

## **Participant Abstracts**

### **EMU Academic and Creative Excellence Festival 2024**

*Listings are in alphabetical order by the last name of the presenter. In the case of group projects, the entry is alphabetized under the name of the student who submitted the entry.*

### **Oral Presentations**

#### ***Emotional impacts on the interdisciplinary team: Code blues, implementing effective debriefings and patient loss***

Abby Aleshevich with Kara Kornhaus, Sarah Pereverzoff, Claiborne Poston

Faculty mentor: Kate Clark

This presentation aims to uncover the emotional impacts of code blues on the healthcare team. Not only can code blues impact a nurse's well-being, patient loss and lack of emotional support after traumatic clinical events can as well. This presentation will touch on work with a local agency, the Code Blue Committee at Sentara Rockingham Memorial Hospital, reflecting on their current need for a structured debriefing process. Literature suggests that a structured debriefing after a clinically significant event (cardiac arrest, code blue with or without patient loss, medical response team called, stroke alert, etc.), is beneficial to analyze the efficacy of the protocol implementation. Additionally, literature suggests that debriefings benefit the team environment and foster emotional support for staff members. After completing research throughout the semester and working alongside the Code Blue Committee, our presentation addresses the emotional well-being of the interdisciplinary team necessitating a standardization of debriefing. The selfless job of a nurse may negatively impact their ability to cope effectively after devotedly caring for each client. Standardized debriefing processes should be implemented to foster a healthy, emotionally supported workplace, particularly following traumatic clinical experiences.

#### ***Life is Like a Roller Coaster: Lessons Learned from an Honors Calculus Class***

Maria Bettilyon

Faculty mentor: Kathy Evans

While student teaching in an Honors Calculus class with 20 high school seniors, the author taught a unit focused on increasing and decreasing intervals, relative extrema, intervals of concavity, and inflection points. To the average high school student, that might not seem all that exciting. However, as a result of an engaging roller coaster project and feedback from various other assessments, the author provides evidence of students' efforts to meet the learning outcomes.

#### ***Surviving intimate partner violence: Bringing awareness to barriers in healthcare***

Olivia Bower with Ashley Mellinger, Yasmin Rodriguez, Kendall Stettler

Faculty mentor: Kate Clark

Intimate partner violence is a global issue that affects persons of all gender and ages. It is estimated that 1 in 3 men and women and 1 in 2 nonbinary persons experience IPV.

We will be addressing what intimate partner violence (IPV) is, the lack of knowledge on trauma-informed care, how these create barriers for survivors, and how nurses can make changes to help with this population's access to healthcare. Research has shown that education and training is absent in healthcare settings. Additionally, policies are outdated, there are limited resources available for nurses which create a barrier to the care provided to this vulnerable population. Research shows campus based-advocacy (CBA) programs used to address safety and academic concerns of student-survivors of intimate partner violence positively impacts students. Students that participated in the CBA programs stated that it focused on education, supportive connections, and access to resources which increase empowerment related to safety. Subsequently, this led to a positive impact on their academic outcomes, and increased safety. Intimate partner violence is something that can impact anyone and, as nurses and nursing students, we are often the first people someone might confide in about their abuse. We need to be trained in how to tackle difficult conversations and be educated on how to provide specialized care to this population.

***Living with addiction: Bringing awareness of healthcare biases toward patients struggling with addiction***

Elizabeth Campbell with Madison Rittenhouse, Kiersten Miller, Isaac Sawin, Imogen Stephens  
Faculty mentor: Kate Clark

Patients living with addiction often experience bias from healthcare providers and within the healthcare system. This presentation aims to explore the mental health effects of discrimination experienced by those who struggle with addiction in the healthcare setting and how this affects patients' overall health. Research demonstrates the presence of bias among nurses and healthcare providers towards individuals living with addiction. These biases are prominent and there is evidence that shows that individuals with addictions are treated differently than individuals that do not struggle with addiction. Appropriate interventions include providing education of healthcare staff that addiction is a serious disease and not a choice people make. Many healthcare professionals do not receive training on how to approach those suffering from addiction. Studies indicate how implementing mandatory training programs on the subject may increase quality of care. Therapeutic responses to these patients would include taking time to assess and communicate with them to get a full picture of their health with an open mind and their perceptions of their lives. Nurses should understand how stigma creates a barrier to seeking healthcare for patients living with addiction. Embracing an empathetic, non-judgmental approach will enable afflicted patients to reveal appropriate and honest information necessary to provide quality care.

***The Study of Sound: An Inquiry-Based Approach to 5th-Grade Science***

Shania Coleman  
Faculty mentor: Barbara Wheatley

The production of sound waves, the transfer of energy, and sound transmission may not sound all that exciting to most 5th graders, but as a result of two two-week science unit that was founded on an inquiry approach to teaching and learning, the author discovered that not only could students be successful with the content, they could also have fun in the process.

### ***The Sovereign Debt Stability Act***

Gelila Dibekulu

Faculty mentor: Ji Eun Kim

The Sovereign Debt Stability Act is a critical piece of legislation designed to address the urgent need for effective and equitable sovereign debt restructuring in the wake of global crises, including the pandemic and economic challenges. This policy memo provides an overview of the Act's purpose, its key provisions, and the justifications for its implementation. By promoting equitable burden-sharing between public and private creditors and protecting New York taxpayers, this Act plays a pivotal role in ensuring economic stability and resilience.

