

**SURF Research Frenzy
Program Book
2025**

SURF Research Frenzy



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FELLOWSHIP STUDENTS**

THURSDAY, JULY 10

**ORAL PRESENTATIONS FROM 9:00-12:00
TORIAN ROOM IN THE
DUPONT LIBRARY**

**POSTER PRESENTATIONS FROM 2:00-3:30
HARRIS COMMONS IN SPENCER HALL**

LIGHT REFRESHMENTS PROVIDED

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Oral Presentation Schedule

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9:05 - Mya Lopez

Puerto Rican Resilience: Scoping Review

Faculty Mentor: Sherry Hamby

9:18 - Tianning Lyu

International Students' Resilience: A Scoping Review

Faculty Mentor: Sherry Hamby

9:30 - Luke McLendon

Teachers' Resilience: A Scoping Review

Faculty Mentor: Sherry Hamby

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The Metamorphoses of Death in the Greek Testament of Abraham

Faculty Mentor: Paul Holloway

Session #2: 10:00-11:00

10:00 - Lizzy Ray

Francis Joseph Campbell's Travels Through East Tennessee

Faculty Mentor: Chris McDonough

10:15 - Mary Elizabeth Jackson

Length-weight relationships of *Semotilus atromaculatus* (Creek Chub) in three headwater streams

Faculty Mentor: Grady Wells

10:30 - Bryce Martin

A New Record of *Creaserinus fodiens* (Digger Crayfish) from the Cumberland Plateau, Tennessee with Aspects of Life History

Faculty Mentor: Grady Wells

10:45 - Roman Belton (via Zoom)

Interpreting Artistic Inspiration into Theatrical Scenic Decor

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Forest Diversity and Demography in Sewanee's Split Creek Watershed

Faculty Mentor: Thomas Powell

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Processing Point Dendrometer Data to Assess Long-Term Tree Growth Responses to Rainfall

Faculty Mentor: Thomas Powell

11:30 - Maggie Wallace

Representing the Split Creek watershed through Website Development and Media

Faculty Mentor: Thomas Powell

11:45 - Cedar Bettis

Dialogic Pedagogy, First Year Virtue Education, and Difficult Conversations

Faculty Mentor: Lydia Reinig

12:00-12:15 - Alana Jimmy

Colonial Land Tenure Systems In India

Faculty Mentor: Kartik Misra

Abstracts (oral presentations)

In chronological order by presentation time

Puerto Rican Resilience: A Scoping Review

Mya Lopez

Faculty Mentor: Sherry Hamby

Background: Individuals living in Puerto Rico face a multitude of adversities, many of which those within the Continental United States face, however they have the unique aspect of being a territory. Objective: This scoping review looks at research on the resilience of Puerto Ricans using the resilience portfolio model as a theoretical framework. Method: PubMed and PsycInfo were used to find articles containing the terms “puerto rico or puerto rican” and “resilience or resiliency or resilient or strengths or coping” resulting in 1986 articles, of which 36 were included. Results: Perhaps due to the collectivist nature of Puerto Rican society, many protective factors found related to interpersonal connections. Additionally, governmental policies regarding environmental disasters were also found to be important in several studies, pointing to factors in the environmental domain. Conclusion: Protective factors were found and by focusing on interpersonal connections and government policies that focus on environmental disasters and connecting them within the Puerto Rican community, more can feel as though they can thrive.

International Students' Resilience: A Scoping Review

Tianning Lyu

Faculty Mentor: Sherry Hamby

Background: Students traveling internationally for education can experience a wide range of adversities, such as language barriers, homesickness, food changes, and different cultures. Objective: This project reviews research on international student resilience, for students studying in the U.S. using the resilience portfolio model as a theoretical framework. Method: This project is a scoping review, which is a systematic approach to identify and synthesize an existing body of literature. 868 articles were retrieved from the databases Psycinfo, Education Source, and SocInfo. Rayyan was first used to filter for the appropriate population and study design. 33 articles were finally included. Results: Finding community, seeking resources from schools, and strengthening personal goals, and having positive thinking were among the strengths identified for international students' resilience. Conclusion: A wide variety of assets and resources can help international students succeed.

