

THE 13TH ANNUAL
**CENTER FOR RESEARCH &
CREATIVITY SYMPOSIUM**



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WEEK AGENDA | APRIL 9-12, 2024

Tuesday April 9		
3-5 p.m.	The Seventh Annual Nursing Research & Community Symposium	Chaffin Building
7-9 p.m.	TEDx Presentations	Huff Concert Hall
Wednesday April 10		
9-11 a.m.	The 13th Annual Center for Research & Creativity Symposium: Morning Presentation Session	See Program for Locations
11 a.m.-Noon	CIRCUIT: “Sacred Form: Exploring Diverse Depictions of Jesus on the Cross” by Dr. Kyrstin Krist, Andrew Prieto, and Rev. Kelli Taylor	Matthews Ministry Center
Noon-1 p.m.	Cape Fear New Music Festival Lectures “Establishing Implications for Musical Research and the Psychometric of Integrative Complexity” by Dr. Peter Swanson “Taming the Savage Beast or Making the Tame Beast Savage: Exploring the links between Music, Psychology, and Neuroscience” by Dr. Mark Kline	Reeves Fine Arts Complex (Chorus Room G2)
1-3 p.m.	The 13th Annual Center for Research & Creativity Symposium: Afternoon Presentation Session	See Program for Locations
2-3 p.m.	The 13th Annual Center for Research & Creativity Symposium: Poster Session*	Berns Student Center
3:30-5 p.m.	University Awards Ceremony	Huff Concert Hall
5:30 p.m.	Dr. Sue L. Kimball Creative Writing Competition Reading	Huff Concert Hall
6:30 p.m.	Phi Kappa Phi Induction Ceremony	Stout Complex (Medical Lecture Hall)
7:30 p.m.	10th Annual Cape Fear New Music Festival: “Music and the Brain–This is Your Brain on Music”	Matthews Ministry Center Chapel
Thursday April 11		
7 p.m.	B.F. Stone Lyceum: “Beyond Artifacts: Unveiling the Ethical Tapestry of Owning Antique Human Remains”	Stout Complex (Medical Lecture Hall)
Friday April 12		
8:30 a.m.	Fifth Annual Occupational Therapy Student Scholarship Symposium	Stout Complex (Medical Lecture Hall)
6 p.m.	Class of 2025 Pinning Ceremony, Doctor of Occupational Therapy Program	Huff Concert Hall

MISSION STATEMENT OF THE METHODIST UNIVERSITY CENTER FOR RESEARCH & CREATIVITY

The mission of the Methodist University Center for Research & Creativity is to establish educational opportunities that are collaborative and inquiry-based with the intention that every Methodist University student has access to exploratory learning across the curriculum.

“Faculty research and creativity are at the heart of the academic endeavor. Not only do these activities help to create new knowledge and new experience, but they add tremendously to teaching and learning. This work models for students the academic rigor and care involved in knowledge production, engages students in the process itself, and helps students become more critical information consumers for the rest of their lives — a vital skill in today’s environment.”

– Dr. Stanley T. Wearden
President

* Posters will be displayed in the Upstairs Lobby of Berns beginning at 9 a.m. Students will be available for questions during the afternoon Poster Session.

MORNING SESSION

AFTERNOON SESSION

ENGINEERING: LIFE FLOW AND WORK FLOW | HENDRICKS 222

9-9:20 a.m.	Chasing 20	Jackson Barriger
9:20-9:40 a.m.	Line 4 Product Flow and Storage Optimization at Kuraray America, Inc.	Christian Chavula Erik Fritts-Coppin Leonardo Rodriguez Vargas
9:40-10 a.m.	Implementing 5S at the Mill Room Storage at Kuraray	Kimberly Christon Loyiso Matiwane Kampadilemba Onadja
10-11 a.m.	Available for Q&A	

MATHEMATICS: FRACTAL, CRITICAL, OPTIMAL | HENDRICKS 222

1-1:20 p.m.	Beyond Euclid: Exploring Fractal Geometry in Nature and Art	Nour Diab
1:20-1:40 p.m.	The Critical Path Four-Year Plan	Ryan Martin Macie Szalach
1:40-3 p.m.	Available for Q&A	

INTERDISCIPLINARY: LEGAL ISSUES | CHAFFIN 103

9-9:20 a.m.	The Benefit of Repression and the Harm of Expression: The Effects of Public & Private Rituals as a Response to Non-Native Interest	Jordan Matheney
9:20-9:40 a.m.	From Muskets to Morality: The Second Amendment in the Era of United States v. Rahimi	Heba Mansaf
9:40-10 a.m.	Parents on Top: The Fight for Parental Rights in the Classroom	Deaja Chaney
10-11 a.m.	Available for Q&A	

PSYCHOLOGY: STRESS AND CAFFEINE | CHAFFIN 103

1-1:20 p.m.	Stress Overload Coping (Burnout Resistance), Academic Resiliency, and Social Support in First-Generation College Students	Nora Sanchez Gutierrez Kiley Hicks Brittany Jimenez Skylar Jones Caley Justice Jordan Pecorella
1:20-1:40 p.m.	Effects of Caffeine on Spatial and Verbal Reasoning in Timed Competitive Neuropsychological Tasks	Jade Ferreris Johnathan Nichols Mikael Rios Clifford Segarra Sydney Sizemore Katelynn Williams
1:40-3 p.m.	Available for Q&A	

ECONOMICS: SUPPLY AND PERFORMANCE | CLARK HALL (YARBOROUGH AUDITORIUM)

9-9:20 a.m.	Analyzing the Impact of Online Banking on Money Supply and Inflation	Fadhl Al-Names
9:20-9:40 a.m.	Empirically Assessing the Fiscal Theory of the Price Level (FTPL)	Albert Pajarilla
9:40-10 a.m.	The Impact of Technology and Automation on Company Performance	Gabrielle Moyo
10-11 a.m.	Available for Q&A	

INTERDISCIPLINARY: TECHNOLOGICAL ISSUES | CLARK HALL (YARBOROUGH AUDITORIUM)

1-1:20 p.m.	The Normalization and Escalation of Incel Online Communities	Abbie Mason
1:20-1:40 p.m.	AI in Higher Education: Enhanced Experience and Transformative Potential	Melody Luke Mark Plowright Tahmuras Primov Rishika Singh
1:40-2 p.m.	This Machine Kills Fascists: Generative AI as a Tool for Postcolonial Liberation	Jordan Matheney
2-3 p.m.	Available for Q&A	



POSTER SESSION | 2-3 P.M.