### ***El mantenimiento y desplazamiento de las lenguas indígenas: Purépecha y Zoque Ayapaneco***

Jessamine Domingo

Faculty mentor: Wendell Shank

The maintenance and displacement of indigenous languages have been a growing concern in Mexico. There are indicative reasons why some indigenous languages are maintained while other indigenous languages are slowly becoming forgotten. Research indicates that the reasons for the displacement of languages include cultural, socioeconomic, discrimination, and political factors. Factors contributing to maintaining indigenous languages include migration, form of communication, pride in culture, and institutional policies. This presentation will analyze and compare two indigenous languages, Purépecha and Zoque Ayapaneco. One indigenous language, Purépecha, has been maintained, while Zoque Ayapaneco has slowly been displaced and is not widely used as a form of communication. In this presentation, I will discuss the factors contributing to the maintenance and displacement of one language over the other.

### ***Double Violence Against Women: State & Domestic Conditions Fail to Protect Women***

Ann Dye with Erin Bruemmer, Dorothy Maru, Maybree Spilsbury

Faculty mentor: Timothy Seidel

This study will examine the broad issue of structural violence against women, specifically in how bias in law contributes to the criminalization of domestic abuse survivors and femicide as the most extreme form of abuse. The main focus will be on the legal ramifications of the double violence of state violence and intimate partner violence, which engender serious harmful effects including psychological trauma, the criminalization of survivors, and the murder of women. The scenarios represented include women in roles of both intimate partners and vulnerable victims of the state. Case studies have been identified to illustrate how this broad issue shows up in individual ways in the three contexts of the United States, Brazil, and Kenya. Minimal research has examined correlations between violence against women across the three countries. Previous research indicates the harm perpetuated by bias in current laws. This topic, primarily the intersection of state and domestic violence, is currently manifested in the context of extreme femicide in Kenya. Furthermore, the underlying issues and reasons are widely and somewhat unconsciously embedded in cultural, social, and structural norms that further investigation into this issue is needed. The goal of this study is to imagine and develop another response to the issues at hand by understanding the underlying systems and attitudes, bringing them to awareness. This research is in process— findings and results will unfold.

***History after Film: Judas and the Black Messiah and BlackKlansman***

Thomas Erickson

Faculty mentors: Kevin Seidel, Mary Sprunger

Using two films, *Judas and the Black Messiah* and *BlackKlansman*, History after Film is analyzing how cinema impacts the audience's perception of history. Instead of using written works or verbal lectures, film as a medium is pervasive in its reach and compelling to experience so that creators are able to take historical events and recreate them to change what the audience think they know. *Judas and the Black Messiah* and *BlackKlansman* are used as case studies to show how history is not just black and white, how the figures that are (or are not) discussed in classes are more than their biographical representations (or lack of representation), and how historicity (the study of history) changes from a historian's perspective to a director's.

***"Master Thyself": The Pull and Pride of Literary Societies at Eastern Mennonite (1917-1969)***

Josiah Esch

Faculty mentors: Kevin Seidel, Mary Sprunger

This project looks at the approximately 10 literary societies that played a significant role in campus life for the first half century after Eastern Mennonite University's founding in 1917. The first extracurricular organizations on campus, the 'lits' acted as the dominant agent of both institutional community pride and progressive social change. Activities run by these high school and collegiate groups served as the precursor to varsity athletics, a school approved drama program, and inspired a sense of community and belonging on campus for those who participated. The presentation will explore how literary societies across the country fared and compared to Eastern Mennonite's. A particular emphasis is given on direct student involvement and social power. The project looks at the minutes and operations of these groups, their rise and fall, what made each unique, and why their forgotten legacy is still relevant today, 50 years after their unceremonious dissolution.

***Providers' Views of Issues and Developments in Women's Health***

Laurel Evans

Faculty mentor: Mark Metzler Sawin

This project examined the field of women's health through interviews with women's health providers in four different fields. The interviews focused on the biggest issues and developments in women's health, from the providers' experiences, but included additional questions about education and vocation. Some expected discussion points on women's health issues included lack of access to contraception, a need for gender-based pharmaceutical research, and lagging quality of research and care for female-specific conditions. Expected developments included rising numbers of female providers and increasing collaboration between providers. This project was supervised by Erika Metzler Sawin and culminates in an oral presentation.

***Laying Up Treasures in Heaven: Faith and Economics in Three Theological Traditions***

Laurel Evans

Faculty mentors: Kevin Seidel, Mary Sprunger

This project examines Christian economic ethics in the Reformed, Anabaptist, and Wesleyan theological traditions. It focuses on the relationship between each tradition's theological foundations, understanding of the Church's proper relationship to the world, and vision of an ideal Christian economic life. The project also looks at common themes, including stewardship and generosity, which are held by all three traditions and how each tradition understands them. This project was supervised by Kevin Seidel and Mary Sprunger, and culminates in a written paper as well as an oral presentation.

***Serotonin transporter (dSert) mutation in Drosophila melanogaster increases sleep and starvation resistance and shortens life span***

Abigail Forrest with Sadie Oesch, Elaine Miranda Perez, Marciella Shallomita

Faculty mentor: Jeff Copeland

The monoamine serotonin is known to impact human behaviors such as sleep cycles, eating, anxiety, and depression. The reabsorption of serotonin back into the presynaptic neuron is mediated by the serotonin transporter (SERT), the target of citalopram, a selective serotonin reuptake inhibitor (SSRI) used to treat anxiety and depression. We turned to the model organism *Drosophila melanogaster* to better understand the mechanisms by which serotonin and SSRIs influence behavior. We created a 3.9 kb deletion within the *Drosophila* SERT (dSert61) gene and tested its effect on larval and adult behaviors. dSert61 larvae consumed 64.4% ( $p=0.0044$ ) more food than controls, a result also noticed in the dSert16 deletion allele (74.7%,  $p=0.0004$ ) and the dSert61/dSert61 trans-heterozygote (87.9%,  $p=0.0003$ ). Adult dSert flies show a dramatic resistance to starvation, a trait possibly linked to increased food consumption. When 10-day-old female adults were starved on 1% agar, dSert61 flies survived 51.1% longer ( $p<0.0001$ ) and dSert16 flies survived 8.9% longer ( $p=0.001$ ). dSert61 flies show an increase of 144.5% ( $p<0.0001$ ) in total sleep and a decrease of 86.5% ( $p<0.0001$ ) in average activity. dSert16 flies, along with dSert61/dSert16 hybrids, show similar responses in sleep and activity. Compared to Canton-S control flies, dSert61 and dSert16 have 15.1% ( $p<0.0001$ ) and 4.2% ( $p=0.008$ ) shorter life spans, respectively. The effects of citalopram on starvation resistance and adult feeding are ongoing. The results in feeding and starvation give us the opportunity to study the role of serotonin in these behaviors.