Teachers' Resilience: A Scoping Review

Luke McLendon

Faculty Mentor: Sherry Hamby

Background: Teachers at every level are subjected to a variety of adversities including burnout, secondary traumatic stress, compassion fatigue and general traumas that occur outside the workplace. Objective: This project reviews research on teacher's resilience using the resilience portfolio model as a theoretical framework. Method: We retrieved 993 articles under the search teacher* AND (resilience or resiliency or resilient or strengths) AND (trauma or abuse or adverse childhood experiences or childhood trauma or maltreatment) by using PsycInfo, Education Source and SocIndex through EBSCOHost, of which we are including 22 in this review. Results: The most significant contributors to teacher resilience are support from coworkers and administration, regulatory practices such as mindful meditation, and compassion satisfaction. Conclusion: Although the most commonly studied contributors to resilience are interpersonal connections, a variety of resources can help teachers manage and overcome adversities.

The Metamorphoses of Death in the Greek Testament of Abraham

Brin Copp

Faculty Mentor: Paul Holloway

Metamorphosis, in various forms, is a common motif in ancient Jewish and Christian texts, developing amidst a wealth of literary and religious Greco-Roman traditions of transformation. The Testament of Abraham, a complicated ancient Jewish text composed in Greek in roughly the first century CE, is full of metamorphoses (the archangel Michael's earthly disguise, tears turning to precious stones, and fourteen of Death's ever-shifting faces, to name a few). The story centers around the Jewish patriarch Abraham's determination to evade God's command that his aged soul be taken up to heaven, and the emissaries God sends to do so. Abraham is either resistant or blind to each heavenly metamorphosis he witnesses. As the Testament represents him, at the end of his life he is ultimately a stubborn old man trying to escape the unknowable metamorphosis that is moving from life into death. The variety of metamorphoses in the Testament, culminating in the manifold transformations of the personified Death himself, serve to frame with changes a story that is ultimately about the inexorable and immutable. The Testament of Abraham asserts that no transformation alters 1) the universal truth of Death that comes for all, even an exalted patriarch like Abraham, and 2) God's eternal love for humanity, and his desire for the salvation of the human soul.

Francis Joseph Campbell's Travels Through East Tennessee

Lizzy Ray

Faculty Mentor: Chris McDonough

Francis Joseph Campbell was a remarkable man, born in Winchester, TN, in 1832. He became blind at a young age and was the second student enrolled at the Tennessee School for the Blind in 1844. He went on to work for the Perkins School for the Blind in Massachusetts and founded the Royal Normal School for the Blind in London. Campbell was the first blind person to summit Mont Blanc and trekked through East Tennessee to find new students for the Tennessee School for the Blind. This presentation is about his travels through East Tennessee in 1852 or 1853 to find new students for the school.

Length-weight Relationships of *Semotilus atromaculatus* (Creek Chub) in Three Headwater Streams

Mary Elizabeth Jackson

Faculty Mentor: Grady Wells

Length-weight relationship ($W = aL^b$) analysis is used by ecologists and managers to estimate biomass in fish populations. Our study compares length-weight relationships of *Semotilus atromaculatus* (Creek Chub) populations in two headwater streams on the southern Cumberland Plateau ecoregion and one stream on eastern Highland Rim ecoregion. Multiple 50-m reaches in each stream were sampled using the single-pass backpack electrofishing method. Lengths (mm) and weights (g) were measured and recorded for Creek Chub captured. We calculated length-weight relationships for Creek Chub in each stream. The slope (b) of the regression line in the Mud Creek tributary population was 2.89, and the Mud Creek mainstem population was 2.86. The Barnes Branch population had a slope (b) of 2.65. Competition and predation from Centrarchids (Sunfishes) present in Barnes Branch may explain hypoallometric growth in the Creek Chub population there.

A New Record of *Creaserinus fodiens* (Digger Crayfish) from the Cumberland Plateau, Tennessee with Aspects of Life History

Bryce Martin

Faculty Mentor: Grady Wells

The southern Cumberland Plateau ecoregion has high aquatic biodiversity including numerous crayfish species, of which many are considered imperiled. *Creaserinus fodiens* (Digger Crayfish) occupy a single vernal pool on the Domain of the University of the South, making it the only known population on the Cumberland Plateau. Digger Crayfish usually occupy lowland regions and floodplains throughout the Eastern U.S. In this study, we sampled the vernal pool for 10 months (June 2024—July 2025) when water was present using baited traps to capture Digger Crayfish. We measured carapace length for each month. We also documented ovigerous females when captured and noted sex ratio during May. There appears to be two age-classes present during the year based on monthly histograms. Mean carapace length of the Digger Crayfish population increased each month from June 2024 (14.04 mm)—May 2025 (24.42 mm). Ovigerous females (n=5) were found in December and March. Sex ratio during May was 15 females to 2 males. We recommend forestry management that maintains adequate hydrology and canopy cover for the vernal pool where this unique Digger Crayfish population occurs.

