**

*Oral Presentations*

**Moderators: Jennifer Broderick / Allan Hunchuk**

**9 a.m. – 9:20 a.m.**

**Anthony Baileys**

Impact of Maternal Feed on Piglet Health

*M. O'Donnell, Ph.D., Assistant Professor of Biology*

**9:20 a.m. – 9:40 a.m.**

**Hunter Knapczyk**

Assessment of Nutritional Knowledge and Dietary Habits of Thiel College Student-Athletes

*J. Broderick, Ph.D., Assistant Professor of Biology*

**9:40 a.m. – 10 a.m.**

**Marissa Locondro**

Developing eDNA methods to detect Pennsylvania Amphibians

*J. Broderick, Ph.D., Assistant Professor of Biology*

**10 a.m. – 10:20 a.m.**

**Sydney Varga**

Using Immunohistochemistry to Determine Whether Stress Alters Expression of Metabotropic Glutamate Receptors in Placental Tissue

*M. O'Donnell, Ph.D., Assistant Professor of Biology*

**10:20 a.m. – 10:40 a.m.**

**BREAK**

**10:40 a.m. – 11 a.m.**

**Emma Galiardi**

The 412 Drug Epidemic: Opioid Use in Relation in Social Stratification in Pittsburgh, Pennsylvania

*A. Hunchuk, Ph.D., Professor of Sociology*

**11 a.m. – 11:20 a.m.**

**Kayla Roddy**

It's All Greek to Me: The Sociology of Sorority Life

*A. Hunchuk, Ph.D., Professor of Sociology*

**11:20 a.m. – 11:40 a.m.**

**Alissa Thames**

Injustice in the Justice System: Racial, Ethnic, and Socio-Economic Disparities

*A. Hunchuk, Ph.D., Professor of Sociology*

**11:40 a.m. – 12 p.m.**

**Kylie Vergnola**

Who Am I and Why Is That Important?: The Sociology of Identity Curation and Influence

*A. Hunchuk, Ph.D., Professor of Sociology*

# ROOM: PEDAS 120

## *Digital Posters*

Moderators: Natalie Homa / Neil Lax

**9 a.m. – 9:10 a.m.**

**Michael Sittig**

The Effect of Aerobic and Anaerobic Training During the Same Mesocycle  
*G. Kingston, Ed.D., Assistant Professor of Biology*

**9:10 a.m. – 9:20 a.m.**

**Megan Everett**

A Proposal to Greenville Borough and Thiel College for a Stormwater Management Solution  
*A. Reinsel, Ph.D., Professor of Environmental Science and Chemistry*

**9:20 a.m. – 9:30 a.m.**

**Carson Britton**

Giving Makes You Happy: The Effect of Prosocial Behavior on Happiness  
*K. Gallagher, Ph.D., Associate Professor of Psychology*

**9:30 a.m. – 9:40 a.m.**

**Samantha Jones**

Exploring the link between trauma, resilience, locus of control, and cultural values  
*N. Homa, Ph.D., Associate Professor of Psychology*

**9:40 a.m. – 9:50 a.m.**

**Paige Long**

The Influence of Stigma against PWID on Public Perceptions of Harm Reduction Policy in Pennsylvania, U.S.  
*N. Homa, Ph.D., Associate Professor of Psychology*

**9:50 a.m. – 10 a.m.**

**Max Ravenscroft**

Crime in the Suites and Crime in the Streets: A Sociological Analysis of the Effects of White-Collar and Blue-Crime on American Society  
*A. Hunchuk, Ph.D., Professor of Sociology*

**10 a.m. – 10:10 a.m.**

**BREAK**

**10:10 a.m. – 10:20 a.m.**

**Cameron Austin, Carson Dombroski, Blake Gibson, Andrew McRoberts**  
Detecting Dopamine Receptor 2 (DR2) Expression within a Mouse Brain  
Utilizing Immunohistochemistry  
*N. Lax, Ph.D., Assistant Professor of Neuroscience*

**10:20 a.m. – 10:30 a.m.**

**Nola Blose, Alyssa Olshanski, Fumika Ebihara, Isabella Zahner**  
Determination of the Regions of the Mouse Brain that Express the mGluR4  
Protein Using Immunohistochemistry  
*N. Lax, Ph.D., Assistant Professor of Neuroscience*

**10:30 a.m. – 10:40 a.m.**

**Kaylee Diefenderfer, Jordan Jennings, Ethan Narby, Marissa Locondro**  
Exploring the Expression of 5-HT<sub>1A</sub> Receptors in the Mouse Brain  
*N. Lax, Ph.D., Assistant Professor of Neuroscience*

**10:40 a.m. – 10:50 a.m.**

**Haylie Kidd, Breanna Martin, Kylee Surrena**  
Detecting Dopamine Neurotransmitter Receptors in Mouse Brains via IHC  
Staining  
*N. Lax, Ph.D., Assistant Professor of Neuroscience*

**10:50 a.m. – 11 a.m.**

**Mitchell Mason, Jon Woge, Cayden Nellis, Andrew Elberty**  
Staining of Serotonin Receptor Subtype 1A (5-HT<sub>1A</sub>) in Mouse Brain Tissue  
*N. Lax, Ph.D., Assistant Professor of Neuroscience*

**11 a.m. – 11:10 a.m.**

**Sofia Mullenix, Sarahy Lopez**  
Measuring the Effects of Salvinorum A using an Alzheimer's Disease model in  
Rodents  
*N. Lax, Ph.D., Assistant Professor of Neuroscience*

**11:10 a.m. – 11:20 a.m.**

**Madeleine White, Lucas Waaland**  
How Stress and CBD have an Effect on Alzheimer's Disease Symptoms in a  
Mouse Model  
*N. Lax, Ph.D., Assistant Professor of Neuroscience*

## ROOM: PEDAS 120

### *Oral Presentations*

**Moderator: Anna Reinsel**

**11 a.m. – 11:20 a.m.**

**Brianne Coatsworth**

Care-Recipient Perception of Burden & Adjustment to Relocation  
Through the Lens of Attachment Theory

*N. Homa, Ph.D., Associate Professor of Psychology*

**11:20 a.m. – 11:40 a.m.**

**Elizabeth Heberlig**

The Effects of Acid Rain on Bedrock

*A. Reinsel, Ph.D., Professor of Environmental Science and Chemistry*

## ROOM: COMMON AREA

### *PA 516: Evidence-Based Medicine & Public Health Posters*

**Research Mentor: Kristel Gallagher**

**10 a.m. – 11 a.m.**

#### **Common Abstract**

The landscape of medical knowledge is constantly changing, and clinicians must remain current in their scope of practice to provide the most effective patient care. The ability to critically search, interpret, and evaluate medical literature is essential in developing the skills necessary to integrate evidence-based answers into clinical practice. Importantly, clinicians need to be able to communicate these evidence-based concepts to both peers and patients. To develop these foundational competencies, graduate students in Thiel College's Master of Science in Physician Assistant program applied their knowledge of evidence-based medicine to conduct data-driven research. Using Wave IV of the National Longitudinal Study of Adolescent to Adult Health dataset, students proposed research questions of clinical interest and answered them using various secondary data analysis techniques with statistical software. The wide variety of topics included mental health, sexually transmitted infections, cancer, preventative behaviors, birth control usage, and more. The final projects will be displayed in the form of research posters that include literature reviews, methodology, descriptive and inferential statistics, and relevance to the physician assistant profession. Please join us to celebrate the hard work of our future PAs!

