

# Neumann University



Neumann University Presents  
the Fourteenth 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 7, 2026**





# 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, 317, 318, 327)

**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 – 4:10 p.m.

Bachmann Main Building Room 315

## *Communications and Digital Media*

*Supervising Professor: Janis Chakars, PhD*

**Bryan Avanzato, Cierra Barr, Cole Betham, Owen Brown, Ryan Burke, Jacqueline Connolly, Lyndsie Crawford, Trey Edmonds, Alayna Guy, William Karwoski, Kadiyah Malik, Samir Outen, Jordan Prattis, John Renning, Collin Sheridan, Cameron Simms, Tyler Sondermann, Kierryn Stewart, Nguyen Ta, Tessa Vannello, and Eric Wall**

### *The Framing of Operation Metro Surge on Cable TV News*

In January 2026, Americans watched Operation Metro Surge peak on their screens as Immigration and Customs Enforcement undertook a major operation in Minneapolis that was protested by many citizens and resulted in two deaths. This study examines how these events were framed on Fox and CNN, two prominent cable television news channels.



## Oral Presentations B

3:00 – 4:10 p.m.

Bachmann Main Building Room 317

### *Biology, Criminal Justice, History*

**Lucie Velinská**

***Innovations in Nanoparticle-Based Drug Delivery Systems***

*(Supervising Professor: Dr. Jennifer Blake)*

Nanoparticle-based drug delivery systems represent a significant advancement in modern medicine by improving the precision and the effectiveness of treatments. Traditional drug delivery methods often distribute medication throughout the entire body, affecting both healthy and diseased tissues and leading to side effects. In contrast, nanoparticles are engineered particles typically ranging from 1 to 100 nanometers and can be designed with specific physicochemical properties such as size, shape, surface charge, and material composition. These properties influence how nanoparticles interact with biological systems, allowing them to protect drugs from degradation, cross biological barriers, and target specific cells.

Recent research highlights innovations in targeted and controlled drug delivery, including targeting and sustained release mechanisms that improve therapeutic outcomes while reducing harm to healthy tissues. Nanoparticles are also used in various medical applications such as cancer treatment, biomedical imaging, vaccine delivery, and tissue repair. However, despite these advancements, some challenges still remain. Concerns about toxicity, long-term safety, regulatory limitations, and high production costs continue to restrict widespread clinical use.

Overall, nanoparticle-based drug delivery systems demonstrate strong potential to transform modern healthcare, but further research is necessary to address these challenges and support broader implementation in clinical practice.

**Presley Harman**

***Sensationalism vs. Reality: Gender, Crime, and Media Myth in *The Silence of the Lambs****

*(Supervising Professor: Kristen Acosta)*

This presentation examines the role of media sensationalism in shaping public perceptions of crime, gender, and professionalism by analyzing *The Silence of the Lambs*. It explores the tension between reality and fiction by comparing the film's portrayal of FBI trainee Clarice Starling with real-world practices in criminal justice. While the character presents a strong, intelligent female figure navigating a male-dominated field, her experiences are often dramatized for narrative impact, raising questions about the accuracy of such representations. The presentation also analyzes the fictional serial killer Buffalo Bill, whose character is partially inspired by real-life figures such as Ed Gein, to demonstrate how media blends multiple criminal profiles to heighten fear and intrigue.

In addition, this research addresses whether investigative methods depicted in the film, such as consulting incarcerated offenders like Hannibal Lecter, reflect actual FBI practices. While such strategies do exist, their portrayal is often exaggerated to enhance dramatic appeal. By incorporating scholarly research on psychopathy, gender representation, and law enforcement culture, this presentation highlights how sensationalized media narratives can distort public understanding while still drawing from elements of truth. Ultimately, it encourages critical thinking about how audiences distinguish between realism and fiction, particularly in depictions of women in criminal justice and in the construction of the “serial killer” in popular culture.

### **Chase Cochran**

#### ***The Ocean Bridge: How American Logistical Superiority Outpaced the Continental Powers***

*(Supervising Professor: Andrew Miller)*

While military history often celebrates the tactical genius of generals, battlefield heroics, and many acts of bravery, the grim reality is that victory is usually won by the writing in the ledgers of the supply officers. This presentation challenges the romanticized notion that wars are won through combat alone, arguing instead that logistical mastery determines outcomes. We begin with a historical overview of logistics across major conflicts, from Napoleon's failed Russian campaign, JFK's failed Bay of Pigs invasion, to today's war in Ukraine. This will transition into the constraints facing continental powers and establishing how supply chain failures have toppled empires.

The presentation then shifts its focus to America's revolutionary approach during the World Wars by turning the world's oceans into a high-speed conveyor belt of material, food, and weaponry. The United States pioneered this unprecedented logistical infrastructure, developing transcontinental and transoceanic supply networks that sustained global military operations simultaneously. American industrial capacity, combined with naval supremacy and efficient distribution systems, enabled the movement of troops, equipment, and provisions at scales never before attempted. This "Ocean Bridge" connected American production to distant theaters, overwhelming Axis powers who relied on localized resource acquisition.

This logistical dominance fundamentally altered the geopolitical landscape, positioning the United States as the sole power capable of global power projection. In contrast, contemporary rivals like China and Russia remain constrained by continental mindsets, capable of regional land grabs but lacking the distributed logistics to sustain worldwide military presence. America's inherited supply chain expertise and naval infrastructure remain unmatched, securing its superpower status through the unglamorous but decisive domain of logistics.



