

Neumann University



Neumann University Presents
the Thirteenth Annual

LEAD Conference And Poster Symposium

“Leading the Way...”

Presented by the Neumann University
Honors Association in Cooperation with
the Office of the Provost

May 8, 2025



Order of Events

2:30 PM

Check-In

(Outside Bachmann 315)

2:40 PM

Welcome and Overview

(Bachmann 315)

3:00 PM

Presentation Sessions

(Bachmann 315, 316, 317)

4:30 PM

Poster Symposium

(Bayada Atrium, Mirenda Center)

5:45 PM

**Presentation of Certificates
and Awards**

(Bayada Atrium, Mirenda Center)



Oral Presentations A

3:00 – 4:30 p.m.

Bachmann Main Building Room 315

Honors Program Senior Seminar

Supervising Professor: Etsuko Hoshino-Browne, PhD

Skyler Bostedo

The Effects of Loving Kindness Meditation on Reducing Stress and Negative Moods in College Students with ADHD and Learning Disability

The experimental study investigates the effects of loving-kindness meditation on reducing stress and negative mood levels while performing a frustrating task in college students with or without ADHD or a learning disability. Past research has indicated that mindfulness interventions are beneficial for individuals with intellectual disabilities. Additionally, previous studies have utilized mindfulness meditation interventions, such as meditation or yoga, to alleviate the stress that college students face due to ADHD or learning disabilities (e.g., dyslexia). Very few studies, if any, examined such effects of meditation on students with ADHD or learning disabilities. Thus, this experimental study determines whether loving-kindness meditation can reduce stress and negative moods among students with and without ADHD or learning disability. Participants are randomly assigned to either watch a loving-kindness meditation video (the experimental condition) or a nature video on sea anemone (the control condition). Then they were informed that they would play an online task that requires a great deal of focused attention. Before they completed the online task, they filled out a questionnaire that measured the level of stress and mood. It predicted loving-kindness meditation video would lower participants' stress levels and negative moods among participants with ADHD or a learning disability, in comparison to those without ADHD or a learning disability or those in the control condition. In this presentation, the findings and their implications of mindfulness intervention for students with ADHD or learning disability are discussed.

Lauren Eagle

Social Emotional Lessons Without a Curriculum: Teacher Perceptions of Lesson Effectiveness across the School Year

While social-emotional learning (SEL) programs have been shown to support children's social-emotional development in numerous studies, much fewer studies have explored how preschool teachers perceive the effectiveness of SEL lessons, especially when they do not use formal SEL curriculum. The current qualitative study examined how preschool teachers perceive SEL instruction and its relationship to student behavior and social emotional development over time. Five teachers and one preschool director were interviewed on their experiences teaching SEL lessons. They were also asked to provide examples of how they have observed changes in students' social-emotional development throughout the school year. It was predicted that teachers would report observing growth in students' social-emotional development, even without a formal SEL curriculum, suggesting that consistent SEL instruction, regardless of structure, may be a key factor in promoting positive student outcomes. In this presentation, the findings and their implications for preschool SEL lessons will be discussed.

Samantha Holmburg***Mindfulness as a Coping Strategy for Academic Stress in College Students***

Past research found that an increase in self-efficacy can decrease academic stress among college students. Additionally, past research suggested that coping strategies such as mindfulness can decrease academic stress. However, the association between academic self-efficacy and coping strategies was not examined extensively in past research. The present research examined how these three variables of academic stress, academic self-efficacy, and mindfulness tendency are correlated among college students. It was predicted that the higher academic self-efficacy, the stronger mindfulness tendency and the less academic stress college students would report. Lastly, it was predicted that stronger mindfulness tendency would correlate with lower academic stress. In this presentation, the findings and their implications for college students' academic stress will be discussed.

Emma Schneider***Critical Factors for Nursing Students' Wellbeing: Sleep Quality, Academic Stress, and Trust in Faculty***

The current study investigated factors that can impact nursing students such as: interpersonal relationships with faculty members, sleep quality, perception of workload, and burnout symptoms. Undergraduate nursing education can be a great source of stress and sleep disturbances in students. Additionally, nursing as a major has been noted to be one of the most difficult areas of study. This is due to the intense workload, time demands, and testing schedules. Sleep has been regarded as an important factor in academic performance for nursing students and memory consolidation but has not been largely studied for a correlation with wellbeing. Associations with trust in faculty or workload are also not commonly studied in relation to wellbeing. The current survey study aimed to highlight correlations among sleep quality, perceived workload, burnout symptoms, and interpersonal relationship with faculty. The findings and implications for characteristics of nursing students' wellbeing are discussed.

Madison Wright***The Association Between Perception of Stereotype Threat, Academic Self-Efficacy, and Perception of Social Isolation***

The psychological phenomenon of stereotype threat which refers to an individual's anxiety of reaffirming negative stereotypes surrounding parts of their identity has been linked to other issues related to academic achievement, stress levels, and social behaviors (Steele & Aronson, 1999). It has also been found that individuals of all ages may experience stereotype threat which may be related to self-esteem and self-efficacy. While past research has investigated stereotype threat and concepts including memory, academic achievement, and loneliness, these variables were often examined separately. There is still little research that documents the association between stereotype threat, people's perceptions of their own ability to be successful in an academic sense, and their perceived social support. The present study examines the correlation between individuals' perceived stereotype threat, academic self-efficacy, as well as their perceived social isolation among university students. Based on the previous literature regarding stereotype threat, a negative correlation between stereotype threat and academic self-efficacy as well as social isolation was predicted. In this presentation, the findings will be shared and the implications concerning college students will be discussed.



Oral Presentations B

3:00 – 4:30 p.m.

