



# **CELEBRATION**

## **OF STUDENT RESEARCH AND CREATIVITY**

**SPRING 2022**

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# LETTER FROM THE PRESIDENT



## To Our Celebration 2022 Participants and Guests:

Welcome to Northern Kentucky University's annual Celebration of Student Research and Creativity. I want to congratulate the students and faculty mentors who are participating this year, as well as say thank you to the guests and visitors joining us today.

This is our 20th year celebrating outstanding undergraduate and graduate research, scholarship, and creative activity at NKU. It is exciting to return to an in-person format for the first time in three years. We are so proud of our scholars, and it is a joy to showcase their incredible talent.

These projects and creative pieces enable our students to share their knowledge and passion with the campus and community. Active learning is central to student retention and graduation.

As we celebrate our students this week, we also recognize their faculty mentors who work alongside the students on these projects. The bonds our faculty build with their students are evidence of this university's core values of excellence, integrity, belonging, innovation and collegiality.

The work on display this week exemplifies what the people of NKU do for this region as students learn skills and build talent for successful careers and impactful lives. Our students are truly special, and they transform their communities and the world at large.

Again, congratulations to all whose work is showcased in this year's Celebration. We are grateful to all who have made this week so memorable.

Sincerely yours,

A handwritten signature in black ink that reads "Ashish K. Vaidya". The signature is written in a cursive, flowing style.

Ashish K. Vaidya, Ph.D.  
President

## LETTER FROM THE PROVOST



**Dear Celebration Participants,**

It is my great pleasure to welcome you to the Northern Kentucky University 2022 Celebration of Student Research and Creativity!

We are very excited to return to an in person format after two years of a virtual event due to the COVID pandemic. This year's event continues the remarkable tradition of outstanding scholarly and creative work produced by NKU students under the guidance and mentoring of the faculty. The Celebration of Student Research and Creativity is a wonderful opportunity for our students to display their work through poster presentations, oral presentations, interactive demonstrations, virtual presentations, performances, and exhibits of artistic work across the campus community.

The Celebration of Student Research and Creativity provides evidence of the close connection between students and faculty that has become a hallmark of the NKU educational experience.

These opportunities enhance student learning via intense engagement and discovery in a chosen academic field. The work is challenging. Research takes time and effort, but the rewards of this form of experiential learning can be tremendous.

On behalf of President Ashish Vaidya, the deans of our colleges, the chairs and directors of our academic departments and schools, and the entire NKU community, I congratulate you all on the research and creativity showcased during this annual celebration.

Sincerely,

A handwritten signature in black ink that reads "Matt Cecil". The signature is fluid and cursive.

Matt Cecil  
Provost and Executive Vice President for Academic Affairs

# SCHEDULE // APRIL 13, 2022

**9 a.m.**

**Oral Presentation, Session 1**

SU 108

**10 a.m.**

**Oral Presentation, Session 2**

SU 108

**11 a.m.**

**Oral Presentation, Session 3**

SU 108

**12 p.m.**

**Oral Presentation, Session 4**

SU 108

**12:30–3 p.m.**

**Poster Session**

Student Union Ballroom

**1 p.m.**

**College Movie Festival 2022**

SU 108

**2 p.m.**

**Belize Videos**

SU 108

**3 p.m.**

**Nysa: The NKU Journal of Student Research  
volume 3 and 4 launch and reception**

SU 109

**4 p.m.**

**Oral Presentation, Session 8**

SU 108

**5 p.m.**

**Oral Presentation, Session 9**

SU 108

# ORAL PRESENTATIONS

## 9 AM: ORAL PRESENTATIONS

### **System for Improving Online Collaboration Using Gaze Tracking and Sharing**

Trung Cao and Brett Thaman  
Computer Science and CIT  
Computer Science  
Informatics

Faculty Sponsor: Nicholas Caporusso

Abstract: The goal of our research is to create an application that will improve the communication of video conferencing software users. Specifically, we are leveraging the use of gaze tracking technology to help healthcare professionals who are using video conferencing software for remote procedures or diagnoses. The proposed system would use a hardware component, either an infrared (IR) sensor or an RGB webcam, to track the position and movement of a users gaze in real time, which would then be superimposed onto the other users screens in real time. The result would allow for a more intuitive communication between users.

### **Fridges, Fetishes, and Femme Fatales: an Analysis of Women in Media**

Genesis Harris  
Marketing/Theatre  
School of the Arts  
Arts and Sciences

Faculty Sponsor: Tonya Krouse

Abstract: The issue of women's representation, or lack of positive representation, in media is nowhere near a new one. Art and media can have a strong impact on the viewers and society as a whole, which is why positive representation is so important. In my studies, I plan on holding up a magnifying glass to tropes commonly associated with women in media and looking deeper into how those tropes may point to a larger issue. I want to examine the effect art has on its viewer and how seeing women depicted in this manner on screen can further harmful rhetoric.

## 10 AM: ORAL PRESENTATIONS

### **A History of Abstract Art in Cincinnati, Ohio.**

Kathleen Bryant  
Library Informatics  
Business Informatics  
Informatics

Faculty Sponsor: Robert Wallace

Abstract: Relatively little of Cincinnati's art history has been documented and preserved since the mid-century, leaving us without a comprehensive history of abstract artists in the city. Thorough research of Cincinnati's history and art libraries and archives has allowed for the creation of a timeline of abstract art in Cincinnati. Interviews with gallery owners, museum curators, artists, and art critics in the Cincinnati metropolitan area further flesh out the vibrant and dynamic history of abstraction in the Queen City, from the groundbreaking Art Deco architecture to the dominance of printmaking in the last few decades.

### **A Survey Of LGBTQIA+ Perceptions Of Representation In American Politics:**

Dylan McDaniel  
Political Science  
Political Science, Criminal Justice and Organizational Leadership  
Arts and Sciences

Faculty Sponsor: Shauna Reilly

Abstract: Queer Americans like other minorities are frequently polled, with conclusions being drawn to better understand minorities communities. Current scholarly literature investigation the political representation of Queers is sparse; Queer perceptions of descriptive representation and other forms of political representation remain yet to be analyzed. This project utilizes a survey to gauge satisfaction ratings among Queer Americans of the political representation received. The findings of the survey are reinforced by utilizing report card assessments from the Human Rights Campaign to provide a more objective insight evaluation of the representative capacity of congressional officials altogether. Results suggest that Queer Americans actively look for more progressive political representation, confirming the capacity of surrogate representation to satisfy a minority in the face of lacking descriptive representation.

**11 AM: ORAL PRESENTATIONS**

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**Platforms**

Ashley Hopkins  
English  
English  
Arts and Sciences

Faculty Sponsor: Jen Cellio

Abstract: Women are applying rhetorical strategies to social media and digital platforms to express their stories and motivate for social change at a higher rate than ever. Evidence of women's use of traditional rhetorical appeals and specialized strategies are emerging from social media sites, such as Twitter, Facebook and TikTok, and digital spaces like blogs. These practices have enabled women to connect globally and pursue a shared vision of change. This research project will examine the hashtags women use to connect to each other and evaluate the rhetorical strategies that make these hashtags effective.

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**Study of Trm7 interactions with binding partners Trm732 and Trm734 for 2'-O-methylation of the tRNA anticodon loop in yeast**

Kellyn Dolezal  
Biochemistry  
Chemistry  
Arts and Sciences

Faculty Sponsor: Michael Guy and Holly Funk

Abstract: Protein synthesis requires post-transcriptional tRNA modification. In yeast, Trm7 interacts with Trm732 and Trm734 to perform 2'-O-methylation of tRNA at positions 32 and 34, respectively. These proteins are conserved in eukaryotes, and mutations in the Trm7 human ortholog cause intellectual disability. Through a genetic assay, we identified Trm7 residues required for interaction with Trm732 or Trm734. To verify that this result was from impaired interaction between Trm7 variants and Trm732 or Trm734, we are performing immunoprecipitation experiments. The study of Trm7 interactions with Trm734 and Trm732 will facilitate the study of the corresponding human proteins.

**12 PM: ORAL PRESENTATIONS**

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**'Small, therefore, can we think the progress we have made': Disability in the ancient Greek world**

Christopher Lewis  
History  
History  
Arts and Sciences

Faculty Sponsor: Kathleen Quinn

Abstract: Over the last two decades, scholars have become interested in the study of disability in the ancient Mediterranean world, with a particular emphasis on Late Antiquity and the Middle Ages (ca. CE 350-1100). Within this discourse, most studies have focused on elites. I will focus on disability in the ancient Greek world (ca. 750-350 BCE) in an attempt to grow the conversation both chronologically and topically. To that end, I will use primary sources (e.g., Homer, Thucydides, and Plutarch) as well as archaeological material from healing sanctuaries to analyze both the disabilities of the elite and of the common people.

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**Micromechanical Properties of Conventional Rebar**

Alexis Eckart  
Mechanical and Manufacturing Engineering Technology  
Physics, Geology and Engineering Technology  
Arts and Sciences

Jose Fonseca Lopez  
Electrical and Electronics Engineering Department  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Seyed Allameh and Roger Miller

Abstract: In recent years additive manufacturing is considered for building homes and other construction structures. Rebar, as printed by 3D printer needs to be reliable. Fatigue testing of printed rebar has been conducted, but results should be compared with properties of conventional rebar. This study examines the micromechanical properties of conventional rebar. Tensile and fatigue tests are conducted on micro-scale specimens extracted from rebar and results are analyzed and compared with those of printed rebar. This will show the effect of size on conventional rebar. It also provides evidence on the reliability of 3D printed rebar.

#### 4 PM: ORAL PRESENTATION

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##### **Women In Ancient Kemet**

Kaitlin Minniefield  
Integrated Studies w/ minors in Environmental Sciences,  
Black Studies, History  
Integrative Studies  
Arts and Sciences

Faculty Sponsor: Jonathon Reynolds

Abstract: Women in Ancient Kemet played a number of instrumental roles in society including leadership positions. My presentation draws from various writings, artifacts, and depictions of women to emphasize their important role in society. The contributions of women in Ancient Kemet were essential to the everyday operations of the long successes of the State of Kemet. This presentation will highlight women's role in the home and marriage, spirituality, politics, the workplace, and examine their legal rights during this time. Focusing on sources from the Smithsonian Museum in Washington, DC and the National Geographic, my research sheds light on how multifaceted women in Ancient Kemet were.

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##### **Alternative Clothing for Adults with Sensory issues and Autism**

Amaya Rowe  
Entrepreneurship  
Integrative Studies  
Business

Faculty Sponsor: Jeffrey Varrone

Abstract: Adults with sensory issues often have trouble finding clothes that don't irritate them and even more trouble finding them in alternative styles. Adults with sensory issues may not wear certain clothing because of the fabric, print, texture, or even the way it moves when they move. My solution is an alternative clothing brand that implements anti-anxiety technology, designs, and materials that alleviate sensory issues. I was inspired by my love for fashion and expression combined with my experience dealing with sensory issues. With the creation of my brand, I will help ease sensory issues while bringing comfort and style.

#### 5 PM: ORAL PRESENTATIONS

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##### **A Leap in the Right Direction: A Turning Point in Dancers' Mental Health**

Hailey Herrmann  
Business Management  
Management  
Business

Faculty Sponsor: Jeffrey Varrone

Abstract: The approach that dance coaches are using to run their teams is negatively impacting dancers' mental health. Based on research I have gathered from observing dance classes I have found that there is a distinct difference within dancers who grew up at a recreational studio in comparison to competitive. Out of the 30+ interviews I have conducted, every student in the competitive atmosphere spoke about the toxicity of students and teachers. This environment easily breeds negativity due to the competitive nature to succeed. As a solution, I have compiled strategies into a playbook that coaches can implement within their team.

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##### **Connections among Abstract Algebra Concepts and Secondary Mathematics for Teachers and Students**

Abigail Leonhard  
Mathematics  
Mathematics and Statistics  
Arts and Sciences

Faculty Sponsor: Bethany Noblitt

Abstract: In this project, connections among abstract algebra concepts typically taught in upper-level university mathematics, specifically the concepts of groups and rings, and the high school mathematics curriculum were explored. An NKU professor, a high school teacher, and I determined connections, developed and implemented lessons based on the connections, and collected data from high school students. In this presentation, the connections, lessons, and impact on students (high school and college) and the high school teacher will be discussed.