# Oral Presentations C

3:00 – 4:10 p.m.

Bachmann Main Building Room 318

## *University Honors Theology Seminar*

*Supervising Professor: John V. Kruse, PhD*

**Summer Brown, Jenna Calchi, Jewel Maxwell, Amani McKenzie, Leonardo Mejia Lopez**

***Chat vs. ChatGPT: Keeping Humans Before Algorithms***

AI has taken over an ever-expanding role within higher education. During our Honors Theology Seminar this semester, we have explored how our use of technology relates to our humanity, our learning, and our relationships with others. Through our class time together, we have learned about the importance of discussion, critical thinking, and creativity. When we take a break from technology and use our own minds to form our own insights, we exercise a part of our humanity that AI will never have. Pope Francis and Pope Leo XVI have written documents that address not only AI but also the purpose of education and the preferential option for the poor and vulnerable. All three of these topics are interrelated. In this class, we have explored a wide range of topics and fields that have been affected by AI, such as education, human dignity, taxation, care for creation, and nursing. The group presentation will compare AI material vs a real student’s observation. AI can be used to enhance our knowledge rather than to replace it. Come learn from us about our experiences on what AI will never teach you!

## ***Education***

*Supervising Professor: Jim Kain*

**Christina Jorgensen**

***AI in Education: Tool, Not Shortcut***

Artificial intelligence (AI) is becoming increasingly present in education, raising important questions about how students use it and how educators and schools should respond to it. This project explores AI as an assistant in education rather than simply viewing it as a form of cheating or academic dishonesty. Drawing from student survey responses, classroom observations, and current discussions about AI in learning, this presentation examines how students perceive AI, why they turn to it, and how it can be used responsibly to support learning. Rather than replacing critical thinking, writing, or creativity, AI has the potential to serve as a tool for brainstorming, clarification, organization, and academic support when used with clear boundaries and ethical awareness. This project also considers the concerns surrounding originality, overreliance, and misuse, emphasizing the need for balance in how AI is introduced into classrooms. By focusing on both student perspectives and the broader educational implications, this presentation encourages a more thoughtful conversation about AI’s role in schools. Overall, the project argues that AI should not be understood only as a shortcut, but as a possible assistant that can strengthen learning when paired with responsibility, guidance, and intentional use.



## Oral Presentations D

3:00 – 4:10 p.m.

Bachmann Main Building Room 327

### ***University Honors Positive Psychology Seminar***

*Supervising Professor: Etsuko Hoshino-Browne, PhD*

#### **Alexandra Bergamesco**

##### ***Sleep Habits and Mental Health: The Importance of Sleep in Increasing Mental Well-being***

Young adults tend to maintain poor sleep habits, which, in return, compromises their mental health. How can one's mental health improve by improving their sleep habits? Past research indicates a strong link between sleep habits and mental health. For example, when individuals get fewer hours of sleep, they feel more depressed. Additionally, less sleep leads to a decrease in subjective well-being. I have personally been experiencing this association between poor sleep quality and mental health struggles. Therefore, I decided to use the teachings of Positive Psychology and address my poor sleep habits. By improving my sleep hygiene, I will be able to improve my mental health, energy, work ethics, and motivation. I generated a specific plan through my literature review to change my sleep habits. Then, I implemented this plan for ten days. In this presentation, I will share my observations and challenges, and adjustments for good sleep hygiene and positive mental health. I will also describe ways to continue implementing my plan for better sleep habits and mental health.

#### **Kayla Taylor**

##### ***Left Out While Leveling Up: My FOMO Experience***

Fear of Missing Out (FOMO) is a common experience among college students, especially with frequent social media use and time spent away from family. Past research shows that higher levels of FOMO are linked to lower life satisfaction, negative emotions, and increased risky or maladaptive behaviors. For my project in the Positive Psychology course, I examined how FOMO affects my emotional well-being and academic focus as a college student. Using findings from previous studies, I implemented a 10-day intervention that included limiting social media use during stressful periods, strengthening direct communication with my family, and focusing on being in the present moment, as well as my long-term goals. In this presentation, I will share how FOMO impacts both emotions and behavior. I will also describe some practical strategies for managing FOMO in a healthier, more balanced way.

#### **Estefani Rosas Vera**

##### ***Action Research: Reducing Anxiety through Exercise***

College students often deal with anxiety and stress from school, work, and personal life, which can make it hard to manage their emotions. It becomes a challenge to regulate emotions and stay focused when they feel overwhelmed. Past research shows that physical activity can have a positive effect on mental health. For

example, aerobic exercise helps reduce anxiety. Based on these findings and what I learned in my Positive Psychology course, I created a plan to reduce my anxiety by adding movement into my daily routine. More specifically, I incorporated a 15-minute yoga session or a 30-minute walk outside. I followed this plan for ten days and observed how it affected my anxiety and stress levels. In this presentation, I will describe what I observed, what worked best, and what challenges I faced with the new routine. I will also share my reflection on how I can continue this new routine to improve my happiness, resilience, and emotional well-being.





## Poster Symposium

4:30 – 6:00 p.m.