Bachmann Main Building Room 316

Theology/Sociology

Supervising Professor: John V. Kruse, PhD

Sean Maloney

Improving the US Healthcare System through Cultural Encounter

This presentation will focus on how the United States of America's healthcare system can be improved by introducing some methods created by other countries' healthcare systems during COVID-19. In his encyclical *Fratelli Tutti*, Pope Francis calls us to solidarity and to a culture of encounter. Building off of Pope Francis' central themes of solidarity, human dignity and the pursuit of the common good, this presentation will explore how the United States of America can create a better health care system through dialogue with other countries. Such dialogue can help the United States to explore and learn from methods used by other countries during the COVID-19 pandemic. Pope Francis' emphasis on solidarity and dialogue can help the United States improve its health care system by allowing a culture of encounter to develop between the United States and other countries.

Anthony Taylor

Today Is Not My First Day: The Experience Paradox of Veterans in the Workplace

Today Is Not My First Day: The Experience Paradox of Veterans in the Workplace explores the challenges veterans face as they transition from military service to civilian employment. Despite possessing valuable skills like leadership, discipline, and resilience, veterans often struggle to align their military experiences with civilian workplace expectations. This presentation examines the paradox of veterans' experience - how their expertise can be both an asset and a barrier. Key challenges include cultural differences, misinterpretation of military roles, and identity shifts in a non-military environment. The session also offers strategies for organizations to better support veterans, foster inclusivity, and leverage their unique strengths. By understanding these dynamics, employers can help veterans successfully integrate into civilian workplaces, benefiting both the individual and the organization.

Drew Tisdell

The Principles of Fratelli Tutti and Their Impact on Social Welfare

Pope Francis' 2020 encyclical Fratelli Tutti addresses a wide range of human-mediated threats we face as a planet. Issues surrounding economic inequality, labor rights, and providing for one another are of particular note in the encyclical. This presentation explores how the degree to which welfare policies adhere to principles espoused in Fratelli Tutti can impact the success of those policies. The four themes most critical to welfare were found to be equity, solidarity, fraternity, and dignity. Using these themes as lens, five policy topics will be analyzed: U.S. healthcare, Medicaid, the Supplemental Nutrition Program (SNAP/EBT), U.S. education systems, and Finnish education systems. These policies in particular were selected due to the contrasts between them in terms of how successful their outcomes were. Each policy will be analyzed in relation to how aligned it is with principles found in Fratelli Tutti and how effective it has been in achieving its intended purpose. Repeated over various cases, a pattern regarding how these principles have impacted welfare implementation emerges from which conclusions can be drawn.

Sa'Niya Watson

The Ethical Responsibility to Help Those in Need: Insights from Fratelli Tutti and Other Christian Perspectives

Have you ever walked past someone who looked like they needed help, but did not stop to help? Do you ever wonder how much you could have impacted another person if you would have been considerate and just lent a helping hand? Society often lacks compassion and a sense of its moral responsibility to help others, particularly when it comes to wealthier individuals and their role in serving the common good. Pope Francis, in his encyclical Fratelli Tutti, and other Christian perspectives, including Neumann University's Core Values, argue for this moral responsibility, which should be formed from a genuine sense of solidarity and fraternity. In Fratelli Tutti, Pope Francis calls for compassion and for those who are more fortunate to provide the less fortunate with the basic necessities that they should have. Failing to do so fosters inequality and creates division, while doing so strengthens communities and promotes genuine relationships. Similarly, Christian teaching emphasizes generosity and caring for the poor, with the wealthy bearing a greater responsibility due to their resources. Being selfish with wealth not only displays no sympathy or compassion but also harms society. This presentation will display how solidarity, compassion, and serving the common good can improve how we live our everyday lives.



Oral Presentations C

3:00 – 4:30 p.m.

Bachmann Main Building Room 317

Theology/Sociology

Supervising Professor: John V. Kruse, PhD

Allen Daniely

The Social Media Paradox: Connection or Isolation

In a world where digital connectivity is more prevalent than ever, social media serves as a leading factor in the weakening state of authentic human relationships. While these platforms promise the opportunity of connection, this promise is broken with superficial interactions, division, and social isolation. This presentation will serve as a critical analysis of the impact of social media through the lens of Pope Francis' encyclical Fratelli Tutti, in which Francis calls for genuine human encounters and solidarity. Integrating theological insights with this analysis will help to explore the effect social media has on human relationships and to determine more positive ways for social media to be used.

Milan Furbush

Understanding and Overcoming the Fear of the "Other": Psychological Insights into Pope Francis' Fratelli Tutti

This presentation examines the intersection of psychological research on fear and Pope Francis's call for universal fraternity in Fratelli Tutti. While fear is a natural and necessary human response to perceived threats, it can also be a powerful force for division, isolation, and discrimination. Psychological studies reveal how fear influences perception, behavior, and social relationships and often reinforces distrust and social fragmentation. Pope Francis warns against this cycle of fear, which he sees as leading to exclusion and the prevention of genuine human connection. By analyzing the roots of fear and integrating psychological insights with Fratelli Tutti's themes of dialogue, empathy, and social friendship, this presentation will explore practical strategies for individuals and communities to overcome fear. It will highlight how expanding social connections, engaging in open dialogue, and embracing vulnerability can transform fear into a catalyst for unity. Through real-life applications, this presentation will demonstrate how addressing fear at both an individual and societal level fosters compassion, strengthens solidarity, and contributes to a more inclusive and just world.

Burglynn Hoff

Black History Is American History

(Supervisor: Preeti Singh)

Black history is not a separate or supplementary narrative, it is American history in its fullest, most honest form. Black Americans have played a prominent role in shaping America to be what it is today ever since slavery. It seems that when speaking about American history, many people tend to avoid slave topics, or anything related to the oppression and mistreatment of black people. Why? Slavery, as dehumanizing, immoral, inexcusable, and violent as it was due to the exploitation of black people, it still created the foundation for key industries such as cotton, sugar and tobacco. The wealth generated through slavery financed infrastructure, helped establish banks and insurance companies, and laid the groundwork for American capitalism. Politically, slavery shaped the structure of the U.S. government, including amendments written into the Constitution, and remained a central issue in American life until the Civil War. Black history fosters a more accurate, inclusive, and transformative understanding of the nation's past and present. Recognizing Black history as American history is not simply an act of inclusion, it is an essential commitment to truth, justice, and national integrity.