- Exploring the Socioeconomic Impacts of Cannabis LegalizationOwen Williams
Economics
Advisor: Dr. Robert Gmeiner
- Labor Unions: Do We Need More or Less? A Comparative AnalysisTrianna Mayfield
Economics
Advisor: Dr. Robert Gmeiner
- How the Economic Impact of Sustainable Tourism Practices is Beneficial for Local Communities.....Samantha Ramirez
Economics
Advisor: Dr. Robert Gmeiner
- How Mobile Banking is Affecting the Financial Field.....Bryanna Good
Economics
Advisor: Dr. Robert Gmeiner
- How Do Existing Support Programs Help Retired NFL Players Find Employment After Leaving the League? Austin Steigelman
Economics
Advisor: Dr. Robert Gmeiner
- Outdoor Workout Area Larry (Tripp) Beck, David Melvin, Zachary Thompson
Engineering
Advisor: Dr. Denise Bauer
- Student Outdoor Gathering Spaces Ian A. Kersh, Craig Morton, Elijah Pittman
Engineering
Advisor: Dr. Denise Bauer
- Community Garden Nejra Idrizović, Tiyamike Mwamadi, Josie Perry
Engineering
Advisor: Dr. Denise Bauer
- Mallot-Rodgers House ParkingSebastian Pirela Fraioli, Camden Hancox, Joshua Mott Danny Tolentino
Engineering
Advisor: Dr. Denise Bauer
- Residence Study Rooms Ahmed Azeez, Alexander Brinton, Jayden Harrison, Daniel Rojas Villagomez
Engineering
Advisor: Dr. Denise Bauer
- Finding Your Way.....Hailey Jernigan, Blake Tucker, Grobin Wilbor Bardales Reyes
Engineering
Advisor: Dr. Denise Bauer
- Knowledge About Handshake and How to Use It Caillet Chong, Jonathan Gabino, Armando Ramirez
Engineering
Advisor: Dr. Denise Bauer
- Revitalization and Reorganization of Mill Roll Storage at Kuraray... Kimberly Christon, Loyiso Matiwane, Kampadilemba Onadja
Engineering
Advisors: Dr. Girish Upreti and Dr. Denise Bauer
- Enhancing the Efficiency of Product Flow and Storage at KurarayChristian Chavula, Erik D. Fritts-Coppin,
Leonardo Rodriguez Vargas
Engineering
Advisors: Dr. Girish Upreti and Dr. Denise Bauer

- Optimization of One Stop Scheduling Utilizing Operations Research Techniques..... Ryan Martin, Macie Szalach
Mathematics and Engineering
Advisors: Dr. Jie Zhou , Dr. Denise Bauer, and Dr. Emad Alenany
- Understanding Buffon’s Needle Problem..... Macie Szalach
Mathematics
Advisor: Dr. Kathleen Fick
- Chemical Analysis of the “Lucy” Skeleton Harper Fordham
Geology and Chemistry
Advisors: Dr. John Dembosky and Dr. Stephanie Hooper Marosek
- Interdisciplinary Approach for the Identification of Antique Skeletal Teaching Specimens:
DNA Extraction, Forensic Bone Standards, and X-Ray Analysis Anastasia Kirkpatrick, Victoria Martin,
Cynthia Nichols, Sydney Wixtrom
Biology and Forensic Science
Advisors: Meghan Hennessey and Dr. Bryan Brendley
- Genetic Factors that Contribute to the Development of Ulcerative Colitis Alyssa Barwick
Biology
Advisor: Meghan Hennessey
- Analyzing the Efficacy of Antibiotic-Producing
Soil Bacterium Exiguobacterium Acetylicum Against ESKAPE Pathogens..... Rishika Singh
Biology
Advisor: Dr. Lauren Klabonski
- Sustainability Practices in Hendricks Science Building at Methodist UniversityMikayla Ramos
Environmental and Occupational Management
Advisor: Joshua Freeman
- Neo’s Hospital Program Exhibit..... Trevon Anderson
Computer Science
Advisor: Dr. Terry House
- Psychology and Opioids.....Madison Brunson
Psychology
Advisors: Dr. Laura Mars and Dr. Mark Kline
- Addressing Issues Regarding Mental Health in College Athletes Through the Lens of OT
to Improve Well-Being and Quality of Life Anna Marie Tyndall
Occupational Therapy
Advisor: Dr. Matthew Foreman
- Developing a General Protocol for Implementing Switch-Adapting and 3-D Printed Devices
for People Facing Environmental Barriers Due to Upper Extremity Motor Impairments.....Christopher Harper, Tajze Johnson,
Raymond McCall Jr.
Occupational Therapy
Advisor: Dr. Matthew Foreman
- Participation Patterns in Leisure Activities of Family Units with a Child with Autism Ryan “Kesler” Norton
Occupational Therapy
Advisor: Dr. Matthew Foreman

The Seventh Annual Nursing Research & Community Symposium

April 9 | 3-5 p.m.

Investigating the Cardiovascular Effects of Long-Term Energy Drink Consumption in Healthy Male Athletes Aged 18-25

Mohammad Al Hawwari

This prospective cohort study explores the impact of prolonged energy drink consumption on cardiovascular health among healthy male athletes aged 18-25 years. While existing research has addressed the broader effects of energy drinks on health, this study fills a gap by focusing on the specific demographic of physically-active young men. This is a controlled cohort study involving young, healthy males who regularly drink energy drinks. A control group of individuals who regularly abstain from both energy drinks and caffeine will also be included. Measurements will be conducted using wrist-worn digital monitors to assess heart rate and blood pressure. All subjects will engage with a treadmill protocol, baseline measurements of heart rate and blood pressure will be taken at rest, followed by a standardized five-minute treadmill run at 3-6 mph. Post-exercise heart rate and blood pressure will be measured immediately and after one hour of rest. Statistical analysis will be conducted using students' t-tests to compare data between energy drink consumers and abstainers. The study aims to provide novel insights into the cardiovascular effects of long-term energy drink consumption in physically-active young men. By focusing on this specific demographic, the research seeks to uncover nuanced impacts that may have been overlooked in broader investigations. Dietary influences will be accounted for by selecting young, healthy subjects from a college population, where dietary habits are relatively homogenous. However, potential confounding factors related to diet cannot be entirely ruled out. This study endeavors to expand our understanding of the cardiovascular implications of energy drink consumption among young, healthy athletes. We hope that our findings will contribute to informed decision-making regarding energy drink use in this demographic.

Burnout and Trauma in Labor and Delivery Nurses

Payton Calloway

Labor and Delivery (L&D) is a unit that provides care for mothers in the progression of labor, delivery, and the immediate postpartum. While this job is often seen as full of enjoyment and excitement the recent rise in maternal and infant mortality rate can also make this job very stressful, tragic, and overwhelming. In turn, this leads to increased rates of nurse burnout. Labor and delivery nurses endure infant and mother loss, neonatal abstinence, mothers who were sexually assaulted, and so much more. As a result of this, nurses tend to become burned out and quit nursing or relocate to another specialty. The increased rate of burnout is also contributing to the nurse shortage in hospitals. Nurses have also begun relocating to another specialty in the hope that this can bring a sense of relief as the nurse can experience less traumatic experiences as a nurse generalist. It is paramount that hospital organizations work to prevent

nurse burnout, not only in labor and delivery but all other forms of nursing if they hope to address the nursing shortage. It is critical that organizations work to implement multiple interdisciplinary teams to promote job satisfaction and prevent nurse burnout.

Does the Treatment of Pre-Eclampsia Among African American Women Contribute to Maternal Mortality?

Ashley Garson

African American women have a higher mortality rate related to pre-eclampsia than Caucasian women. While there are standard treatment protocols for both prenatal care and caring for women with pre-eclampsia, there is evidence that healthcare professionals are not following these protocols when caring for African American women. We searched the key phrases "pre-eclampsia mortality in African American women," "pre-eclampsia mortality in Caucasian women," and "treatment of pre-eclampsia in African American and Caucasian women," and it identified 500 articles. We further categorized these articles into compliance, treatment, socioeconomic status, and socially assigned race. By narrowing the search down into compliance, treatment, socioeconomic status, and socially assigned race, we identified 16 articles fit for analysis. This scoping review reveals that not all healthcare providers follow the standardized template protocols when they have patients who are African American. This contributes to the higher maternal mortality rate among African American women.