The Association Between Sleep Disturbances and Household Income in the United States

*Anthony Lefoer PA-S, James Abicunas PA-S, Jon Stemm PA-S*

The Association Between Caffeine and Work-Life Balance in Individuals Who Exercise in the United States

*Brady Moore PA-S, Jack Prothero PA-S, Zach Malicky PA-S*

The Association Between Depression and Exercise in the United States

*Anna Wharry PA-S, Maria Lawborne PA-S*

The Association Between Poor Life Satisfaction and Contracting Human Papilloma Virus in Cigarette Smokers in the United States

*Autumn Duncan, PA-S, Fiona Lam, PA-S, Tony Silva-Fernandez, PA-S*

The Association Between Incarceration, Military Status, and Job Satisfaction in 24–34-year-old Individuals in the United States

*Bryan Merino PA-S, Brooke Phelps PA-S*

The Association Between Job Satisfaction and Suicidal Thoughts in Adults in the United States

*Danielle Sterling PA-S, Ja Ding Pan Labpai PA-S*

The Association Between Birth Control Use and HPV Diagnosis in Adult Females in the United States

*Kayla Martinez PA-S, Feven Kabsay PA-S, Jada Clendenin PA-S*

The Association Between Cancer Diagnosis and Feelings of Isolation in Adults Who Are or Have Ever Been Married in the United States

*Harmony Black PA-S, Aliya Mitchell PA-S, Katelyn Norris PA-S*

The Association Between Hormonal Birth Control and BMI Classification in Women in the United States

*Madeline Lauther PA-S, Caroline Lawrence PA-S*

The Association Between Sunscreen Use and Incidence of Melanoma in the United States

*Mackenzie Maasen PA-S, Miranda Bebe PA-S, Mariab Mosier PA-S*

The Association Between Receiving Public Assistance, Caffeine Consumption, and Gender in the United States

*Marissa Cupp PA-S, Jake Weber PA-S, Marissa Wuilliez PA-S*

The Association Between Weekly Diet Beverage Consumption and Diabetes Diagnoses in Males and Females in the United States

*Sam Sargent PA-S, John Rabon PA-S, Brent Clutter PA-S*

The Association Between Education and Sexually Transmitted Infections in Women in the United States

*Sophia Antonopoulos PA-S, Kalissa Krapf PA-S*

# AFTERNOON SESSIONS

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## ROOM: STAMM HALL

### *Dietrich Honors Institute Thesis Presentations*

Moderators: David Buck / George Branch-Trevathan

**1:30 p.m. – 1:50 p.m.**

**Bradley Molnar**

Pixilated Shackles: Analyzing Corruption in the Video Game Industry

*A. Hunchuk, Ph.D., Professor of Sociology*

**1:50 p.m. – 2:10 p.m.**

**Jason Rau**

The Effectiveness of Educational Campaigns in Preserving the Gray Wolf

*M. Balas, Ph.D., Professor of Biology*

**2:10 p.m. – 2:30 p.m.**

**Cade Wolfe**

Machine Learning for Stock Price Prediction

*R. Richins, Ph.D., Associate Professor of Mathematics and Computer Science*

## ROOM: PEDAS 120

### *SOC 215 Digital Posters*

Moderator: Jared Hanneman

**1:30 p.m. – 1:40 p.m.**

**Mila A. Brdar**

Nurturing nature: examining how minority status affects criminal offender rates

*J. Hanneman, Ph.D., Associate Professor of Sociology*

**1:40 p.m. – 1:50 p.m.**

**Che Fuqua**

Exploring the interplay of low income and crime in black communities

*J. Hanneman, Ph.D., Associate Professor of Sociology*

**1:50 p.m. – 2 p.m.**

**Morgan R. Gerber**

The relationship between gender and health care disparities

*J. Hanneman, Ph.D., Associate Professor of Sociology*

**2 p.m. – 2:10 p.m.**

**Kylie N. Heid**

Smoking during pregnancy: how it affects women in Slovenia

*J. Hanneman, Ph.D., Associate Professor of Sociology*

**2:10 p.m. – 2:20 p.m.**

**BREAK**

**2:20 p.m. – 2:30 p.m.**

**Kendall McLaughlin**

Wealth is (mental) health: income level and education attainment influences feelings of happiness and mental health

*J. Hanneman, Ph.D., Associate Professor of Sociology*

**2:30 p.m. – 2:40 p.m.**

**Kendra E. Pennington**

The link between work hours and stress: an increase in work hours creates an increase in stress

*J. Hanneman, Ph.D., Associate Professor of Sociology*

**2:40 p.m. – 2:50 p.m.**

**Brianna M. Whaley**

Investigation of the influence of age on technology use

*J. Hanneman, Ph.D., Associate Professor of Sociology*

# DIETRICH HONORS INSTITUTE

## THESIS PRESENTATIONS

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### **The Importance of a Greater Understanding of Blue Whale Seasonal Movements to Create More Informed and Efficient Conservation Measures**

Katherine Aaron

*A. Reinsel, Ph.D., Professor of Environmental Science and Chemistry*

Larger marine species, commonly referred to as marine megafauna, are often coined a flagstaff species not only due to their importance in the ecosystem but also because of their charismatic traits. Many species, including blue whales (*Balaenoptera musculus*), in the order of Cetacea, provide ecosystem services to humans as defined and broken down into categories in international assessments such as the Common International Classification of Ecosystem Services (CICES). Through the spreading of knowledge in this specific topic more awareness can be raised for the issues currently plaguing our marine ecosystems starting with the blue whale. Increases in global shipping has led to increases in different types of anthropogenic pollution sources and is leading to the need for more regulation to keep these species around for future generations. A research proposal is implemented into this thesis on how to conduct a research project studying Eastern North Pacific blue whale's seasonal movements over three years off the coast of California. This thesis reflects on why there is a need for more explorative science in the marine science field, specifically with megafauna, and how in doing so there can become more informed and efficient conservation measures made by government officials. These new regulations have the potential to become reinforced through marine parks and policy for global shipping vessels and the routes that they may take.

### **Melodic Intonation Therapy Via Teletherapy: A Case Study with an Adult with Non-Fluent Aphasia**

Bethany Brodock

*M.B. Mason, Ph.D., Professor of Communication Sciences and Disorders*

Stroke is one of the leading causes of aphasia, and creates a population of individuals which requires specific treatments. While various treatments exist, the accessibility of intense aphasia treatments is questionable due to the time commitment it requires from both therapist and client. An example of such a treatment is melodic intonation therapy (MIT), which requires several sessions per week along with homework to keep the brain stimulated. Given that an aphasia patient may not be able to access a clinic that often during a week for several weeks on end, this begs the question of how we can provide this therapy to that population. In this current study, MIT will be provided online to assess the efficacy of the treatment in conjunction with teletherapy. This is accomplished via hour long sessions 3 times a week for 2 weeks with a 84-year old female aphasia case study, along with 15-30 minute long homework for the remaining days of the week. Results from the CLQT+ and AIQ evaluations showed that MIT can effectively be used online, and client-based altered methods should show in a full clinical trial in the future. This can be used as evidence that all intense aphasia treatments can be made accessible for this population, and is worth investigation.