Michael Neumann

How Pope Francis Provides The Business World With Insight Into The Importance of Interpersonal Communication

Have you ever wondered why some businesses are successful and others fail? This presentation will explore the important role interpersonal communication plays in business success. Perhaps surprisingly, through his encyclical Fratelli Tutti, Pope Francis can provide the business world with insight into the significance of interpersonal communication and how to improve the different types of interpersonal communication. Evidence from personal experience within the business office of the Super Bowl LIX Champions Philadelphia Eagles further highlights the importance of interpersonal communication to successful businesses.

Sara Tercha

Buy Now, Pay Later: The Effects of Consumerism on Relationships

Buying anything we want is good, right? We bought a product, got rid of something old and are happy with it, but at what cost? Could there be consequences of these actions? In an age that is dominated by technology, consuming has never been easier. Because of things like social media, online shopping and personalized advertising, you can get whatever you want with one click. Although very easy, consumerism is actually a two-fold issue. It affects both interpersonal and global relationships. On the one hand, excessive spending can lead to debt, fights and isolation from the other person. On the other hand, excessive spending can lead to pollution and worsening of landfills. In his encyclical Fratelli Tutti, Pope Francis addresses the damages of consumerism and how it connects to his ideas he stresses throughout his encyclical. This presentation will discuss different ideas from Fratelli Tutti like the importance of dialogue and human dignity, and how they are interconnected to consumerism and its effects. The research that was conducted will demonstrate that consumerism is more detrimental than what meets the eye.



Poster Symposium

4:30 – 6:00 p.m.

Bayada Atrium, Mirenda Center

ATHLETIC TRAINING, MS

Supervising Professor: Andrea Lobacz, PhD

Javon Felix

ATR-01

Self-Perception of Cultural Competency in Athletic Trainers: A Critically Appraised Topic

Clinical scenario: In healthcare, minority communities often feel underserved, primarily due to language barriers between clinicians and patients. Cultural competency refers to the capacity to comprehend, interact, and communicate with people from a variety of cultural backgrounds. This challenge is particularly pronounced in sports medicine. Athletic trainers are tasked with the critical responsibility of providing effective care in a comprehensible manner, sometimes needing to translate complex medical information for athletes. When minority athletes feel underserved, it raises concerns about the perceived cultural competency of athletic trainers and other healthcare professionals, ultimately questioning their ability to effectively support athletes from foreign or non-English speaking backgrounds.

Focused Clinical Question: Do athletic trainers perceive themselves as culturally competent?

Summary of key findings: There is evidence to show that athletic trainers acknowledge the existence of their own cultural competency; this was found through three individual studies. The first study showed that there is a desire to expand upon cultural competency in education. The second study displayed the demographic of being a white woman in athletic training has shown to be very culturally competent. And the last study concluded that athletic trainers had little training that emphasized cultural competency.

Clinical bottom line: Cultural Competency needs to become more of a pressing matter in the education of athletic trainers as it shows the aptitude for more complex patient care.

Megan Frame

ATR-02

The Impact of Hip Mobility on Lower Extremity Function in High School Athletes

Proper hip mobility is essential for activities of daily living, while inadequate mobility, particularly due to hip flexor tightness, may contribute to abnormal pelvic tilt, which can lead to postural deficits and increased risk of lower extremity injury. The relationship between hip mechanics and lower extremity function remains underexplored, and further evaluation may help identify how movement imbalances contribute to injury risk in younger populations. This study aimed to examine the effect of hip flexor tightness on pelvic alignment and explore its relationship with lower extremity function in high school athletes. A goniometer was used to measure range of motion during active hip extension. Anterior pelvic tilt was measured with a Palpation Meter (PALM) and the Lower Extremity Functional Scale (LEFS) questionnaire was administered to each participant. The participants were male and female high school athletes, ages 14-18, at the junior varsity or

varsity level, who had a lower extremity injury in the past 6 months. The control group consisted of male and female high school athletes without lower extremity injuries in the past 6 months. The study illustrated a cross-sectional research design, utilizing a 2-way ANOVA. The results of the study will assess if hip flexor tightness causes abnormal pelvic positioning, affecting hip joint function in high school athletes. Examining the relationship between lower extremity injuries and hip mobility is essential to better understand injury prevention and rehabilitation strategies at the secondary level.

Lisa Golob

ATR-03

Understanding Sickle Cell Trait in High School Athletes: Testing, Awareness, and Safety Practices Among Athletic Trainers

Sickle cell trait (SCT) is a genetic condition affecting millions of individuals worldwide, including many athletes. Although individuals with SCT are typically asymptomatic, they face an increased risk of severe complications during intense physical exertion, such as exertional heat stroke, rhabdomyolysis, and sudden death. Despite these risks, SCT screening practices are not consistently implemented in secondary schools, leaving student-athletes with the trait vulnerable to potentially life-threatening outcomes. The purpose of this study was to assess the awareness and implementation of SCT screening practices among athletic trainers working in secondary school settings. Specifically, the study examined how athletic trainers' knowledge of SCT influences the implementation of mandatory testing for high school athletes and how SCT education affects athlete safety during physical activity. Data were collected via an online survey distributed to certified athletic trainers across the United States. The survey included Likert-scale items addressing demographics, knowledge of SCT, current screening practices, perceived barriers to implementation, and prior educational training on SCT. Descriptive statistics were used to summarize participant responses, and chi-square analyses were conducted to explore associations between awareness and screening practices. The findings will help identify gaps in knowledge and inform future recommendations for enhancing SCT education and screening practices, with the goal of improving athlete safety in secondary school sports.