***Fashion Design***

Nussa Garti with Anne Cornelius, Maggie Garber, Joel Kornhaus, Meredith Lehman, Mariah Miller, Allie Watkins

Faculty mentor: Cyndi Gusler

This year's Honors Colloquium is Fashion Design. Students are exploring the intersection of creativity and sustainability, crafting their own outfits using reused and found materials. Emphasizing resourcefulness, our designers have demonstrated a commitment to repurposing existing materials in imaginative ways, reflecting a dedication to reducing waste in the fashion industry. Featuring a diverse cast of models including both designers and fellow students, our runway presentation celebrates inclusivity and the collaborative spirit of our community. Join us as we highlight the talent and vision of the next generation of fashion leaders, committed to shaping a more sustainable future.

### ***EMU Super-mileage Car***

Riley Gonzalez with Laura Benner, Ivan Betancourt, Jacob Hess, Micaiah Landis, Micah Mast, Adam Stoltzfus, Lleyton Stutzman, Sean Swartley, Guadalupe Tenorio Ramirez

Faculty mentor: Daniel King

The EMU Super-mileage Car team is working hard at designing and building a highly efficient prototype vehicle. This project aims to compete at the Shell Eco-marathon Americas competition from April 3rd to 7th of this year. This competition brings in young engineers from across North/South America and is a great place to learn from others while showing off your team's hard work. At last year's competition, this team was responsible for achieving a fuel efficiency of 452mpg. This year, the team predicts to crush this achievement by bringing a completely redesigned engine to competition. This change was a huge undertaking and required a ton of teamwork and collaboration from team members ranging from freshman to senior. With the experience gained from last year's competition, we are confident in our ability to bring a reliable, highly fuel-efficient vehicle to competition.

### ***Purge Unit for low-pressure centrifugal chiller***

Riley Gonzalez

Faculty mentor: Stefano Colafranceschi

This project's scope is to design and build a highly efficient purge unit capable of expelling all unwanted non-condensibles (like air, nitrogen, etc.) from the condenser side of the low-pressure centrifugal chiller. To accomplish this goal current purge units on the market are looked at and cost improvement opportunities are considered. The main refrigerant used in this system is R-1233zd(E) which has a much lower global warming potential than the competition. The final project takes inspiration from a RefTec EnvioPurge unit and is implemented in Daikin applied's 500T water-cooled centrifugal chiller for testing.

### ***Determining the Presence of Salamanders in Waterways Through eDNA Testing***

Madelynn Hamm with Vanessa Gardiner, Aja Laun

Faculty mentor: Doug Graber Neufeld

Environmental DNA (eDNA) comprises segments of DNA shed by various organisms in the environment. By collecting environmental water samples and isolating the DNA from the rest of the sample, it is possible to determine whether a species resides at the location of sampling. This technique is advantageous when trying to detect elusive species like salamanders. In the Shenandoah Valley, there are many species of salamander under threat – such as the giant aquatic *Cryptobranchus alleganiensis* (Hellbender) and *Ambystoma tigrinum* (Tiger Salamander) – which makes finding the waterways they occupy crucial for their protection. This study aims to outline the initial results from studies developing methods to detect these two salamanders in two regional waterways where their presence is likely.

### ***Progress Isn't Always Linear: Teaching Fractions to 4th Graders***

Lyndsay Harris

Faculty mentor: Ron Shultz

Valuable learning is experienced when a student teacher engages with their students, and as this project illustrates, the progress doesn't often occur in a straight line. In the context of a 4th-grade unit on fractions, the author explains how a student might seem to take two steps forward one day, and then take one or more steps backward the next. Through reflective practice and data analysis, the student teacher provides evidence of valuable learning for herself and her students that moved beyond understanding improper fractions and mixed numbers.

### ***Harmonic Radar using Software Defined Radios For Insect Tracking Applications***

Jacob Hess with Joel Kornhaus

Faculty mentor: Stefano Colafranceschi

By using off the shelf radios that we can tune to specific frequencies ourselves, we can achieve harmonic radar with passive antennas attached to invasive bugs.

### ***Green Dye, White Walls, Barbie Pink: Aesthetic Trends and Environmental Dangers***

Abigail Hickok

Faculty mentors: Kevin Seidel, Mary Sprunger

This presentation looks at trends and the potential dangers of industry and trends working together. The presentation will use the historical and modern context of arsenic dye, lead paint, and fast fashion, focusing on the environmental issues, domestic health/safety policies, and workers rights issues associated with the three case studies.