## **Psychoanalyzing the Greek Gods: How Greek Gods and their myths can be used to explain Psychological Theories and Disorders**

Laci Dezern

*S. Deets, Ph.D., Associate Professor of Psychology*

This paper is meant to give a deeper look into the Greek Gods, their myths and stories, and provide a reasoning for the behaviors they show. This will be elucidated with psychological diagnoses from the Diagnostic and Statistical Manual of Mental Disorders 5th edition (American Psychological Association, 2013). Subsequently, each god and goddess will be conceptualized through a specific psychological psychotherapy to help explain their history of behaviors and propose an appropriate disorder. The Greek deities of focus within this paper are Zeus; Hera; Hades; Demeter; Hephaestus; and Artemis. The psychological disorders being presented include narcissistic personality disorder (NPD); paranoid personality disorder (PPD); depression; separation anxiety disorder (SAD); posttraumatic stress disorder (PTSD); and dissociative identity disorder (DID), formally known as multiple personality disorder (MPD). The psychological theories used to conceptualize these deities' behaviors include: Jungian Analytical theory, which deciphers the consciousness and unconscious and how they relate to wellbeing through the integration of the mind, body and soul; Adlerian Theory of Family Constellations, which examines each role a family member carries out emotionally, mentally, as well as how each person impacts the other such as older children being more hardworking, middle children rebellious, youngest children are good observers, and only children are conscientious; Rational Emotive Behavior Therapy (REBT), where dysfunctional thought processes are corrected through modification to thinking and feeling; Logotherapy is needed for those who went through horrific events in life so that they may find happiness and meaning in their everyday life; and Frederick (Fritz) and Laura Perls' Gestalt Differentiation and Contact Theory helps to create awareness of the person's existence and growth in wholly, healthily and in meaningful ways.

## **Dunking into the Data: Exploring the Prevalence of Lower Extremity Injuries on Division III College Basketball Team**

Marlon Ellerbee

*G. Kingston, Ed.D., Assistant Professor of Biology*

Lower extremity injuries represent a pervasive challenge in the realm of college athletics, particularly within the context of basketball. This research endeavors to conduct a comparative analysis along with a statistical analysis of lower extremity injuries sustained by a collegiate basketball team over a four-season temporal span from the 2020-21 season up until the most recent 2023-24. Utilizing a combination of medical records and injury reports obtained and conducted by the Thiel College athletic training staff over the years, this study employs descriptive statistical methodologies and will categorize injuries into type, contact or non-contact and time loss: <1 day (minor), 1<7 days (mild), 7-21 days (moderate), and >21 days (severe). vs non-time loss. Then data obtained from the NCAA Injury Surveillance Program (ISP) will be used to compare results from the five-year span and help get an idea of how Thiel College's injury rates compare to the rest of the NCAA. The findings from this study can then be applied to the upcoming playing season, 2024-25, to develop different prophylactic programs athletes can begin to do in both the pre and off-season to help minimize injury risk.

## **The Ethics, Misconceptions, and Future Directions of Stem Cell Research**

Gwynne Fuhrer

*M. O'Donnell, Ph.D., Assistant Professor of Biology*

There is an abundance of criticism and controversy surrounding the field of stem cell research. This area of research has helped improve lives and has the potential to advance treatments for countless conditions. However, there are aspects of this field that give rise to complex moral and ethical questions. Further, there is a lack of accurate information available regarding the practices involved in stem cell research within the United States. Much of the information presented to the public involves religious or political motives and presents false claims, making it difficult to produce an opinion of whether or not this research is ethically viable. This scientific literature review will discuss the current practices, ethics, misconceptions, and future directions of stem cell research. A focus on scientific information, including the types of stem cells, where and how they are obtained, and what they are used for will be presented. The concepts of embryo creation, embryo destruction and personhood will be considered. It is the goal that with this presented information, one may formulate their own opinion and decide whether or not all or certain aspects of stem cell research should be supported.

## **What's Better? One or Two? Optometry v. Ophthalmology: The Legislative Battle for America's Vision**

Alexander Kovalyak

*M. Morgan, Ph.D., Professor of Philosophy*

In eye care, two professions work together to provide care to their patients: optometrists and ophthalmologists. An optometrist is a Doctor of Optometry. They are educated to provide eye exams, pathology diagnosis, treatment, management, and in some states, laser eye procedures. An ophthalmologist is a medical doctor who specializes in eye surgery. They diagnose and treat eye disease as well. Optometry is a legislative occupation, and it is governed at the state level. Every state has different laws that allow optometrists to perform specific procedures. As patient care volume has risen in America, so too have the responsibilities of optometrists. This has led to a legislative battle between optometry and ophthalmology. Optometry believes that it should be granted permission to perform minimally invasive laser eye procedures. Ophthalmology is strongly opposed to this. While legislation has been passed in several states granting optometrists laser privileges, most of the country has not. This issue now falls onto the patients. Patients have a decision to make, will they save more time, money, and resources by going to their optometrists for a laser procedure? Will they be exchanging safety and convenience for lower levels of care? This research aims to provide an ethical backdrop on a current healthcare issue with small amounts of current literature covering this topic. By considering these factors, the conclusion can be made that it is ethical to expand optometry's scope of practice laws in America for the eye care profession and patients alike.

## **Autonomous Philanthropy: A New Model for Charity**

Connor Lovic

*J. Gomolcbak, Esq., Associate Professor of Business Administration and Accounting*

The mission of philanthropy is hardly a debatable topic, but the acts themselves and the structures of the organizations can be improved upon. I believe that a focus on philanthropic autonomy in reference to the donors, organizations, and the beneficiaries can greatly enhance the social impact of the mission. When the donors understand what exactly they are donating to and how their contribution makes a difference, donors are more likely to continue supporting the cause. When organizations can be transparent with their volunteers and give them a voice, their main workforce can feel determination as well as a sense of purpose in their gracious duties. When the community can have open discussion with the organization, a back and forth can lessen the power imbalance of a “giver-receiver” relationship and produce a more meaningful outcome. Using these ideas, a framework based on autonomy can be created that may assist both new and existing organizations and their missions.

## **Renewing Representation: The Case for Maximum Age Limits for Congressional Members**

Hailey McClain

*M. Courtemanche, Ph.D., Professor of Political Science*

In recent years, the issue of age among elected officials has become a serious topic of discussion. This thesis analyzes the benefits and limitations of implementing a maximum-age requirement for members in Congress. The goal of this analysis is to showcase the strengths of putting into practice such a policy given the importance of these individuals in making decisions on behalf of the nation. This paper will specifically explore cognitive decline, the use of minimum age limits, and the existence of occupations already requiring maximum age limits as justifications for the proposed policy. While it is important to recognize these factors, the topic must also be approached with well-calculated sensitivity. By striking a balance between the potential benefits of age limits and respecting the experience and wisdom that older officials bring to the table, effective governance can be truly representative of the needs and interests of all citizens.