The Influence of Attention Deficit Hyperactivity Disorder on Glycemic Control

Alyssa Hansell

Maintaining stable glycemic control is the most important strategy to prevent complications in patients with diabetes mellitus. Glycemic control is the ability of the patient to maintain glucose levels in the bloodstream within a certain range, which is typically between 70-100 milligrams per deciliter. Glycemic level is the reading of the glucose concentration in the blood, which is difficult to achieve, particularly when a patient has a concurrent condition that affects a patient's ability to focus and attend to important issues. Attention Deficit Hyperactivity Disorder (ADHD) is an increasingly common condition complicating glycemic control for people with diabetes mellitus. This review focuses on the interplay between both conditions and proposes strategies to help the patient with both ADHD and diabetes mellitus.

Preparing Soldiers for Life After Combat

Catherine Hinton

Active-duty soldiers in the United States Army often undergo life-altering physical and mental hardships during and after deployments that can lead to post-traumatic stress disorder (PTSD). This condition can develop after events involving military combat and violence. This paper will examine the

reduction rates of PTSD from pre-deployment training. We conducted a scoping review of the available literature focusing on several well recognized post deployment side effects that encompass nightmares, depression, anger, and social isolation of active-duty soldiers. Reducing PTSD rates through pre-deployment training may increase active-duty retention rates and decrease adverse effects including suicide, stress-related illness, divorce, and medical discharge.

Running from Depression: The Use of Exercise as an Alternative to Pharmaceutical Therapy in Treating Depression

Christopher Todd Howe

Autism Spectrum Disorder (ASD) occurs among all races, ethnic, and socioeconomic groups. Traditionally, early childhood interventions have been used to promote health intelligence that are clinically driven to reduce chronic health outcomes among this diverse population. As these children reach young adulthood, they face barriers when transitioning from pediatric to adult care. There is a need for ongoing health care management support. The aim of this research is to identify strategies to strengthen provisions of health care in the ASD population.

Adverse Childhood Experience (ACE) Score and the Impact on Depression

Mariah S. Ingham

Adverse childhood experiences (ACEs) are traumatic and stressful events that occur in a child's life before the age of 18. Experiencing ACEs before the age of 18 increases the likelihood of developing chronic diseases like depression, heart disease, substance abuse, Chronic Obstructive Pulmonary Disease (COPD), asthma, diabetes, and cancer. Major Depressive Disorder (MDD) is a major mental health problem the world faces currently, and this project will reflect that an ACE score greater than four in a patient's childhood correlates with an increased risk of developing MDD subsequently in life. This paper will show that experiencing four or more Adverse Childhood Experiences in life significantly increases the risk for developing depression in young adults.

What is the Effect of Teen Pregnancy (Before the Age of 19) on Postpartum Depression?

Frances Iyere

Teen pregnancy, referred to as pregnancy occurring under the age of 19, is a major public health concern nationwide. The focus of this paper is to conduct a comprehensive analysis of the existing literature that addresses the impact of teen pregnancy on postpartum depression (PPD). The prevalence of teen pregnancy and postpartum depression, as well as risk factors for both conditions, are examined. We will also investigate the potential processes which might explain the link between teen pregnancy and postpartum depression to include psychosocial stressors, a lack of social support, biological factors, and disparities in socioeconomic status. In addition, cultural and contextual aspects are considered when evaluating this connection given the difference in culture and upbringing. Our findings indicate that teen mothers experience higher susceptibility to postpartum depression when compared to older mothers. Furthermore, challenges of postpartum adjustment amid transitions in education, career, and social networks are addressed. The findings highlight the significance of strategies to prevent teen pregnancy and providing holistic support to teenage mothers to minimize the incidence of postpartum depression. By addressing the unique needs of adolescent mothers and implementing comprehensive support systems, we can mitigate the burden of postpartum depression and promote the health and well-being of both mothers and their children beyond the immediate postpartum period.

Optimizing Nursing Leadership: An Analysis to Address Nursing Burnout Within Acute Care Settings

Maria Kollar

Nursing burnout remains a persistent challenge in acute care settings, affecting both patient outcomes and the well-being of nurses. The Magnet Recognition Program, created by the American Nurses Credentialing Center (ANCC), provides a road map for hospitals and recognizes healthcare organizations' nursing practice, leadership, and innovation excellence to designate how an organization can provide quality patient-centered care. Identifying differences between Magnet and non-Magnet hospitals can help shed light on how organizations can enhance nursing leadership and foster a supportive work



environment to promote nurse satisfaction, improve patient care outcomes, and sustain a resilient healthcare workforce. This literature review will investigate the influence of nursing leadership on nursing burnout in Magnet-status hospitals compared to non-Magnet-status hospitals during the first three years of employment. The findings of this study aim to contribute to a deeper understanding of how nursing leadership practices and organizational structures impact nurse well-being and incidents of burnout that may affect patient outcomes.

Cooperation Between Nurses and Artificial Intelligence
Seunghyup Lee

Artificial Intelligence (AI) has been developing at a rapid pace since the beginning of the 21st century, and now is being used in healthcare systems, too. Dr. Tedros Adhanom Ghebreyesus, World Health Organization director-general, states, “Artificial Intelligence holds enormous potential for improving the health of millions of people around the world, but like all technology it can also be misused and cause harm” (World Health Organization). On the contrary, the American Nurses Association (ANA) states that appropriate use of artificial intelligence in nursing practice supports and enhances the core values and ethical obligations of the profession. Healthcare workers should avoid artificial intelligence that appears to impede or diminish core values and obligations and incorporate only in such way that values and obligations are protected (American Nurses Association). This review aims to explore the positive and negative aspects associated with the use of artificial intelligence technology. Also, the development of applications of artificial intelligence in nursing care by providing different possible solutions which may include enhancing hospital policies and educating healthcare staff members regarding to use of artificial intelligence technology.

Taking the Power Out of Women’s Hands: How Labor Positioning Has Changed and the Implications Regarding Postpartum Hemorrhage
Collette LeFavor

This paper examines the phenomenon of the large number of laboring women using lithotomy position during the birthing process and its possible connection with postpartum complications. More women are choosing to give birth in hospitals than at home, and therefore are more likely to labor in lithotomy position (supine with legs elevated or in thigh supports) with a physician assisting. It is unclear what effect this shift to hospital-assisted births has on postpartum complications, or the motivation behind the provider’s choice of maternal position. This scoping review will investigate the current research surrounding positioning in labor and birth and the outcomes associated. Questions investigated during this review include: Who is making the decision to use lithotomy in birth? Is the mother choosing to labor in lithotomy or is the provider directing this, potentially against her will? Also discussed is the controversial literature linking non-lithotomy position to a cascade of interventions including increased rates of induction or augmentation of labor, prolonged second stage, perineal lacerations or birth canal trauma eventually culminating in postpartum hemorrhage.

Navigating Folk Healthcare: Exploring the Roots of Wellness

Nicolas Parker Arley

Would you believe that Moringa (Moringa oleifera) tea has properties that can be beneficial in the managing of high blood sugar, cholesterol, and blood pressure? This review focuses on exploring the medicinal properties of unconventional or indigenous remedies and interventions that continue to impact medicine and research. The research aims to demonstrate the importance of implementing ancestral knowledge as well as recognizing the use of remedies among people of diverse backgrounds to promote holistic wellness, safety, and traditional knowledge. This approach seeks to integrate complementary health practices into the contemporary context, thus promoting a more comprehensive and respectful approach to a diversity of healing methods.