Interpreting Artistic Inspiration into Theatrical Scenic Decor

Roman Belton

Faculty Mentor: Jennifer Matthews

Interpreting a scenic designer's artistic inspiration into theatrical scenic décor involves transforming abstract ideas and visual references into physical, functional stage elements. The current project is for the Department of Theatre and Dance's upcoming production of *The Oresteia*, translated and adapted by Ellen McLaughlin from the trilogy of tragedies by Aeschylus. The scenic design includes large sculptural pieces that are human-like and range in size. The sculptures are built out of recycled materials; old furniture foam and papier mâché from wastebasket trash. Painting techniques replicate the look of oxidized bronze. The creation of the statues seeks to honor the original artistic impulse of the scenic designer while ensuring the realization of the artifacts are immersive and functional for live performance.

Forest Diversity and Demography in Sewanee's Split Creek Watershed

Sparrow Womack, Jasper Jones

Faculty Mentor: Thomas Powell

Long-term forest monitoring plots around the globe provide decades of information about forest diversity and growth dynamics, which can be used to inform forest management decisions. The Split Creek Watershed in Sewanee, Tennessee, is a 20-hectare upland oak-hickory forest on the Cumberland Plateau that drains to a confluence of two streams. Using a grid system established by Dr. Karen Kuers in 2002, we tagged, geotagged, identified, and measured all trees with a diameter at breast height greater than five centimeters in fifty 1600m² plots, equivalent to eight hectares of forest. Our inventory determined that chestnut oaks (*Quercus montana*) are the most dominant species in the watershed. Hickories and red oaks (*Quercus coccinea*, *Quercus velutina*, *Quercus rubra*) were predominantly found on midslopes and ridges, while maples (*Acer rubrum*, *Acer saccharum*) and tulip poplars (*Liriodendron tulipifera*) were mainly found in depressions. The present distribution of species within the watershed reflects both local topography and the timber harvests that took place during the 1950s and in 1976. This inventory provides a baseline dataset that future inventories can be compared to to observe how species distribution shifts over time, serving as the foundation for long-term forest monitoring on the Cumberland Plateau.

Processing Point Dendrometer Data to Assess Long-Term Tree Growth Responses to Rainfall

Elizabeth Muller

Faculty Mentor: Thomas Powell

Point dendrometers are high-precision automated instruments capable of detecting stem diameter changes of less than one micrometer at user-defined intervals. They are commonly employed to investigate subtle fluctuations in stem size in response to environmental conditions, particularly drought. Recent studies have identified consistent diurnal growth patterns, with species exhibiting earlier nocturnal expansion typically achieving greater annual growth. However, rainfall events remain an underexplored environmental variable in point dendrometer research. While it is well documented that tree stems swell following precipitation due to increased water availability, the extent to which this swelling contributes to permanent growth is not well understood. Furthermore, due to their high sensitivity, point dendrometers are susceptible to artificial step-changes in the data caused by maintenance activities, equipment handling, or animal disturbance. To address this issue, we developed a data-processing script capable of detecting and correcting these anomalies, enabling more accurate interpretation of growth dynamics.

Representing the Split Creek Watershed through Website Development and Media

Maggie Wallace

Faculty Mentor: Thomas Powell

The Split Creek Watershed holds valuable information concerning the impact of humans on the environment, information that must be properly represented to the public and available for use. The challenge of representing the watershed within media resides in how to express all of the relational aspects that affect the ecological makeup of the forest such as; the weather, the waterflow, the stream features, the chemical composition of soils, etc. The importance of such representation lies in the importance of watershed studies, in general, which is to say, how the research into human impact on forests can be translated into human impact on larger forest systems within the Upper Cumberland Plateau. This is based on the place-based learning approach that is employed during research on the watershed which facilitates a multi-faceted learning opportunity that encompasses economy, culture, and the natural world. A website presents the perfect opportunity to explore various visual mediums and journalistic articles in an effort to encapsulate the scientific and cultural connections of the watershed.