Bayada Atrium, Mirenda Center

### ART

ART-01

*Supervising Professor: Glenn Holmstrom, MFA*

#### **Aliyah Cromathy**

##### ***Illustrations***

This presentation showcases my current work as an illustrator, graphic designer, storyboard artist, and character designer. My goal is to share finished pieces and connect with potential clients, collaborators, and peers at LEAD.

The display includes selected character designs, graphic design projects like posters and branding, illustration work, and storyboard frames from both personal and client projects. I work across digital and traditional media and use my iPad for most of my process. Every piece is part of my active portfolio and represents the kind of freelance work I'm currently taking on.

Visitors can view high-quality prints at the table and scan a QR code that links directly to my website for finished project and contact information. I'll also have takeaway cards with my site and email available.

My work explores shape language, visual storytelling, and clear design thinking across disciplines. I'm interested in connecting with anyone looking for illustration, design, or pre-production art for their projects.

### ATHLETIC TRAINING, MS

*Supervising Professor: Andrea Lobacz, PhD*

#### **Xzavier Fletcher**

ATR-01

##### ***Collegiate Clinician Perspectives on Traditional Versus Accelerated ACL Rehabilitation in Regard to Effectiveness, Risk, and Practical Implementation***

Anterior cruciate ligament (ACL) injuries are among the most common and severe injuries in collegiate athletics, often requiring surgical reconstruction and a long rehabilitation process before a safe return to play. ACL rehabilitation approaches are often categorized as traditional protocols, which emphasize graft protection and gradual progression, and accelerated protocols, which emphasize earlier mobilization and expedited return-to-sport timelines. Despite both protocols being supported by clinical evidence, differences

remain in perceived effectiveness, safety, and implementation outcomes. Additionally, return-to-play decisions are influenced by multiple factors, including psychological readiness, clinician experience, and external pressures within collegiate athletics. Despite existing research on clinical outcomes, there is limited literature examining clinician perspectives on these rehabilitation approaches.

The purpose of this study is to examine collegiate clinicians' perspectives regarding the effectiveness, safety, and practical challenges associated with traditional versus accelerated ACL rehabilitation protocols. Data were collected with an anonymous, web-based survey shared through the National Athletic Trainers' Association (NATA) Survey Research Service to certified athletic trainers in collegiate settings. The survey included demographic questions to characterize participants. In addition, the survey included separate items assessing the perspectives of clinicians such as Likert-scale items, checklist responses, and open-ended questions. Chi-square analyses and independent-samples t-tests examined relationships among clinician characteristics, protocol preferences, and return-to-play decisions. This study will provide insight into collegiate clinician perspectives on ACL rehabilitation approaches and inform evidence-based decision-making to enhance athlete safety and return-to-sport outcomes.

**Nicole Floyd**

**ATR-02**

***Acute Effects of Fifa 11+ Warm-up Program on Physical and Psychological Readiness for High School Lacrosse Athletes***

As participation in adolescent athletics increases, concerns remain prevalent regarding athletes' physical and psychological readiness, which may contribute to an elevated risk of injury. Injury prevention and optimal performance are critical priorities in secondary school athletics; however, many warm-up strategies may not adequately prepare athletes for physical and psychological sport demands. Neuromuscular training (NMT) has become increasingly utilized as a warm-up program to improve movement efficiency, enhance performance, and reduce injury risk by improving the communication between the nervous and muscular systems. The FIFA 11+ warm-up program incorporates balance, strength, plyometric, and agility exercises to promote both physical and psychological readiness for sport participation/competition. While the long-term injury prevention benefits of NMT programs are well established, limited research has examined the acute effects of the FIFA 11+ warm-up on both physical and psychological preparedness in adolescent athletes. This purpose of the study was to evaluate the short-term effects of the FIFA 11+ warm-up program on female high school lacrosse athletes. Participants included around 40 female high school lacrosse athletes who were free from injury within the past six months. The intervention group completed the FIFA 11+ warm-up program, while the control group performed a standard dynamic warm-up based on the Children's Hospital of Colorado Sports Medicine Center protocol. A pretest-posttest design was used, with participants completing physical performance assessments and a psychological readiness questionnaire before and after a single 20-minute warm-up session. Data were analyzed using repeated measures analysis of variance (RM-ANOVA). It was hypothesized that the FIFA 11+ would result in greater improvements in both physical and psychological readiness compared to a traditional dynamic warm-up. The findings will provide production of greater acute improvements in physical and psychological readiness compared to a traditional dynamic warm-up. Findings may support the implementation of structured neuromuscular warm-up programs in secondary school athletics to enhance readiness for sport performance and potentially reduce injury risk.