Early Intervention for Individuals with Mosaic Turner Syndrome on Long-Term Outcomes

Kayleigh Raynor

Mosaic Turner Syndrome is a chromosomal abnormality that may cause great difficulties for those that it affects. This chromosomal abnormality only affects females and occurs during the genetic makeup of the cells during fertilization. In individuals affected by Mosaic Turner Syndrome only some cells are missing an X chromosome while others are unaffected. Due to these individuals not presenting with all the signs and symptoms with those that Turner Syndrome have, their chromosomal abnormality is classified as Mosaicism. Individuals with Mosaic Turner Syndrome are affected throughout their lifetime and must overcome many physiological and psychological barriers to life to what most of society calls, a normal life. This study elaborates on interventions for the reproductive, genitourinary, skeletal, and immunological challenges that an individual with Mosaic Turner Syndrome can face throughout their lifetime along with an evaluation of the long-term results of the interventions for each body system.

SIDS: The United States vs United Kingdom

Anna Shankle

There is a major difference in statistics of sudden infant death syndrome between the United States and the United Kingdom. The two countries have conflicting recommendations regarding what is considered “safe sleep”. The United States uses the American Academy of Pediatrics “Back to Sleep” protocol, while the United Kingdom uses the UNICEF UK “Safe Sleep Seven”. Any analysis of the two programs must also consider other factors also associated with sleep-related injury, factors such as education level, prevalence of smoking, pacifier use, and the rate and duration of breast feeding also play an important role in SIDS prevention. Understanding the discrepancy in rates between the two systems will help bring clarity to this controversial issue, help new families adjust to the difficult newborn stage, and perhaps more importantly it may save the lives of infants. This scoping review comparing both systems demonstrates that the UK has fewer infant deaths and sleep related injuries while also promoting co-sleeping. The question arises: What is the United States doing wrong?

What Are the Effects of Non-Cerebral Malaria on the Cognitive Development of Children Under the Age of 5
Geraldo António Sibinde

This paper investigates the relationship between non-cerebral malaria (NCM) and the cognitive development of children using secondary data analysis sourced from sub-Saharan Africa. Malaria, a widespread tropical disease, affects millions of individuals globally, with children being particularly vulnerable. While the neurological complications of cerebral malaria have been extensively studied, the impact of non-cerebral malaria on cognitive development remains less explored. This study aims to elucidate the potential association between non-cerebral malaria and cognitive development in children through the analysis of existing secondary data from sub-Saharan Africa, Uganda, and Malawi, where malaria burden is significant. This data will encompass various aspects such as malaria incidence rates, demographic variables, and cognitive development metrics. A comprehensive literature review to explore existing research on malaria and cognitive development is included. This study is crucial, as it addresses a gap in current research, providing insights into the cognitive consequences of non-cerebral malaria in a region heavily affected by the disease. The findings may guide targeted interventions and healthcare policies tailored to alleviate the cognitive impact of malaria, ultimately improving the well-being and developmental outcomes of children in sub-Saharan Africa.

What Are the Medical and Cultural Risks Associated with Female Genital Mutilation?

Bridget Simiyu

Female Genital Mutilation (FGM) is a prevalent practice in Africa, the Middle East, and Asia, impacting more than 200-million girls worldwide. This scoping review explores the medical and cultural risks associated with female genital mutilation. FGM includes clitoridectomy, excision, infibulation and all other harmful procedure done to the female genitalia for non-medical purposes. FGM is rooted in cultural, religious, social, and mythical beliefs. This practice aims to control female sexuality, preserve virginity,

and adhere to cultural norms as a rite of passage. FGM remains prevalent due to a lack of awareness regarding its harmful effects. Mothers and female guardians are influenced by societal pressures of respectability and marriageability and may opt to subject their daughters to FGM. The procedure inflicts immediate physical pain and risks such as bleeding, dysmenorrhea, and infection. Moreover, it leads to enduring complications, including chronic pelvic infections, sexual dysfunction, dyspareunia, obstetric complications, and psychosocial issues. These consequences emphasize the urgent need for health interventions to address both the cultural and medical effects of FGM. Understanding the cultural and medical associated with FGM could encourage advocacy for measures aimed at bringing awareness about this harmful practice and to promote women’s health and human rights.

The Effects of PMDD on Suicidal Behavior in Childbearing Women

Nailea Torres

Premenstrual Dysphoric Disorder (PMDD) is a severe and disabling psychiatric disorder that affects millions of women worldwide. This disorder is characterized by symptoms including emotional lability, depression, anxiety, lethargy, insomnia, and increased irritability. Furthermore, PMDD causes significant interference with the disruptions in activities of daily living as established by the DSM-5-TR diagnostic criteria of PMDD. The symptoms associated with this disorder are found to be linked with the luteal phase of the menstrual cycle. Women with PMDD are at an increased risk for suicidal behavior. However, this condition is not well-known to the general public. It is often kept as a secret by women and their families despite the significant impact it has on the lives of women. Women suffering with PMDD are commonly misdiagnosed with other mental health disorders, such as bipolar disorder, or are under diagnosed by healthcare providers due to the misperception that women are only being “hormonal.” This scoping review will investigate how PMDD affects the rates of suicidal behavior, including ideation, attempts, and completion in childbearing aged women between the ages of 18-40 years old.



Analyzing the Prevalence of Lower Back Pain Within Critical Care Nursing

Emily VanLoon

This is a prospective trial of the prevalence of lower back pain among critical care nurses within a 12-month period. The purpose consists of seeking insights into the physical and occupational challenges faced by these nurses. Early in nursing school, emphasis is placed on the importance of proper body mechanics to prevent lower back injuries. Lower back pain, which is a concern for nurses in all healthcare settings, poses a risk to productivity, job satisfaction, and overall well-being for nurses. Intensive care nurses are at greater risk of developing a back injury, due to the higher personal care demands required by patients in critical condition. This report employs a cross-sectional survey, which collects data to compare the prevalence, severity, potential risk factors, workplace factors, and outcomes associated with lower back pain among critical care nurses. There are many preventative strategies and interventions that can ameliorate the effects of lower back pain. This review will discuss these strategies with the goal of increasing overall well-being and productivity, which can help to increase job satisfaction within the critical care nursing community.

The Effects of Occupational Exposures on the Fertility of Oncological Nurses

Alyzabeth Ward

Oncological nurses carry a hefty risk of infertility due to the occupational exposures and the high stress levels of the occupation. These nurses work closely with cancer patients and see many patients experience unsuccessful treatments and extremely aggressive cancers resulting in death or disability. In addition to the stress and emotional load of this nursing specialty, these nurses come in close contact with antineoplastic drugs and high-level disinfectants. The psychological impact of the occupation, antineoplastic drugs and high-level disinfectant exposure all impose a decreased fecundity on oncological nurses. It is important to recognize the risk these nurses undertake and recognize interventions and their outcomes for the safety of these nurses. This study will focus on the infertility risks and rates that oncological nurses can face, and interventions to reduce this risk.

Autism Spectrum Disorder: Compliance Challenges

Kimeesha Whitlock

Individuals who have autism spectrum disorder (ASD) face challenges related to social interactions, communication, and social understanding. When these challenges relate to acute illness, it becomes difficult for the patient with autism spectrum disorder to understand the education and interventions that are being suggested by the nurse. This scoping review explores treatment compliance in the pediatric population with autism spectrum disorder (ASD), specifically during acute illness not related autism. Children with ASD face challenges with compliance, therefore it is imperative that the nurse be prepared to respond to these challenges. To provide effective care, nurses must overcome communication barriers, sensory sensitivities, and social interactions. This scoping review of factors that

enhance compliance in ASD pediatric patients will focus on strategies to enhance patient delivery. Tailoring interventions toward pediatric ASD patients with acute illness may improve compliance and outcomes in this population.