## MOVIE PRESENTATIONS

### College Movie Festival 2022

Adam Rodriguez, Zach Schutte, Yousif Naji and Collin Hudson  
Electronic Media and Broadcasting  
Communication  
Informatics

Faculty Sponsor: Chris Strobel

Abstract: The 2022 College Movie Festival featured four student films created by NKU students, primarily from the Electronic Media and Broadcasting and Theatre and Dance programs. Students are responsible for all creative aspects of the film production process - from writing, producing and directing, to acting, editing, effects and sound design. In all, over 40 NKU students collaborated on the CMF movies, and all four films would screen at this event.

### Belize Videos 2022

Abby Behrens, Dylan Boling, Hatem Dahleh, William Iles, Ben Glavan, Trevor LaBree, Sophie Langton, Sabrina Mack, Camryn Michul, Nao Murata, Grace Rath, Adonis Riley, Margo Roysdon, Zach Schutte, DJ Sherman, Abby Spears, and Latonya Vires

Faculty Sponsor: Chris Strobel

Abstract: The Electronic Media and Broadcasting study abroad in Belize class spent Spring Break shooting video to produce short documentaries and scenes from a short narrative film. This presentation would present those projects. There are 18 students contributed media in Belize.

## POSTER PRESENTATIONS

### Poster 1: Comparison of Intersexual Relationships between Western-Lowland Gorillas and Siamangs.

Clarissa Hornback  
Anthropology  
Sociology, Anthropology and Philosophy  
Arts and Sciences

Faculty Sponsor: Monica Wakefield

Abstract: Mating systems are important selective factors in the evolution of social behavior in primates. I examined how different mating systems influenced the male-female relations of two species of ape, western-lowland gorillas and siamangs. I recorded both behaviors and proximity between male-female pairings for each species. I found that the siamangs spent more time (80.3%) in close proximity and more time (11.6%) performing affiliative interactions. Comparatively, the gorillas spent less time in close proximity (25.4%) with no interactions observed. This research supported previous studies that characterized monogamous mating systems with increased time spent in proximity and higher levels of affiliative interactions.

### Poster 2: Digital Transformation and Innovations on the Treatment of Opioid Use Disorder during the COVID-19 – Recent Evidence

Thuong Ho  
Business Information Systems  
Business Informatics  
Informatics

Faculty Sponsor: Xiaoni Zhang

Abstract: There are many barriers for patients with SUD to access treatment, such as inability to access clinicians for medication treatment, travel distance, childcare, the stigma associated with drug use, and the intensity of traditional OUD treatment. Due to the COVID-19 pandemic, regulatory relaxation has allowed providers to prescribe buprenorphine without an initial in-person through telemedicine. Digital transformations and innovations in healthcare offer a promise in SUD/OUD treatment during COVID-19 and beyond. This research analyze the effectiveness of telemedicine in the treatment of OUD and summarize early-evidence of innovations and review the effect of policy changes for the treatment of OUD during COVID-19

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### **Poster 3: Modeling Chlorophyll-A Concentrations Using Landsat 8 Satellite Imagery**

Theresa Grissom  
Psychology  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Nivanthi Mihindukulasooriya and Nilesh Dixit

Abstract: Harmful algal blooms should be monitored due to the negative effect that they have on human and ecosystem health. The major objective of this project is to develop an algorithm to calculate chlorophyll-a concentrations from satellite images. Chlorophyll-a measurements were taken on two different days in the Ohio River next to the Thomas More Biology Field Station. Separate algorithms will be developed to calculate the chlorophyll-a concentrations from LandSat 8 satellite imagery. LandSat 8 imagery will be extracted through Earth Explorer and will be analyzed using ArcMap. Calculated Chlorophyll-a concentrations will be compared to concentrations measured using YSI.

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### **Poster 4: Comparative Analysis of RGB-based Eye-Tracking for Large-Scale Human-Machine Applications**

Brett Thaman and Trung Cao  
CIT and Computer Science  
Computer Science  
Informatics

Faculty Sponsor: Nicholas Caporusso

Abstract: Gaze tracking is an established technology that enables using an individual's gaze as an input signal to support a variety of applications. In this paper, we present the result of a comparative analysis that studied a commercial eye-tracking device using IR sensors, that is, Tobii 4C and WebGazer, a software system that uses machine learning to estimate gaze from images acquired via a standard webcam. From our findings, we can conclude that, despite the advancements in artificial intelligence and computer vision, gaze tracking using IR sensors is still significantly more accurate than RGB webcams.

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### **Poster 5: Pollinator Habitat Initiative Field and Drone Survey**

Savannah Pate and Sarah Fortner  
Environmental Science and Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Denice Robertson and Kristy Hopfensperger

Abstract: The monarch butterfly population has been in decline throughout North America over the past two decades, primarily due to loss of milkweed habitat. The Greater Cincinnati Pollinator Habitat Initiative seeks to restore milkweed populations at sites across the region. We have developed and tested multiple milkweed population sampling methods at five different sites and compared population density estimates from drone photographs of the site to population density estimates from field counts. Preliminary data show that drone sampling and ground sampling result in similar population density measurements. Results will help to determine best practices for milkweed sampling in restored sites.

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### **Poster 6: L-Glutamic Acid Gamma - Monohydroxamate Causes Decreased Growth in SAM1 Knockouts of *Saccharomyces cerevisiae* possibly related to ATP availability.**

McKayla Remines  
Pre-Medicine, CMG Track  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Erin Strome

Abstract: The SAM1 and SAM2 genes, that encode for AdoMet synthetase enzymes, when mutated alter chromosome stability in *S. cerevisiae*. In an effort to characterize other changes occurring in these mutants, our strains were subjected to 1400+ conditions, and measured for growth variation. When SAM1 knockout mutants were introduced to L-Glutamic Acid gamma – Monohydroxamate (L-Glu-gamma-HXM), a toxic analog of glutamate, they showed decreased growth in comparison to the wild type. In this project we seek to understand the cause of this altered growth, relative to AdoMet changes, and in the context of RNA-Sequencing data.

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**Poster 7: The Effects of Construction on Vegetation in Northern Kentucky**

Murtadha Almakki  
Data Science  
Computer Science  
Informatics

Anthony Gentry  
Data Science  
Computer Science  
Informatics

Taylor Clarkson  
Geography  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Hongmei Wang

Abstract: Due to increased construction, current changes in vegetation landmass contribute to an undesired impact on the environment. The goal of this study is to identify the land cover change in Southern Kenton and Campbell counties due to increasing commercial and residential construction. Free historical satellite images, e. g. Landsat 8, will be used to detect the land cover change in the study area over the past 10 years. The resulting change maps will be helpful for local governments to plan future construction in the area and prepare for potential harmful side effects from increasing construction.

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**Poster 8: Do fans know your brand? Recognition rates for official sponsors of the Cincinnati Reds**

Noah Braden, Adam Macaluso and E'Mya Boards  
Marketing and Sports Business  
Marketing, Sports Business and Construction  
Management; Management  
Business

Faculty Sponsor: Bridget Nichols and Jennifer Gardner

Abstract: Sponsorships are commonly used in sports business to increase brand recognition. Previous research on participative sports indicated high sponsor recognition among fans of a given team. Will these findings hold true for a spectator sport like baseball? This presentation showcases results from a survey that measured recognition rates for corporate sponsors of the Cincinnati Reds. The results suggest that both fan identification and positive attitudes towards the team correlated with higher sponsor recognition and purchase behavior. Additionally, it was found that local sponsors were recognized at higher rates than sponsors headquartered outside of the Cincinnati area.

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**Poster 9: A Comparative Study of Image Classification Algorithm and Water Indices for Mapping Surface Water Bodies Using Remote Sensing Technology**

Hamad Almansoori, Saif Alnuaimi, Mohammed Alaryani, and Obaid Alnaqbi  
Data Science  
Computer Science  
Informatics

Faculty Sponsor: Hongmei Wang

Abstract: The identification of water bodies has been treated as vital in the assessment of flood hazards with timely effectiveness. In this study, two commonly used methods, maximum likelihood classification and rule-based classification based on Normalized Difference Water Index (NDWI) are applied to extract surface water bodies from Landsat Imagery in the counties of Missouri and Illinois bordering the Missouri River. The comparison of the accuracy of these two methods will help in the selection of the best method for the achievement of the goal. The resulting maps will help in the mitigation, prevention, and management of flood-related disasters in the study area.

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**Poster 10: Visualizing Vegetation Cover Change before and after the 2018 California Camp Fire.**

Sean Malley  
Geology / GIS  
Physics, Geology and Engineering Technology  
Arts and Sciences

Lauren Allen  
Environmental Science  
Biological Sciences  
Arts and Sciences

Jonathan Rust  
Computer Science  
Computer Science  
Informatics

Faculty Sponsor: Hongmei Wang

Abstract: The destruction of vegetation as a result of wildfires deleteriously impacts human and natural environments. Deforestation increases risks for erosion, landslides, and destruction of habitats. The Camp Fire, 2018, California was one of the most devastating. Satellite imagery provided by the USGS was used to analyze vegetation cover change. Landsat8 satellite imagery data were processed using ENVI software and it's change detection tool to quantify vegetation loss due to the fire. This study can provide information for potential remediation and prevention of landslides and fires.

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**Poster 11: The Significance of Theory Y Leadership during COVID-19 Global Pandemic**

Katherine Capps  
Organizational Leadership  
Political Science, Criminal Justice and Organizational Leadership  
Arts and Sciences

Faculty Sponsor: Ada Cencki

Abstract: Effective leaders ensure that followers are supported in times of crisis such as the COVID-19 global pandemic. I examined how a good leader communicates and through my leader interview research process, I found that publisher Emily holds her followers accountable. She does this with a loving touch and care. Emily's interactions with her staff, media sources, and other community leaders make her role both unique and critical for a small town. She utilizes the Theory Y leadership style during a global pandemic. Overall, Emily is an example of what our future leaders should role model for ethical and social standards.

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**Poster 12: Examining the Impact of Class- and Gender-based Stereotypes on Evaluations across Job Domains**

Kenzie Hall  
Industrial-Organizational Psychology  
Psychological Science  
Arts and Sciences

Faculty Sponsor: Kinsey Bryant-Lees

Abstract: Over the last few decades, substantial progress towards gender equity in the workplace has been made. However, persistent inequities can still be seen particularly in job domains that have remained sex-segregated. While previous research has established the role of gender stereotypes in maintaining this division, much less research has considered the intersection of class and gender. Thus, the purpose of this study was to examine how class and gender stereotypes simultaneously, and differentially, impact evaluations of jobs across different domains. Overall, findings suggest that both class and gender stereotypes have a simultaneous impact on evaluations of occupational gender attributions.

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**Poster 13: How Respiratory Therapists Care for Patients with Acute Spinal Cord Injuries**

Allison Conley, Madison Hatton and Madeline Hissett  
Respiratory  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Deborah Patten

Abstract: Acute spinal cord injury patients require multidisciplinary care to achieve favorable outcomes. Respiratory therapists play a large role in the care and success of these patients. To better understand the role that respiratory therapists play in this patient population, we focused on four topics: benefits of early intubation, tracheostomies, respiratory intervention and protocols, and management of spinal cord injuries. The purpose of this study was to provide respiratory therapists with adequate education on treating patients with acute spinal cord injuries. Results showed evidence based practices Respiratory therapists can provide to effectively care for patients with acute spinal cord injuries.

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**Poster 14: How do CF protocols between pediatric and adult hospitals compare, and do the differences effect the patient outcome?**

Kyle Bellomy and Victoria Cooper  
Respiratory Care  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Deborah Patten

Abstract: Cystic Fibrosis(CF) is a genetic multi-system disease that effects people of all ages and requires an array of treatment to help keep the disease controlled. The purpose of this project is to study how both adult and pediatric hospitals treat the pulmonary aspect of CF patients, based on protocols, and thus how the differences in protocols may effect patient outcomes. To achieve this we assessed and compared protocols from several pediatric and adult facilities. We reviewed research about how ongoing treatment efficacy changes patient outcomes. Our research hopes to influence change in protocols to ensure successful patient outcomes.