**Alexis Lambertino**

**ATR-03**

***What is the Relationship Between Nightly Sleep Efficiency and Next Morning Perceived Recovery in Collegiate Athletes?***

Sleep is a critical component of the athletic recovery process, supporting physiological functions such as growth hormone production and immune system regulation. Collegiate athletes often experience disrupted sleep patterns due to the combined demands of training, competition, academics, and social commitments, which may negatively impact recovery and performance. Although the importance of sleep in athletics is well established, limited research has examined how day-to-day variations in sleep efficiency influence perceived recovery in collegiate athletes. The purpose of this study was to examine the relationship between nightly sleep efficiency and next-day perceived recovery during the competitive season. A quantitative, observational cohort design with repeated measures was used. Collegiate athletes aged 18–25 years completed a baseline Pittsburgh Sleep Quality Index (PSQI), seven consecutive days of daily monitoring using the Consensus Sleep Diary–Core (CSD-C), and the Perceived Recovery Status (PRS) scale. Spearman rank-order correlations were used to evaluate the association between sleep efficiency and perceived recovery. Differences in perceived recovery across activity conditions (training, competition, and rest) were assessed using a Friedman test. It was hypothesized that greater nightly sleep efficiency, as assessed by the Consensus Sleep Diary–Core (CSD-C), would be positively associated with higher next-morning Perceived Recovery Status (PRS) scores, reflecting improved subjective recovery. Findings from this study may provide insight into the role of nightly sleep quality in optimizing recovery and inform strategies to support athlete health and performance.

**Dylan Morgan**

**ATR-04**

***Postural Stability Training in Archery: A Survey of Prevalence, Warm-Up Practices, and Athlete Perception***

Warm-ups are crucial to minimize risk of injury and improve performance in athletics. In archery, there is a variety of methodologies for optimal warm-ups. This makes it difficult to determine the current standard for optimal warm-up programs. The purpose of this study was to identify the prevalence and perception of PST as a warm-up element in archery. Recent literature has emphasized the inclusion of postural stability training (PST) as it has been associated with reduced body sway, improved proprioception, and enhanced performance outcomes. A survey was sent to various archery organizations and institutions to be shared with coaches, competitors, and recreational shooters who completed the surveys. Findings from this study will provide insight into current warm-up practices in archery and may help inform future research aimed at developing evidence-based guidelines for optimal warm-up strategies. This data can also be used as a foundation for future studies seeking to create a “gold standard” for archery warm-ups.

**Kylie Seeger**

**ATR-05**

***Effects of Static versus Dynamic Stretching on Physical and Mental Readiness in High School Athletes***

Warm-up routines are commonly used to prepare athletes for the physical and psychological demands of sport, with stretching often included to enhance readiness and performance. While previous research has largely focused on performance outcomes, limited research has examined how stretching influences athletes’ perceived physical and mental readiness, particularly in adolescent populations. Additionally, debate remains regarding whether static or dynamic stretching is more effective for optimizing athlete readiness. The purpose of this study was to compare the effects of static and dynamic stretching on physical and mental readiness in high school athletes. A repeated-measures, pretest and posttest design was used with high school athletes aged 14–18 years. Participants completed both stretching conditions on separate days, with the

order of conditions counterbalanced to control for potential order effects. Physical and mental readiness were assessed using Visual Analog Scales (VAS) before and after each condition, and participants completed performance tests following each protocol. Descriptive statistics and repeated-measures analysis of variance (ANOVA) were used to analyze differences between conditions. It was hypothesized that dynamic stretching would result in greater improvements in physical and mental readiness compared to static stretching. Findings from this study may provide evidence to inform warm-up design and optimize preparation strategies for high school athletes.

**Brielle Walto**

**ATR-06**

***Collegiate Football Athletes' Attitudes Toward Guardian Cap Use for Head Protection***

Head injuries, including concussions, remain a significant concern in collegiate football, increasing the need for effective preventative equipment. Guardian Caps are designed to reduce impact forces; however, their effectiveness depends on athlete acceptance and consistent use. A Guardian Cap is an external, padded piece attached to a football helmet, engineered to attenuate impact forces and mitigate the biomechanical risk of head injuries during repetitive contact exposure. This study aimed to assess DIII collegiate football players' attitudes toward Guardian Caps, including comfort, appearance, effectiveness, and social influence. The purpose was to assess collegiate football players' attitudes toward Guardian Caps and to identify factors influencing their acceptance and use. The survey assessed perceptions of comfort, appearance, effectiveness, and social influences using a Likert scale and closed-ended questions. Descriptive statistics summarized responses, and chi-square analyses examined associations between attitudes and Guardian Cap use. Findings from this study may inform targeted education and implementation strategies to improve utilization and enhance athlete safety in collegiate football.

**ATHLETIC TRAINING**

*Supervising Professor: Kathleen Swanik, PhD*

**Matt Starchville**

**ATR-07**

***Mental Health Effects on Collegiate Athletes Who Have Suffered Season-Ending Injuries***

Season-ending injuries in collegiate athletics present not only physical challenges but also significant psychological consequences that can impact the rehabilitation process and return-to-play outcomes. This paper examines the role of mental health factors including anxiety, depression, post-traumatic stress disorder (PTSD), and loss of athletic identity in athletes recovering from severe injuries such as anterior cruciate ligament (ACL) and ulnar collateral ligament (UCL) tears. Collegiate athletes face unique pressures related to performance, academics, and future career aspirations, which can intensify emotional distress following injury. Research indicates that psychological factors are a primary determinant in successful rehabilitation and return to sport, often outweighing physical readiness. Additionally, stigma surrounding mental health within athletic environments can discourage athletes from seeking necessary support, further complicating recovery. The paper emphasizes the importance of an integrated rehabilitation approach that combines physical treatment with psychological support, including counseling, cognitive-behavioral strategies, and structured mental health interventions. Findings suggest that athletes who receive comprehensive care demonstrate greater motivation, adherence to rehabilitation protocols, and confidence in returning to play. Ultimately, addressing both the physical and psychological dimensions of injury is essential for improving recovery outcomes and supporting the overall well-being of collegiate athletes.