Understanding PTSD in Children with Chronic Conditions

Erika A. Wilson

Post Traumatic Stress Disorder (PTSD) in children under six dealing with chronic health issues is a challenging and insufficiently studied topic in pediatric psychology. This review explores the overlap between chronic health conditions and PTSD in this vulnerable population. The authors investigate the frequency, risk factors, symptoms, and the effects of developmental age. Young children who suffer from chronic health disorders are subjected to a variety of unpleasant experiences, including hospitalizations, medical procedures, pain, and disruptions to their everyday routines. The severity and duration of the health condition, as well as coping mechanisms and support systems, all have an impact on the development of PTSD. Diagnostic and evaluation challenges exist when attempting to diagnose PTSD in this age group. As a pediatric nurse, it is important to consider the relationship between physical and psychological health and implement developmentally appropriate measures. Trauma-informed care and parent-child dyadic methods are shown to be effective strategies in this population and will be discussed in detail. When it comes to minimizing the long-term effects of PTSD and promoting resilience in young children who have chronic health concerns, early intervention and collaborative treatment which involves healthcare practitioners, mental health specialists, and caregivers are particularly important in promoting resilience in young children with chronic health conditions.

Empowering Birth: The Influence of Exercise on Cesarean Delivery Rates

Nadeen R. Zananiri

This project investigates the potential effects of regular exercise on cesarean delivery (CD) rates in uncomplicated nulliparous, term, singleton, vertex pregnancies. It is commonly accepted that exercise exerts a favorable influence on pregnancy and postpartum results. Although the analysis of exercise in labor is intricate, a discernible correlation emerges between engaging in exercise and birth outcomes. This scoping review of the impact of exercise during pregnancy specifically focuses on the effect of exercise on cesarean delivery rates. A comprehensive review of the literature identified several key variables that affect the role of exercise on pregnancy outcomes. There appears to be a discernible positive association that emerges between exercise and the likelihood of reducing risk for CD. The review findings in this paper contribute to the ongoing discourse on proactive measures to reduce cesarean delivery rates while promoting positive labor outcomes.

Increasing Utilization of Veterans Affairs Healthcare Resources for Veterans and Their Families

Jalessa Batchelor, Payton Jones, Catalina Velazquez Guset, Taylor Collier

This community health nursing project will examine underutilized Veterans Affairs (VA) healthcare resources that are available to veterans and their family members. Health program planning will be used to identify interventions aimed at increasing utilization of available VA healthcare resources.

Increasing Safety in Residential Nursing Facilities in North Carolina

Lena Happel, Dawson Corbett, Lailah Green

This community health nursing project will examine safety concerns in residential nursing facilities in North Carolina. Health program planning will be used to identify and develop nursing and public health interventions that will positively impact safety in nursing facilities.

Empowering Communities Against Sex Trafficking in North Carolina

Meaghan Himes, Kaitlyn Beaver, Callie Baucom

This community health nursing project will examine sex trafficking in North Carolina. Health program planning will be used to identify and develop nursing and public health interventions that capitalize on a community centered approach and aim to prevent, identify, and respond to instances of sex trafficking.

Heat Stroke in Active-Duty Military Personnel

Sofie Joyce, Cameron Kennedy, Brianna Rado, Julianne Salancy

This community health nursing project will explore heat strokes reported in active-duty military personnel. Health program planning will be used to identify and develop recommended nursing and public health interventions to reduce heat strokes in this population.

Increasing Healthcare Access for Under- and Un-Insured Individuals in Cumberland and Surrounding Counties

Dallas Lee, Lydia Dieck, Kyla Hall

This community health nursing project will examine the access and educational resources available to individuals in Cumberland and surrounding counties who are under or uninsured. Health program planning will be used to identify and develop recommended nursing and public health interventions aimed at providing healthcare services to those who otherwise cannot gain access. Moreover, a proposed plan with key metrics for outcome evaluation will be delineated.



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The 13th Annual Center for Research & Creativity Symposium April 10 | 9 a.m.–3 p.m.

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MORNING SESSION | HENDRICKS 222 ENGINEERING: LIFE FLOW AND WORK FLOW

9-9:20 a.m.

Chasing 20

Jackson Barriger | Junior; Engineering, Industrial & Systems Engineering; Stuttgart, Germany
Advisor: Dr. Denise Bauer, Engineering

Over a four-month period, I completed an experiment where I made a daily vlog with the purpose of becoming a better athlete and student. As of now, I am roughly on day 46 of the “Chasing 20” experiment, and I would like to share my experience so as to possibly help others. I started the video logs after I sustained an injury last November. On Christmas day, I decided that if I was going to treat my body as broken, then it

would never get any better. So, I began training regardless of pain and that’s when “Chasing 20” started. I was never one to constantly record my life, so having to get footage of daily events has been an interesting change. I originally started only documenting what I did each day in terms of training, but after some time, I began to find lessons to learn within the events of each day and share those lessons including being proactive person, active forgiveness, and not being able to win every day. I am a better athlete and person because I have done this. I feel better about my performance, I am both more and less self-aware, my teammates have begun to look at their own training differently, and my friends across the world have been affected. This has positively affected my life and I would love to share how and why.

9:20-9:40 a.m.

Redesign of Fayetteville’s Kuraray Plant Storage System

Christian Chavula | Senior; Engineering, Industrial & Systems Engineering; Kitwe, Zambia
Erik Fritts-Coppin | Senior; Engineering, Industrial & Systems Engineering; Raeford, N.C.
Leonardo J. Rodriguez Vargas | Senior; Engineering, Industrial & Systems Engineering; Barquisimeto, Venezuela
Advisors: Dr. Girish Upreti and Dr. Denise Bauer, Engineering

This study aims to enhance the efficiency of product flow and storage for Polyvinyl Butyral (PVB) film through the implementation of a standardized system. The PVB film is categorized into three standards:

Standard (sellable), Recycle (back to process), and Scrap (not usable). The existing product flow is identified as suboptimal, prompting the need for a comprehensive reevaluation and redesign. The primary objective is to develop a standardized product flow for the recyclable rolls. Kaizen events will be used to incorporate Kanban as a means of ensuring there is a specific request system for these rolls. Kanban will provide a visual representation of the tasks and their statuses, enabling swift identification and address any potential bottlenecks. Each step of processes will be represented by a column on the board, with tasks depicted by cards that move through these columns as work progresses. This transparency will help identify the storage location of the rolls, prioritize effectively, while optimizing the workflow.

9:40-10 a.m.

Implementing 5S at the Mill Room Storage at Kuraray

Kimberly Christon | Senior; Engineering, Industrial & Systems Engineering; Fayetteville, N.C.
Loyiso Matiwane | Senior; Engineering, Industrial & Systems Engineering; Mbabane, Eswatini
Kampadilemba Onadja | Senior; Engineering, Industrial & Systems Engineering; Ouagadougou, Burkina Faso
Advisors: Dr. Girish Upreti and Dr. Denise Bauer, Engineering

The main goal of this project is to rearrange the Mill room storage at Kuraray in Fayetteville, North Carolina to optimize its efficiency. The existing storage room is not fully utilized, and its disorganization presents many unnecessary challenges. One of the most popular ISE

(Industrial and Systems Engineering) tools, 5S, will be employed as a solution to address the problems. 5S stands for sort, set in order, shine, standardize, and sustain. The 5S methodology is a systematic approach to workplace organization designed to enhance efficiency and reduce waste by maintaining a tidy and structured work environment. This method involves removing unnecessary items, arranging current inventory, labeling, establishing permanent storage locations, thoroughly cleaning the area, and implementing a plan to sustain cleanliness and organization. Through this process, the storage room sustainably undergoes decluttering and organization, making it easier for individuals to access frequently used items and identify items requiring replenishment. Our goal in implementing the 5S tool for this study is to optimize storage utilization and minimize time spent in the storage room.