## **Pixilated Shackles: Analyzing Corruption in the Video Game Industry**

Bradley Molnar

*A. Hunchuk, Ph.D., Professor of Sociology*

As an international mode of entertainment, the video game industry presently maintains the position of the world's fastest-growing entertainment mediums, with an annual profit margin of 347 billion USD, over 270,000 employees, and over 3 billion users across every known country and continent as of 2024. However, video games are still a relatively new technology, and, as such, regulations regarding the industry's operation and financial practices outside of content regulation remain virtually non-existent. In this essay, I will examine the history and organization of video games in theory versus in practice and present some of the most significant abuses of employers towards both workers and consumers ranging from financial, to discriminatory, to psychological, and more. The focus of this paper will be comparing qualitative examples of abuse across three major categories of the videogame industry, organization,

workers, and consumers, in comparison to US federal anti-trust statutes, worker treatment assessments, and definitions of psychologically manipulative advertising, while using quantitative data to affirm that these practices constitute a greater theme of systematic corruption in the industry and recommend potential solutions.

## **The Effectiveness of Educational Campaigns in Preserving the Gray Wolf**

Jason Rau

*M. Balas, Ph.D., Professor of Biology*

One of the most controversial of endangered species is the gray wolf. The gray wolf has negative perceptions against it by many people within the United States. Wolves have been viewed as dangerous creatures ever since people arrived in America from Europe. These presumptions resulted in humans displaying prejudice towards wolves and resulted in their elimination from most of the country. In more recent times, many people have displayed a change in attitude from apathy to empathy towards the gray wolf. This resulted in wolves being listed as endangered in the Endangered Species Act, which grants federal protection to these canines. Educational campaigns provide several benefits such as increasing the tolerance people have towards wolves. This method of conservation involves teaching people about the latest facts of the gray wolf in order to separate fictional beliefs from the truth. Educational campaigns also use exposure to wolves in enclosed areas to allow people to see the wolf for what it is in the wild, an animal instead of a monster. These campaigns even allow more people to bring insight about the wolves, such as Native American tribes, in order to combine past beliefs with facts in the present. However, despite these benefits, educational campaigns are not always successful in the goal of increasing people's acceptance of conservational aid to the gray wolf. Thus, this means that there is still more that needs to be done with educational campaigns in order to increase tolerance humans have towards wolves to ensure that the species will survive and not face the risk of extinction.

## **Machine Learning for Stock Price Prediction**

Cade Wolfe

*R. Richins, Ph.D., Associate Professor of Mathematics and Computer Science*

Understanding the nuances of the stock market can create many complexities for the investing public. Investors become involved in the stock market for many different reasons, but they all have a common goal of trying to make the most informed financial decisions possible. My data science thesis aims to predict the price movement of stocks in the S&P 500 using different machine learning models. The thesis will explore models such as regression, k-nearest neighbors, ridge, and binary tree. The outcome of this project will explore the accuracy of these models predicting price movement into six categories and the error ranges for the models. The ultimate goal of this thesis is to create accurate machine learning prediction models that give insights into the complexities of the stock market.

# ORAL PRESENTATIONS

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## **Impact of Maternal Feed on Piglet Health**

Anthony Baileys

*M. O'Donnell, Ph.D., Assistant Professor of Biology*

Pigs have become an integral part of society as both a food resource and as a valuable tool in medical and scientific research. As such, a better understanding of maternal pig health is needed to maximize the number of healthy births. However, understanding health and wellness of domestic pigs and birthing outcomes, is challenging as most pigs are placed on different meal regimen throughout life. This study aims to observe piglet birth outcomes based on maternal feed. To accomplish this aim, 3 experimental groups were used: 1) breeding gilts on traditional sow feed (n=3), 2) show gilts used for breeding on traditional base/supplement feed prior to sow feed (n=3), and 3) sows on sow feed (n=3). Following insemination and birth, data on the number of mummified piglets, stillborn piglets, live births, and weaned piglets were recorded. Results show that when comparing the two gilt categories they do not have a significant enough value to conclude that feed plays a role in piglet health. The ANOVA test showed that the sow category has an increased percentage of births when compared to the gilt categories. Results from this research will help to optimize the health of the piglets and ensure the maximization of births for the various industries.

## **Care-Recipient Perception of Burden & Adjustment to Relocation Through the Lens of Attachment Theory**

Brianne Coatsworth

*N. Homa, Ph.D., Associate Professor of Psychology*

This research examines the relationship between older adults' self-perception of being a burden as a care-recipient and psychosocial adjustment to a residential living facility. This research study also aims to investigate the impact of adult attachment orientation on the above relationship. This study consisted of n=47 participants recruited from St. Paul's Senior Living Community in Greenville, Pennsylvania, whose residencies varied from independent living to assisted living care to nursing care. A self-administered survey was mailed to participating residents and cumulated by the researchers to collect data regarding adult attachment orientation, self-perception of being a burden as a care-recipient, and psychosocial adjustment to long-term residency. The results supported that there was a significant, negative correlation between older adults' self-perception of being a burden and psychosocial adjustment to a long-term residential facility. Furthermore, results proposed that the dimension of attachment orientation acts as a mediator to this relationship. In other words, an older adults dimension of relationship anxiety and dimension of closeness has a significant influence on their self-reported psychosocial adjustment to their relocation to a residential living facility, regardless of their self-perception of being a burden. The population of older adults is anticipated to skyrocket in the ensuing decades not just on a national level, but an international level. With this research, gerontologists can better prepare for the boom in residents in long-term care facilities by evaluating factors that could influence quality of care and quality of life.

## **The 412 Drug Epidemic: Opioid Use in Relation in Social Stratification in Pittsburgh, Pennsylvania**

Emma Galiardi

*A. Hunchuk, Ph.D., Professor of Sociology*

Pittsburgh, Pennsylvania, a thriving and innovative city full of opportunity, has been negatively affected by opioid use and production. This epidemic has impacted the lives of inner-city residents and has made a major impact upon the lower social classes, and has cost the State of Pennsylvania over fifty-three billion dollars. The chemical makeup, production, selling, overdose rates, societal response, and marketing of opioids will be discussed in this paper. Themes of social stratification and opioid use will be examined in this paper.

## **The Effects of Acid Rain on Bedrock**

Elizabeth Heberlig

*A. Reinsel, Ph.D., Professor of Environmental Science and Chemistry*

Acid rain is rain with a pH of less than 4.5 that is formed from sulfur dioxide and nitric oxide reacting with atmospheric water. Acid rain is harmful to the environment affecting water, land and life. Its influence on the bedrock affects the qualities of both water and soils, making these resources harder to use. This study investigated the effects of the components of acid rain on bedrock and water runoff. The focus of the first semester was on sulfuric acid, the second semester on nitric acid and the third semester on a 60/40 ratio of sulfuric acid to nitric acid. Granite and limestone were chosen for the study since they are common bedrocks in Dauphin County, and they have different hardness's based on the Mohs scale. Long term rain exposure was simulated thru a dripping process. The potential formation of an erosion pattern on the bedrock samples was monitored over time. Water quality testing was performed on the runoff water including the pH, Total Dissolved Solids, Alkalinity, and Hardness. The overall goal of the study was to investigate the erosion effects of acid rain on specific bedrocks and how these reactions influence the water quality of these areas.