## **BIOLOGY**

*Supervising Professors: Dr. Matthew Mastropaolo, Dr. Sarah Burke, Prof. Dawn Harper, and Dr. Amy Brown*

**Sahdahya Addy**

**BIO-01**

### ***Comparative Analysis of HPLC Instruments in Clinical Laboratories***

Clinical laboratories rely on high-performance liquid chromatography (HPLC) systems for accurate drug quantification in therapeutic drug monitoring. However, variability in instrument performance and operational costs creates challenges in selecting the most efficient system for clinical use.

This study conducted a comparative analysis of commonly used UV-based HPLC instruments by evaluating sensitivity, detection limits, run time, maintenance requirements, and cost-effectiveness using published literature and manufacturer data. Results indicate that higher-performance systems demonstrate improved sensitivity and reduced run times, while lower-cost systems are associated with increased maintenance demands and reduced efficiency.

Cost-benefit analysis suggests that although high-end systems require greater initial investment, they provide improved long-term efficiency in high-throughput clinical laboratories. These findings highlight the importance of instrument selection in optimizing diagnostic accuracy, laboratory workflow, and patient care outcomes.

**Kylie Cohen**

**BIO-02**

### ***Senior Biology Seminar Project***

**Victorio Dupi**

**BIO-03**

### ***Senior Biology Seminar Project***

**Qaaniesha Herder**

**BIO-04**

### ***The Effects of Soil Depth on Radish Growth***

Soil depth is an important factor influencing plant growth, as it affects root development, nutrient availability, and water retention. This study examined the effect of soil depth on radish plant growth by comparing three different soil depths: three inches, six inches, and nine inches. The initial trial did not result in germination due to low temperature conditions within the school environment. After identifying temperature as a limiting factor, the experiment was adjusted and restarted under improved conditions. In the second trial, successful growth was observed across all soil depths, with the nine-inch condition demonstrating the greatest shoot emergence, reaching approximately two inches in height, while the six-inch condition reached about one inch and the three-inch condition showed no emergence above the soil surface. These results suggest that increased soil depth may promote greater plant growth, likely due to enhanced root development and improved access to resources. These findings may have broader implications for agricultural practices and plant cultivation, particularly in optimizing soil conditions to support healthy plant development.

**Savior Jackson**

**BIO-05**

### ***Senior Biology Seminar Project***

**Khadija Kamara**  
*Senior Biology Seminar Project*

**BIO-06**

**Mackenzie Lacey**  
*Genome Annotation: Bioinformatics*

**BIO-07**

Genome annotation is a tool used for the identification of genes within a DNA sequence. It can also be used to predict the possible functions based on similarities to sequences by analyzing them in different databases. Accurate genome annotation is important in trying to figure out how the genes work as errors in annotations can lead to incorrect conclusions or predictions about the protein functions. Different bioinformatic tools and websites can result in contrasting information. This study investigates if using multiple bioinformatic annotation tools when logging changes made to a specific genome result in accurate annotations. We hypothesized that the use of multiple bioinformatic tools will allow for more precise predictions and conclusion about possible gene functions and any changes that need to be made. To do this, the genome we used in this study was the streptomyces phage Gibbi from the BE2 cluster. Various online bioinformatic tools were used to make changes within Gibbi's overall annotation . The key tools and sites that were being used include PECAAN, Phagesdb, NCBI, HHPRED, and SEA-PHAGES. Results were compared through these websites and any changes that needed to be made were logged in the change log word document for Gibbi. In total, there were 60 genes annotated and most start sites were consistent throughout most bioinformatic tools.

Challenges were faced as some tools had disagreements and a coin flip conclusion had to be made for a start site for one gene. Most genes were predicted to have the function of hypothetical proteins with only a small number of genes having an approved function. The results of this study supported the hypothesis and using multiple tools increased accuracy and confidence. Future genome research can make further conclusions about gene functions in other genomes when using multiple tools

**Keather Littlejohn**  
*Instrument Comparison of Fluorimeters*

**BIO-08**

Fluorescence has been identified and documented in nature as early as 1565. After many scientific discoveries and the invention of the spectrophotometer, scientists started to learn how to use this fluorescence to quantify DNA, RNA, and proteins by using microliter samples. It works by shining UV light into a sample, causing the target molecules to emit fluorescence with reduced energy. From this, scientists can compare fluorescence to the number of known biomolecules to measure the concentration of that sample. Fluorimeters are used widely today with a great market. This research project compared two different fluorometers, Qflo-1 by Longlight and the QFX fluorimeter by Denovix to determine which is better for a laboratory setting in terms of cost and efficiency. With a sample result time in under 2 seconds, 4 channels, and ready for usage upon delivery, the results find the QFX fluorimeter is the better option in terms of cost and efficiency. These findings will allow scientists to accurately test patients' samples which can be used to detect bacterial and viral infections as well as metabolic changes.