MORNING SESSION | CHAFFIN 103 INTERDISCIPLINARY: LEGAL ISSUES

9-9:20 a.m.

The Benefit of Repression and the Harm of Expression: The Effects of Public & Private Rituals as a Response to Non-Native Interest

Jordan Matheny | Senior; English; Sanford, N.C.
Advisor: Dr. Patrick O’Neil, History

Native American religious celebrations have historically faced intense scrutiny from the government and non-native public, resulting in laws prohibiting the expression of Indigenous culture. The Confederated Salish and Kootenai tribes of North America adapted their cultural ceremonies in response to a push for assimilation by American non-natives, with the confederation functioning as a microcosm for the external perception of Indigenous communities. After decades of historical suppression, lessened prohibitions allowed powwows to become inclusive events,

suggesting a shift in American national identity that sought to absorb ethnic groups previously thought to be separate. This project will examine the consequences of changing tradition in response to external and internal motivation as seen in interviews with members of the confederation and historical records of Native fraternal societies. This presentation will also reckon with the function of rituals and the question of cultural authenticity. Input from modernists and traditionalists regarding cultural transparency frame the discussion around identity and ritual as it develops from the 1900s to 2010s, illustrating how tradition thrived under restrictive legislation while communities felt a loss of culture in public celebrations. An examination of the discourse around Salish and Kootenai ceremonies suggests that over time, the push for openness around culture has allowed for improved inter/intracommunity relations but raised concerns about appropriation and assimilation, threatening the distinct identity of Indigenous groups.

9:20-9:40 a.m.

From Muskets to Morality: The Second Amendment in the Era of *United States v. Rahimi*

Heba Mansaf | Sophomore; Political Science; Fayetteville, N.C.
Advisor: Dr. Wendy Vonnegut, Legal Studies

This study explores the legal battlefield of *United States v. Rahimi*, a case that tests the boundaries of the Second Amendment against the backdrop of public safety imperatives related to domestic violence. Through a dissection of legal arguments, precedents, and broader socio-political context, this research scrutinizes the Supreme Court’s role in mediating between individual rights and collective security. By integrating theoretical frameworks with an analysis of statutory interpretations and constitutional principles, this research illuminates the interplay between evolving societal norms and steadfast legal

doctrines. Central to this discourse is an examination of how the judiciary interprets the Second Amendment in the modern era, juxtaposed against historical precedents and the pressing need to address contemporary challenges. The case study of *Rahimi* serves as a focal point to explore the dynamic tension between preserving constitutional freedoms and ensuring societal well-being, thereby offering a nuanced perspective on the delicate balance the SCOTUS navigates in its jurisprudence. The intention here is not to influence political viewpoints but to enrich our understanding of the judiciary’s indispensable role in Constitutional interpretation. The imperative is clear: to pivot from static homage to the past towards a dynamic, life-affirming application of the Second Amendment. This reframing is not an affront to liberty but a testament to our collective commitment to a society where rights and safety coalesce, ensuring a legacy where legal doctrines evolve in tandem with the lives they vow to protect.

9:40-10 a.m.

Parents on Top: The Fight for Parental Rights in the Classroom

Deaja Chaney | Junior; Education; Spring Lake, N.C.
Advisor: Dr. Courtney Samuelson, Education

Parents spend 18 years carefully instilling values and morals into their children in order to guide them down the right path. When children begin attending school, parents worry that the material undermines the work they have put in to make sure the children have the same religious and political beliefs as the family. Under previous legislation, parents couldn’t do anything. They began contacting elected representatives and

campaigned both in-person and online to gain traction and supporters. This led to the “Parents Bill of Rights” or H.R.5 which is an act to ensure the rights of parents are honored and protected in the nation’s public schools. This is not without push back, as now many educators feel as if they are walking on eggshells in their classrooms. Do the rights of the parents outweigh the right to a quality education for the child? Does this bill hinder the curriculum? Are states’ educational rights in relation to parents more important than the duties and responsibilities of educators? In the end, could appeasing the feelings of parents cause a decline in the education system? In this session, I will analyze the progression over time of legislation, curriculum and theories affecting the American education system.

**MORNING SESSION | YARBOROUGH AUDITORIUM
ECONOMICS: SUPPLY AND PERFORMANCE**

9-9:20 a.m.

Analyzing the Impact of Online Banking on Money Supply and Inflation

Fadhl Al-Names | Senior; Financial Economics; Aden, Yemen
Advisor: Dr. Robert Gmeiner, Economics

In my project, I will analyze how online banking has affected money supply and inflation. With banks moving online in recent years, customers can now easily access accounts and make transactions digitally. I will focus on how this shift to online banking impacts the

money supply, and whether it can lead to inflation. The growth of digital financial services means we need to understand their effects on monetary policy and economic stability. My research will look at how online banking has changed the velocity of money, money creation, and liquidity in finance. I will study trends in online banking adoption, changes in consumer habits, and central bank responses. This will show if online banking has significantly shifted pressures causing inflation. I will review theories, empirical studies, and policies to comprehensively understand the link between online banking innovations and macroeconomic results.

9:20-9:40 a.m.

Empirically Assessing the Fiscal Theory of the Price Level (FTPL)

Albert Pajarilla | Senior; Financial Economics; Eastover, N.C.
Advisor: Dr. Robert Gmeiner, Economics

What determines inflation? The fiscal theory of the price level (FTPL) offers a novel answer: the price level adjusts so that the real value of government debt equals the expected present value of primary budget surpluses. That is, if people do not expect the government to back

outstanding debt with future surpluses, then inflation must occur to devalue that debt. To assess the FTPL, I look at three inflation episodes: the German hyperinflation (1921-1923), the U.S. Great Inflation (1965-1982), and the recent pandemic-era inflation. Large deficits and fiscal sustainability concerns accompanied each episode. A time-series regression will model inflation as a function of excess government spending. If the facts of these episodes coincide with the FTPL, then it follows that ending inflation requires a fiscal reform that anchors fiscal expectations.

9:40-10 a.m.

The Impact of Technology and Automation on Company Performance

Gabrielle Moyo | Junior; Financial Economics; Lusaka, Zambia
Advisor: Dr. Robert Gmeiner, Economics

My paper and presentation explore the role of technology and automation in the financial services industry. I will be looking at different measures of production, market performance, amongst

other measures of its effect between a more automated company and less automated companies in the financial sector, with the focus of 'measuring' or analyzing the impact of technology. I will be using panel data analysis and other statistical approaches to observe the relationship between the two concepts. Practical application of this research provides a guided prediction of the impact of technology and how we may better understand how it helps grow a company, and thus an economy. Technology has taken a new wave of importance in the world and this study could provide very insightful information in other studies.

**CIRCUIT | 11 A.M. | MATTHEWS MINISTRY CENTER CHAPEL
"SACRED FORM: EXPLORING DIVERSE DEPICTIONS OF JESUS ON THE CROSS"**

"Using responses from persons in the campus community, presenters explore the profound intersection of embodiment and religious symbolism by examining depictions of the crucifixion of Jesus Christ."