Ty Hagen

ATR-04

Current Public Perceptions of the Athletic Training Profession

Athletic training is a relatively young and continuously evolving healthcare profession. Despite its growth, there remains a general lack of public understanding regarding the roles and perceived value of athletic trainers (ATs). Improving public awareness of ATs' responsibilities and contributions may enhance the profession's visibility, increase recognition as healthcare providers, and potentially lead to better compensation. The purpose of this study was to assess public perceptions and knowledge of athletic trainers among individuals outside the athletic training profession. This study was conducted via an online survey distributed by email and physical fliers to clinical settings, high schools, and universities, and posted on social media. Participants included anyone who was not currently or previously a certified AT or was currently in AT school. The survey included quantitative items measuring knowledge and perceived value, along with open-ended qualitative questions to explore reasons behind public perceptions. Data were analyzed using descriptive and inferential statistics, including chi-square analyses and correlation coefficients to examine relationships between knowledge and perceived value. The findings provide insight into the public understanding of the profession and inform strategies to elevate awareness and recognition of athletic trainers in broader society.

Effects of Anxiety on the Performance of Collegiate Athletes Who Have Sustained an Injury

Every year, 3 to 7 million people in the United States sustain sports-related injuries, which often lead to both physical pain and psychological effects, such as fear of re-injury. Anxiety is a common psychological response to injury and may negatively affect an athlete's physical rehabilitation, mental well-being, and return-to-sport outcomes. While the relationship between psychological factors and athletic performance has been increasingly studied, limited research has focused specifically on how anxiety influences injured athletes' ability to return to their pre-injury performance level. This study aimed to assess how anxiety, particularly fear of re-injury, affected the performance of collegiate athletes recovering from injury, with the goal of developing strategies to improve both their psychological and athletic recovery. An online survey was used to assess anxiety levels and perceived changes in athletic performance. It examined variables such as mental focus, confidence, and physical recovery, utilizing a Likert scale for measurement. Participants were student-athletes who had sustained injuries that prevented them from competing. Descriptive statistics were used to summarize participant responses and correlation coefficients were calculated to analyze the relationship between anxiety levels and post-injury athletic performance. This presentation will discuss the study's results and explore the effectiveness of targeted mental health interventions in reducing anxiety and improving both the psychological well-being and athletic performance of injured athletes.

Impact of Various Employment Settings on Job Satisfaction and Burnout Amongst Athletic Trainers

Athletic trainers (ATs) face numerous occupational stressors, including managing athlete health, addressing multiple injuries simultaneously, and navigating interpersonal conflicts with athletes, parents, or coaches. These ongoing demands can lead to chronic stress and burnout, characterized by mental, physical, and emotional exhaustion. Burnout negatively affects job performance and increases attrition risk, making it a significant concern within the profession. This study investigated how employment setting—NCAA universities vs. secondary schools—affects burnout and job satisfaction among certified athletic trainers, addressing a gap in research comparing these two environments. The purpose of this study was to determine whether burnout rates differed significantly between these two settings. This study utilized an online survey distributed through NATA Research Survey Services, incorporating the Copenhagen Burnout Inventory and collecting demographic and professional data such as employment setting, age, sex, and experience. Participants included full-time certified athletic trainers working in either NCAA institutions or secondary school settings. It was hypothesized that NCAA athletic trainers experienced higher burnout due to the intense, competitive, and time-demanding nature of collegiate sports. Descriptive statistics summarized participant demographics and burnout levels, and inferential analyses were conducted to compare burnout rates between the two employment settings. Findings from this study aim to identify high-stress environments and guide resource allocation such as support staff, training, and mental health services, to reduce burnout in athletic trainers.



BIOLOGY

Supervising Professors: Dr. Matthew Mastropaolo, Dr. Sarah Burke, Professor Wendy White, Dr. Jude Okoyeh, Dr. Victor Fomin, and Dr. Amy Brown

Lanasia Boyd-Miller **BIO-01**
Senior Biology Seminar Project

Michelle Campos **BIO-02**
Senior Biology Seminar Project

Nezayja Brown **BIO-03**
Senior Biology Seminar Project

Urinalysis is a fundamental diagnostic tool in clinical laboratories, and automation plays a key role in improving accuracy and efficiency. However, selecting the most effective instrumentation remains a challenge for labs of varying sizes and needs. This study was a comparative review of the Beckman Coulter iChemVELOCITY with iQ200 and the DxU Iris Workcell to determine which system provides better performance for urinalysis based on workflow efficiency, efficiency, accuracy and precision, and cost-effectiveness. Instrument workflows were summarized from manufacturer documentation. Parameters such as sample preparation, automation level, processing speed, and cost factors were compared. The Workcell reduced manual intervention and turnaround time while projecting long-term savings for the laboratory. For modern and high-performance clinical laboratories, the DxU Iris Workcell is the more efficient option. However, the iChemVELOCITY is a viable option for low-volume laboratories.

Grace Clark **BIO-04**
Casein Protein Quantification: Comparing BCA assay and the Genesys

Many biochemical procedures involve the use of chemicals that pose dangers to people and the environment. One of these dangerous procedures, the bicinchoninic acid (BCA) assay, the bichinchonic acid (BCA) assay uses BCA to quantify proteins but poses hazards to the environment. Additionally, multiple other assays have been tested and deemed inefficient incorrectly quantifying protein concentrations. In an effort to find a different method that can be used to test protein quantification, we performed a typical BCA assay and compared the results to a Genesys UV spectrophotometer. The BCA assay gave a calculated casein concentration of 17.84 mg/mL and the Genesys gave a concentration of 6.28mg/mL. Both tests showed significant T-test values. The T value for the Genesys was -0.45 and for the typical BCA assay, it was 6.48. The small value for the Genesys demonstrates that these values were closer to what was expected. Although promising, further testing should be done to determine if using the Genesys is truly a reliable replacement for BCA assays in determining protein concentration.