### ***No Perfect Translation: Inviting Literary Studies into Conversation with Biblical Translation***

Karla Hostetter

Faculty mentors: Kevin Seidel, Mary Sprunger

Translating is a method of communicating and recreating stories through different uses of language. While there are many similarities between biblical and literary translation styles, there are also many noticeable differences including their choice of equivalence, formal or dynamic, and modern slang. Translators could choose to translate solely based upon the original piece, or they could choose to implicate their own creative liberties into their translated art. Creative liberties are part of a translator's artistic integrity that leads the translator to preserve the meaning of the original work and demonstrate their own spirit and insight into the writings, creating literary art. Translators have choices in which style to use, but every decision leaves space for translators to fall short of critics' expectations. However, no style prevails over the other because both styles demonstrate shortcomings and fail to be of absolute perfection; perfect translations are only a utopian dream.

### ***Needs and Networks of Families Residing in Affordable Housing***

Jesse Kanagy

Faculty mentor: Jenni Holsinger

Health risks, financial struggles, and food insecurity disproportionately affect residents of affordable housing, which leads researchers to explore resource vacuums and need based solutions. Much research has been dedicated to exploring the connection between need management, behavior, and social networks. This research focuses primarily on the needs of family units, which have distinctive features (such as child rearing, education, and childcare) that

may add unique stressors. While previous research has focused on the influence of social networks on residents' behaviors, minimizing unwanted behaviors and maximizing desired behaviors, this study positions social networks as fundamental to resident's ability to meet their needs. Lower income families residing in Harrisonburg city affordable housing units were selected for sampling. Resident needs and social network strength were measured via a digital survey. Findings and policy implications are discussed.

### ***The Effect of unc-53 on C. elegans Apoptosis***

Evan Kauffman with Ethan Neufeld

Faculty mentor: Kristopher Schmidt

*Caenorhabditis elegans*, or *C. elegans*, is a nematode model organism useful for biological research for many reasons. A fast replication cycle, invariant cell lineage, and transparent body make genetic crosses and fluorescence imaging easy. This project aims to investigate the role of the *C. elegans* gene *unc-53* in the programmed cell death of neurons along the ventral nerve cord (VNC) of the nematode. Apoptosis is interesting because it is a last resort for cells dealing with immunological stress or cancer (Arvanitis et al., 2013). Because of the invariant number of neurons in the nematode, ventral nerve cord and mechanosensory neurons were counted to assess the effect of *ced-3* knockouts and *ced-3/ced-4* overexpression on apoptosis. After crossing these mutants with *unc-53* knockout mutants, the impact of *unc-53* on apoptosis could be evaluated in overexpressed and underexpressed models.

The *C. elegans* being studied were genetically modified to express green fluorescent protein (GFP) in either the VNC neurons or the mechanosensory neurons. The animals were observed under UV light using a fluorescent microscope. For the VNC neurons, wild-type animals were compared to animals with nonfunctional *ced-3* and double-mutants with nonfunctional *ced-3* and nonfunctional *ced-53*. The number of neurons for each worm was counted visually, and the number of neurons for each strain was averaged. Based on preliminary results, *ced-53* does not have a significant effect on apoptosis compared to the *ced-3* knockout strain.

Arvanitis, M., Li, D., Lee, as detailed in Arvanitis et al. (2013), holds significant implications for the fields of cancer and immunity. The lessons we learn from this model organism can potentially shed light on these complex areas of study, underscoring the relevance and importance of our work.

### ***Setting a Precedent for Climate Action Plans in the United States***

Meadow Kirkdorffer

Faculty mentor: Ji Eun Kim

This policy memo aims to review the proposed plans for Prince George's and Montgomery County Maryland as well as the District of Columbia's climate action plan. The memo aims to review and summarize the reasoning for the plans and their proposed solutions. Such plans often function on the establishment of local leadership organizations that still need to be defined. Therefore this review will also seek to provide recommendations and examples of such local organizations that are acting as climate leaders in Prince George's County Maryland, Montgomery County Maryland, and the district of community. Such organizations include, but are not limited to alternative energy solutions, habitat restoration, watershed restoration, data



collection policy initiatives, and community gardens. As climate change is a multilateral issue so too must be the response that aims to repair it.

### ***Envision AR: Transforming Realities with an Augmented Sandbox Experience***

Micaiah Landis with Adam Stoltzfus, Lleyton Stutzman

Faculty mentor: Shravan Akula

Augmented Reality (AR) technology has revolutionized user experiences by seamlessly blending virtual elements with real-world environments. This abstract presents an innovative Augmented Reality Sandbox (ARS) that merges advanced hardware components and cutting-edge software algorithms to create an interactive and immersive sandbox environment.

Our proposed ARS builds upon an open-source project developed by UC Davis, integrating state-of-the-art components, including the Microsoft Kinect depth sensor, an NVIDIA GPU-enabled PC, and a high-quality BenQ projector. The Microsoft Kinect depth sensor captures the physical layout of the sandbox in three dimensions, facilitating precise tracking of user interactions. Leveraging its advanced depth-sensing capabilities, the sensor generates accurate depth maps, enabling real-time manipulation of virtual terrains.

The NVIDIA GPU-enabled PC serves as the processing powerhouse, executing complex algorithms for real-time simulation and rendering. By harnessing parallel computing power, the GPU handles computationally intensive tasks such as physics simulations and fluid dynamics. This enables the creation of lifelike simulations with captivating visual effects and realistic lighting.

The BenQ projector complements the ARS by delivering high-quality visuals onto the sandbox surface. With its high brightness, contrast, and resolution capabilities, the projector enhances the immersive experience by precisely aligning the projected imagery with the physical sandbox.

Our ARS empowers users to shape virtual terrains, creating various landforms such as mountains, valleys, rivers, and lakes. Real-time feedback on changes in terrain elevation is provided through dynamic visual overlays, simulating phenomena like water flow, erosion, and weather patterns.

By combining Microsoft Kinect depth sensing technology, NVIDIA GPU acceleration, and high-quality projection systems, our project demonstrates the potential of ARS for educational, interactive exhibits, and entertainment applications. We envision a versatile platform offering users a unique and captivating AR experience, blurring the lines between the real and digital worlds.