## **Assessment of Nutritional Knowledge and Dietary Habits of Thiel College Student-Athletes**

Hunter Knapczyk

*J. Broderick, Ph.D., Assistant Professor of Biology*

Nutrition is the science that analyzes the relationship between physiological function and the essential components of the food we consume. The type of nutrition can influence multiple anatomical and physiological features of the human body with improper nutrition leading to the risk of illnesses and eating disorders. To reduce these risks for Student-Athletes, nutritional assessment and monitoring should be considered for implementation at small collegiate institutions which do not receive the same amount of funding as Division I programs that can employ dieticians and nutrition specialists. A 2012 study revealed that 15.3 % of athletes sought a strength and conditioning specialist (SCS) for nutritional knowledge, while 10.5% of athletes sought an athletic trainer (Torress-McGehee et al. 2012). Student-Athletes must be educated on proper nutrition to stay healthy and

improve athletic performance. A 2017 study that involved 46 pre- and post-questionnaires found there was a score improvement of 14% in the group that received nutrition education, and they also reduced their body fat percentage significantly (Rossi et al. 2017). Thiel College athletes were distributed a 21 nutritional knowledge and dietary habit survey where a total of 134 responses were analyzed. In addition, an optional follow-up survey was distributed to volunteers during the middle of the semester, with 14 of the 45 volunteers completing the follow-up survey.

## **Developing eDNA methods to detect Pennsylvanian Amphibians**

Marissa Locondro

*J. Broderick, Ph.D., Assistant Professor of Biology*

Environmental DNA, better known as eDNA, is DNA that has been extracted from an environmental sample which has been released from an organism in the form of urine, feces, mucus, shed cells, or even hair (Kwong et al. 2021). eDNA analysis has emerged as a powerful tool for biodiversity assessment in different types of ecosystems such as terrestrial and aquatic ecosystems. eDNA is especially good at monitoring the movement of and presence of invasive species. This project aims to investigate eDNA as a technique while helping develop methods to investigate two Pennsylvanian frog species collected in conjunction with Dr. Sara McClelland and Moravian University. Northern Leopard Frog (*Lithobates pipiens*) and Gray Treefrog (*Hyla versicolor*) samples were collected at Moravian University before having their DNA extracted at Thiel College. Sample quality was confirmed with gel electrophoresis and nanodrop readings. PCR was done with proposed primers and results confirmed with gel electrophoresis. Long term, this project aims to enhance the scientific understanding of ecosystem dynamics and species distribution. This approach using eDNA can allow scientists to detect any rare or elusive species that may be challenging to monitor through traditional monitoring methods. This project's outcomes will help contribute to biodiversity conservation efforts by allowing scientists insight into the distribution patterns of certain species of amphibians.

## **It's All Greek to Me: The Sociology of Sorority Life**

Kayla Roddy

*A. Hunchuk, Ph.D., Professor of Sociology*

Adult peer groups are a subject that sociologists are studying more and more. The college sorority is sociologically relevant because of the social institution and group dynamic it creates. On the surface level, it may seem to one that sororities are only a social club; however, the purpose of most sororities is to promote sisterhood, and philanthropy, and develop leadership. Sororities display ways in which women adopt role-specific behaviors that are formally encouraged by both official regulations and informally shaped by cultural norms. However, these institutions can also promote a common set of values that enable members to become connected in a way that has a more profound meaning than just social interaction. This paper will examine the presentation of self by those within sororities and will explore the implications of sorority reputations. A synthesis of the symbolic interaction theory and the social exchange theory will help to break down the socialization process between members. It will also aim to examine the differences between sorority life at a big college campus versus a small college campus.

## **Injustice in the Justice System: Racial, Ethnic, and Socio-Economic Disparities**

Alissa Thames

*A. Hunchuk, Ph.D., Professor of Sociology*

In the world today, the only thing we can put our trust in is the justice system, but if there are so many injustices seen within the justice system, can we really trust it? This paper will analyze how the injustices in the justice system have impacted the people's trust. I will focus on three main disparities seen in today's world's racial, socioeconomic, and ethnic disparities. Minorities and individuals with low socioeconomic status have been picked on by the justice system for years, but in current times it seems as though things have gotten worse. Systematic problems have been seen all throughout the justice system, including the juvenile justice system, and they have exceeded the people's trust. Once the trust is lost in the justice system, there is a fear the whole thing will come crashing down.

## **Using Immunohistochemistry to Determine Whether Stress Alters Expression of Metabotropic Glutamate Receptors in Placental Tissue**

Sydney Varga

*M. O'Donnell, Ph.D., Assistant Professor of Biology*

Studies suggest that many environmental impacts can lead to alterations in fetal development. One of the most common environmental impacts that can lead to fetal perturbations include maternal stress and depression. These are among the most common disorder of pregnancy with about 1 in 7 women experiencing perinatal depression and anxiety. Perinatal depression can also extend to the postpartum period, having a significant long-term impact on both maternal and fetal health. However, it is unclear what specific cellular changes are associated with increased stress and stress-related disorders during the perinatal period. Using immunohistochemistry, a study will be completed on stressed and unstressed brain and placental tissue to examine the expression of metabotropic glutamate receptors, a receptor involved in various gene expression pathways. It is hypothesized that tissue from stressed animals will show increased metabotropic glutamate receptor expression. The ultimate goal of this study is to improve our understanding of how perinatal depression can affect both maternal and fetal health.

## **Who Am I and Why Is That Important?: The Sociology of Identity Curation and Influence**

Kylie Vergnola

*A. Hunchuk, Ph.D., Professor of Sociology*

As human beings the unknown is uncomfortable to us. We prefer to have explanations and understanding of the things that occur around us or the experiences that we have. Often, we reduce phenomenon and behavior into key phrases or terms that make it easy to denote what is happening. We use symbols, create stereotypes, and abbreviate our text in order to quickly decipher what is in front of us. These quick identifiers are applicable to our personal explanation of who we are as people. We use race, sexual orientation, age, religion, and personal interests to explain ourselves to others. What happens when we cannot put an exact word, phrase, or explanation to ourselves? What happens when

we question our identity and why is it so important to us that our identity is protected and explained in the correct way? Our identity is central not only to our own perception of self but also to the way we place ourselves within social groups, larger communities, and ultimately society as a whole. The sociology of identity then answers those previously asked questions. By understanding how society at large affects our identity building, we can understand how much of our identity is ours and how much it is dictated by who we are supposed to be.

## **DIGITAL POSTERS**

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### **Detecting Dopamine Receptor 2 (DR2) Expression within a Mouse Brain Utilizing Immunohistochemistry**

Cameron Austin, Carson Dombroski, Blake Gibson, Andrew McRoberts

*N. Lax, Ph.D., Assistant Professor of Neuroscience*

This lab was conducted to explore and visualize DR2 receptor expression within the mouse brain. It was hypothesized the DR2 receptors were located within four separate regions of a mouse brain. These regions included the striatum, basolateral amygdala, ventral tegmental area, and septofimbrial nucleus. After washing and staining the brain with antibodies specific for DR2, the slices underwent a chromogenic reaction before being placed on slides for visualization. All regions showed positive results, indicating the presence of the DR2, with the best staining in the ventral tegmental area. In conclusion, the results supported the hypothesis and clearly showed expression of dopamine receptor 2 throughout the mouse brain.