Adrianna Day **BIO-05**
Senior Biology Seminar Project

This study investigated the effect of dextrose on the freezing point of white chocolate through the principle of freezing point depression. This was to find an alternative freezing point depression experiment compared to

the typical ones used in college general chemistry that uses harsher chemicals that cost money to dispose of. White chocolate, composed primarily of cocoa butter, sugar, and milk solids, was combined with varying amounts of dextrose to determine changes in freezing behavior. The mixtures were melted and then cooled incrementally in an ice bath. Results demonstrated that increasing dextrose concentrations progressively lowered the freezing point of the white chocolate mixture. The initial freezing point of pure white chocolate was 19°C, which decreased to as low as 11°C with the highest concentration of dextrose. These findings suggest that solute concentration can significantly influence freezing characteristics of white chocolate, a sustainable alternative to traditional general chemistry experiments for studying freezing point depression.

Angelo Giannopoulos
Senior Biology Seminar Project

BIO-06

Bacteriophages, or phages, are viruses that infect bacteria, and they're gaining a lot of attention as a possible treatment complementary to antibiotics, especially with the rise of antibiotic-resistant infections. In this project, the genome of a specific phage called PierreOrion was analyzed to better understand how it infects its host and how it's related to other known phages. Using a variety of bioinformatics tools like GeneMark, PECAAN, BLAST, HHpred, and Phamerator, genes responsible for important structural parts were found. These include the capsid and tail, as well as others involved in DNA replication and breaking down the host cell. These include holins and endolysins, suggesting that PierreOrion follows a lytic life cycle. It was found that there are regulatory elements that likely help control the expression of these genes. When comparing PierreOrion to similar phages like Jefe and Paschalis, strong genetic similarities were seen, especially in tail fiber proteins, which suggests they might infect bacteria in similar ways and share a common ancestor. Overall, these findings give us a clearer picture of how this phage works, and how it fits into the bigger picture of phage evolution. Additionally, they help support the idea that phages, like PierreOrion, could one day play a role in treating bacterial infections.

Aaliyah Glenn-Alvarez
Senior Biology Seminar Project

BIO-07

Janell Goldsmith
Senior Biology Seminar Project

BIO-08

Ammonium Nitrate is one of the many fertilizers that promote plant growth. Given this I wanted to determine how ammonium nitrate affects the growth of the Alyssum plant. I hypothesized that increased Ammonium nitrate would decrease plant growth. To do this, growth of the Alyssum flower was monitored for six weeks at five concentrations of ammonium nitrate ranging from 3mM to 2.7M. A control group was watered with diH2O. The results supported my hypothesis in terms of mass, leaf count, and length, although there were a few exceptions. Growth of the plants were best at 30mM and worst at 2.7M, with no growth at all. The control grew less than the 3mM, 10mM, and 30mM concentrations. The 90mM died in week 5. All plants were subjected to the same conditions except for the concentrations, but the stems for a lot of the plants were different colors, thus, it could be said that some of the plants could not grow as well due to heat stress. Additional studies would be necessary to explore this further.

Ashley Greene

BIO-09

PierreOrion Bacteriophage Annotation

PierreOrion was first discovered by by Jonas Piffath, Izora Williams, and Makayla Meyer in Bel Air, Maryland United States in the year 2022. The bacteria *Microbacterium foliorum* (NRRL B-24224) was used to isolate it. The phage was classified under the EC cluster, which consists of 49 lytic members. The genes were originally annotated at Harford Community College but was later adopted by Neumann University and annotated by seniors using software such as PECAAN, PhagesDB, NCBI Blast, Hhpred, Phamerator, SOSUI, TOPCONS, TMHMM, and DeepTMHMM. It was found that of the 30 of 90 genes annotated only 6 genes (1, 3, 20, 25, 27, and 30) had functions. This data was put into PECAAN with each functioning gene having a different proposal. PierreOrion shares a 95% gene similarity with cluster EC Antares, with the purpose of this project to annotate the 90 genes and find their assigned functions.

Janet Karbbar

BIO-10

Senior Biology Seminar Project

Salina Keita

BIO-11

Senior Biology Seminar Project

Osmometers are important tools used in laboratories to measure how concentrated a liquid is by counting the number of dissolved particles. This kind of testing is useful in many fields, such as medical diagnostics, biotechnology, drug development, and food and beverage quality control. In this study, two commonly used osmometers, the OsmoTECH XT and the OsmoPRO were compared based on their speed, accuracy, and ease of use for different types of labs. The OsmoTECH XT is made for labs that test one sample at a time. It uses a small amount of liquid (20–50 microliters), gives very accurate and precise results, and is easy to use. In contrast, the OsmoPRO is made for busy labs that test many samples quickly. It can test up to 20 samples in one run and gives results in about 90 seconds per sample. The OsmoPRO works well for clinical labs that regularly test fluids like blood, urine, or plasma. However, when testing just a single sample, it may not offer the same level of precision as the OsmoTECH XT. Overall, the OsmoTECH XT is the better choice for labs that focus on accuracy and work with small, important samples, while the OsmoPRO is more suitable for busy labs that need to test many samples quickly. This comparison helps labs choose the right instrument based on their workload and needs.

Melissa Logue

BIO-12

Senior Biology Seminar Project

Temani Mack

BIO-13

Senior Biology Seminar Project

Ricquela McLeod

BIO-14

Senior Biology Seminar Project

Anayah Morgan
Senior Biology Seminar Project

BIO-15

Ashley Neff
Senior Biology Seminar Project

BIO-16

This study investigates how maltose affects the freezing point depression of honey as a potential natural method for lowering the freezing point of liquids. Natural alternatives like honey and maltose could offer environmentally friendly solutions for studying the concept of freezing point depression in college chemistry labs. In this experiment, varying amounts of maltose were mixed with honey and placed in temperature-controlled beakers to observe freezing behavior. The time it took each mixture to freeze was recorded to assess the impact of maltose concentration. Results showed that increasing maltose levels delayed freezing, supporting the hypothesis that maltose lowers the freezing point of honey. The average freezing point for .5g of maltose was -6.5 degrees C, for 1 g of maltose it was -8 degrees C, and for 1.5g of maltose it was -9.5 degrees C. These findings suggest that sugars like maltose can be effective natural agents for modifying the freezing point of liquids.