### ***Neuropsychological Assessment Analysis***

Kate Landis

Faculty mentor: Mark Metzler Sawin

Neuropsychological assessment has rapidly evolved over the last two decades. As a primary way to test for memory/cognitive deficits, ADHD, and other neurological disorders, doctors, psychiatrists, and counselors turn to neuropsychological assessment to help care for their patients (Lezak, 2004). In some studies, it has been shown that demographics such as age and gender may have effects on certain disorders tested by neuropsychological assessment such as dementia and ADHD. For example, ADHD males were found to have lower attention functioning

(Bálint et al. 2008), and older adults forgot tasks faster than younger subjects (Winocur, 1988). This study investigates the performance on neuropsychological assessment conducted at a neuropsychological assessment practice, Valley MedPsych, especially looking at correlations between age and gender and performance on tests for ADHD and memory deficits. The goal of the study is to see if the results found at this practice align with the past research on these demographics. The design of this study is analysis based, taking results compiled from Valley MedPsych's psychometrists and using a correlational analysis to determine significance. The sample population will be adults seen at Valley MedPsych, and the predicted results are that performances from Valley MedPsych will align with the past research.

### ***Translation of Hugo Carrillo's "La calle del sexo verde"***

Hannah Landis

Faculty mentor: Mark Metzler Sawin

"The Street of Green Sex": A Spanish-English Translation by Hannah Landis

For the Honors Capstone project, Hannah is translating "La calle de sexo verde," a play by Guatemalan playwright Hugo Carrillo. The translation process implements the use of various Spanish/English dictionaries, not limited to SpanishDictionary! and WordReference, as well as the translator's own knowledge of Spanish. The translator also uses her recent intercultural experience in Guatemala and her knowledge of the country's history and specific variety of Spanish to inform translation choices, prioritizing accuracy and genuine representation. The translator also is attempting to research as much context relating to the playwright, script, and subsequent showings as possible.

The translation process is supervised by Professors Wendell Shank and Maria Esther Showalter, the Project Directors, who meet regularly with the translator to review progress made. The proposed supervision process is as follows: the translator translates a section of the play and maintains the original Spanish adjacent to the translation in order to aid in clarity and accuracy. The Project Directors mark any comments or concerns and respond to questions left by the translator.

The goals of the project are to develop critical thinking in the context of translation and an understanding of theatrical translation/linguistic work, to practice dramaturgical techniques to understand how the selected play fits into the sociological context in which it was written, and how it fits in presently, to better understand the director, translator, and dramaturg's roles in the translation of a work, to demonstrate the ability to design and implement a project, with flexibility for addressing challenges and adapting to constructive comments, to demonstrate professional presentation skills to a multidisciplinary audience, and finally to allow the translator to try out an activity she had previously wondered about as a profession.

### ***Lost in Translation: Políticas, privilegio y problemas de traducción de películas y palabras***

Hannah Landis

Faculty mentor: Wendell Shank

In this project, completed junior year for the Hispanic Linguistic Variation class, senior Spanish Language/Hispanic Studies and Writing Studies double major Hannah Landis examines how movie titles are translated from English to Spanish. The investigation examines the history of translation as well as various translation techniques and presents numerous real-life examples.

### ***Senior Thesis: Hannah Landis***

Hannah Landis

Faculty mentor: Chad Gusler

For this presentation, senior Writing Studies and Spanish Language/Hispanic Studies double major Hannah Landis will be reading from her Senior Thesis, a compilation of 3 short stories in which the author intentionally tried to experiment in some way.

### ***The Ongoing Pursuit of Justice for the Mayan Genocide***

Meredith Lehman

Faculty mentor: Ji Eun Kim

The indigenous Mayan populations of Guatemala have been subject to systemic oppression and violence since the onset of Spanish colonization in Central America. Over five hundred years of stigma and isolation have culminated in a narrative of exclusion and racism that permeates the country's socio-political structure. This reality has been exemplified by the Mayan Genocide, an atrocity in which the state of Guatemala used pervasive racist ideologies to fuel a thirty-six-year civil war that culminated in a calculated effort to wipe out indigenous Mayan populations. Though external entities such as the Historical Clarification Commission have clearly established that the state of Guatemala committed acts of genocide, there is still a lack of acknowledgement within the Guatemalan government. Reconciliatory efforts have been lacking as the pursuit of justice continues to be an uphill battle for indigenous Guatemalans. This presentation outlines a brief history of oppression toward Mayan indigenous groups in Guatemala and a more detailed summary of the atrocities to which they were subject throughout the civil war.

### ***Housing affordability & the Market***

ML Lormejuste

Faculty mentor: Debbi DiGennaro

With little sign that housing costs would decrease, Virginians will continue to pay the highest prices for housing in 2024 due to the significant problem of inflation. It's not so much of a debate that's surrounding the affordable housing bill, but rather the next query that comes up is: How is the government influencing the so-called "free market" for housing? One bill that the Social Policy class is following is the affordable housing bill. To offer affordable homes, the government will either buy or accept the donation of development rights if this bill is approved into law; Delegate David Bulova (D-Fairfax) introduced this bill along with his co-patron Delegate Elizabeth Bennett-Parker (D-Alexandria). At the same time, the bill does not allow the conversion or diversion of such affordable housing once the development rights are purchased. We visited with our politicians for the field trip to Richmond, Virginia. Upon talking to the legislator who represents Fairfax City, as well as part of Fairfax County, David Bulova, it was discovered that the government isn't responsible for housing costs, rather the "Market" is. What is the market? The market is composed of four components: products, price, place, and promotion, which are held between the people. The "Market" is also defined as housing for which the occupant(s) is/are paying no more than 30 percent of their income for gross housing costs. In this paper, there will be discussions of what scholars are saying about the affordable housing issues as some are calling it a crisis. As well as, looking at those This paper will also consist of homeownership