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**Poster 15: A bander's contribution to ecotoxicology: comparison of mercury concentration in feathers and blood of nestling Tree Swallows demonstrates feathers' suitability as a biomonitoring tool**

Chrisula Stone  
Biological Sciences - EEO Track  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Lindsey Walters

Abstract: More tools are needed for ecotoxicologists to assess patterns of organismal mercury uptake. The tree swallow (*Tachycineta bicolor*) is a bird that readily takes to nest boxes and is known to bioaccumulate mercury in its tissues. We sought to define the relationship between blood and feather mercury in nestlings. We collected blood and feather samples during banding for analysis. We found a significant positive relationship between blood and feather mercury, and that significantly more mercury was found in the feathers than blood, demonstrating the potential of feathers collected during banding as a biomonitoring tool.

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**Poster 16: Data Cleaning For Statistical Analyses**

Bijay Rimal  
Mathematics & Statistics  
Mathematics and Statistics  
Arts and Sciences

Faculty Sponsor: Mary Lee Glore and Joseph Nolan

Abstract: Before performing statistical analyses, data often need to be cleaned and/or converted to an analyzable format. Real-world data, especially if manually entered, may contain inconsistencies, missing values, typographical errors, or other issues (such as the need to combine several files). Steps involved in data cleaning include: 1) identification of the problem, 2) development of solutions, and 3) verification. Strategies for identification may involve examining tables, graphs, etc., while those for developing solutions may incorporate techniques such as filtering and merging.

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**Poster 17: Exploring RNA-Sequencing Data To Find Pathways Impacted By Mutations To The SAM1 And SAM2 Genes In Saccharomyces Cerevisiae**

Men Tran  
Biological Sciences  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Erin Strome

Abstract: AdoMet (S-Adenosyl-Methionine) levels have been found to alter genome stability in the yeast *Saccharomyces cerevisiae*. Deletion of AdoMet synthetase enzymes, SAM1 and SAM2, lead to opposite effects on AdoMet levels, and on genome stability. Gene ontology, a tool to look at similarity/categorization of differentially expressed genes (DEGs), as well as exploration of transcription factor regulators of the DEGs, were investigated separately to try to identify pathways of interest in this dataset. Interesting pathways, found through one or both of these mechanisms, are then investigated for their relationship to AdoMet, the methyl cycle, and potential links to genome stability.

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**Poster 18: Strategies for Identifying Important Residues in the tRNA Modification Protein Trm732**

Morgan Fraley and Alex Mullins  
Chemistry  
Chemistry  
Arts and Sciences

Faculty Sponsor: Michael Guy

Abstract: tRNA modifications are required for efficient protein translation. In yeast, the Trm7 methyltransferase forms a complex with Trm732 to modify tRNA. Lack of the Trm7 and Trm732 human homologs, FTSJ1 and THADA, have been linked to intellectual disabilities, type 2 diabetes, and cancers. To understand Trm732, residues in conserved regions are studied. First, conserved regions from Trm732 protein alignments were analyzed and AIN801 was determined to be important for function of Trm732. Second, randomly mutated Trm732 variants will be expressed in sick strains. Understanding functions of Trm7 and Trm732 in yeast could aid in our understanding of their human homologs.

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**Poster 19: Urban Tree Canopy Data Highlights NKY Areas for Priority Tree Planting**

Ngoc Nguyen, Zachary Shreves and Savannah Pate  
Environmental Science  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Kristy Hopfensperger

Abstract: With the impacts of urban climate change increasing, identifying priority areas for climate resiliency is key. Using GIS analysis on urban tree canopy (UTC) and heat index data from 2012 and 2020, we identified where tree planting should be prioritized. Lack of resources such as tree ordinances, initiatives, or funding in municipalities, along with economic data also contributed to identifying these areas. While some communities experienced a change in canopy coverage, we found those with the lowest coverage remained low. By identifying areas for priority tree plantings, communities most impacted by climate change can employ sustainable and resilient strategies.

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**Poster 20: It's Not Too Late: Building a more climate resilient Cincinnati**

Thomas Bohman, Presley Riggs and Kati Rosenbaum  
Environmental Science  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Kristy Hopfensperger

Abstract: As climate change continues to impact the world, Cincinnati will also need to adapt. We synthesized data from multiple scientific reports and peer-reviewed literature to determine emerging themes of climate change most relevant to the Cincinnati region in an effort to guide the next Regional Long-term Planning Guide. We've identified the Urban Heat Island effect, flooding and erosion to be important themes. We have summarized the vast amount of information into brief reports targeted toward non-science, policy-makers. These reports will be used to guide decision-makers in their planning of a resilient and sustainable future.

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**Poster 21: Statistical Tests for Paired Categorical Data**

Abigail Leonhard  
Statistics & Mathematics  
Mathematics and Statistics  
Arts and Sciences

Faculty Sponsor: Joseph Nolan and Mary Lee Glore

Abstract: In the analysis of categorical data, one often studies relationships between variables. These can be complicated by pairing, e.g. if the same variable is measured at different times on the same person. Such pairing makes the standard Chi-square test for association invalid. Instead, the paired categorical data can be summarized in a  $k$  by  $k$  contingency table and analyzed by the McNemar test ( $k = 2$ ) or the McNemar-Bowker test ( $k > 2$ ). This project investigates these tests and their applications from a statistical consulting perspective.

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**Poster 22: Comparison of Airway Pressure Release Ventilation (APRV) Mode Protocols**

Jordyn McPhillips  
Respiratory Care  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Deborah Patten

Abstract: As experts continue to study different treatment options for COVID-19, it became evident that the virus damages the lungs similar to an advanced form of acute respiratory distress syndrome (ARDS). The mode of ventilation used on ARDS patients is Airway Pressure Release Ventilation (APRV). This researcher hopes to compare APRV protocols used at urban hospitals to better understand the expected benefits on patients with ARDS from COVID-19 or other causes. Another benefit is to give healthcare professionals a better understanding of APRV and be more confident in its use on this patient population.

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**Poster 23: Identifying the prevalence of burn out in Respiratory Care, pre and post COVID**

Madison Hackathorne and Felecia Neal  
Respiratory Care  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Deborah Patten

Abstract: Burnout has increasingly affected healthcare workers, and even more so since the beginning of the COVID-19 pandemic. As future respiratory therapists, we are looking for ways that practicing therapists are coping with this phenomenon. We will be surveying respiratory students and currently employed respiratory care practitioners about their experience with burnout during the pandemic: including questions about high workload, inadequate staffing, underappreciation, and management response. In doing this research we hope to discover how employees, who are constantly being subjected to a challenging work environment, are staying motivated to persevere in their field.

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**Poster 24: ARDS in Pediatric and Adult Patients**

Hannah Larkins and Justin Randle  
Respiratory Care  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Alicia Ireton

Abstract: This project is to increase awareness about the differences between pediatric and adult patients with ARDS, specifically regarding respiratory therapists' role when caring for these patients. This review of literature will look at clinical manifestations, etiology, diagnosis, treatment, and patient outcomes. The purpose of our research is to increase Respiratory Therapists' understanding of these differences in order to provide the most effective, current evidence-based practices for these patients. The research reveals there are few similarities between the patient populations but many differences. By recognizing the differences and similarities the respiratory therapist should be able to transition their caregiving between populations.

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**Poster 25: Identifying Suitable Pollinator Habitats in the Built Environment Using Quick Capture on Northern Kentucky University's Campus**

Victoria Putterbaugh, Maria Truitt and Lily Scott  
Environmental Science  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Kristine Hopfensperger

Abstract: The built environment poses many unique obstacles for pollinator success including habitat loss and fragmentation, introduction of non-native species, urban warming, and pollution. We researched what characteristics should be considered for pollinator habitat in the built environment and how to incorporate that among pre-existing structures. We then surveyed NKU's campus with Quick Capture (ESRI product) using factors including potential nesting structures, low-mow areas, water sources, and potential native plantings. The resulting map can be used by NKU to maintain ideal pollinator habitat locations. Our novel methods can be used by institutions to improve pollinator success in our environment.

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**Poster 26: Optimizing the Joker to Obtain Accurate Orbital Parameters for Exoplanets**

John Duckworth  
Physics  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Nathan De Lee

Abstract: The Joker is a Python based Monte Carlo rejection orbital parameter sampler that takes radial velocity measurements of exoplanet systems and outputs potential orbital parameters. Our goals are to find ways to optimize the Joker and find where in parameter space it can no longer produce accurate orbits. We simulated planetary orbital radial velocity data to test the Joker's performance. We varied not only the number of observations, but also the timing between observations for the different planets. We will discuss the impact of these variations on our orbital recovery rate.

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**Poster 27: Utilizing Devalued Data Sources to Explore the Experiences of College Students with Physical Disabilities**

Rachel Petri  
Psychology  
Psychological Science  
Arts and Sciences

Faculty Sponsor: Rachael Clark

Abstract: Social connection, academic support, and accessibility are documented needs of college students with physical disabilities (CSWPD). Past research lacks specific implementation recommendations and devalues individual stories, ignoring informative data. This project integrates literature and website reviews, interviews, and personal experience to gain an understanding of the perspectives of CSWPD and investigate NKU's current understanding of and response to their needs. Preliminary emerging themes include involuntary self-disclosure and misunderstandings of disability leading to insufficient accommodations. The project concludes with practical recommendations for individual students in their personal lives, and specific next steps for NKU's campus and community.

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**Poster 28: A Modern Respiratory Therapist Guide to the Health Complications of Cannabis Use**

Cameron Fay  
Bachelors of Science  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Deborah Patten

Abstract: Even though cannabis law reform has swept our nation, as respiratory therapists, we have been left in the dark about the health complications associated with its use. Most respiratory therapists have received nearly zero education on these complications. The physiologic manifestations of these complications need to be openly addressed so that we can better identify and treat patients presenting with symptoms that may be due to cannabis use. Within this literature review it was found that many of the complications associated with cannabis use manifest within the cardiopulmonary system in unique ways that are dissimilar to tobacco smoking.

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**Poster 29: Women In Finance: The Lack of Inclusion and Its Impacts**

Madeline Kremer  
Finance  
Psychological Science  
Business

Faculty Sponsor: Kinsey Bryant-Lees

Abstract: Throughout history, social roles for men and women have been embedded into society; men have been prescribed the role of "breadwinner", while women have been prescribed the role of "caregiver". Although progress has been made, the embeddedness of these role expectations has continued to create substantial challenges, workforce inequities, and negative consequences for those violating their social norms. This is particularly true in traditionally masculine occupations, such as finance. I investigate this in an interdisciplinary review to address these questions: What are the current day gender gaps in women's representation in finance, their consequences, and broader implications.

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**Poster 30: Do I Belong? Development and Validation of a New Workgroup Integration Scale**

Onyinye Uwolloh, Molly Diamon, Jordan Holmes, and Jason Midkiff  
I/O Psychology  
Psychological Science  
Arts and Sciences

Faculty Sponsor: Philip Moberg

Abstract: The present study describes initial efforts to develop and validate a new measure designed to assess workgroup integration, an employee's perception that s/he is an integral part of the workgroup. Internal factor structure is examined and dimensional relations with existing measures of group inclusion, psychological safety, and exclusion are reported.

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### **Poster 31: Investigating the Effects of Early Life Risperidone Treatment on Microglia Density in Adult Rats**

Karlee Migneault  
Psychology  
Psychological Science  
Arts and Sciences

Faculty Sponsor: Mark Bardgett

Abstract: There is an increasing number of children being prescribed antipsychotic drugs despite the absence of data regarding their effects on brain development. Microglia, the macrophages of the brain, are important in neuroinflammatory responses and may be sensitive to antipsychotic drugs. Therefore, the purpose of this study was to examine microglia density in adulthood after early life treatment with risperidone, the most commonly prescribed antipsychotic for children. We focused on the dorsal striatum because it is a primary target of antipsychotic drugs. The results showed that early life risperidone did not alter the density of microglia in the striatum.