**Neha Neha**  
*Senior Biology Seminar Project*

**BIO-09**

**Allison Siravo**  
*Senior Biology Seminar Project*

**BIO-10**

**Tori Spinella**  
*Multi-Point Calibration of LabQuest 2 for the Analysis of pH*

**BIO-11**

Across many research and educational laboratories nationwide, pH is a measurement needed in almost every chemical and biochemical experiment. LabQuest 2 is a tool with a variety of functions, particularly in measuring pH with the probe attachment. In this study, a multi-point calibration was compared to a single-point calibration of the LabQuest 2's pH probe. This experiment aims to understand how accurate and precise a multi-point calibration of pH using LabQuest 2 is compared to a single-point calibration. It was found that the multi-point calibration provided more accurate and precise values of apple juice and pH compared to the single-calibration. These results included a 13.82 pH for household bleach and 2.50 pH of apple juice compared to a 12.75 pH of household bleach and a 3.67 apple juice pH with the single-point calibration. This confirmed the importance of a multi-point calibration when using a probe attachment for pH and has shown its better impact on research and educational laboratory experiments.

**Nateisha Wescott**  
*Advancing Clinical Diagnostics: A Comparison of MALDI-TOF MS and VITEK2 Systems*

**BIO-12**

Identification of microorganisms in clinical samples is crucial for patient treatment. Traditional microbiological identification methods require incubation periods and further biochemical tests that can put a delay on diagnosis. The VITEK2 and MALDI-TOF systems have changed the trajectory of clinical laboratory y identification of microorganism research. This experimental study compared these two microbiological identification technologies by examining their speeds, accuracy, capacity, and cost efficiency to determine which microbiological identification system has the best advantage for patient care. Published studies and data were analyzed to assess each system's performance in clinical diagnostics. The results from this study suggest that while the MALDI-TOF demonstrated a high accuracy rate of above 90% in identifying microorganisms, it also reduced long-term operational costs. However, the VITEK2 provided the advantage of antimicrobial susceptibility testing, which is vital for patient treatment. Overall, while the MALDI-TOF proved to be a faster and more cost-effective rapid identification machine, the VITEK2 remained essential for antimicrobial susceptibility testing. Therefore, both microbiological identification machines could be used to improve diagnostic efficiency and enhance patient care.

**India Wilkins**  
*Out with the Old, In with the New: Mass Spectrometry Instruments*

**BIO-13**

The single quadrupole and Agilent infinity lab pro are both mass spectrometer instruments. These are analytical techniques that identify and quantify molecules by measuring their mass-to-charge ratio. They both come carry different modes but share a similar one in common and that is scan mode. After doing research I believe that that the Agilent infinity lab pro is the best instrument and most effective to use for analytical techniques. The Agilent infinity lab pro is newer and updated rather than the simple mass

quadrupole. It also has rapid mass confirmation and reduces downtime and training cost, leading to a better return on investment. Overall, the Agilent infinity lab is most cost effective in hospitals and provides more advanced and accurate results and efficiency for laboratory analysis.

## **EDUCATION**

*Supervising Professor: Marisa Rauscher, PhD*

**Samantha Russell**

**EDU-01**

### ***Dismantling Bias: The Overidentification of Black Students as Emotionally Disturbed***

Black students comprise 16% of the U.S. student population yet represent 23% of those classified with Emotional Disturbance (ED) under IDEA—a disparity that reflects systemic racial bias rather than actual disability prevalence. This research examines the legal, ethical, and systemic factors driving this overrepresentation through analysis of federal data, landmark case law, and regional case studies spanning New York, Georgia, Wisconsin, and California.

Drawing on IDEA provisions, Title VI protections, and cases including *Larry P. v. Riles* and *Honig v. Doe*, the study reveals how subjective behavioral assessments, implicit bias, and culturally incongruent evaluation practices contribute to misclassification. National data show Black students with ED are placed in restrictive settings at nearly double the rate of White peers (45% vs. 26%), limiting academic opportunity and increasing risk of exclusionary discipline. Case studies document the devastating impact: a 9-year-old in Atlanta labeled ED after yelling at teachers, without trauma screening or family engagement; a Milwaukee student misidentified following unresolved grief; students in New York's District 75 schools where over 60% never earn standard diplomas.

The research proposes evidence-based solutions: mandating culturally responsive assessments, embedding sustained implicit bias training, implementing trauma-informed Multi-Tiered Systems of Support, requiring data transparency through public equity dashboards, and centering authentic family engagement. Ultimately, this work demonstrates that disproportionality is not inevitable—it is a policy problem requiring policy solutions. By aligning practice with equity and data with accountability, we can transform systems that harm into systems that heal.

## **HEALTH SCIENCE – Environmental Health**

*Supervising Professor: Etsuko Hoshino-Browne, PhD*

**Sumbul Kiroglu**

**HEA-01**

### ***The Importance of Monitoring Indoor Air Quality: From Research to Campus Implementation***

Indoor air quality (IAQ) is one of the five most important environmental risks in terms of public health. This is particularly important in educational settings, where indoor spaces are shared. Moreover, even though indoor air can be two to five times more polluted than outdoor air, there is no regulatory law for IAQ comparable to the Clean Air Act. While some state-level initiatives exist, most focus on K–12 settings, and efforts in universities emphasize technical monitoring.

This project represents the implementation of findings from a literature review I conducted previously and presented at the LEAD Conference 2025, which suggested that real-time, low-cost sensors can support a better understanding of IAQ. Based on this, a PurpleAir PA-SD-II sensor was installed in the Neumann University library in February 2026 through the EPA Sensor Loan Program.