Dialogic Pedagogy, First Year Virtue Education, and Difficult Conversations

Cedar Bettis

Faculty Mentor: Lydia Reinig

This presentation shares the work of Cedar Bettis, a rising junior majoring in Religious Studies and Rhetoric, who served as the Summer Undergraduate Research Fellow for the Dialogue Across Difference program at Sewanee. Cedar's research explored how dialogue can be more fully integrated into the culture of the university—not as an isolated skill, but as a way of being. Drawing on scholarship in moral formation, dialogic pedagogy, and inclusive learning frameworks, the project investigated how character and leadership can be cultivated through sustained dialogic practices. The research culminated in the development of three practical resources: the foundation of a faculty/staff workshop series for the new First Year Experience program, a revised training workbook for the Dialogue Ambassadors program, and dialogue training materials for seminarians preparing for pilgrimage and antiracism work. Each resource is designed to support deeper listening, courageous engagement, and the development of inclusive learning environments. This work highlights dialogue's essential role in liberal arts education, community formation, and ethical leadership. More than a set of skills, dialogue is a moral and relational practice central to Sewanee's mission of forming thoughtful, compassionate leaders.

Colonial Land Tenure Systems In India

Alana Jimmy

Faculty Mentor: Kartik Misra

The colonial land revenue systems implemented by the British in India, particularly the Zamindari (landlord-based) system, have had long-lasting effects on regional development. In their influential study, Banerjee and Iyer (2005) demonstrate that districts historically governed by landlord-based systems continue to exhibit lower agricultural productivity and weaker public investment than non-landlord regions. Importantly, their research finds that these disparities persist despite the equalization of landholding patterns following post-independence reforms, suggesting that the root causes lie not in current land inequality but in enduring institutional and political legacies. Our SURF research supports this argument through extensive data interpretation, which confirms the diminished role of land inequality in explaining present-day outcomes. Building on this, we extend the inquiry to explore deeper causal mechanisms, such as differences in local governance, administrative capacity, and collective action, that may better account for the persistent developmental gap between regions shaped by distinct colonial land regimes.

Poster Session

2:00-3:30pm

Harris Commons, Spencer Hall

Abstracts (poster presentations)

In alphabetical order by last name of first author

Poster #1

Computational Studies of the Electroreduction of Carbon Dioxide to Carbon Monoxide

Bryan Beri

Faculty Mentor: Ali Raeber

The carbon dioxide reduction reaction (CO₂RR) is a prominent electrochemical method for the reduction of carbon dioxide (CO₂) to carbon monoxide (CO) which can be used for further reactions, reducing effects of global warming. CO₂RR occurs in the presence of an organometallic catalyst and in competition with the hydrogen evolution reaction (HER). Using density functional theory (DFT), we studied the catalytic efficacy of first row transition metal porphyrins. We obtained the Gibbs energy of CO₂RR and HER to determine which process is more spontaneous for each of the potential catalysts. From the computations, we are also able to create molecular orbital diagrams of the complexes formed. These show that most of the complexes having boundary orbitals spread throughout the porphyrin ring. The dispersion of the orbitals showcases the involvement of the porphyrin in CO₂RR and HER.

Poster #2

Listening to History

Sophie Daniel, Eleanor Dean, Paula Faccini, Chloe Stryck

Faculty Mentor: Woody Register

Over the course of the summer, the Roberson Project interns have developed research in preparation for the collection of oral histories from the students, now adults, that desegregated schools in Franklin County. This work involved learning methods of historical study, reading, field trips, and developing a timeline of the events surrounding desegregation in the 1960s. As part of our research, we've developed skills in archival work, including navigating large special collections and locating the information relevant to our research, some of which is represented in the timeline we've featured detailing the first efforts at desegregating Franklin County schools. We've also developed skills in collecting oral histories, such as active listening and using the technology involved. As part of our reading, we've read narratives of growing up Black in rural America, as well as a book documenting the first, and often unknown, court-mandated case of school desegregation. Finally, our research has involved trips to sites across Tennessee which go beyond the scope of our work on school desegregation, but teach us broader lessons about the history of race in the state and the wider, national struggle to find a way to talk about and remember that history. Through this, we've learned that historical research requires a willingness to let go of previously accepted narratives and a willingness to embrace a more complicated, messier version of history.