**AFTERNOON SESSION | HENDRICKS 222
MATHEMATICS: FRACTAL, CRITICAL, OPTIMAL**

1-1:20 p.m.

Beyond Euclid: Exploring Fractal Geometry in Nature and Art

Nour Diab | Junior; Mathematics; Beirut, Lebanon
Advisor: Dr. Jie Zhou, Mathematics

This research delves into the mathematical generation of fractal arts, particularly Mandelbrot and Julia sets, and their representation in the natural world. While Euclidean geometry, rooted in ancient Greek principles, has historically served as a foundational framework for spatial relationships, it proves inadequate in capturing the irregularities present in nature. Contrary to the uniformity of Euclidean geometry, natural structures such as trees, clouds, and coastlines exhibit intricate,

self-similar patterns indicative of fractal geometry. Fractal geometry is generated by what is called iteration, which is the repetition of a process over and over again. This project delves into the basic understanding of fractal geometry, Mandelbrot and Julia sets, and highlights its emergence in the late 20th century as computers became capable of generating complex visual representations. During the 1970s and 1980s, the world witnessed the rise of powerful computers capable of executing intricate mathematical calculations with unprecedented efficiency. This project will discuss computer algorithms, driven by iterative processes, empowered the generation of captivating fractal images, providing a unique medium for artistic expression. I will also generate a python code to illustrate how the generation of fractal arts became so easy and fast nowadays using technology and computers.

1:20-1:40 p.m.

The Critical Path Four-Year Plan

Ryan Martin | Senior; Mathematics and Engineering; Hope Mills, N.C.
Macie Szalach | Senior; Mathematics and Engineering; Syracuse, N.Y.
Advisors: Dr. Jie Zhou, Mathematics; Dr. Denise Bauer, Engineering; and Dr. Emad Alenany, Engineering

Here at Methodist University, "Advising Month" is an extremely busy time for advisors in One Stop. Each semester during Advising Month advisors experience issues with scheduling all the students that need to

be seen. This presentation will focus on the application of an operations research tool called critical path method. Critical path is a technique that helps to choose the most optimal and necessary path when many others are also provided. This presentation will focus on applying the critical path method to the four-year plans that are currently utilized at Methodist University as a tool to help both advisors and students during schedule creation. In addition to the application of the technique, there will be a brief review of the mathematics behind the critical path method.



**AFTERNOON SESSION | CHAFFIN 103
PSYCHOLOGY: STRESS AND CAFFEINE**

1-1:20 p.m.

Stress Overload Coping (Burnout Resistance), Academic Resiliency, and Social Support in First-Generation College Students

Kiley Hicks | Junior; Psychology; Dallas, Texas
Brittany Jimenez | Senior; Psychology; Methuen, Mass.
Skylar Jones | Senior; Psychology; Dunn, N.C.
Caley Justice | Senior; Psychology; Greensboro, N.C.
Jordan Pecorella | Senior; Psychology; Marshfield, Mass.
Nora Sanchez Gutierrez | Senior; Psychology; San Juan, Puerto Rico
Advisor: Dr. Katharine Snyder, Psychology

Stress overload threatens the well-being and academic success of college students, especially first-generation college students (FGCS). This study extends the ongoing research of Ahad (2021) and investigates the relationship between stress overload, academic resilience, and social support in FGCS at Methodist University. The Stress Overload Scale Short (SOS-S) was selected for this study because it has two subscales, one investigating perceived personal vulnerability and another investigating perceived event overload. The SOS-S has demonstrated

validity in predicting pathological stress reactions (Amirkhan, 2018). The Academic Resiliency Scale (ARS) will be utilized to evaluate participants' adaptive cognitive-affective and behavioral responses to academic adversity (Caddidy, 2016). Lastly, participants will take a Social Support Scale reviewing individual connections for instrumental, practical, activity based, and emotional social support (Insel & Roth, 2012) as well as a demographic survey (Ahad, 2021) of several key variables (e.g., time management, healthcare disparities, financial stressors, food or shelter insecurities, etc.). It is hypothesized that FGCS with lower levels of available social support will experience reduced academic resiliency and higher stress in comparison to continuing generation college students. Implications of this study will help universities develop targeted interventions to bolster resilience, enhance different types of social support, and reduce overload stress to ultimately decrease dropout rates among FGCS. Effective support systems could help these students harness stress adaptively, rather than become overwhelmed, empowering them to thrive both in college and beyond. This research will further permit educators to dismantle barriers to success for talented, but under supported youth.

1:20-1:40 p.m.

Effects of Caffeine on Spatial and Verbal Reasoning in Timed Competitive Neuropsychological Tasks

Jade Ferreris | Senior; Psychology; Glen Cove, N.Y.
Johnathan Nichols | Senior; Psychology; Raleigh, N.C.
Mikael Rios | Senior; Psychology; Dallas, Texas
Clifford Segarra | Junior; Psychology; Larence, Mass.
Sydney Sizemore | Senior; Psychology; Satsuma, Ala.
Katelynn Williams | Senior; Psychology; Dunn, N.C.
Advisor: Dr. Katharine Snyder, Psychology

The present study explores the relationship between caffeine usage, caffeine expectancy, and cognitive performance in college students. Through antagonism with the neuromodulator adenosine and functional interactions with neurotransmitter systems (e.g., dopamine and glutamate), caffeine exerts potent physiological, cognitive, emotional, and behavioral effects (Huntley, 2012; Julien et al., 2023). Positive effects can include increased energy, feelings of well-being, and alertness

which may improve cognitive, behavioral, and athletic performance, especially under conditions of fatigue or sleepiness (Glaister et al., 2019). This exploratory study looks at the impact of expectancies for work/energy, social/mood, and physical performance improvement on timed competitive neuropsychological tasks, the Vandenberg and Kuse Mental Rotations Test (MRT) for spatial reasoning and the Thurstone Oral Word Fluency FAS Test for verbal fluency. Utamantanin and Pariwacharakul (2022) demonstrated that caffeine usage improves performance for sleep deprived participants on the MRT, but expectancies need further exploration. The present study utilizes the Caffeine Expectancy Questionnaire (CaffEQ) by Huntley and Juliano (2012) to investigate the impact of caffeine expectancies on MRT and FAS performance. It is anticipated that higher sleepiness levels in conjunction with higher positive expectancies will be associated with better FAS and MRT scores. Participants higher in sleepiness at caffeine intake levels at or above typical daily usage are anticipated to score better on the FAS and MRT than individuals below their daily usage level. More research is needed to investigate the role of caffeine expectancies on neuropsychological assessments in both normative and clinical samples.

**AFTERNOON SESSION | YARBOROUGH AUDITORIUM
INTERDISCIPLINARY: TECHNOLOGICAL ISSUES**

1-1:20 p.m.