### **Determination of the Regions of the Mouse Brain that Express the mGluR4 Protein Using Immunohistochemistry**

Nola Blose, Alyssa Olshanski, Fumika Ebihara, Isabella Zahner

*N. Lax, Ph.D., Assistant Professor of Neuroscience*

We determined the regions of the mouse brain that express the metabotropic glutamate receptor 4 (mGluR4). Based on a literature search, we hypothesized that the mGluR4 protein would be expressed in the thalamus, hippocampus dentate gyrus (DG), striatum, and globus pallidus. Our methods of experimentation included using immunohistochemistry with a unique antibody that is selective for mGluR4 protein to visualize the regions of the mouse brain with the receptor present. We found that the thalamus and globus pallidus showed positive staining consistent with the presence of mGluR4. The hippocampus and striatum do not support our hypothesis, as the staining of these regions are inconclusive. We conclude that mGluR4 is present in the thalamus and globus pallidus.

## **Giving Makes You Happy: The Effect of Prosocial Behavior on Happiness**

Carson Britton

*K. Gallagher, Ph.D., Associate Professor of Psychology*

When someone does something for you, how happy does that make you? How about when you do something for someone else? There are not many studies that have been done that measure whether doing something for yourself versus someone else makes you happier. One study measured whether experiential purchases or material purchases made a person happier (Van Boven & Gilovich, 2003). However, this study looked at money spent rather than time spent. Another study looked at prosocial spending by having participants buy candy for kids and other participants buy candy for themselves (Akin et al., 2015). They found that participants were happier after giving the candy to the kids rather than keeping the candy for themselves. The current study expanded on these by examining whether creating something for someone else makes you happier. Participants completed a measure of their current happiness and then created a goody bag, either for themselves or to give to someone else on the Thiel College campus. After creating the goody bag, participants rerated their happiness using the same scale. I hypothesized that participants that gave their goody bag to someone else would report greater increases in their happiness. This type of research is important to everyday life because prosocial behavior, including spending time on others, can make people happier. These findings can benefit college students because of the vigorous demands placed on them that may negatively affect their levels of happiness.

## **Exploring the Expression of 5-HT<sub>1A</sub> Receptors in the Mouse Brain**

Kaylee Diefenderfer, Jordan Jennings, Ethan Narby, Marissa Locondro

*N. Lax, Ph.D., Assistant Professor of Neuroscience*

Serotonin is a neurotransmitter that plays an important role in the regulation of various physiological functions within the central nervous system. Serotonin Receptor Subtype 1A (5-HT<sub>1A</sub>) is a protein that is responsible for mood regulation and neurodevelopment. Immunohistochemistry (IHC), is a useful technique that helps to visualize neurotransmitter receptor expression in the brain. This experiment used IHC to determine if 5-HT<sub>1A</sub> was present in different regions of the brain. The specific areas of the brain studied in this experiment include the amygdala, the hypothalamus, the thalamus, and the hippocampus. It was hypothesized, from conducting prior research, that all of the listed regions of the brain would contain 5-HT<sub>1A</sub>. After staining our brain slices and visualizing them with a microscope, it was determined that none of our brain regions contained our serotonin receptor subtype. Future research should examine if 5-HT<sub>1A</sub> can be found in different regions of the brain.

## **A Proposal to Greenville Borough and Thiel College for a Stormwater Management Solution**

Megan Everett

*A. Reinsel, Ph.D., Professor of Environmental Science and Chemistry*

Stormwater management is put in place to help reduce the amount of runoff into streets and residential areas. This research was conducted in partnership with the Bourgh of Greenville and Thiel College

to address flooding issues at a Thiel owned property at the corner of Vine Alley and Hutcheson Way. Residents of the area were concerned with the amount of water accumulating that was affecting their properties. To address this issue, soil testing was completed on the plot, in addition climatic data for the time period being analyzed was collected. Photographic evidence was gathered throughout the project's scope to aid in the identification of drainage issues. Research was compiled on the best management practices to implement in this situation. Since properties located at higher elevations are Thiel owned, they were also included in this study because of their drainage contributing to the water accumulation. Rain barrels at the uphill locations plus a rain garden at the low spot were determined to be cost effective and sustainable solutions to address the flooding issue.

### **Exploring the link between trauma, resilience, locus of control, and cultural values**

Samantha Jones

*N. Homa, Ph.D., Associate Professor of Psychology*

This research paper analyzes the correlation that exists between individuals who present traumatic experiences and resiliency levels with a focus on internal and external locus of control as well as collectivistic and individualistic perspectives of these individuals. The goal of this research is to determine if traumatic experiences not only are correlated to resiliency but also if traumatic experiences have a relationship with an individual's locus of control. In addition, there is a focus on collectivistic and individualistic thought processes to find a relationship between how one conceptualizes and moves forward from traumatic experiences and their levels of resiliency. To answer these questions, we created a survey that contains five evidence-based scales and questionnaires pertaining to traumatic experiences, resilience levels, locus of control, and collectivism and individualism. This survey was sent to a convenient sample of adults. Correlation analyses will examine if there is a relationship between trauma, how resilient an individual is, and if locus of control and collectivism and individualism strengthens or weakens this relationship.

### **Detecting Dopamine Neurotransmitter Receptors in Mouse Brains via IHC Staining**

Haylie Kidd, Breanna Martin, Kylee Surrena

*N. Lax, Ph.D., Assistant Professor of Neuroscience*

In this experiment, we used immunohistochemistry (IHC) to stain and visualize the dopamine protein receptor subtype 2 (DR2) in the amygdala, dentate gyrus, and the basal ganglia. The hypothesis was that DR2 would be present in all of these areas of the brain causing them to appear darker through the use of chromogenic detecting antibodies. In this experiment, a primary antibody for DR2 was used followed by a secondary antibody that produced a chromogenic reaction. Tissues were then mounted on a slide for visualization with the microscope, In all of our slides we had weak staining. In conclusion, we found DR2 very light on all the slides, indicating negative results. The light staining could be due to several errors made throughout the three-week long experiment.

## **The Influence of Stigma against PWID on Public Perceptions of Harm Reduction Policy in Pennsylvania, U.S.**

Paige Long

*N. Homa, Ph.D., Associate Professor of Psychology*

The purpose of this study was to investigate the influence of demographic characteristics on stigmatizing beliefs, as well as the ability to identify with and accept the “other”. The other was defined as “people who inject drugs” (PWID). The goal was to examine the influence of such stigma against people.

## **Staining of Serotonin Receptor Subtype 1A (5-HT<sub>1A</sub>) in Mouse Brain Tissue**

Mitchell Mason, Jon Woge, Cayden Nellis, Andrew Elberty

*N. Lax, Ph.D., Assistant Professor of Neuroscience*

Immunohistochemistry (IHC) is a very useful technique to be able to identify certain structures and protein locations in the brain. IHC uses antibodies to attach to specific antigens located in certain structures in the brain. Using this we are able to use a chromogenic stain that attaches to the antibody allowing us to visualize the locations of different receptors. By using the cryostat, brain slices from sections 74 (hippocampus), 70 (amygdala), 71 (hypothalamus), and 77 (thalamus) are selected to stain for the Serotonin Receptor Subtype 1A (5-HT<sub>1A</sub>). Through multiple washes in the well plates with various solutions to attach the primary and secondary antibodies for staining, the tissues were incubated through several processes to allow the binding of the antibodies. Once the chromogenic stain was added the tissues were ready for observation under the glass slides. It was observed that the hypothalamus and amygdala were positive for the (5-HT<sub>1A</sub>) receptor and the hippocampus and thalamus were negative. This result is slightly different from the hypothesis that the receptor would be in the thalamus as well as the amygdala and hypothalamus. Some errors in this procedure may include human error and the delicacy of the tissues as a lot of them fell apart. For other projects, this same procedure may be applied to help identify protein structures in the brain of various organisms such as humans and contribute to our understanding of neuroscience.