Poster #3

Micro-rubber inhibits the Heat Shock response and induces the aggregation and toxicity of disease-associated proteins

Isabella Danos, Hazel White, Linn Moe

Faculty Mentor: Elise Kikis

Proteostasis or protein homeostasis is the regulation of protein development, and it declines with aging. Additionally, protein misfolding is influenced by genetic factors and can increase risk of diseases like Alzheimer's and Huntington's disease. Our laboratory previously showed that micro-rubber from the old Sevanee soccer turf causes protein misfolding and exacerbates the heat shock response in *C. elegans*. We asked whether this turf triggers changes in the expression of stress-responsive genes. We also asked whether the newly installed soccer turf similarly impacts proteostasis. To assess this, we used transgenic *C. elegans* strains that are genetically engineered to yield visual readouts of protein misfolding and stress gene activation. Additionally, we determined whether the micro-rubber from the Sevanee soccer turf causes the Alzheimer's disease protein, Amyloid Beta, to misfold into a toxic protein conformation. This was done via paralysis assays of transgenic animals expressing human Amyloid Beta. We found that micro-rubber exacerbated protein aggregation in body wall muscle cells, increasing the number of large visible Q35 protein aggregates. Additionally, micro-rubber exacerbated amyloid beta misfolding/toxicity.

Poster #4

Trinity: East and West

Baker Elkins

Faculty Mentor: Romulus Stefanut

Following the council of Nicea in 325 AD, there were many theological controversies and debates which emerged. The goal of the Post-Nicene Church Fathers was to reaffirm and further develop the dogmatic declarations made at this first council. At the heart of their project was the paradoxical doctrine of the Trinity, and it was their aim to defend and further expound this doctrine in a way that keeps both the unity and plurality of the Godhead intact. What follows is a historical theological attempt to map some of these controversies in order to highlight and better understand the complex philosophical and linguistic arguments used by the Post-Nicene Church Fathers.

Poster #5

Global Sewanee: A Focus on East Asia

Christian Garcia

Faculty Mentor: Marcus Murphy

This project explores the remarkable story of Clement Chen Jr., a Chinese-American alumnus of Sewanee who arrived on the Mountain in 1949, as the Cultural Revolution began. From playing in ping pong tournaments as the "outlaw" in the Phi Gamma Delta house to designing San Francisco skyscrapers and helping China open to the world through architecture, Chen's journey reflects Sewanee's early and often overlooked global ties. Through his legacy, Clement Chen Hall, a gift to the university, and scholarships for Chinese students, this research traces how one international student helped build bridges between Sewanee and East Asia that still stand today. Additionally, this research contributes to broader conversations on race, immigration, and the role international students play in higher education.

Poster #6

How does early competition affect body size, exploration, and dispersal in an amphibious fish?

Jill Hall

Faculty Mentor: Katherine McGhee

Competition for resources and space is widespread across taxa. Growing up in a competitive environment can cause individuals to become dominant or subordinate, which affects body size. These differences in body size can carry over to a variety of traits. For example, small body size and limited food access might increase exploration and dispersal into novel habitats. Using the model organism Mangrove Rivulus, we examined whether early competitive experiences affect the tendencies to explore and disperse in a novel environment later in life. Our social treatments included genetically identical siblings that were paired or remained alone as a single. After three months, the pairs were separated and each fish housed on its own. There were significant differences in body size between all three treatments due to their early social experiences. Exploration was measured by recording the amount of time spent outside of a shelter in a novel tank. To measure dispersal, we recorded the tendency to move across land and enter water. We found that social treatment had no effect on exploration, but being reared as a single increased the tendency to disperse. Our findings suggest that early social experiences can influence behavior later in life, specifically by shaping the tendency to dispersal over land.

Poster #7

Researching Depictions of Revenge in Chūshingura Woodblock Prints of Edo Period Japan

Leah McBain

Faculty Mentor: Alison Miller

On April 21st, 1701, the daimyo of Akō, Asano Takumi no kami Naganori wounded Kira Kōzuke no suke Yoshinaka in Edo castle with his short sword. For this breach of decorum, Asano was ordered to commit seppuku, Japanese ritual suicide. Twenty-two months later, forty-six of Asano's former retainers led an attack on Kira's mansion in Edo. The Akō Incident came to be immortalized in Japanese consciousness in the play Chūshingura as a tale of loyalty, honor, and love. Chūshingura was created as a bunraku play, Japanese puppet theater. By changing the names of key figures of the original incident, dramatizing events, and adding underlying narratives of love and family, Chūshingura was able to evade the censorship of materials relating to the Akō Incident by the Tokugawa shogunate. The responsibilities of the 2025 Japanese Art History Research Assistant SURF internship contributes to a prospective digital exhibition with the University of the South in collaboration with the Birmingham Museum of Art. While the Akō Incident and Chūshingura are widely acknowledged and studied in literature within English-language scholarship, there is very little relating to the topic in visual culture, specifically in woodblock prints.