The Normalization and Escalation of Incel Online Communities

Abbie Mason | Senior; Forensic Science; Sumter, S.C.
Advisor: Sarah See, Justice Studies

The online phenomenon of Involuntary Celibate (Incel) communities has gained increasing attention due to its normalization and escalation within mainstream digital spaces. This study looks into the dynamics of Incel communities, aiming to understand their evolution from Hegemonic Man Theory to Incels, Pick Up Artists, and Alpha Males as well as their influence on mainstream media. By doing so, it tests the hypothesis that the more time individuals spend online on social media sites, the more likely they will be exposed to manosphere communities. By means of

surveying Methodist University staff, faculty, and students, this study proceeds to attempt to answer the following questions: Does the number of hours on social media sites increase the likelihood that individuals are exposed to manosphere communities? How are individuals exposed to incel/manosphere ideology? Which social media sites are individuals more likely to be exposed to manosphere communities? Through analysis of online platforms, user interactions, and methods of content dissemination, this research examines the factors contributing to the normalization of Incel ideologies and the escalation of extremist behaviors within these communities. Using both qualitative content analysis and examination of patterns in mainstream media, findings reveal a complex and nuanced community wherein narratives of male victimhood, misogyny, and resentment thrive, perpetuating harmful ideologies and facilitating radicalization pathways in normalized settings.

1:20-1:40 p.m.

AI in Higher Education: Enhanced Experience and Transformative Potential

Melody Luke | Sophomore; Chemistry; Las Vegas, Nev.
Mark Plowright | Senior; Cyber Security and Computer Information Technology; Kingston, Jamaica
Tahmuras Primov | Junior; Computer Information Technology; Dushanbe, Tajikistan
Rishika Singh | Sophomore; Healthcare Biology; Lahaul and Spiti, India
Advisors: Dr. Mark Kline, Psychology, and Dr. Carl Dyke, History

This research project encompasses two distinct phases aimed at exploring the multifaceted integration of Artificial Intelligence (AI) in higher education. The initial phase involved addressing the hypothesis that AI can be effectively utilized as a tool to enhance the overall classroom experience for both students and teachers. By moving beyond simplistic categorizations of AI as either good or bad, the research aims to understand AI as an elastic tool that can contribute positively to the educational environment. Through campus-wide surveys, classroom observations, and stakeholder interviews, experiences of students and

teachers in classroom settings both with and without AI were analyzed. The insights provided a nuanced understanding of the effects of this new pedagogical approach. In parallel, the project undertook the development of an AI chatbot to optimize the academic advising center's efficiency. Leveraging machine learning algorithms, the chatbot assists advisors in offering personalized class recommendations tailored to individual majors, preferences, career aspirations, and trending labor demands. By incorporating the career goals of students, it provides refined suggestions beyond catalog courses, enhancing the advising process. Moreover, the chatbot facilitates guidance through academic milestones, from registration to graduation requirements, serving as a comprehensive repository of campus information. Both phases of this research converge on the overarching goal of enhancing the educational experience through AI integration. While the ethnographic study examines the transformative potential of AI in classrooms, the AI chatbot illustrates practical implementation, streamlining advisory services and empowering students with personalized support and information. Concurrently, these endeavors contribute to the evolution of pedagogies that embrace AI, promoting a symbiotic relationship between technology and education.

1:40-2 p.m.

This Machine Kills Fascists: Generative AI as a Tool for Postcolonial Liberation

Jordan Matheney | Senior; English; Sanford, N.C.
Advisor: Dr. Cameron Dodworth, English

The rise of artificial intelligence has sparked an increasing fear that human creativity will be replaced by machines. However, technology could be the key to bypassing the prejudices learned and perpetuated in human civilization. Following the theories of postcolonial thinkers, it is nigh impossible for colonial subjects to escape systems of power as present in the construction of identity, thought, and history.

Separated from historical modes of oppression, technology and artificial intelligence have the opportunity to progress beyond societal constraints. Currently, AI models are heavily reliant on human intervention, either through prompts or references in the form of pre-existing data, and although studies point to replications of racial or gender bias in AI datasets, the increased independence of AI chatbots and improved algorithmic transparency propose implications for the future of unbiased AI. Through an analysis of science fiction, postcolonial theory, and bias mitigation techniques, this project will explore the potential of generative AI for challenging colonial hegemony in the production of knowledge.



**B.F. STONE LYCEUM | APRIL 11
7 P.M., STOUT PA COMPLEX MEDICAL LECTURE HALL**

The mission of the B.F. Stone Lyceum is to foster scholarly interaction among faculty, students, staff, and community residents. The endowed lecture series began in 1998 with a generous gift from the estate of B.F. (“Doc”) Stone, a pharmacist from Elizabethtown, N.C. He was a respected and active member of the Methodist Church and a longtime supporter of Methodist University. The Lyceum, which consists of a lecture, two responses, and a question-and-answer period, takes place each spring and is free and open to the public.

**Beyond Artifacts:
Unveiling the Ethical
Tapestry of Owning
Antique Human
Remains**



MEGHAN HENNESSEY
Assistant Professor, Biology



**DR. STEPHANIE HOOPER
MAROSEK**
Professor, Chemistry



DR. LAUREN KLABONSKI
Assistant Professor, Biology



DR. BRYAN BRENDLEY
*Associate Professor,
Forensic Science*

**PAST B.F. STONE LYCEUM
PRESENTATION TITLES**

“Who’s Gonna Carry the Boats?:
Breaking Out of the ‘In Crowd’ in
Service to Others” (2023)

“Our Diversity is Our Strength:
Addressing Race and Gender in
Higher Education” (2022)

“What’s an Ecological
Society?: A Multi-disciplinary
Conversation” (2020)

**AN UPDATE FROM THE CENTER FOR RESEARCH & CREATIVITY
Dr. Cameron Dodworth, Director**



The annual Methodist University Center for Research & Creativity Symposium is the centerpiece of Symposium Week, with really cool student, faculty, and staff events taking place around campus all that week. As the organizing body of the annual B.F. Stone Lyceum, the CRC will continue to organize that event during Symposium Week. Furthermore, the CRC will also be publishing the first post-pandemic issue of Methodist University’s student journal for research and creativity, the Monarch Review, providing our MU students with a unique opportunity to publish their research and creative work in an online, interdisciplinary, multimedia, student-run journal. The CRC will also continue to sponsor and fund student research at MU, in the form of student grants for conference presentations and research materials. Due to a comparatively much smaller budget than years past, these opportunities have decreased over the past few years, but will hopefully increase in funding as MU grows as a university in the coming years.

With all of the above in mind, the CRC would like to further encourage faculty, staff, and students to consider and produce more and more research-based and creative opportunities for our students. Collaborate with students on research and creative projects, encourage students to present those projects at academic conferences, encourage students to submit written or multimedia versions of those projects to the Monarch Review each year, and encourage—and perhaps even require—students to present their work each year at the CRC Symposium. Each student that creates a capstone project within their major is producing work that could potentially be published in the Monarch Review, if not at least be presented in-person and/or as a poster at the Symposium each spring. These are opportunities and projects that should go beyond receiving just a letter grade for a capstone course. The CRC—with its funding opportunities, the Monarch Review, and the spring Symposium—provides meaningful evidence of student work, beyond the classroom, in CVs and resumés, and that work can continue to be displayed online for students to showcase well after receiving their degrees from MU. All these students need is a member of faculty or staff to give them a little extra encouragement and motivation, and to also perhaps serve as a sponsor or advisor for a student’s work. Thank you so much to all of you that have taken advantage of these opportunities, on behalf of our students, but further effort is still needed to provide our students with these valuable experiences and evidence of their success at MU—and potentially in their postgraduate careers.

The MU CRC would like to sincerely thank everyone that has worked very hard to make this year’s 13th Annual Symposium possible, particularly La’Won Williams (Senior Graphic Designer), Christian Naranjo (Marketing Content Producer), Karalee Scouten (Digital Media Coordinator), Michael Molter (Webmaster & Canvas Administrator), and Brad Johnson (Director, Marketing & Communications).

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