Esther Ogunyinka
Senior Biology Seminar Project

BIO-17

Water temperatures have a substantial effect on seed germination and plant growth. In this experiment, six water temperatures at 7.5C, 15C, 24C, 29.5C, 47C, and 59C were tested on germination and growth of radish seeds. Three seeds were planted per pot, and each pot received 75 mL of water every few days. After several weeks of growth, the height, weight, and number of leaves were measured for each stem. The results indicated that seeds exposed to 7.5C, 47C, and 59C had reduced growth. The tallest plants were recorded at 29.5C, and the highest biomass was recorded at 15C. In addition, plants exposed to colder water temperatures developed stress responses, such as purple and dark pink stems. Overall, the results supported the initial hypothesis that seeds exposed to optimal water temperatures would have the highest germination rate and plant production time, whereas extreme water temperatures would slow or prevent germination.

Milan Peele
Senior Biology Seminar Project

BIO-18

In this project, standard concentrations of bovine serum albumin (BSA) and casein proteins (ranging from 0.013 to 0.400 mg/mL) were measured using two methods: the traditional bicinchoninic acid (BCA) assay and a reagent-free UV/VIS spectrophotometry approach. This project examined UV/VIS spectrophotometry as a less toxic alternative for standard BCA protein quantification. The findings indicate that UV/VIS could offer a greener option for measuring casein concentrations effectively.

Danielle Smith

BIO-19

Neuville Bacteriophage Annotation

Bacteriophage sequencing/annotation is useful as there are many medical and clinical applications for phages. A bacteriophage is a virus that infects a host cell of bacteria and results in the killing of the host cell. Neuville is a phage with an unknown life cycle that infects the bacteria *Arthrobacter globiformis*. Neuville is a part of cluster FR and contains 67 open reading frames (orfs), 34 of which were sequenced in this report. These open reading frames were examined for coding potential, start sites, membrane affinity, likely function, and conserved domain. Many different online databases were used as evidence to sequence each orf. All showed coding potential through the entire frame. Of the annotated genes, 32 of them were coded in the reverse direction, 2 were coded in the forward direction. 14 of the genes had a predicted function while 20 were deemed hypothetical proteins. Start site changes occurred for 2 orfs; genes 43 and 61. There were 3 membrane proteins found on the last half of the phage genome. Neuville has a 100% gene content similarity with cluster FR phage Annabelle.

India Wilkins

BIO-20

Senior Biology Seminar Project

Oral fluid drug tests are less effective than Urine and Blood sampling, and even so there are some oral tests that are recommended for use rather than others. Oral fluid drug tests are not only to detect thc but a variety of drugs such as amphetamines, cocaine, opioids, benzodiazepines and more. These tests are most effective for short period of time for drug use. Oral tests come in two different forms a single panel and a multi panel. Single substances are for detecting substances like alcohol or marijuana while the multi panel tests are for all of the other drugs listed above. There are different brands and different types of oral fluid testing but not every one of them provides as accurate results as the other ones. There are many factors that play a role in inaccurate results and methods that can be done wrong that can mess with the accuracy of the results. In studies it has shown that oral fluid can be influenced and distracted by food beverages or anything else that can or goes in the mouth. It also shown in studies that oral fluid testing may not be effective as the blood and urine sample but they are most accurate at getting results and trying to detect and drug writhing 24-48 hrs of use.

Luke Willette

BIO-21

Senior Biology Seminar Project

Bovine Serum Albumin (BSA) quantifications are commonly performed in high school and undergraduate labs as an introduction to protein quantification and dilutions. The bicinchoninic acid (BCA) reagent used however, is harmful to the environment and potentially toxic due to the presence of copper. Because of this, the idea of using lesser volumes of BCA to perform the experiment, and assessing concentrations with the nanodrop, which requires a smaller volume of solution, were investigated. Casein and BSA proteins, separately combined with BCA reagent, were incubated and assessed using spectrophotometer and nanodrop. Standard curves were produced via the spectrophotometer, however the nanodrop proved unreliable in accurately ascertaining protein presence and concentration. Powdered casein initially did not dissolve in water, and required the addition of a base to bring the powder into solution. Doing this provided more accurate absorbance readings and standard curve.

EDUCATION

Supervising Professor: Marisa Rauscher, PhD

Alexandria Sholders

EDU-01

How to Best Support Students with OCD in a Classroom Setting

OCD is proven to affect concentration through obsessive compulsions, and overall program completion. Students with OCD struggle with feeling comfortable in a classroom environment because they often have no control. Having less control over what happens causes hiccups in the day and in classroom learning. Knowing how the environment coincides with a child's OCD can help a lot in understanding and working around executive functions and a child's overall behavior. Recognizing these symptoms and how to help students through them can help teachers create lessons and activities that help the children instead of making them more nervous in a classroom setting.

HEALTH SCIENCE – Environmental Health

Supervising Professor: Kathleen Swanik, PhD

Sumbul Kiroglu

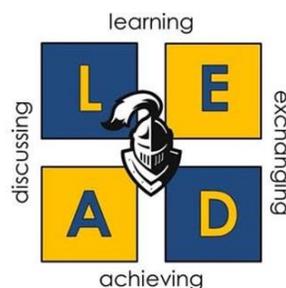
HEA-01

The Importance of Monitoring Indoor Air Quality

Indoor air quality (IAQ) is critical to overall health but is often overlooked by people. Common indoor air pollutants in homes are particulate matter (PM_{2.5}), volatile organic compounds (VOCs), carbon monoxide (CO), carbon dioxide (CO₂), and nitrogen dioxide (NO₂) due to building materials, daily practices, and ventilation conditions. Many scientific research studies indicate that poor IAQ is associated with respiratory, cardiovascular, and cognitive health risks. Moreover, this topic receives much less attention than outdoors although people spend most of their time indoors.