Poster #8

Self-esteem and Depressive Symptoms in Marital and Housing Status

Camilla Mook, Louise Ferguson, Allison Craft

Faculty Mentor: Luis Mendez

Our study examines how marital status and gender interact with socioeconomic status (SES) in relation to mental health outcomes, specifically self-esteem and depressive symptoms. Previous research states that lower SES is a predictor of depressive symptoms (Madigan & Daly, 2023), while higher SES is associated with higher self-esteem (Angstman et al., 2021b; Lee & Allen, 2020). Socioeconomic status is shown to contribute to worse self-reported physical and mental health in women, but when socioeconomic status is adjusted for income and marital status, there is less of a gender difference between self-reported health (Cherepanov et al., 2011). Our survey data was gathered from a pre-existing study examining Ethnic Racial Identity. The data was collected by an online survey for Spanish-speaking adults from the U.S. during the COVID-19 pandemic through Amazon Mechanical Turk (MTurk). Survey data collection occurred in two waves in December of 2020 and December of 2021. Our variables were Marital Status, SES (measured by whether the participant owned or rented their residence), Gender, Self-esteem, and Depressive Symptoms. We hypothesized that married men and women would be more likely to own their residences than single men and women and that those who are more likely to own their residence will self-report higher levels of self-esteem and less depressive symptoms. We ran a bivariate correlation and an ANOVA. Our findings show that married men and women were more likely to own their residences than single men and women, and had lower self-reported depressive symptoms than those who rented. There was a statistically significant difference in the self-reported levels of depressive symptoms between men who rented and men who owned, yet no difference among women. Men who owned were shown to have the highest self-esteem and lowest depressive symptoms, whereas men who rented had the lowest self-esteem and highest depressive symptoms.

Angstman, K. B., Wi, C., Williams, M. D., Bohn, B. A., & Garrison, G. M. (2021b). Impact of socioeconomic status on depression clinical outcomes at six months in a midwestern, United States community. *Journal of Affective Disorders*, 292, 751–756. <https://doi.org/10.1016/j.jad.2021.05.098>

Cherepanov, D., Palta, M., Fryback, D. G., Robert, S. A., Hays, R. D., & Kaplan, R. M. (2011). Gender differences in multiple underlying dimensions of health-related quality of life are associated with sociodemographic and socioeconomic status. *Medical care*, 49(11), 1021-1030.

Lee, J., & Allen, J. (2020). Young adults' economic well-being and mental health: The mediation model of self-esteem. *The American Journal of Psychology*, 133(3), 329–339. <https://doi.org/10.5406/amerjpsyc.133.3.0329>

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Orth, U., Robins, R. W., Trzesniewski, K. H., Maes, J., & Schmitt, M. (2009). Low self-esteem is a risk factor for depressive symptoms from young adulthood to old age. *Journal of abnormal psychology*, 118(3), 472.

Poster #9

Corporate Social Responsibility in Emerging Markets

Meran Paul and Cseni Nagy

Faculty Mentor: Myles Elledge

This study explores the dynamics of Corporate Social Responsibility (CSR) in emerging markets through the lens of regulatory frameworks, transitioning economies and global stakeholder influence. It synthesizes the foundational theories of CSR with contextual extensions that are relevant to select focus countries, and examines key drivers like regulatory framework, foreign direct investment, civil society pressure, and cultural influences. This study explores how CSR policies are applied in selected emerging market countries in Asia (China, India, Indonesia, and Vietnam) and in Eastern Europe (Hungary, Poland, Romania). Examination of CSR in each country identifies key challenges such as institutional gaps, greenwashing, and transparency issues, while highlighting research gaps on CSR in practice. Drawing on these country case studies, the study finds that social impact and corporate governance practices are primarily driven by state influence, transitional governance reforms (privatization, liberalization), unique cultural contexts, and external pressures, resulting in distinct CSR approaches compared to western developed economies.