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### **Poster 32: The Impact of Temperature Variations on the Aerobic Scope of Adult and Juvenile Kentucky Stream Fish**

Sam Bauer and Mackenzie Danker  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Richard Durtsche

Abstract: Elevated temperatures (i.e., climate change) in freshwater streams may have a direct impact on fish fitness. To examine fish fitness, metabolic scope measurements were taken in three different adult species of Kentucky stream fish (*Etheostoma caeruleum*, *Gambusia affinis*, and *Pimephales notatus*) acclimated to various temperatures (13°C, 18°C, 23°C, and 28°C). Juvenile fish were developed and maintained at current and +3°C (climate change) stream temperatures before measuring their metabolic capacity at a common temperature. Juveniles had significantly higher metabolic scope than did adults, and warm raised juveniles had higher aerobic scope than that found in juveniles raised at current temperatures.

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### **Poster 33: Novel Viral Vected Vaccines for the SARS-2 Coronavirus**

Joy Kappesser  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Joseph Mester

Abstract: The SARS-CoV-2 virus evolved into a global pandemic and new variants continue to arise. Our lab is designing and testing vaccines focused on conserved proteins among variants. In this study, the gene for the SARS-2 (M) membrane protein was cloned into a non-replicating vaccine vector based on herpes simplex virus. Expression of the M protein was examined in human cells. We hypothesized the SARS-2 M protein expressed by the vaccine will elicit an inflammatory response promoting protective responses. This study is ongoing, and the results will be presented. This vaccine may be advantageous for controlling the spread of SARS-2 coronavirus.

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### **Poster 34: Explainable Vulnerability Prediction Model**

Ludiana Atnafu  
Computer Science  
Computer Science  
Informatics

Faculty Sponsor: James Walden

Abstract: Machine learning can predict the locations of vulnerabilities in source code. However, traditional machine learning models are black box systems, where the user cannot determine why the model made a specific prediction. Security vulnerabilities are mainly caused by programming mistakes made by developers. An explainable vulnerability prediction model can enable programmers to write more secure code by identifying security mistakes and explaining why the code is problematic. The use of interpretation of machine learning is fundamental for programmers to understand and fix predicted vulnerability in their code. We aim to create vulnerability prediction model that is both accurate and explainable.

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**Poster 35: Effects of NMDA receptor antagonists on behavioral economic indices of cocaine self-administration**

Maria Broderick, Makayla Wright and Joy Kappesser  
Neuroscience and Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Justin Yates

Abstract: There are no FDA-approved medications for the treatment of psychostimulant use disorders. The goal of the current study was to determine if the GluN2B-selective antagonist Ro 63-1908 is efficacious in attenuating cocaine self-administration. Sprague Dawley rats were trained to self-administer cocaine in a threshold procedure, in which the dose of cocaine decreased across six 6-min blocks. Rats were treated with various doses of the GluN2B-selective antagonist Ro 63-1908. Blocking GluN2B-containing NMDA receptors decreased initial intake but decreased demand elasticity (i.e., increased responding at lower cocaine doses), an effect observed primarily in males.

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**Poster 36: Determining if Adolescent Exposure to Methylphenidate Increases Methamphetamine Relapse-Like Behavior During Adulthood**

Grace Gieske, Maria Broderick, Makayla Wright, Ethan Osborn and Ray Nelson  
Neuroscience and Psychology  
Biological Sciences and Psychological Sciences  
Arts and Sciences

Faculty Sponsor: Justin Yates

Abstract: Methylphenidate (Ritalin) is commonly prescribed to children and adolescents diagnosed with attention-deficit/hyperactivity disorder (ADHD). Because methylphenidate is a psychostimulant that is structurally similar to cocaine, there are concerns about the long-term effects of methylphenidate exposure on addiction risk. The goal of the current study was to determine if adolescent methylphenidate treatment increases relapse vulnerability to methamphetamine. Spontaneously hypertensive rats (SHRs), an animal model of ADHD, and Wistar-Kyoto (WKY) rats (control strain) were treated with either methylphenidate or apple juice during adolescence. Rats were then tested for relapse-like behavior to methamphetamine during adulthood.

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**Poster 37: What's on Haile College of Business students' minds?**

My Doan and Tyler Hoskins  
Marketing and Management  
Marketing, Sports Business and Construction  
Management; Management  
Business

Faculty Sponsor: David Raska

Abstract: Haile students are overwhelmed by career information. Thus, we would create the most reliable and accessible source of information for career, education, and post-college life through the power of YouTube. For its implementation, we must gain a deeper understanding of what college students worry about with regards to their education, career, and post-college life. We conducted experience interviews with target customers and secondary data research on what social media channels students receive career and college advice from. Based on the findings, we managed to create Haile students' profiles with YouTube insights accompanied with suggested playlists for future implementation.

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**Poster 38: Wind Turbines Emulator for Research and Education Purposes**

Kamgang Romaric Kengne and Omkar Bhat  
Mechatronics Engineering Technology  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Zeel Maheshwari

Abstract: Mankind has harnessed electricity from wind since 1887. The installation and maintenance of the wind turbines can prove to be time consuming, space consuming, and expensive, especially for education purposes. As wind velocity is intermittent in nature, having random variation, it yields variable mechanical power delivered by the wind turbine. Therefore, it is essential to analyze the performance of real wind energy before installing at the proposed site. Developing innovative solutions requires rigorous testing in laboratory conditions incorporating stochastic nature of renewable energy. Our project mimics the behavior of wind turbines within a laboratory. The emulator comprises a software component based on LabVIEW with a hardware interface of a motor driven generator which reproduces the same characteristics of a given wind turbine at any wind velocity. The emulator allows users to input values like the wind speed, pitch angle, temperature, and humidity which are fundamental in calculating the energy generated and provides results like torque, tip speed ratio, and coefficient of performance value of the wind energy conversion system. For the emulator, we plan to use DC motor to mimic the torque generated by the turbine. The power generated will be used on a load (either AC or DC).

The user will also be able to interact with graphs using their choice of parameters. Since the project is set to for research and education purposes, the emulator system is placed on a cart which can be moved across the university campus easily.

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**Poster 39: How Does Multi-system Inflammatory Syndrome in Children (MIS-C) Manifest in Pediatric Patients Who Have Had a Prior COVID-19 Infection?**

Allison Schultz  
Respiratory Care  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Deborah Patten

Abstract: Evidence has shown that children who had COVID-19 developed Multisystem Inflammatory Syndrome in Children (MIS-C). Overall the public underestimated the severity that the COVID-19 virus would have on children long-term, specifically related to the development of Multisystem Inflammatory Syndrome in Children (MIS-C). The purpose of this project is to raise awareness of the possibility of the onset of MIS-C in pediatric patients after their confirmed infection of COVID-19. It is hoped that the results of this review of literature will stress the urgency of protecting children from the implications of our current pandemic.

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**Poster 40: Burnout from the pandemic and its affect on patient care**

Ryland Monhollen, Vinny Dumlao and Cameron Thornberry  
Respiratory care  
School of Allied Health  
Health and Human Services

Faculty Sponsor: Deborah Patten

Abstract: This project is to discover if respiratory therapists have experienced burnout from the COVID-19 pandemic. Respiratory therapists at Christ Hospital and fellow working classmates were invited to take a survey regarding burnout and its implications on how they provide care. Questions include how respiratory therapists have coped with the burnout and the different ways it has affected patient care. The results of this survey will help us to identify issues related to burnout. Our hope is that these results would be used to develop solutions and prevent burnout and its impact on patient care.

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**Poster 41: Analyzing Alesmith's Brand to Improve Brand Equity Towards Gen Z and Millennials**

Chloe Eve, Alyssa Taylor and Beck Nolen  
Marketing  
Marketing, Sports Business and Construction  
Management  
Business

Faculty Sponsor: David Raska

Abstract: Research shows that brands who provide more than their tangible product are better able to resonate with Gen Z, making them brand advocates. Alesmith needed to understand not only how to connect with the younger audience, but to make them care about craft brewing. We analyzed AleSmith's marketing mix, brand equity, and star brand status to discover their strengths and weaknesses. This assessment showed that Gen Z wants social connectivity and shows support for brands that align with their values. We crafted three innovative ideas for Alesmith to implement to improve their brand equity for Gen Z and Millennials.

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**Poster 42: Tropical Ecology in Costa Rica**

Samuel Bauer, Cheyenne Abrams, Grace Buchanan, Oliver Diaz, and Chloe Donithan  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Richard Durtsche and Richard Boyce

Abstract: In March 2022, students and professors in Tropical Ecology Lab adventured on a study abroad program to explore the rainforests, ocean shores, cloud forests, and dry forests of Costa Rica. Students carried out field studies on the zonation of the Pacific coast rocky intertidal, determined the impact of deforestation on the rainforest, and investigated snail distribution along a tropical stream. They tested the community structure of ants and compared tropical bird species biodiversity across six different ecosystems. This program immersed students in the Latin American culture and language and equipped them with valuable skills to conduct real-world work in ecology.

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**Poster 43: Enhanced Destruction of *C. difficile* Spores by Artificial Germination**

Michael Davis  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Joseph Mester

Abstract: Complications from *Clostridioides difficile* (*C. difficile*) infection can be life threatening. *C. difficile*, an anaerobic bacterium, survives outside the body as bacterial endospores that are highly resistant to traditional disinfection methods. We are developing novel methods to enhance the sporicidal effect of various treatments by forcing the bacterial endospores to germinate outside of the body. These newly germinating spores are expected to be highly susceptible to traditional disinfection methods. Results from our ongoing experiments will be presented and discussed. Potent and non-toxic methods for killing *C. difficile* endospores are needed to control the spread of this prevalent pathogen.

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**Poster 44: Master Instability Strain Creation to Determine Loss of Heterozygosity Mechanisms in *S. cerevisiae* SAM Mutants**

Maura Bennett  
Exercise Science  
School of Kinesiology, Counseling, and Rehabilitative Sciences  
Health and Human Services

Katie Schneider  
Chemistry  
Chemistry  
Arts and Sciences

Faculty Sponsor: Erin Strome

Abstract: Chromosomal instability is a significant factor in the development of cancers. Construction of a newly marked chromosome XII will allow for specific measurement of instability events in *Saccharomyces cerevisiae*. Previous data revealed SAM gene mutations result in changes to the rate of instability events. A marked chromosome XII can differentiate the type of instability and the location of the changes within the genome. We have just completed adding our markers to chromosome XII and after addition of the SAM gene mutations we will begin characterizing the types of loss events.

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**Poster 45: Dendritic Spine Density in the Adult Parietal Cortex after Chronic Risperidone Administration during Development or Adulthood**

Natasha Nail, Karlee Migneault and Chloe Cook  
Psychology  
Psychological Science  
Arts and Sciences

Faculty Sponsor: Mark Bardgett

Abstract: Over the last few decades, antipsychotics have been more frequently prescribed to children with ADHD and other disorders in the absence of research regarding their long-term effects. The present study assessed whether early-life administration of risperidone, a commonly used antipsychotic in children, alters neuronal structure in the cortex in adult rats. Results indicated that chronic risperidone during development or adulthood did not alter spine density in the parietal cortex. More research is needed to determine if risperidone affects other aspects of neuronal function in the parietal cortex or alters spine density elsewhere in the brain in order to better inform best practices in the use of antipsychotics in children.

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**Poster 46: Investigation of the Bifunctional Chorismate Synthase from *Neurospora crassa***

Getayia Henry, Joseph Ashley and Nixin Hemingway  
Biochemistry, Chemistry and Biology  
Chemistry and Biological Sciences  
Arts and Sciences

Faculty Sponsor: Catherine Shelton

Abstract: The shikimate pathway, comprised of seven enzymes, is used by bacteria, archaea, and plants to synthesize chorismate, a precursor of aromatic amino acids. The seventh enzyme is chorismate synthase (AroC). AroC catalyzes the conversion of 5-enolpyruvylshikimate-3-phosphate to chorismate and requires the fully reduced cofactor FMNH<sub>2</sub>. FMNH<sub>2</sub> must be provided for monofunctional AroC but bifunctional AroC can reduce FMN to FMNH<sub>2</sub>. Currently, the only crystal structure of a bifunctional chorismate synthase is from *Saccharomyces cerevisiae*. We have successfully expressed and purified the bifunctional AroC from *Neurospora crassa* and are conducting crystallization screens with the goal of solving the crystal structure.