Outdoor air is monitored by the government, but indoor air is rarely monitored. People tend to use smell or comfort to assess air quality, which leads to frequent misperceptions. This project explores low-cost, real-time sensors based on capable of indoor pollution detection and feedback. These tools help connect scientific data with everyday decision-making and so raise awareness and promote behavior change.

This poster shows the importance of monitoring IAQ and is presented not only as a technological lens but also as a valuable tool for health education. Sensor data integrated with education and effective culturally relevant communication can support environmental health literacy, promote behavior changes, and potentially contribute to future public engagement and community science.



HONORS PROGRAM

Supervising Professor: James Kain, MA

Caley Gee

HNR-01

Is Sustainability in Nuclear Engineering Possible?

As interest in sustainable energy technologies grows, nuclear engineering faces some significant challenges in meeting environmental and economic goals. Reactors have their risks—like radioactive waste, resource consumption, and public opinion—but advancements in reactor technology and improved waste management could make nuclear power much more sustainable. This presentation will explore opportunities for sustainable nuclear engineering by focusing on three main areas: reactor performance, waste reuse, and relevant policies. It will discuss next-generation nuclear technologies, such as small modular reactors (SMRs) and Generation IV reactors, which are designed with better fuel efficiency and a smaller environmental impact. We'll also look into effective waste management strategies, including fuel reprocessing and deep geological disposal, to reduce ecological risks over time. Additionally, we'll consider how policy, public perception, and economic factors play a role in adopting sustainable nuclear energy solutions. Research indicates that technological innovation combined with progressive policy changes can significantly boost the sustainability of nuclear energy, making it a competitive option in the global energy market. Ultimately, this presentation aims to shed light on the ongoing evolution of nuclear engineering and how it can contribute to a more sustainable future.

Matt Starchville

HNR-02

Invisible Battles: Unraveling the Mental Health Challenges Faced by Injured Athletes

This presentation is a deeper dive into the invisible battles that athletes face during the rehabilitation process. We all know of the physical toll that injuries take on athletes, but did you know that the mental toll is equally if not slightly more dangerous? As an athlete myself, I have undergone two surgeries in the past year and from personal experience the mental and physical toll go hand in hand. Physical therapists work closely with these athletes during the rehabilitation process and it is critical that they have the ability to recognize signs that an athlete is struggling with their mental health. The presentation will outline the different demographics that mental health can affect and different ways to cope.

POLITICAL SCIENCE

Supervising Professor: Robert McMonagle, PhD

Donald Rosenkrans

POL-01

The Public's Declining Confidence in the Government

This presentation undertakes an inquiry into the waning confidence of American citizenry in the United States government. It observes a notable deterioration in public sentiment over recent years, with a particular emphasis on the socialization of the contemporary young generation within a societal milieu that frequently characterizes governmental entities as more of an encumbrance than a societal advantage. The author intends to conduct an analysis of specific historical events spanning the 19th and 20th centuries as

putative antecedents to this decline in public trust. Moreover, the presentation will examine the salient role of social media and other contemporary dynamics in shaping the prevailing perspectives on government held by the current generation. The overarching objective is to achieve a nuanced comprehension of the factors contributing to this erosion of governmental confidence through a consideration of both historical and contemporary influences.

PSYCHOLOGY – MS Forensic Psychology

Supervising Professor: Colleen McDonough, PhD

Rebecca Philippe

PSY-01

Cult Psychology in the Digital Age: Social Media's Role in Manipulation and Recruitment

The psychology of cults is vast, encompassing themes of belonging, recruitment, brainwashing, and the long-term effects of authoritarian environments. While traditional cult tactics have ample research and are well-known, social media has introduced new channels for manipulation and expansion. The advancement of digital technology has made socializing more accessible, which, in turn, fosters isolation and loneliness, leaving individuals vulnerable to online influence. Cults exploit these vulnerabilities, and purposefully use social media as a way to spread their messages and gain recruits. One's desire for validation, combined with exposure to content catered to themselves, can lead them to seek meaning in the wrong places as a result of emptiness from lack of life value. Cults craftily use relatable narratives and shared experiences to validate and manipulate potential members, making recruitment easier. Additionally, the digital age brings about the constant spread of misinformation, blurring the line between what is the truth and what is simply manipulation. This paper explores the psychology behind cult influence, the role of social media in modern recruitment and maintenance of members, and the risks posed by digital misinformation. Alongside my research, I will share my personal experiences with cult influence, providing insight into the real-world impact of these psychological tactics.

PSYCHOLOGY – Senior Seminar

Supervising Professor: Amanda Breen, PhD

Ashlee DiMaggio, Emma O'Connor, and Nathanlyn Duncan

PSY-02

Sense of Belonging and Academic Self-Efficacy Among Neumann University Students

The goal of the proposed study is to examine the relationship between a sense of belonging and academic self-efficacy among Neumann University students. Prior research shows that students who feel connected to their educational environment tend to have higher confidence in their academic abilities. This leads to better performance and persistence. Our study investigates how students' feelings of inclusion and support at Neumann University relate to their belief in their ability to succeed academically. Using an online survey, we will collect data on students' ideas of belonging and academic self-efficacy. Participants will include undergraduate students from various academic programs and demographic backgrounds at Neumann University. The survey will measure factors such as Neumann students' sense of belonging and their academic self-efficacy. We hypothesize that students who report a

stronger sense of belonging at Neumann University will demonstrate higher levels of academic self-efficacy. The data collection is still underway, and the results will be analyzed and presented at the LEAD conference.