Poster #10

Detailed Study of Transition Metal-Amino Acid Complexes

Sanjana Priyonti

Faculty Mentor: Robert Bachman

Simple amino acid complexes of transition metals have shown promising avenues in biological settings, especially as possible antibacterial, antifungal and anticancer treatments. To fully understand the application of these complexes, it is essential to more fully understand their structures, properties, and reactivity. Previous studies have reported various synthetic protocols, which resulted in formation of both trans and cis complexes containing various metal ions and some of the essential amino acids. Our goal is to develop one replicable synthetic protocol for all metals and all amino acids—reaction of metal acetates and amino acids at a singular temperature. This approach will build a comprehensive library of complexes that will in turn allow for the necessary structural, behavioral and reactivity understanding. The synthesized complexes are being analyzed using infrared (IR) spectroscopy, UV spectroscopy, magnetic susceptibility measurements, nuclear magnetic resonance (NMR) spectroscopy and X-ray crystallography.

Poster #11

Improving Methods to Efficiently and Accurately Quantify Parental Care Behavior

Cooper Smith

Faculty Mentor: Matthew Schrader

Burying beetles (*Nicrophorus sp.*) are an important model organism for studying social behavior, particularly parental care. These insects are a useful model because they provide extensive pre- and post-hatching care for their offspring, which is relatively easy to observe and quantify in the laboratory. However, measuring care behaviors is time and labor-intensive. Knowing when care is most common during the larval period, and how many observations are necessary to accurately quantify care, can help researchers design more efficient and powerful experiments.

Here, we used scan sampling to quantify the level of direct care that *N. orbicollis* parents provide over the course of several days. We used this data to ask (1) does the amount of direct care that parents provide vary across the breeding period, (2) does the number of larvae influence the amount of direct care parents display, and (3) can behavioral variation estimated from a large number of observations be predicted from smaller subsets of this data? Our results have implications for efficiently and accurately measuring parental behaviors.

Poster #12

Mental Health Policy in Africa: What Determines Policy Across Three African Countries

Annie Steinfeld

Faculty Mentor: Amy Patterson

Mental health policy remains a low international health priority, which allows small, aid-dependent states to resist and reinterpret global health governance norms (Patterson 2018). In African states specifically, mental health remains a highly stigmatized issue, and traditional, spiritual, and biomedical narratives and care all coexist (Patel and Stein 2015). These competing issue frames further permit states to ignore the issue of mental health. This study examines what determines mental health policy across three African states. Ghana, Liberia, and Tanzania are three African states with varying commitments to and forms of mental health policy. Between 2015 and 2024, my research mentor Dr. Patterson conducted interviews across the three states on the topic of mental health perceptions, care, and policy. This summer, Dr. Patterson and I coded the transcripts using MaxQDA to search for themes of narrative, government action, improvisation, policy entrepreneurs, denial, and clientelism. The software allows for analysis of frequency and pattern of themes across state, year, and role of interviewee. In analyzing the texts, we examined two variables: (1) neopatrimonialism, or decision-making based on personal connections, as a possible method of agency for those personally impacted by mental health struggles, and (2) causes of “implicatory denial,” or the ability of key actors to justify ignoring the issue (Cohen 2001).

References:

Cohen, Stanley. 2001. *States of Denial : Knowing about Atrocities and Suffering*. Cambridge: Polity Press.

Patel, Vikram , and Dan J. Stein. 2015. “Common Mental Disorders in Sub-Saharan Africa: The Triad of Depression, Anxiety and Somatization.” In *The Culture of Mental Illness and Psychiatric Practice in Africa*, edited by Arthur Kleinman, Emmanuel K. Akyeampong, and Alan G. Hill, 50–72. Indiana University Press.

Patterson, Amy S. 2018. *Africa and Global Health Governance: Domestic Politics and International Structures*. Baltimore: Johns Hopkins University Press.

Poster #13

Office of Civic Engagement Partners & History

Finn Vickrey

Faculty Mentor: Amy Patterson

This project included two parts: a GIS interactive map of the Office of Civic Engagement partners that work with the Bonner/Canale interns, Outreach, AmeriCorps/VISTA and the South Cumberland Community Fund (SCCF); and a written history of the Office of Civic Engagement and Americorps/VISTA Program, based on data collected through interviews, annual reports, and newspaper archives.