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**Poster 47: The Effects of Helminths on Microglial Development in Sprague-Dawley Rats**

Chris Wallace  
Chemistry  
Arts and Sciences

Faculty Sponsor: Lauren Williamson

**Abstract:** The objective of this research has been observing the development of microglia and counting the microglia in postnatal day 4 (P4) rat brains with microscopy. Male rats express a significantly higher number of microglia at this age. The focuses of this study are to look at the generational effect of the administration of maternal helminths and how it affects the microglial development in offspring, as well as the effects that *E. coli* infection has on P5 brains. The study of the P4 brains allows us to have a clear point of comparison for the P5 brains.

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**Poster 48: Novel DNA-based Vaccines for Flaviviruses**

Emma DeBurger  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Joseph Mester

**Abstract:** This project focuses on the generation and characterization of novel DNA-based vaccines for human flaviviruses. This virus family includes hepatitis C virus, Dengue virus, Zika virus, and West Nile virus. It is important to note that there is no available vaccine for hepatitis C virus currently. The vaccines are being tested for their ability to express the viral targets in human cells. The vaccines are also being evaluated for their immunogenicity in human immune cell cultures. Results from these experiments will demonstrate the potential of DNA-based vaccines for stimulating protective immune responses to human flaviviruses.

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**Poster 49: Diversity and Inclusion on NKU's Campus: Statistics, Initiatives, More**

Madison Plank  
Journalism  
Communication  
Informatics

Faculty Sponsor: Michele Day

**Abstract:** This multimedia journalistic package explores a wide range of initiatives addressing diversity and inclusion on NKU's campus. The report is based on interviews with advocates, experts and other key stakeholders as well as analysis of current diversity statistics. Stories highlighting campus organizations that are combating this issue have been published in the past, but they have not gone into depth on potential solutions and the challenges facing those who are pursuing them.

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**Poster 50: Novel DNA-based Vaccines for the COVID-19 Virus (SARS-CoV-2)**

Courtney Gatterdam  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Joseph Mester

**Abstract:** This project focuses on novel DNA-based vaccines that target the viral membrane (M) protein of SARS-CoV-2. This protein is highly conserved across globally documented variants, making it a strong target of interest. The vaccines were tested for expression of the viral M protein after delivery to human cells. They are also being evaluated in human immune cell cultures for immunogenicity. Experimental results will determine if the viral M protein of SARS-CoV-2 would be a key component of a DNA-based vaccine. Results from this study will provide important foundational information for the design of a universal vaccine against COVID-19.

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**Poster 51: Further Investigation of the Photodegradation of Estrone in Different Solvents**

Raven McNeese, August Bozarth, Natalie Gardner, Camden Jurgens and Abi Sauerbrunn  
Chemistry and Biology  
Chemistry and Biological Sciences  
Arts and Sciences

Faculty Sponsor: Patrick Hare

Abstract: Estrogens are found in surface waters and have been shown to cause negative environmental effects such as infertility in wildlife. The Hare group has shown that estrone photodegrades at least 10 times slower in water than other solvents like acetonitrile (ACN) and this may be attributed to the size of the solvent molecule, packing ability, and ease of methyl group movement. The photodegradation involves the breaking of a C-C bond and the nearby methyl group rotating approximately 80 degrees. The photodegradation rate in a mixture of water and ACN was measured to analyze solvation effects around the molecule.

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**Poster 52: Monitoring Multiple Variables Affecting Water Quality in Karst Springs throughout the Northern Kentucky and Lexington Areas**

Owen Messerly  
CIT/Geology  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Nivanthi Mihindukulasooriya

Abstract: Abundant karst features in and around Kentucky can create pathways to contaminate groundwater, leading to unsuitable drinking water for consumption. This research aims to collect data that will aid in the monitoring of spring water quality throughout the Lexington and Northern Kentucky areas. This process began by making a list of springs within a 60 mile radius from Northern Kentucky University, using previously published ArcGIS spring databases. Field visits to these sites in early May revealed thirteen springs with measurable flow. Multiple water quality parameters were measured onsite once a month from May to August at these sites using a YSI ProDSS. Alkalinity was measured using an acid titration method as soon as the samples were collected. Two sets of samples were collected at each site. One set of samples were acidified with dilute nitric acid for analyzing metal concentrations (Al, As, Zn, Cd, Pb, Cu, Na, Ca, K, and Mg) using the ICP-AES (inductively coupled plasma atomic emission spectrometer). Anion concentrations (Cl<sup>-</sup>, SO<sup>2-</sup>) were measured on unacidified samples, using a HACH spectrophotometer in the lab. Collected data were compared with weather data from the closest weather stations, downloaded from the NOAA online climate database. Notable drops in nitrates and conductivity were recorded at the salt spring in Big Bone Lick State Park following rain events. In contrast, springs in and around

Lexington show an increase of nitrates, and a decrease in dissolved oxygen and turbidity with time. The northern Kentucky locations show a rise in nitrate, pH, and chlorophyll and a decrease in conductivity, salinity, dissolved solids, phycocyanin, and calcium, possibly attributed to the increase of rain during the month of June.

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**Poster 53: Evolution comes in many forms but has paused when it comes to women in the work force**

Haley Halcomb  
Journalism  
Communication  
Informatics

Faculty Sponsor: Yasue Kuwahara

Abstract: Studies and history have shown us that women from the 1950s – 1970s faced many challenges when looking for equal rights but especially within the work environment. How did the fight for equality for women get dragged out for centuries and still fighting to this day? The way the media have portrayed women for the youth and beyond has impacted many, including the youth. It is an issue that still carries over in today's world. This study will examine the slight change that were begun by women many years ago.

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**Poster 54: Defining the role of tRNA anticodon loop modifications in *Saccharomyces cerevisiae* through stress testing with Acetic Acid**

Michaela Vogel  
Chemistry  
Arts and Sciences

Faculty Sponsor: Michael Guy

Abstract: In the yeast *Saccharomyces cerevisiae*, tRNA posttranscriptional modifications are crucial for protein translation. Trm7 is a protein responsible for adding methyl groups to the anticodon loop of certain tRNAs. Trm7 requires interaction with Trm732 and Trm734 to add these modifications to nucleotides C32 and G34, respectively. trm7 mutants grow poorly under stress conditions. A previous study showed that trm7 mutants are sensitive to acetic acid. We plan to study what happens to yeast growth in the presence of acetic acid when only the methylation of C32 or G34 is missing by studying trm732 and trm734 mutants.

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**Poster 55: Identification and Characterization of Novel Aquatic Bacteria using Whole Genome Sequencing**

Elisha Redman, Kellyn Dolezal and Kendra McAndrew  
Young Scholars Academy, Chemistry, Biology  
Biological Sciences and Chemistry  
Arts and Sciences

Faculty Sponsor: Joshua Cooper

Abstract: Identification of novel bacteria in freshwaters are critical toward assessing biodiversity and ecosystem function. In this study, we isolated novel aquatic microbes from local urban and residential water sources in the Northern Kentucky area for BIO302L. Novel bacteria isolates were purified from mixed community samples, and subsequently investigated for biochemistry, physiology and genome sequenced. We used KBase for genome assembly, annotation, and species identification using average nucleotide identity. We found that our bacterial isolates belong to 3 undescribed species, and one new strain. We have submitted our genomes to NCBI and are being written for publication.

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**Poster 56: The Northerner informing NKU community during 2022 spring semester**

Matthew Dietz  
Journalism  
Communication  
Informatics

Faculty Sponsor: Michele Day

Abstract: This semester, NKU's independent, student-run news organization, The Northerner, has had its finger on the pulse with what is happening around NKU. The staff profiled an NKU senior basketball player that made a lasting impact off the court, gave a voice to students during Black History Month and documented electric performances at local concerts and entertainment shows. Additionally, The Northerner entered into a content sharing agreement with LINK nky to not only provide readers with the latest news in the NKU community, but also facilitate engaging discussion about news throughout the Northern Kentucky region.

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**Poster 57: Engineering Equipment for the Schneider Observatory**

Dakota Flemmer  
Mechatronics Engineering  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Nathan De Lee

Abstract: At NKU our astronomical research is conducted out of the Schneider Observatory. This research has centered around the use of a 14-inch telescope fitted with a CCD camera sensor. To make the most efficient use of our funds we have collected equipment of various ages for upgrades. Due to this, the focusing had to be done by hand. One challenge posed to the department has been getting all this technology to interface seamlessly to maximize the capabilities of the observatory. Here, we will discuss the engineering of a new connector giving us the ability to use an automatic focus drive.

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**Poster 58: Optimization of Transiting Exoplanet Analytics Pipeline for the NKU 14-inch Telescope**

David Dodge  
Data Science  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Nathan De Lee

Abstract: NKU's Schneider Observatory, located on campus atop Founder's Hall, features a 14-inch Schmidt-Cassegrain telescope mounted on a German equatorial mount with computer control capabilities. This telescope was brought online over the summer of 2019. Since then, the system's high precision has allowed us to perform differential photometry of variable objects with sufficient sensitivity to detect exoplanets. To further enhance this capability, we developed a custom image processing pipeline to enable us to produce light curves with complete control over the processing techniques. As these new tools matured, an increasing amount of automation was introduced. While this opens the door for increased productivity, it comes at the expense of additional computational complexity. In this presentation, we will discuss the problems encountered as our codebase grew in complexity and the solutions we developed to combat increasing resource requirements, in addition to showcasing some preliminary results we have been able to attain with the new system.

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**Poster 59: Genetic Susceptibility to Benzo[a]pyrene Cardiotoxicity**

Amanda Honaker  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Chris Curran

Abstract: Benzo[a]pyrene (BaP) is a widespread pollutant found in vehicle emissions, grilled foods and cigarette smoke. Previous studies linked BaP exposure to cardiovascular abnormalities and heart disease. To identify individuals at highest risk, we used mice with differences in genes related to BaP metabolism. Pregnant mice were treated with either 10mg/kg BaP in corn oil-soaked food or the corn oil vehicle from gestational day 10 until postnatal day 25. We collected hearts and used quantitative real-time PCR and histology to analyze cardiomyocyte development/health and gene expression in genes regulated by the aryl hydrocarbon receptor and genes essential to normal heart development.

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**Poster 60: Oxacalixarenes With L-DOPA Applications**

Bailey Kemme  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: KC Russell

Abstract: Oxacalixarenes have main applications in ion receptor design, supramolecular assemblies, chemical sensors and molecular recognition. Oxacalixarenes are calixarenes with the methylene bridge replaced with an oxygen bridge. This research revolves around the synthesis of o,m,o,m-oxacalixarenes and the incorporation of amino acids, particularly starting with L-dihydroxyphenylalamine (L-DOPA). The o,m,o,m- prefix refers to meta-linkages with ortho-linkage attachment types. The incorporation of L-DOPA is an untouched region of Oxacalixarene research, and this Capstone project is aiming to learn more about it. The synthesis of new organic compounds is vastly important in the research involving nuclear waste treatment and storage.

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**Poster 61: Monitoring Elevation Change in a Northern Kentucky Landslide Using Structure from Motion Photogrammetry**

Jayne Wischer  
Environmental Science  
Physics, Geology and Engineering Technology  
Arts and Sciences

Faculty Sponsor: Sarah Johnson

Abstract: The Greater Cincinnati-Northern Kentucky tristate area is prone to slow-moving landslides due in large part to colluvium weathered from the shale-rich Kope Formation it sits on. These landslides need to be monitored regularly if they threaten infrastructure and properties. In this study, we measured the topographic changes of a translational landslide in Taylor Mill, KY over a period of 3 years (2019-2022) using the photogrammetric technique of Structure from Motion (SfM). Multiple overlapping images were taken using an unmanned aerial vehicle (UAV), and Agisoft Metashape was used to create a point cloud from the imagery and derive a digital elevation models (DEM) of the landslide in 2019 and 2022. Arc GIS was then used to measure elevation differences across the whole landslide over the three years. Results show that the landslide continues to be active, with elevation losses in the scarp area of up to 0.5 m, and elevation gains in the landslide toe area of over 1 m.