Ashlyn Blackwell, Alicia Jordan, and Alyssa Uruchima
The Relationship between Ethnic Pride and Sense of Belonging

PSY-03

Past research indicated that ethnic pride was associated with higher self-esteem which promoted a greater sense of belonging among students in academic environments. In this paper, a correlational study is proposed to examine the relationship between ethnic pride and a sense of belonging among Neumann students on academic motivation, ethnic pride, and self-esteem. The participants will complete an online survey which measures the level of ethnic pride, self-esteem, and level of academic motivation. It is hypothesized that there will be a positive relationship between ethnic pride and sense of belonging, as the level of ethnic pride increases, level of self-esteem increases resulting in higher levels of academic motivation, higher levels of ethnic pride, and higher levels of self-esteem. The data collection is still underway, and the results will be analyzed and presented at the LEAD conference.

Samiyya Ahmad, Leticia Owusu, and Victoria Millward
The Impact of Social Media on Social Comparison, Self-Esteem and Belongingness Among Young Adults

PSY-04

This study aims to investigate how college students' self-esteem and sense of belonging are related to social media comparing habits. Many young people use social media more frequently, which leads to upward social comparisons that can be detrimental to their emotional health. The purpose of this study is to investigate how self-esteem, social comparison tendencies, and social media use are related. Data will be gathered using a self-report survey that measures individuals' use of social media, social comparison habits, and sense of belonging and self-worth. We predict that increased use of social media will be associated with decreased sense of belonging and lower self-esteem. The data collection is still underway, and results will be reported at LEAD conference.

Christine Worms, Donyjah Wilson, and Quron White
Exploring the Relationship Between the RISES Values and Student Sense of Belonging and Academic Success at Neumann University

PSY-05

The goal of the proposed study is to examine the relationship between Neumann University students' connection to the University's RISES values (Reverence, Integrity, Service, Excellence, and Stewardship) and their sense of belonging, as well as academic success as a secondary measure. Neumann University emphasizes these core values as part of its institutional identity, as well as a foundation to their mission, but it remains unclear how strongly their students connect with them, and whether this connection impacts their overall university experience. With this in mind, we developed a survey-based study to investigate possible correlations between a student's identification with the RISES values, their perceived sense of belonging, and their academic performance. This is a correlational study where data will be collected via an anonymous survey that will be administered to undergraduate students at Neumann University from all academic years. The survey includes questions related to the students' connection to the RISES values, GPA, and their sense of belongingness in the Neumann University community. We hypothesize that students who report that they feel more connected with the RISES values will also report a higher sense of belonging and greater academic success. Data collection is currently underway, and once complete, the results will be analyzed and presented

at the LEAD Conference. These findings can act as an aid for future attempts to improve academic support and student engagement through value-based initiatives.

Gia Ponzio, Kim Erickson, and Princess Kamara

PSY-06

Analyzing the Relationship between Belongingness and Test Anxiety

Past research has examined that the more students feel belong at a university, the less they experience test anxiety, they developed a higher confidence level, self-efficacy, academic achievement, etc. The goal of the proposed study is to examine the relationship between test anxiety and belongingness amongst students at Neumann University (NU). At least every week, students at NU have quizzes and exams where some students may excel, and others may feel anxious for these upcoming tests. At the same time, students form friendships with peers in their class, others in the major, or even athletics. This correlational study will use two different measures in a survey that will be sent out to those students who will be able to self-report voluntarily. The survey will include a questionnaire about student's test anxiety (if they experience it, how often, and how intensely). We will also be asking about students' feeling of belongingness at NU and how often they feel like they belong or do not belong. It is predicted that students with a better sense of belonging will experience less test anxiety. The data collection is still underway, and the results will be analyzed and presented at the LEAD conference.

PSYCHOLOGY

Supervising Professor: Ariel Kershner, PhD

Ariel Kershner, Ashlee DiMaggio, Erin Gee, Raniyah Williams, Donyjah Wilson

PSY-07

Which Type of Study Guide Best Supports Application of the Material?

Which kind of study guide best supports students' application of course material on a later exam? The current study leveraged the testing effect (Roediger & Karpicke, 2006), the idea that testing improves long-term retention of fact-based material, specifically when that testing requires students to do some work and retrieve the material from memory. In two experiments, participants read a passage and completed one of three types of commonly used study guides: fact statements that participants read, multiple choice questions that participants answered, and short answer questions that participants answered. Later, they were required to integrate and apply their knowledge from that passage to a knowledge application question on a final test. We predicted that students would be most accurate on a knowledge application test question if they had previously completed a short answer question study guide compared to multiple choice questions or reading fact statements. While Experiment 1 showed higher knowledge application accuracy after a multiple choice study guide, Experiment 2, which included corrective feedback after the study guide, provided numerical support for the short answer study guide. Overall, study guides that require retrieval of information support better knowledge application on a later exam.

Ariel Kershner, Victoria Millward, Sahdahya Addy, Sean Carroll, and Tatyana Conix

PSY-08

Proactive Attentional Guidance by the Priority Map

Many of our daily visual searches are for categories, such as searching for any member of the 'pen' category. The template that supports this categorical search is compiled from our lifetime of history with these

categories, and further biased by our recent experience with the category statistics. For instance, you may know that you keep your favorite blue pen in the right drawer of your desk. You know two features about your favorite pen that may help you to find it in your next search: its color (blue) and its location (right desk drawer). Are you biased to base your search more on a reliable target color or a reliable target location? In three experiments, participants searched for real-world categories based on their consistent features (color, location, or both). Sometimes, they would need to respond to probe trials that may or may not be presented in the category's consistent features. We hypothesized that target location should hold a privileged position in the priority map that underlies visual search, so that your search would be based on your pen's location rather than its color. Our results supported this prediction, suggesting that location is prioritized above color in a priority map based on selection history.

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Katie Barnes, PT, PhD, Interim Provost

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Najiba Benabess, PhD, Associate Provost for On-Line Learning, AI and Academic Partnerships, and Dean of the School of Business

Etsuko Hoshino-Browne, PhD, Coordinator of the LEAD Poster Symposium

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