## **Measuring the Effects of Salvinatorum A using an Alzheimer’s Disease model in Rodents**

Sofia Mullenix, Sarahy Lopez

*N. Lax, Ph.D., Assistant Professor of Neuroscience*

Cognitive decline, a hallmark of various neurodegenerative disorders such as in Alzheimer’s Disease, presents a significant challenge in modern medicine. Despite rigorous exploration, effective remedies for such conditions remain elusive. This study aims to explore the therapeutic potential of Salvinatorum A in alleviating cognitive impairment using an experimental model of memory dysfunction. Employing a scopolamine mouse model, male subjects were exposed to Salvinatorum A following induction of cognitive deficits. Memory assays were administered to evaluate cognitive function, including novel object recognition, T-maze, and Morris Water Maze. It is anticipated that Salvinatorum A will decrease the number of errors in each maze and improve cognitive function related to memory.

## **Crime in the Suites and Crime in the Streets: A Sociological Analysis of the Effects of White-Collar and Blue-Crime on American Society**

Max Ravenscroft

*C. Sutton, Ph.D., Professor of Sociology*

This paper looks at how white-collar crime and blue-collar crime affect American society. Both types of crime will be defined and explained. Structural functionalist, symbolic-interactionist, and conflict theories will be used to help explain each crime category. The impact of both white-collar and blue-collar crime will be discussed in the context of social class and overall impact on American society.

## **The Effect of Aerobic and Anaerobic Training During the Same Mesocycle**

Michael Sittig

*G. Kingston, Ed.D., Assistant Professor of Biology*

While the benefits of aerobic and anaerobic exercise are well-established, the optimal way to incorporate them into training programs remains a topic of debate; this review examines existing research to identify best practices. The differences in these training methods lie primarily in the energy systems used in the body to produce ATP. Aerobic training is energy production in the presence of oxygen and anaerobic training is energy production in the absence of oxygen. This review aimed to define and separate these terms into two distinct categories of physical activity. Engaging in anaerobic and aerobic workouts offers several health benefits. These workouts can aid in reducing the risk factors associated with cardiovascular diseases and obesity. Additionally, they contribute to improved mental health and enhance athletic performance. Combined training has been shown to have positive benefits for athletes and non-athletes of all kinds in producing increased aerobic and anaerobic capacity. When applying combined training to athletes, the specificity of the activity in relation to the demands of the sport must be considered. Combining training methods for athletes have the potential to be beneficial in maintaining training stimulus while also providing a deterrent against over training. By allowing for program design to include aerobic and anaerobic training elements, this will allow for a larger variety of exercises as well as more variety of training methods. The literature shows that combined aerobic and anaerobic training is beneficial when tailored to specific goals and client objectives.

## **How Stress and CBD have an Effect on Alzheimer's Disease Symptoms in a Mouse Model**

Madeleine White, Lucas Waaland

*N. Lax, Ph.D., Assistant Professor of Neuroscience*

Alzheimer's Disease is one of the most prevalent neurological diseases in the world, affecting about 55 million people worldwide. This disease deteriorates the brain, causing intense memory loss. There is currently no cure for Alzheimer's Disease. This research project aimed to strengthen the evidence showing the effects of stress and CBD on Alzheimer's Disease symptoms. A group of eight male C57BI6J mice were used throughout the course of the research. Mice were injected with Scopolamine to induce Alzheimer's Disease symptoms and were injected with CBD or experienced stress to

diminish or enhance the symptoms, respectively. The effect of Alzheimer's was determined by using the Novel Object Recognition Test and the Morris Water Maze Test. The Novel Object Recognition Test was used to measure working memory by recording the amount of time each mouse spent with a novel object after observing two similar objects. The Morris Water Maze Test was used to measure spatial memory by recording the amount of time it took for each mouse to find a platform in a pool of cloudy water based on visual features around the room. Based on these tests, it was hypothesized that the effects of stress would increase Alzheimer's Disease symptoms while the administration of CBD would diminish them.

## **SOC 215 DIGITAL POSTERS**

### *Statistics for Social Sciences*

#### **Nurturing nature: examining how minority status affects criminal offender rates**

Mila A. Brdar

*J. Hanneman, Ph.D., Associate Professor of Sociology*

There is a strong connection between a person's socioeconomic status throughout their lives and the possibility of those persons becoming repeat criminal offenders. Those who are disadvantaged by living with minority status are more likely to end up committing violent crimes or ending up incarcerated at some point in their lifetime. Some of these disparities are caused by lower education levels and lack of exposure, whereas some are due to skewed legislation that negatively affects minorities. I expect to find that there are more members of minority groups within the criminal justice system than those who are a part of the dominant culture. I expect this fact to correlate to lower education levels and the negative environments that these minority groups developed in. These correlations can be measured by using incarceration statistics and examining these on a deeper level by examining the background of each offender. This study will bring to light the apparent correlation between criminal offender rates and minority status.

#### **Exploring the Interplay of Low Income and Crime in Black Communities**

Che Fuqua

*J. Hanneman, Ph.D., Associate Professor of Sociology*

This study explores the complex relationship that exists between crime and low income in Black communities, using leveraging data from the General Social Survey (GSS) to get a social statistical perspective to shed light on the root causes. Recognizing the ongoing inequalities that Black Americans experience, especially with respect to socioeconomic status and criminal activity, this study aims to explore underlying trends and dynamics. Although socioeconomic position and crime rates have been linked in the past, this project especially examines the particular context of Black neighborhoods, where social inequalities frequently aggravate these occurrences. In addition, this research employs an integrated approach that takes into account demographic characteristics, geographical factors, and social indicators in order to provide an extensive understanding of the

relationship between socioeconomic position and crime. It seeks to identify not just the existence of correlation but also the underlying mechanisms and contextual complexities that support these relationships by closely examining the GSS data. The research investigates the relationship between low income and different kinds of criminal conduct recorded in the GSS dataset by using sophisticated statistical approaches. Regression analysis and other inference methods are used to try and clarify the degree to which Black neighborhoods' higher crime rates are a result of economic hardship. The results of this study have important significance for community interventions and policy development that target systemic inequalities and lower crime rates in Black communities. This work advances an enhanced awareness of the complex social factors at play and opens the door for targeted efforts to support economic empowerment and create safer, more resilient communities by utilizing empirical evidence from the GSS dataset.

### **The Relationship Between Gender and Health Care Disparities**

Morgan R. Gerber

*J. Hanneman, Ph.D., Associate Professor of Sociology*

In this paper, the relationship between gender and the health care received based on gender will be evaluated. Health care in America has an abundance of variability regarding quality, quantity, and accessibility. Using sociological paradigms and phenomena between men and women this relation can be further evaluated. Health care can include reproductive health, preventative health care, emergencies, and regular family doctor visits. The ability to see a doctor when needed can be a challenging task. Through health care plans with one job, most people have health care. However, this is not always offered especially in blue-collar or service jobs, which a lot of Americans work in this field. Discrimination based on gender can bar the type of care you receive, as well as your appearance. Men and women can both experience discrimination in the world of health care.