options as well as compare how Virginia is addressing the affordable housing crisis to how Texas is addressing the affordable housing crisis. In conclusion, the Affordable Housing (HB878) bill has failed but will be revisited this time next year. The reason is that the bill did not pass the subcommittee. What I am trying to do with this project is to educate my peers on the options they have if they choose to live in Virginia or out of state. My research will be based on literature reviews, analysis of current events, and research to help get my points across. My sources come from: Richmond Sunlight, "Addressing the Affordable Housing Crisis Requires Expanding Rental Assistance and Adding Housing Units" by Peggy Bailey, "The Gap: A Shortage of Affordable Rental Homes" by Andrew Aurand, Dan Emmanuel, Emma Foley, Matt Clarke, Ikra Rafi, Diane Yentel, "America's Affordable Housing Crisis: A Contract Unfulfilled" by Lance Freeman, PhD from the National Institute from Health, My life elsewhere where I have compared the housing cost in Texas compared to Virginia, Investopedia where I do more research on the market, and more from scholarly journals.

### ***Implementing strategic leadership in organizations***

Manuela Marin

Faculty mentor: Lindy Backues

The project involves creating a strategic leadership plan through meetings to get to know the organizations and according to the knowledge from class, find the best resources and ideas to improve the organization's leadership culture

### ***TwinTok***

Hebron Mekuria

Faculty mentor: Stefano Colafranceschi

TikTok is an app that curates its content based on the unique and individual interests of each user. What would happen if we leveraged this algorithm to find users who have similar interests with one another? That is what my capstone project, TwinTok, seeks to do. It seeks to use the Tiktok APIs provided by Tiktok, to fetch a registered user's recently viewed videos and tries to match the genres with the videos seen by another user. Depending on how similar or different the genres they each view are, the app then draws up a similar percentage.

### ***Recursos para inmigrantes en Harrisonburg, Virginia (Resources for Immigrants in Harrisonburg, VA)***

Maria Menjivar

Faculty mentor: Maria Esther Showalter

Entre los Estados Unidos, hay varias regiones donde se ubican las comunidades de inmigrantes y Harrisonburg es una de ellas. La presencia de los inmigrantes en Harrisonburg es notable por los restaurantes, tiendas y, por supuesto, la gente. ¿Pero cuál es la respuesta del resto de la comunidad en ser receptivo a los inmigrantes? ¿Hay suficientes recursos, organizaciones y ayuda? El proceso de convertirse en ciudadano o simplemente vivir como inmigrante es sumamente difícil y complicado. ¿Cómo navegan los inmigrantes una vida afrontando procesos adicionales mientras cumplen con las necesidades de la vida diaria cuando todo eso no es necesario para los ciudadanos? ¿Cómo encuentran los recursos que intentan ayudar a los inmigrantes si esos en sí existen? Yo he trabajado con y en estos asuntos en los últimos cuatro años y quiero compartir un poco de mis experiencias trabajando en esta área.

Within the United States, there are various regions where immigrant communities are located and Harrisonburg is one of those. The presence of immigrants in Harrisonburg is notable due to the restaurants, stores, and, of course, the people. But what is the response of the rest of the community in receiving immigrants? Are there sufficient resources, organizations, and support? The process of becoming a citizen or just simply being an immigrant is incredibly challenging and complicated. How do immigrants navigate a life that is faced with additional processes while also figuring out the basic necessities of daily life when all of that is not necessary for citizens? How do they find those resources that intend to help immigrants if they even exist? I have worked with and within these topics in the last four years and I would like to share a little bit of my experiences working in this area.

### ***Examining the Factors that Influence Black Women's Hair Perception***

Lauryn Moore

Faculty mentor: Jenni Holsinger

While hair is important to most people, there's an added layer when discussing Black women's relationship with their hair due to the struggles and discrimination they face in the United States. The discrimination and social stigma attached to Black hair can cause internal struggle within Black women. The purpose of this research is to examine the various factors that affect Black Women's perception of their hair. While studies have explored the individual factors that affect Black women's hair perception, this study will contribute to the literature by examining multiple factors and their level of impact on hair perception. In this mixed methods research study, an online survey and focus groups provide quantitative and qualitative data that measure esteem and describe experiences related to hair among Black women on a college campus. Findings are presented and discussed in order to deepen the understanding about hair perception among Black women.

### ***EMU arcade machine!***

Levi Peachey-Stoner with Nate Yoder

Faculty mentor: Stefano Colafranceschi

This engineering capstone project explores the process of creating a functional arcade machine utilizing an old CRT TV, a Raspberry Pi microcontroller, and a custom-built cabinet. The project involves repurposing outdated technology and integrating modern components to construct a nostalgic gaming platform, enabling a diverse range of classic games to be played alone or with a friend. The construction of the cabinet from scratch ensures a tailored design that accommodates the components while evoking the traditional arcade aesthetic with an EMU spin. This endeavor represents a fusion of retro and contemporary technology, showcasing the potential for innovation through resourceful integration and DIY craftsmanship.