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**Poster 62: Melville's Print Collection Online**

Emily Farrell  
Computer Science  
Computer Science  
Informatics

Faculty Sponsor: Robert Wallace

Abstract: Herman Melville's writings incorporated rich visual imagery and allusions to famous and undiscovered artists of his time. Scholars of literature have spent years tracing his artistic tastes in order to best understand his novels, poems, and short stories. Drawing on decades of Dr. Robert K. Wallace's research on the topic, Melville's Print Collection Online compiles the known artworks having belonged to Melville into a digital gallery for public view and study. Using current technology we can aesthetically appreciate the scope and variety of his personal collection, opening new routes for research in the field of Melville scholarship.

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**Poster 63: Study of Interaction Between tRNA-Phe with Trm7, Trm734, and Trm732**

Linh Le, Samuel Seibert and Kellyn Dolezal  
Biochemistry and Chemistry  
Chemistry  
Arts and Sciences

Faculty Sponsor: Holly Funk and Michael Guy

Abstract: Post-transcriptional 2'-O-ribose methylations on the tRNA-Phe anticodon loop in *Saccharomyces cerevisiae* (baker's yeast) are formed by the protein Trm7, which requires interaction with its binding partners Trm732 and Trm734 separately to methylate respective nucleotides C32 and G34. FTSJ1 is the human ortholog of Trm7, and mutations in FTSJ1 cause intellectual disability. Yeast mutants lacking Trm7 grow poorly due to lack of the tRNA modifications. Trm734 and Trm732 are important for cell growth, but little is known about their specific role in tRNA modification. We are purifying Trm7 and its partner proteins to perform experiments to study protein-tRNA interactions.

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**Poster 64: Natural Disaster Policy and Disaster Relief within Tornado Alley and along the U.S. Gulf Coast**

Elizabeth George  
Political Science  
Political Science, Criminal Justice and Organizational Leadership  
Arts and Sciences

Faculty Sponsor: Shauna Reilly

Abstract: Over hundreds of natural disasters occur annually within the United States, some of which are severe enough to damage property and cause fatalities such as the infamous Hurricane Katrina. Previous research in the area has indicated that policy response to such disasters is reactive instead of proactive leading to surges of policy post-disaster. This paper aims to verify these claims and add to them by measuring the number of natural disasters and post-disaster policy within Tornado Alley and along the U.S. Gulf Coast from January 1996 to December 2020.

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**Poster 65: Know Rivalry**

Stephen Verst  
Accounting  
Accounting and Business Law  
Business

Faculty Sponsor: Joe Cobbs

Abstract: Sports are engraved in our culture, and they play a huge role in fans' lives. The Know Rivalry Project wants to know what elements make up rivalries and how fans perceive their rivals. Using qualitative data collected from fans, we can see what factors play the biggest role in certain rivalries. Using this data from fan surveys of The National Basketball Association, I went through over 700 comments and found quotes that identify with elements of rivalry. The fans' opinions can give a better understanding of why intergroup conflict arises among fans of the NBA and how that affects society.

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**Poster 66: The effects of exercise and pollutant exposure on brain-derived neurotrophic factor**

Kevin Berling, Katie Clough, Connor Perry, and Trevor Shumate  
Neuroscience and Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Chris Curran

Abstract: Benzo[a]pyrene (B[a]P) is a widespread pollutant linked to learning and memory deficits in children exposed during pregnancy and early life. Brain-derived neurotrophic factor (BDNF) supports brain development and learning and memory. Exercise has been shown to increase levels of BDNF. For this study we compared control mice with those exposed to B[a]P prenatally and lactationally. To determine if exercise could increase BDNF levels, we used running wheels to provide daily exercise to the dams and their offspring. We measured BDNF levels in the hippocampus, which is important for learning and memory and in the plasma following exercise.

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**Poster 67: The effect of traffic-related air pollution on spatial learning and memory**

Tianna Niemeier, Mickayala Kowalski, Aria Towell, and Connor Perry

Neuroscience and Biology

Biological Sciences

Arts and Sciences

Faculty Sponsor: Chris Curran

Abstract: Benzo[a]pyrene (BaP) is one of the main components of traffic-related air pollution and is linked to cognitive deficits in humans. We used a mouse model to determine if genetic differences affect susceptibility. Pregnant mice from two different genotypes were exposed to BaP or the corn oil control during pregnancy and lactation. Offspring were tested in the Morris water maze when they reached young adulthood. There was a significant gene x treatment with BaP-exposed Cyp1a1(-/-) knockouts showing impaired performance. Interestingly, we found a main effect of genotype in 6-day learning trials with Cyp1a1(-/-) knockouts having significant impairments regardless of treatment.

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**Poster 68: The effect of traffic-related air pollution on non-spatial learning and memory**

Aria Towell, Tianna Niemeier, Connor Perry, Mickayala Kowalski, and Kevin Berling

Biology and Neuroscience

Biological Sciences

Arts and Sciences

Faculty Sponsor: Chris Curran

Abstract: Exposure to traffic-related air pollution (TRAP) during pregnancy and early life has been linked with lowed IQ in exposed children. We used a mouse model to determine if genetic differences affect an individual's risk. Pregnant mice from two different genotypes were treated with benzo[a]pyrene (BaP), a common pollutant in vehicle exhaust or a control solution during pregnancy and lactation. Their offspring were tested using Novel Object Recognition during early adulthood. We are focusing on genes that are most important in BaP metabolism, and we hypothesize that animals that can remove BaP more quickly will be more resistant to its effects.

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**Poster 69: Dopamine and Serotonin Signaling Following Developmental Benzo[a]pyrene Exposure in Cyp1a1 Knockout and Wild Type Mice**

Mackenzie Feltner, Katie Clough, Emma Foster and

Angela Kyntchev

Neuroscience and Biology

Biological Sciences

Arts and Sciences

Faculty Sponsor: Chris Curran

Abstract: Benzo[a]pyrene, a polycyclic aromatic hydrocarbon (PAH) commonly used to model traffic-related air pollution (TRAP), has neurotoxic effects that are particularly harmful during early brain development. Human and animal studies have linked prenatal TRAP exposure with neurobehavioral and neurochemical changes persisting into childhood and adolescence. Our behavioral studies found that Cyp1a1(-/-) knockout mice were more susceptible to developmental BaP exposure compared to wild type Cyp1a1(+/+) mice. In this study, we measured neurotransmitter levels in multiple brain regions of adult offspring following behavioral testing. We hypothesized that neurotransmitter signaling would be affected following developmental BaP exposure.

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**Poster 70: Development and testing of an Arduino based environmental monitoring device.**

Michael Koch

Computer Science

Chemistry

Arts and Sciences

Faculty Sponsor: Molly Hopper

Abstract: The health of a plant can be determined by measuring its metabolites and the changes in their concentration as a response to the environmental conditions. Monitoring external stimuli that can affect the growth and health of a plant requires instrumentation specific to the stimulus and multiple devices can become cumbersome when measuring more than one parameter. We have continued development and testing of an Arduino based environmental monitoring device with a variety of sensors allowing measurement of temperature, air quality, soil moisture, and UV Index.

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**Poster 71: The Million Dollar Question**

Grace McConn  
Marketing and Economics  
Integrative Studies  
Business

Faculty Sponsor: David Raska

**Abstract:** Today, many Gen-Z employees take on retail jobs only to pay the bills while they are pursuing higher education, ready to move onto more meaningful careers post-grad. Our client, Kroger, asked our team to help them understand how to create a more engaging work experience that will attract young employees and turn them into employees eager to begin their life-long, fulfilling careers at the company. To do this, our team conducted secondary data research to learn more about the needs of our target audience, Gen-Z, as well as where Kroger has room to improve compared to competitors like P&G. We discovered that Kroger can work to improve their company culture, meaning that they can foster stronger relationships between managers and retail employees.

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**Poster 72: Upgrading The Underground Agency**

Grace McConn  
Marketing and Economics  
Integrative Studies  
Arts and Sciences

Faculty Sponsor: David Raska

**Abstract:** The Underground Agency aims to not only make "internship-like" experiences more accessible to NKU marketing students, but also to provide clients on tight budgets with creative marketing solutions created by Gen Z employees themselves. However, considering this experience is only 16-weeks and current employees are juggling courses, jobs, etc., finding adequate time to invest "blood, sweat, and tears" into the agency can prove to be difficult. Our team was asked to analyze 20 employee interviews and discover their "human truth insight" (need/ pain point). We discovered that our employees feel "lost" and in need of networking/industry experience. Using this, we created an actionable insight that will help guide employees towards prospective careers: a "Day in the Life of a Consumer Insights Analyst" page in the agency's employee handbook.

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**Poster 73: Craving work? Development and Preliminary Validation of the Work Passion Scale**

Heather Han, Jodi Comstock, Logan Ryle, and Josh Whitis  
Industrial-organizational Psychology  
Psychological Science  
Arts and Sciences

Faculty Sponsor: Phillip Moberg

**Abstract:** The present study integrates theoretical distinctions in definitions of work passion to describe initial efforts to develop and validate a generalizable, multi-dimensional measure. We hypothesized work-related passion as a three-dimensional construct representing enthusiasm, intensity, and persistence. To evaluate construct validity, we examine internal structure and report factor relations with existing measures of positive affect, grit, conscientiousness, work effort, work engagement, and burnout. Our hypothesis was partly supported; two of three predicted work-related passion dimensions emerged, enthusiasm and intensity. Our prediction of relations of passion with external scales was fully supported.

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**Poster 74: Assessing GST Activity In S-Adenosyl-Methionine Synthetase Mutants To Determine Impacts From Methyl Cycle Changes On The Ability Of Cells To Combat Reactive Oxygen Species**

Elisabeth Goodin  
Biology  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Erin Strome

**Abstract:** In previous studies, the absence of the SAM1 or SAM2 genes in *S. cerevisiae* was linked to chromosome stability changes. Additional work indicated that Reactive Oxygen Species (ROS) might be increased in sam2-deficient cells. S-Adenosyl-Methionine (AdoMet), produced by the Sam1 and Sam2 enzymes, is part of the methyl cycle which creates other metabolic products including homocysteine, which is upstream of glutathione (GSH) production. GSH is used as an electrophilic acceptor by glutathione-S-transferases (GST) as a protection mechanism against ROS. Here we explore the GST activity in SAM mutants to determine how they are impacted due to changes in the pathway.

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**Poster 75: The Constructed Language Ø: Violations of Universal Constraints**

Megan Taylor  
Spanish and Studio Arts  
World Languages and Literature  
Arts and Sciences

Faculty Sponsor: Kevin Kirby

Abstract: There are currently over 7,000 human languages in the world, with a wide variety of grammars, vocabulary, sounds, and writing systems. However, these languages are not limitless; linguists have identified specific constraints that all human languages obey. These constraints in our communication are what makes human languages "human". To explore these human qualities of languages and their opposites, I have constructed an artificial language that violates twelve recognized universal constraints, while being in most other aspects a potentially natural language. The language Ø (pronounced as a second of silence) is an exploration of what is human and non-human in a very technical sense.

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**Poster 76: Death in Ancient Rome**

Rebecca Noel  
Anthropology  
Sociology, Anthropology and Philosophy  
Arts and Sciences

Faculty Sponsor: Kathleen Quinn

Abstract: Death in Ancient Rome can be studied from three different perspectives: data about death, the social context of death, and the associated funerary practices. By looking at each of these elements of death, a more complete picture of Roman death culture can be seen. The Romans had very specific funerary rites that they conducted after a person passed away. This paper will explore these practices and look at the way that death rituals connected with both the religious practices and cultural practices of the time. Death is an inevitable part of every culture and all around the world people have developed different ways to deal with it. This paper will also provide a better understanding of the cultural context behind what the Romans did in response to death and how they did it.