PM2.5 levels in the library were monitored over time, while two educational opportunities were implemented, including a “Find the Air Sensor” challenge and a service-learning project in which IAQ was addressed as a topic. Indoor PM2.5 levels followed trends similar to outdoor air at lower concentrations, with noticeable decreases during periods of reduced building use.

This project demonstrates how low-cost sensors can be implemented in a campus setting both for monitoring indoor air quality and as a health education tool to engage students.

## **NURSING**

**Kaylah McGuffie**

**NUR-01**

***Chain Reaction: Decisions in Critical Care***

*Supervising Professor: Kristen Evans, PhD, RN*

For my project I will take what I've learned from my evolving case studies in my critical care directed study and create a 'choose-your-own-adventure' where people can pick an organ/body system and see how an illness in one body system impacts the rest. My project will feature a brief section on why I chose critical care as well as why understanding how one organ system impacts another is important to my profession as a PICU nurse. It will also feature a section with a brief explanation of different important concepts for people who may not have a nursing background. The goal is an interacting and engaging experience to help people understand the 'chain reactions' of critical illnesses.

**Sofia Lozada**

**NUR-02**

***NICU Infant Stress Interventions***

*Supervising Professor: Etsuko Hoshino-Browne, PhD*

The NICU or neonatal intensive care unit is an intensive care unit that specializes in providing around-the-clock care for infants. Infants there are exposed to significant environmental stressors such as bright lights, loud noises, and invasive procedures. Elevated stress levels are linked to prolonged hospitalizations and developmental delays. Current literature suggests that interventions such as kangaroo care and maternal voice therapy help in reducing these environmental stressors. Kangaroo care is care that involves close skin-to-skin contact between the mother and baby, whereas maternal voice therapy involves reading or singing to the infant. Research has shown that these interventions have helped improve cortisol levels, oxygen saturation level, and heart rate. Although both therapies have shown positive outcomes, there is limited research on combined therapy or isolation of these interventions. This project reviews existing literature of these interventions and their effects. It is hypothesized that kangaroo care will relay the best results out of the two. The findings from this proposed research study may contribute to reduced hospital stays and better outcomes for these patients.

## **PSYCHOLOGY – Senior Seminar**

*Supervising Professor: Amanda Breen, PhD*

**Makiya Brown, Aishah Coleman, and Jaleaha Price**

**PSY-01**

### ***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.

**Netia Boanes, Oswaldo Mendiola-Flores, and Gia Ponzio**

**PSY-02**

### ***What is the Relationship Between Sense of Belonging and Purpose in Life Among Employed College Students?***

Students should feel that they belong at their university which in turn may result in them engaging academically, foster meaningful relationships and maintain stronger psychological functioning, (e.g., stabilizing emotions, coping with various challenges). Sense of belonging refers to students' perceived feelings of acceptance, inclusion, and connection within their academic environment. While purpose in life reflects an individual's sense of meaning, direction, and long-term goals. Given that many students balance academic responsibilities with their employment, this study aims to better understand how these experiences may influence both social integration and psychological development.

We conducted a correlational study to examine the relationship between a sense of belonging and purpose in life among employed undergraduate college students. Participants consisted of undergraduate students who are employed at least 10 hours per week while enrolled in college. Data was collected using an online survey distributed to students at the university. Sense of belonging was measured using the Psychological Sense of School Membership (PSSM) Scale (Goodenow, 1993), and purpose in life was measured using the Purpose in Life subscale of Ryff's Psychological Well-Being Scale (Ryff, 1989) We hypothesized that higher levels of sense of belonging would be positively associated with higher levels of purpose in life among employed college students. Findings will be reported in terms of the strength and direction of the relationship between variables. The implications of this study may also provide insight into how fostering belonging within academic environments could support students' sense of direction and overall psychological well-being.

**Kaia Foss, Hakeem Hall, and Isabella Perri**  
***Decreasing Social Anxiety and Increasing Belongingness***

**PSY-03**

The goal of the study was to examine the relationship between sense of belonging, engagement in physical activity, social anxiety, and emotional distress among college students. Social anxiety and a sense of belonging can be difficult to navigate, especially in college when everything and everyone is new. Past research has shown that higher levels of physical activity are associated with lower levels of social anxiety as well as loneliness. Participants included Neumann University undergraduate students who completed a survey measuring frequency and type of physical activity, social anxiety, sense of belonging, and emotional distress. We hypothesized that sense of belonging would be positively correlated with engagement in physical activity and negatively correlated with social anxiety and emotional distress. While data collection is still ongoing, the results will be analyzed and presented at the upcoming LEAD conference.

**PSYCHOLOGY – Honors Seminar: Critical Thinking in Psychology**  
*Supervising Professor: Etsuko Hoshino-Browne, PhD*

**Alexandra Bergamesco, Natalia Carletti, and Milan Furbush**  
***Caught in the Scroll: Can Critical Thinking Save Us from Fake News?***

**PSY-04**

Critical thinking involves connecting multiple concepts, applying scientific evidence to real-world situations, developing solutions, and asking specific questions to determine whether information is relevant. These skills are often developed through college education. However, there are growing concerns about the influence of social media on critical thinking. Social media platforms contain an endless stream of disinformation and misinformation, raising questions about how to prevent individuals from engaging with fake news or misleading content. Additionally, social media posts related to political and social issues are often designed for entertainment or to appeal to emotions rather than to provide accurate information. Therefore, we conducted a correlational study using an online survey to examine the associations between critical thinking skills, social media usage, and the ability to discriminate between real and fake news among Neumann University students. Based on past research, we expected to find a positive correlation between critical thinking skills and real/fake news discrimination. We also expected a negative correlation between social media usage and real/fake news discrimination. Additionally, we predicted a negative correlation between critical thinking skills and social media usage. Some applications of the results to real life and implications for future research are discussed.