### ***The Power of Expression: Emotions through Music in Natasha, Pierre & The Great Comet of 1812***

Riley Quezada

Faculty mentor: David Berry

Justin Poole

Natasha, Pierre & The Great Comet of 1812 is a Tony-nominated musical that adapts 70-pages of Leo Tolstoy's War and Peace, specifically Part 8 of the book. This musical adaptation explores the

story of Natasha Rostova, Pierre Bezukhov, Anatole Kuragin, and Andrey Bolkonsky. Natasha's story, and its musical connections, will be the primary focus of this presentation. In the story, Natasha and Andrey are engaged, but unfortunately, he is off to war. This leaves Natasha to live with her godmother Marya Dmitriyevna and cousin Sonya Rostova, meeting her future father and sister-in-law, and accidentally falling in love with Anatole Kuragin. In Act I of the musical, Natasha has a bad experience when meeting her in-laws and feels alone in the world, especially with her fiancé off at war. She performs the song titled, "No One Else" about the beautiful night and how it reminds her of her fiancé. During the song, Natasha reveals that she feels that she is going through this part of her life alone and how Andrey makes her world feel whole again. This presentation will focus on why music is the most effective medium to express the feelings of Natasha. When one is reading a book, it is easy to use the imagination and see what the book is illustrating with words, but can music and theater do the same? Using the song "No One Else," I will analyze and discuss how the composers of the song used the music to display how Natasha felt and how her feelings led her to fall in love with Anatole.

***Impact of Adverse Childhood Experiences on childrens' health and the use of Positive Childhood Experiences to improve resiliency***

Mackenzie Ritter with Jessamine Domingo, Lauren Hall, Nutifafa Havi

Faculty mentor: Kate Clark

Adverse Childhood Experiences (ACEs) have garnered significant attention in recent years due to their profound impact on children's health and well-being. ACEs affect various aspects of children's health, including academics, social, and mental well-being. As these children develop into adults, they experience chronic illness at higher rates and have more negative health outcomes. Prevention of ACEs is the most effective way to eliminate these risks. For the population of children who have already been exposed, research indicates the introduction of Positive Childhood Experiences (PCEs) is a potentially effective strategy to mitigate their risk of negative health outcomes. PCEs can act as a protective barrier against the negative impacts of ACEs by creating a supportive and resilient environment. This presentation aims to discuss the importance of early recognition, as well as early intervention through the use of PCEs to reduce negative health outcomes in children throughout their development. Data obtained from observation and interaction with youth and a survey of their teachers will be discussed and compared to the most recent research.

***Reviving Ancient Wisdom: Integrating Indigenous Practices into Modern Psychedelic Psychiatry***

Savannah Smith

Faculty mentors: Kevin Seidel, Mary Sprunger

Studying psychedelics for the purpose of psychiatry was popular in the United States from the 1950's throughout the 60's until their criminalization in 1968. In those initial studies, unethical experimentation led to a poor understanding of the real benefits which substances such as lysergic acid diethylamide (LSD) can offer those suffering from psychiatric disorders. In more recent years, the new studies have used different methods that approach the administration of those drugs, which have shown to be very effective. Although these new methodologies may be new to those scientists, they are not the first to practice them. Native communities all over the world have been using psychedelics for spiritual, medical and ritual purposes for thousands of

years. Now that we know that ancient medical methods such as guided practices are actually effective, scientists can implement more of those same techniques into other experiments in the hopes of creating more effective, long lasting treatments and or medicines for mental health in the future.

### ***The Effect Of Residency On Gun Ownership***

Lucas Sorensen

Faculty mentor: Jenni Holsinger

Gun ownership has been an ongoing topic of public and political debate in the U.S. policy and public safety. Research has shown that one of the factors influencing views about gun ownership is where people live. This mixed methods study looks at the relationship between place of residence, as indicated by zip code, and gun ownership among students at a private university. Findings are presented and policy implications are discussed.

### ***Restoration, Management, and Engagement in Park Woods***

Madison Stockner with Nick Arnold, AJ Bagby, Vanessa Gardiner, Anika Hurst

Faculty mentors: Doug Graber Neufeld, Jim Yoder

This year's capstone project for the environmental science majors at Eastern Mennonite University is focused on Parkwoods. Parkwoods is a valuable green space on EMU's campus that is used by students, VMRC residents, EMHS students, EMS students, and Harrisonburg residents. This session will present the work done by the EMU environmental sustainability capstone class to improve Parkwoods in three different focus areas: public and stakeholder engagement, stream restoration and stormwater management, and invasive species removal and management. Each focus group will present the work they are doing within Parkwoods and its value to the project, along with future implications their work brings to the table.

### ***Churches Coming Out: Lancaster County Mennonites and Queer Inclusion***

Caleb Stoltzfus

Faculty mentors: Kevin Seidel, Mary Sprunger

This presentation explores how Mennonite Churches in Lancaster County have navigated the question of LGBTQ+ inclusion. It will shed some light on how Lancaster Mennonite Conference (LMC) split from Mennonite Church USA over the issue of LGBTQ+ inclusion and also how churches moved to the Atlantic Coast Conference (ACC). It will also highlight Chester Wenger and some of what he did to help this issue move forward. I will delve into best way for a church to navigate the issue of LGBTQ+ inclusion and how there is not one good standard way to go about it.

### ***Challenges faced by diabetic patients***

Reagan Stone with Kylie Heatwole, Hailee Napier

Faculty mentor: Kate Clark

Diabetes is a disease that occurs worldwide and affects people of all ages, genders, and ethnicities. Research has provided evidence to support social determinants of health factors and their outcomes on the rate of diabetes prognosis as well as management of the disease. A project with Sentara Diabetes Educators aimed to provide educational handouts in a multitude

of languages that are present in Harrisonburg and the surrounding area. This project provided a glimpse of health inequity specifically related to language barriers. Diabetes is a difficult disease that can affect many aspects of someone's life, making it essential that nurses remain aware and available to assist patients in navigating these potential contributing factors and the influence that diabetes can have on patients' lives. This presentation will explore the social determinants of health impacts on diabetes and how nurses can help combat these in order to have better outcomes in the diabetic population.