## VIRTUAL PRESENTATIONS

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**The Relationship Between Borderline Personality Disorder and Eating Disorders**

Elyssa Carmony  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Borderline personality disorder (BPD) and eating disorders have grown to be more commonly known after their portrayal in media and increased representation in research. There has been minimal research regarding the association between these diagnoses. This cross-sectional study, using a brief survey, will examine the relationship between symptoms of BPD and the five eating disorder diagnoses listed in the DSM V. Findings will examine the connection and potential crossover of symptoms, and provide information that can help professionals apply improved treatment methods and explore preventative measures against developing an eating disorder as a direct or in-direct result of BPD symptoms.

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**Perceptions of Refugee Health: Barriers Accessing Mental Health Services**

Tika Adhikari  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Refugees have high general health and mental health needs; however, cultural and language barriers prevent them from accessing appropriate services. This study aims to understand the impact of the language barrier and health literacy accessing mental health services. This exploratory, the cross-sectional study utilizes non-probability purposive sampling to collect data from an estimated 60 Nepali-speaking Bhutanese individuals. Expected findings will provide the prevalence of language barriers and health literacy preventing newly resettled refugees from accessing needed mental health services. The results will be used to advocate for additional mental health resources to combat this issue.

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### **Covid-19 Effects on U.S. Service Member's Mental Health in Germany**

Tyrese Cook  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: The mental health of our United States soldiers is an essential aspect of the military, mission, and family readiness. Statistics have proven that Covid-19 has negatively impacted the mental health of our veterans. This exploratory, cross-sectional, self-administered survey will measure the effects of Covid-19 on our current soldier's mental health and is expected to show a negative correlation on those explicitly stationed in Germany. The findings in this research will provide insight as to how Covid-19 is affecting our soldier's mental health who are serving in Germany during this pandemic.

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### **The connection between food insecurity and racially-based violent and traumatic experiences**

Tracy Ware  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Food insecurity disproportionately affects people of color, with about 23% of Black people impacted by food insecurity. Systemic inequity has a reciprocal relationship, serving as both cause and effect, in regard to racial discrimination and gender. The purpose of this study is to explore how race-based violence and trauma impact food insecurity. This project utilizes an IRB-approved survey with a cross-sectional, non-probability convenience sample. Anticipated results will demonstrate a connection between food insecurity and race-based trauma. This study will bring awareness to structural inequality in terms of education, employment, criminal justice, and allocation of resources.

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### **Security Threat Groups and Community Violence**

Amy Belcher  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Security threat groups (prison gangs) can negatively impact the prison system, staff members, other inmates, and the community. There is little research involving security threat groups due to secret criminal code. The lack of information can lead to many consequences, including misinformation and community violence. A brief online survey will be distributed to NKU students and descriptive statistics will be used to analyze the data. The outcome of the survey will likely suggest prison violence is a community concern and will help create an awareness for NKU students.

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### **Ghosting: What, Who, and its Effects?**

Joseph Dennis  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Ghosting, the act of cutting off all communication with a person to end a relationship, has become common, with one study finding over 70% of millennials recognizing it as an everyday phenomenon. This exploratory, cross-sectional study will use a self-administered survey to examine the commonality of ghosting amongst age groups and the impacts of ghosting on those age groups. Expected findings include higher ghosting rates among younger age groups and lower impact among age groups with higher prevalence. Survey findings will help to call attention to the need for a response to ghosting.

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### **The impact of anxiety among college students during COVID-19**

Brittany Hollingsworth  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Anxiety is a wide-spread social problem with serious implications including impacts on physical health, social/cognitive functioning, academic achievement, and graduation success. This study seeks to better understand how anxiety is impacting NKU students during COVID-19. An IRB approved study utilizing a cross-sectional survey design and non-probability convenience sampling will be distributed. It is anticipated that COVID-19 has increased anxiety and that anxiety has a negative impact on academic achievement. The information gathered in this study will help NKU identify needed resources and give additional insight into the consequences of anxiety on college students.

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### **Racial Trauma and its affect on self perception on people of color**

Tina Phillips  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Trauma is an experience that is rooted in most cultures, views, systems, and behaviors. Racism perceived through the lens of systemic trauma suggests that people of color are at potentially higher risk for experiencing racial trauma. This exploratory, cross-sectional study will use 10 survey questions to gather information on students of color and how racial trauma affects how they see themselves. I expected the result to show that racial trauma is common, and resources are needed to promote inclusion in trauma services offered at NKU.

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### **Career Choices Affected by Adverse Childhood Experience's**

Suzanne Buerkett  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: ACE's can be described as events that happen prior to age 18 that are potentially traumatic. Sixty-four percent of the U.S. is affected by ACE's, and little is known regarding the affects on career choices. As a result of the gap within literature, this IRB approved, exploratory, cross-sectional designed study intends to examine how ACE's affect career choices. Results will demonstrate the degree in which ACE's affect people and career paths. Implications of the outcomes will be used to compare career choices chosen by individuals affected by ACE's.

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### **Trauma Informed Care and Student Retention**

Bobbie Sanderson  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Trauma is an increasingly prolific social problem. Many students have incurred traumas prior to admission and throughout their time enrolled in post-secondary education. Trauma informed care (TIC) is a social practice which recognizes trauma and acknowledges its prevalence. The purpose of this study is to determine if implementing trauma informed practices in student services impacts student retention rates in post-secondary education. A brief self-administered survey is utilized via social media for data collection. The results of this study will show the need for TIC and will assist in advocating for Trauma-Informed practices to be implemented throughout NKU.

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### **Student Perceptions of Sexual Violence Prevention Strategies**

Kendra Massey  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Sexual violence is a pervasive problem on college campuses that negatively impacts students' emotional wellbeing and academic success. Research is lacking in comparisons of the effectiveness of two commonly used sexual violence prevention strategies, bystander intervention and consent education. This exploratory, cross-sectional study seeks to understand NKU students' perceptions of the effectiveness of both strategies in reducing rates of sexual violence. A brief online survey will collect student input, and expected results will demonstrate that NKU students perceive one strategy to be more effective than the other. Findings will help ensure a student-informed sexual violence prevention plan at NKU.

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### **Consequences of Childhood Trauma and Criminal Records on Student Success in Higher Education.**

Lindsay Vogel  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Research states that approximately 25% of individuals in the United States have a criminal record, while 64% of individuals have experienced at least one adverse childhood experience (ACE). These events negatively impact individuals physically and mentally. This exploratory, cross-sectional study will utilize non-probability, purposive sampling to collect data by a self-administered survey. This study aims to understand the relationship between adverse childhood experiences, involvement in the criminal justice system, and college graduation, along with the anticipation of graduation. Expected results will show that ACEs and/ or criminal records add barriers to student success and will help universities improve supportive resources.

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### **Issues Related to Housing Insecurity Among NKU Students**

Dayna Schambach  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Not having a secure place to live while attending college has detrimental impacts on students' academic and emotional well-being. This study aims to understand the prevalence of housing insecurity among NKU students and which (if any) protective factors they utilize for support using a cross-sectional, online self-report style survey. The study expects to find that the more housing-security issues one identifies as having, the fewer protective factors they will identify as utilizing. The results of this study may help us to better understand which supports are most helpful to ensuring secure housing among college students.

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### **The Impact of Divorce on Children**

Kaelin Welch  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

Abstract: As divorce rates continue to climb across all demographic fields, the lasting effects left behind are still being studied. The purpose of this research is to help identify the long-term effects that divorce has on the children who are raised in a divorced household. This cross-sectional study, which uses an online survey, will examine the long-term impact of divorce on mental health and relationships. Understanding the long-term effects of divorce may ultimately assist in identifying protective factors that can be implemented to manage and decrease the long-term effects felt by children.

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### **Has COVID-19 Affected the Elderly Socialization**

Deborah Hawkins  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

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Abstract: Has COVID-19 Affected the elderly socialization COVID-19 has affected elderly socialization lives in unexpected ways, such as isolation, depression, and other negative effects. The purpose of this study is to provide information on how the elderly were impacted by COVID-19. This project utilizes an IRB-approved survey with an exploratory, cross-sectional, non-probability, convenience sample. Anticipated results might help social service for the elderly to be prepared in the event there's another pandemic. This survey will help in showing how the elderly felt at the beginning of the pandemic and how they feel now.

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### **The Effects of Stigmatization Inflicted on Those with Mental Illness Within the Workforce**

Holly Abdon  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: There is unintentional and sometimes purposeful stigmatization placed upon those with mental illness within the workforce. The purpose of this research is to bring awareness to the emotional effects one feels in being targeted for exhibiting behaviors associated with mental distress. This cross-sectional, IRB-approved project investigates societal understanding of mental illness and mental health to explore views surrounding resources and reasonable accommodations. The anticipated results will provide supporting evidence that employers/employees do not understand barriers faced by those managing mental illness and employment and highlight action steps to address this issue.

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### **The Impact of Body Dysmorphic Disorder and Other Negative Self-Image Tendencies on Romantic Relationships**

Emma Rodgers  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

Abstract: Body dysmorphic disorder, along with negative self-image, can have far reaching impacts on a person's relationship not only with themselves but others as well. There is little research on the body dysmorphic disorder diagnosis in general and most research on negative self-image focuses solely on sexual experiences. This self-administered survey is expected to implicate body dysmorphic disorder and negative self-image to negatively impact specifically romantic relationships. The results of the study will allow for further insight into how body dysmorphic disorder impacts the relationships of an individual and hopes to inspire more research into the diagnosis in the future.

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### **Perception of Housing on the Mental Health**

Diamon Simpson  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Mental illness is a serious condition that has increased throughout society, negatively impacting the lives of many. This study brings awareness on how certain factors can influence mental health. Knowing the prevalence of mental illness in the communities, the key is to view these factors through an exploratory, cross-sectional study using non-probability, purposive sampling to collect data using social media/online platform. It is anticipated that mental health conditions are influenced negatively by a person's livelihood. This research will assist in developing a safe plan to help others maintain adequate and affordable housing.

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### **Knowledge of Child Abuse and Neglect and Experiencing Economic Hardship**

Courtney Riley  
 Social Work  
 School of Social Work  
 Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Previous research has indicated those experiencing economic hardship have a higher rate of experiencing CAN (child abuse and neglect). This study aims to measure the extent of knowledge college students have on CAN and economic hardship. This study aims to collect data from 100 college students via a 20-question, self-administered online survey. This study expects to find that college students do not have a good understanding of the definition or acts of child abuse and neglect. The results from this study will add knowledge to the current literature and inform future research on related topics.

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### **Awareness of Human Trafficking Among Communities**

Sarah Richerson  
 Social Work  
 School of Social Work  
 Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Slavery was abolished in 1865, and yet human trafficking, a form of slavery, continues to grow. It has been difficult to obtain accurate research on victims of human trafficking. However, in 2020, 16,658 victims of human trafficking were identified through the National Human Trafficking Hotline. A self-administered cross-sectional survey design will be used to collect data from the local community to better understand awareness of human trafficking. It is expected that results will show there is a need to bring more awareness around this social issue to the community.

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### **Negative Effects of Excessive Social Media and Device Usage**

Amelia Burkhardt  
 Social Work  
 School of Social Work  
 Health and Human Services

Faculty Sponsor: Caroline Macke

Abstract: Research suggests that excessive social media and device usage is a cross-cultural concern. The impact is multi-generational, affecting mostly millennials and teenagers, but also affecting older generations. 15% of persons aged 23-38 admit to being addicted to social media. Using a brief, self-administered survey, this cross-sectional study seeks to examine the negative effects of social media and device usage. Findings will show the negative effects of excessive social media and device usage related to addiction, social interactions, relationships, safety and privacy, and mental health.