**Aishah Coleman, Amber Hill, and Jaelyn Watkins**  
***Brains or Bots? The Association between Critical Thinking, AI Tool Use, and Academic Procrastination***

**PSY-05**

As the prevalence of AI tool use among college students continues to rise, critical thinking abilities may be declining. Also, the availability of AI tools may contribute to academic procrastination because the use of AI tools may make assignment completion easier and quicker. Therefore, it is becoming increasingly important to understand how critical thinking skills, AI tool use, and academic procrastination are associated. Studying these associations can help identify whether AI tool use and procrastination predict critical thinking skills. Past research provides inconsistent findings for AI tool use and critical thinking skills. Whereas some studies demonstrated that AI tools can enhance learning and engagement, others highlighted negative outcomes such as overreliance and reduced cognitive effort. As for academic procrastination, it has been linked to deficits in

self-regulation, motivation, and time management, which may further hinder students' ability to engage in deeper cognitive processing.

Moreover, very little research has been conducted for a direct association between AI tool use and academic procrastination. Therefore, we conducted a correlational study using an online survey through Qualtrics to examine the relationship among critical thinking skills, AI tool use, and academic procrastination among Neumann University students.

We expected to find a negative correlation between critical thinking skills and AI tool use. We also expected a negative correlation between critical thinking skills and academic procrastination.

Furthermore, we expected a positive correlation between AI tool use and procrastination. Some applications of the results to real life and implications for future research are discussed.

## **PSYCHOLOGY**

*Supervising Professor: Ariel Kershner, PhD*

**Ariel Kershner, Alexandra Bergamesco, and Ian Torello**

**PSY-06**

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

Does the testing effect extend to applying knowledge, beyond simple fact-based knowledge? In three experiments, participants completed one of three study guides (fact statements, multiple choice questions, or short answer questions) before applying their knowledge on a later exam. 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. Additionally, we expected that receiving corrective feedback after completing a study guide would increase accuracy on the knowledge application test regardless of study guide condition. Our results suggest that corrective feedback eliminates a testing format effect on knowledge application.

**Ariel Kershner, Sahdahya Addy, Nicole Burchett, and Ian Torello**

**PSY-07**

***Priority Maps Formed via Selection History Prioritize Location Over Color***

The priority map directs our attention to objects in the environment that are aligned with our current goals. For instance, your priority map may guide your attention to pen-shaped items on your desk when you are searching for a pen. How does this guidance change when you know information about your pens before starting the search, such as their likely color and location? Does your priority map depend more on the color you expect or the location you expect? In three experiments, participants searched for each of eighteen real-world categories based on their consistent features (color, location, or both). We hypothesized that target location should hold a privileged position in the priority map that underlies visual search, so that your search would prioritize your pen's location rather than its color. In both search and probe trials, our results suggest that location is consistently prioritized, both proactively and later in search, over color in a priority map formed via selection history.

## **SOCIAL WORK**

*Supervising Professor: Tracey Thomasey*

**Kelly Barker**

**SW-01**

### ***Juvenile Justice and Delinquency Prevention Act***

Delinquency is a complex, costly, distressing problem in the American society. The Juvenile Justice and Delinquency Prevention Act acts as the cornerstone of federal juvenile justice policy in the United States. The Juvenile Justice and Delinquency Prevention Act mandated that youth can only be held in adult prisons if they are being processed and only up to six hours, they are awaiting their initial court appearance, and if they are separated from adult inmates through sight and sound. This poster examines the historical and contextual background, analysis of the policy's impact, evidence based findings, and actionable recommendations regarding the JJDP.

**Teresa Hairston**

**SW-02**

### ***First Step Act***

The First Step Act of 2018 was a criminal justice reform bill enacted with the primary goal of reducing the federal prison population and ensuring that the public is protected. The policy focused on reducing recidivism rates, improving prison conditions, and enacting fairer sentencing practices. To ensure that these goals were met, the First Step Act amended sentencing reforms. While there have been significant positive outcomes of this policy such as reduced mandatory minimums for some nonviolent drug offenses, good time credits, and increased access to rehabilitative resources, there are still several areas of improvement around this policy.

**Angelina Sims**

**SW-03**

### ***The Family First Prevention Services Act (FFPSA)***

The Family First Prevention Services Act (FFPSA) represents a major reform in U.S. child welfare, shifting funding from foster care placements to family-focused prevention services. By funding mental health counseling, substance use treatment, and parenting programs, FFPSA helps families stay together and children remain safely at home. While states like Pennsylvania have expanded these services, gaps in funding, staffing, and accessibility limit the law's full impact. This poster examines the historical context, policy impact, key findings, and actionable recommendations to strengthen FFPSA and improve outcomes for children and families.

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**Eric Wellington, PhD, Provost**

**Sr. Kathy Dougherty, OSF, Vice President for Mission and Ministry**

**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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