***Comprehensive Understanding of Premenstrual Disorders (PMDs): Inflammation, Psychological and Physical Symptoms, Attitudes, and Coping***

Rachel Tusing with Hannah Beck, Ming Daliege, Sophie Kirkton

Faculty mentor: Allison Wilck

Psychological and somatic symptoms associated with the menstrual cycle (MC) have a profound effect on people with periods, and severe symptoms can be classified with a medical diagnosis of a Premenstrual Disorder (PMD). The present study consists of two parts to investigate how different aspects of the MC impact the severity of PMDs. Participants include people ages 18-25 who have a MC. Study 1 surveys participants about attitudes related to the MC, mindfulness, self-efficacy, and severity of symptoms. It is predicted that attitudes will correlate with severity of symptoms and self-efficacy, and mindfulness will improve attitudes and self-efficacy. In Study 2, two saliva samples will be collected from participants, one during the luteal phase and one during the follicular phase of the MC, to be analyzed for levels of cytokine interleukins. For each lab visit, participants will fill out the PMDD form of the Daily Record of Severity of Problems (also known as the DRSP-PMDD) the day before, the day of, and the day after their lab visit. A positive correlation between inflammation and severity of symptoms is predicted. Results of the study will aid individuals in understanding their own MC and coping with associated symptoms and will also have implications in the treatment of associated symptoms from a physiological lens.

***The Value of Self-Reflection When Teaching Spanish to 1st Graders***

Lucy Unzicker

Faculty mentor: Paul Yoder

As a capstone project completed while student teaching in a local elementary school, this presentation focuses on the learning experienced by the student teacher and by the 1st-grade students in a Spanish classroom. The author uses research-based methodologies combined with critical self-reflection to provide effective instruction and engaging learning experiences for students.

***Documentación de Aprendizaje: Práctica Docente en Una Escuela Primaria***

Lucy Unzicker

Faculty mentor: Maria Esther Showalter

As a student teacher in a K-5 Spanish "specials" class at Stone Spring Elementary School, I will reflect on the challenges, benefits, and documentation of student learning throughout the eight weeks. I will be presenting my Documentation of Student Learning project completed in Reflective Teaching Seminar (ED 411) taken during student teaching. This presentation will be in Spanish.



### ***Plant Growth Tent***

Cedon Yoder with See Hla

Faculty mentor: Stefano Colafranceschi

The project we have been working on is a grow tent with an expectation that it can replicate the different climates that plants can grow in. We wanted to control the temperature, humidity, and lighting inside the tent based on the requirements of the chosen plant. We started this project with the idea that during the winter, we can bring the plants that are grown outside into the tent so that it can continue growing. This will allow us to grow plants year round without the need for ideal temperatures, or sunlight. In this project, we replicated natural sunlight using grow lights which are commonly used to help plants grow. For the humidity and temperature, we used misters and a heater/cooler modules to create the right conditions for plants to grow. For the programming aspect, we used two Arduinos. For this tent, we used the Arduino along with a set of relays so that we can control all the components such as heating/cooling, grow lights, etc. Our goal is to create a customizable tent where we can easily switch out the components to fit our needs and to create an environment that plants can thrive in.

### ***Protest Now! EMU War Resistance and Response after Vietnam***

Aidan Yoder

Faculty mentors: Kevin Seidel, Mary Sprunger

In November of 2004, a group of EMU students and community members known as JustVoices collaborated to organize a physical on-campus symbol of remembrance and protest of the ongoing Iraq war. 1,000 grave markers were erected to represent the deaths of over 13,000 Iraqi citizens along with 1,000 U.S. soldiers and civilians who died as a result of U.S. actions in Iraq that began over a year earlier. At the end of the week to wrap up the vigil, a public reflection and prayer service was held on Thomas Plaza to reflect on the solemnness of the installation. In the public narrative of history, there is a prioritization or emphasis on protest during the Vietnam War as the focal point of protest throughout the recent history of the United States. (maybe mention Kraybill) Institutions, such as EMU, were the point of demonstration or protest as a means of change, and were expected to listen to what was being asked of them. Contrary to that popular belief, protest as an avenue of change did not end with the Vietnam War. Students have continued to engage in activism and protest with focuses on international justice issues and local problems. By overlooking the import of the student anti-war actions after the Vietnam War, we miss valuable insights and learning of the methods and strategies used to voice opinions on campus and the institutional responses that those actions garnered. Calls for peace have been carried consistently by the EMU student body through protest and demonstration on campus to express opinion, yet, institutionally the responses to those same conflicts have wavered.

### ***Acknowledgment and Reparations Following the Anfal Genocide in Iraq***

Aidan Yoder

Faculty mentor: Ji Eun Kim

The Anfal genocide was a one-sided military campaign waged during the Iran-Iraq War on the Kurdish people in 1988 that resulted in mostly civilian deaths, estimated to be 50,000 to 100,000 by Human Rights Watch. Left without a country of their own, the Kurdish people have long

fought for the establishment of a Kurdish state. At the end of the Iran-Iraq war, the Iraqi government cracked down on Kurdish insurgents who had sided with Iran and began the Anfal campaign. The campaign against the Kurdish peshmerga transformed into a purging of Kurdish influence in the oil-rich areas of the Kirkuk oil fields. The Iraqi government resorted to chemical warfare, mass killings, disappearances, and the destruction of village infrastructure which was vital to the livelihood of the Kurds. After the invasion of Iraq by the U.S. in 2003, a new government was created respecting a Kurdish state within Iraq, Hussein was removed, and held on trial for his Anfal crimes until his execution. The Kurdish people have not faced such genocidal acts from the Iraqi government since, but their requests for reparations to the victims of the Anfal Genocide have been denied, and the genocide has not been acknowledged by foreign governments.