### **Smoking during pregnancy: how it affects women in Slovenia**

Kylie N. Heid

*J. Hanneman, Ph.D., Associate Professor of Sociology*

The consequences for smoking during pregnancy are detrimental. Smoking while being pregnant in Slovenia had been one of the top factors for sudden infant death syndrome. The exact total of infant deaths reported has been 4,800 infant deaths. Along with this alarming statistic there have also been 61,000 low-birth-weight infants recorded that have been birthed by a mother who smoked her entirety of her pregnancy. It is then questioned whether the women who carry these children realize how dangerous it is for them to smoke while pregnant. A survey was sent out to those women in Slovenia, and they were asked to answer honestly. One of the top answers from those women was that they did not have the moral support from the people around them which made it even more difficult to quit smoking. Another shocking result was that it seemed as though the higher the education the women received the less likely they were to smoke while pregnant. There were also women who took the survey and answered by saying they knew the risks but continued to engage in that activity during their pregnancy.

## **Wealth is (mental) health: income level and education attainment influences feelings of happiness and mental health**

Kendall McLaughlin

*J. Hanneman, Ph.D., Associate Professor of Sociology*

Generally, there are many predictors of income such as education level, intelligence, and personality. Happiness levels can be far harder to predict and are more dependent on other factors of lifestyle. Happiness itself also has a broad definition and is hard to encapsulate. Income and education levels can serve as a factor in predicting one's feeling of self-worth, happiness, and status. It can also be used in identifying individuals or communities more susceptible to mental illness. There is a link between increased income level and feelings of general happiness, increased education and feelings of general happiness, and lower income or educational attainment and mental illnesses.

## **The link between work hours and stress: an increase in work hours creates an increase in stress**

Kendra E. Pennington

*J. Hanneman, Ph.D., Associate Professor of Sociology*

From a conducted research set, both the number of hours participants worked along with the amount of stress each participant felt conducts more information that provides more correlation between the two topics. The null hypothesis for this research shows that there is no correlation/relationship between hours of work and amount of stress on a person. The number of hours measured was conducted from a total of 48 respondents. The mean average recorded states that the average numbers of hours worked in a week is 38.25 hours. So, each day during the week shows an average workday of 7.65. When measuring stress, it was recorded from a total of 1413 respondents. It was measured through a minimum/maximum between 1-5. The mean average was 2.98, this infers that between stress levels of 1-5, the average response was 2.98. A third variable to consider is how many days participants needed to miss work due to their mental health state. It was measured from a total of 1411 respondents and asked how many respondents had to miss work due to their mental health in the last 30 days. As it was shown, the mean average was .76 which infers that about 76% of participants recorded they missed work in the last 30 days due to their mental health. This information can show that there may be a relationship between the two topics and is worth further investigation.

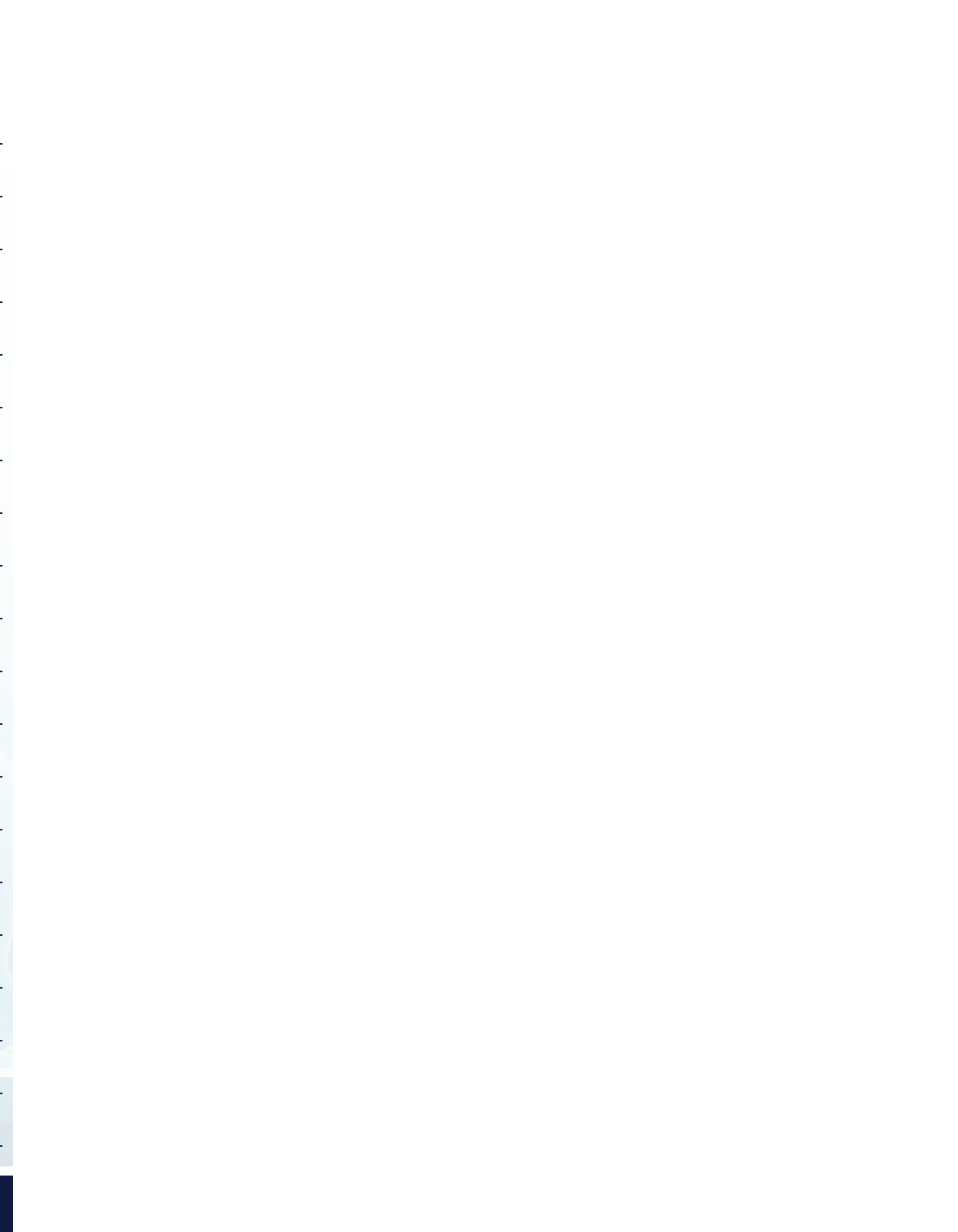
## **Investigation of the influence of age on technology use**

Brianna M. Whaley

*J. Hanneman, Ph.D., Associate Professor of Sociology*

With a sample population of 2002 participants, it was evaluated the use of technology and media along with age. One question was how many books a person read a year and the most responded answer was 0. A follow up question was if the participants owned a cellphone which of the 500 who answered 431 answered yes. Majority of the responses revolved around use of technology use of some form over that of picking up a book. The trend suggests that the more technology advances, the more it is used.







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