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### **Housing Discrimination in the LGBTQ Community**

Megan Cantrell  
 Social Work  
 School of Social Work  
 Health and Human Services

Faculty Sponsor: Caroline Macke

Abstract: Recent research suggests that 22% of the LGBTQ community has experienced housing discrimination, thereby leaving many individuals homeless. Conversely, other studies have stated that there is no evidence of housing discrimination. Given the inconsistent findings of the existing literature, the purpose of this study is to determine if housing discrimination is occurring. This cross-sectional study will use a brief survey, which will be distributed through social media. The findings from this study are expected to show that housing discrimination is occurring among the LGBTQ population and that micro and macro level interventions are needed to combat this discrimination.

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### **Impact of Mental Illness on Relationships**

Audrey Willman  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

Abstract: Approximately 20% of the U.S. population has a mental illness. Unfortunately, many of these individuals experience stigma associated with their mental illness. This experienced and/or perceived stigma may impact people's decision to disclose their mental illness to others. Using an online survey, this cross-sectional study is designed to better understand the stigma around mental illness and whether people feel comfortable disclosing their diagnosis to loved ones. The results of this research will demonstrate the need to combat stigma associated with mental illness, as well as the societal need to be more open in our discussions of mental illness.

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### **The Impact of ACEs on Educational and Vocational Achievement**

Tessa Ivey  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Adverse childhood experiences (ACEs) are pervasive and have long-term impacts on health, substance use, and socioeconomic status. There has been minimal research on how ACEs impact types of achievement and it is often narrowly defined as socioeconomic status. This cross-sectional study will examine the impact of ACEs on educational and vocational attainment and satisfaction among individuals that use Facebook. Findings will show that the presence of ACEs has a negative impact on educational and vocational areas of achievement. The results will help further explain the extent that ACEs impact quality of life and highlight growth areas for trauma-informed care interventions.

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### **Mental Health Consequences of Abstinence-Only Sex Education**

Lauren Wright  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

Abstract: Research suggests that abstinence-only sex education programs have negative impacts on prevention, risk behavior, and relationships. The current study seeks to examine the relationship between abstinence-only sex education and mental health. A brief self-administered survey will be used to assess for mental health effects resulting from abstinence-only sex education. The results from this study are expected to show that there has been a negative impact on mental health among adolescents and young adults who went through an abstinence-only sex education program(s). These findings can assist social workers in advocating for necessary programs to promote accurate information and education in regards to all things pertaining to sex and intimacy.

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### **Domestic Violence and the Correlation of Animal Abuse**

Bridget Stadtmiller  
Social Work  
School of Social Work  
Arts and Sciences

Faculty Sponsor: Caroline Macke

Abstract: Perpetrators of domestic violence often abuse or threaten to abuse family pets in an effort to inflict harm onto and control over their human victims. To protect their pets, victims may stay in a violent relationship or become homeless with their pets. This study examines how often pets are harmed in domestic violence situations. Using an online survey, this cross-sectional study is expected to show that animal abuse and domestic violence often co-occur. These findings will inform helping professionals that the needs of pets must be considered in order to fully meet the needs of domestic violence victims.

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### **Impacts of Covid-19 on Overall Health**

Keyah Ard  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

**Abstract:** The Coronavirus pandemic has impacted the general public in several ways and continues to have an impact in communities. The existing literature indicates that there are negative consequences of COVID-19, including a negative impact on mental health, physical health, and social wellbeing. Using an online survey, this cross-sectional study is expected to show that COVID-19 does negatively affect overall health. The results will bridge a gap in research and give additional insight into the needs of our community.

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### **Covid-19: Person's Experiencing Housing Insecurity and Trauma.**

Tylan Calloway  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

**Abstract:** Persons affected by homelessness are a complex, underserved population that may be impacted by sequences of trauma-related experiences. The recent COVID-19 pandemic has also contributed to experiences of trauma among persons who are homeless. This exploratory, cross-sectional study utilizes non-probability purposive sampling to explore how COVID-19 has impacted persons experiencing housing insecurity and the intersection of trauma with those experiences. It is anticipated that the results will lead to be better-informed evidence-based practices to support persons experiencing homelessness.

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### **Societal Perceptions of Transgender Populations**

Jun Fularz  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

**Abstract:** Social Perceptions of the transgender population can greatly impact their ability to thrive in society. Lack of education leading to negative opinions towards this community can create dangerous outcomes for an already at-risk population. This IRB approved cross-sectional study was designed to assess the Northern Kentucky and Greater Cincinnati Areas current perceptions of the transgender population so we can better understand how to utilize advocacy for transgender education. The findings are likely to show inadequate approaches to assisting this population in our communities and could assist social workers into redirecting their attention to new concerns when working with transgender individuals.

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### **Impact of COVID-19 on the prevalence and severity of anxiety**

Amanda Warren  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

**Abstract:** With an overall prevalence of 28.1%, anxiety is a widespread social problem in the United States. Literature suggests that the rates of anxiety have only increased as a result of COVID-19. Given the rising prevalence of anxiety as a consequence of the pandemic, the current study seeks to analyze the impact of COVID-19 on the prevalence and severity of anxiety within the Northern Kentucky region. This cross-sectional study, which utilizes an online survey, is projected to show that COVID-19 has impacted anxiety rates in this region. These findings will provide insight into the escalating mental health needs of our community.

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### **Benefits and Drawbacks of Teletherapy**

Amberly Trout  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

**Abstract:** Research shows that one in five adults suffers from mental illness in the U.S. This prevalence rate suggests that there is a tremendous need for mental health services. The purpose of this study is to examine the advantages and disadvantages of teletherapy. Using a brief, online survey, this study is expected to show that participants identify a variety of advantages and disadvantages to teletherapy, and that they ultimately would recommend the use of teletherapy services. These findings are especially relevant due to COVID-19, since in-person services are limited. Thus, it is critically important to ensure that teletherapy services are effective.

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### **Assessing the impact of perceived social support on transition age foster youth.**

Kaitlin DeJarnette  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

**Abstract:** Research shows that youth in foster care lack social supports which help them successfully transition to adulthood. This lack of support correlates with complications such as poverty, criminality, and health problems. The purpose of this study is to explore what types of social support act as protective factors for foster youth. This cross-sectional, exploratory study will utilize non-probability convenience sampling to collect data through an online survey. The results of this study will help inform the field of child welfare of gaps in services for youth. Results will show the necessity of quality adult relationships for successful transition to adulthood.

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### **Perceptions of Mental Health Among NKU Students**

Jazmine Selby  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

**Abstract:** Lack of skills to cope with mental health issues may lead to depression and anxiety among college students. This study seeks to examine the level of coping skills that college students are using and how frequently they are using them to address their mental health needs. Data was collected by administering a survey online to NKU students. This study expects to find that NKU students are not utilizing coping skills as a way to maintain good mental health. These findings will inform NKU in its effort to assist students on their mental health needs.

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### **Access to Physical Healthcare and Academic Achievement of College Students**

Kate Yingst  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

**Abstract:** Many Americans, including college students, continue to struggle with accessing timely and necessary healthcare services for reasons such as lack of resources, knowledge of healthcare needs, and lack of insurance coverage. This study aims to examine how physical healthcare access impacts NKU students' academic achievement with a collection of data through a self-administered online survey. This study expects to find that students who have physical healthcare access will perform better academically than students without access. Findings from this study may include NKU assisting students with physical healthcare access and healthcare literacy.

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### **Perceptions of Homeless People by those in the United States**

Theresa Hooks  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Homelessness is a serious issue which affects an estimated 580,466 Americans nightly, including college students. Research shows lack of external support can leave individuals vulnerable to homelessness. This study explores if there are negative perceptions about homeless individuals that could contribute to the lack of external support. This exploratory study utilizes a self-administered, cross-sectional design to measure perceptions. The anticipated results of the study are Americans will have negative perceptions concerning those who are homeless. These results could lead to research to explore if these perceptions leave homeless individuals with less resources.

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### **Sexual Assault: How The System Fails**

Laura Buel  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Only 310 out of every 1000 sexual assaults are reported. Research shows that the social, justice, educational, and economical systems all negatively impact the likelihood of sexual assault survivors reporting. This study examines the boundaries within each of these systems that cause survivors to not report. A brief, self-administered survey will examine the most common stigmas and boundaries within the system, such as criminal sentencing and access to resources. The purpose is to bring awareness and assist social workers and other helping professions to advocate for change within all these systems to bring power and healing to victims.

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### **Excessive device and social media use**

Brittany Mason  
Social Work  
School of Social Work  
Arts and Sciences

Faculty Sponsor: Caroline Macke

Abstract: Research has shown 56% of American adults check their social media accounts a minimum of 10 times per day, with many spending 3+ hours every day on social media. Excessive social media use has been linked to depression and anxiety symptoms, poor self-image, and compromised interpersonal relationships. This cross-sectional, self-administered study will examine the link between excessive social media use and mental health, poor self-image, and compromised interpersonal relationships. Results aim to assist social workers in advocating for increased awareness of the negative effects of excessive social media use.

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### **"Aging Out"**

Kelly Pittenger  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Caroline Macke

Abstract: Research suggests adolescents that age out of foster care are not given the tools they need to live and succeed independently. The purpose of this study is to examine the lasting impact foster care has on young adults. This cross-sectional study utilizes non-probability, convenience sampling. The anticipated results will show that young adults who have aged out of foster care do not feel they have the knowledge they need to flourish and grow as young adults. These findings will increase awareness of the issues these youth face and will assist in advocating for change.

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### **Overdose Experience Among College Students**

Heather Stewart  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Research has shown that overdose has been a growing epidemic that continues to have a global impact. Given this social problem, this study seeks to understand NKU students' experience with overdose. This cross-sectional study will obtain data through an online survey posted on social media targeting NKU students. It is expected to find an association between economic class and students experience with overdose. Findings from this study could be used to implement measures for those at risk at NKU.

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### **How to Combat Intergenerational Trauma: Resiliency Amongst NKU Students**

Beth Sharples  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: The transmission of acquired stressors and adversities from parental traumatic experiences to their children is known as intergenerational trauma—previous research demonstrated the harmful impact this can have on children's development and wellbeing. This study seeks to identify the influence of education on the prevalence of resiliency, or that which safeguards against traumas, in NKU students. This cross-sectional study will be conducted through a self-administered nineteen-question Qualtrics survey. Researchers anticipate higher rates of resiliency in students with some understanding of trauma than those without. Study findings could influence future research on prevention efforts for intergenerational trauma.

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### **Homelessness among college students**

Mark Singleton  
social work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Homelessness among college students is a serious social problem that often goes unnoticed. The pursuit of a college degree should not be limited to those with highly developed survival skills, nor should it sacrifice the health and well-being of these students while they are enrolled in school. This cross-sectional study, which will use an online self-report survey, seeks to examine homelessness among NKU students. This study expects to find an association between mental health and homelessness among college students. The findings from this study may inform strategies to assist homeless students at NKU.

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### **Problem Gambling Behavior and Alcohol Abuse in College Students**

Christie Young  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Studies have shown a higher prevalence of problem gambling behaviors and alcohol abuse among young adults in comparison to other age demographics, especially when enrolled in college. Utilizing a cross-sectional, self-administered online survey, this study aims to understand what aspects of college life increase the likelihood of students engaging in both behaviors. The anticipated results are that students who report being highly influenced by peers and freedom provided by college will show higher rates of both behaviors. The implications of this study may provide knowledge to inform colleges of preventative measures to reduce gambling and alcohol use of students.

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### **COVID-19 and Substance Use Among LGBTQIA+ Students at NKU**

Kaetlyn Dyer  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Research on substance use within the queer/transgender community indicates that there was an increase in reported substance use by LGBTQIA+ individuals throughout the COVID-19 pandemic. The purpose of this exploratory, cross-sectional study is to determine the rates at which substance use in LGBTQIA+ students at NKU changed over the course of the COVID-19 pandemic. Results are expected to show an increase of substance use and a negative impact on the academics of participants. This study and its results will help inform NKU of the need to provide specialized services for their LGBTQIA+ students who are facing substance use issues.

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### **Homelessness amongst college students: A glimpse into NKU**

Alize Oliver  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: In 2013, 60,000 college students who applied for federal financial aid were identified as homeless and were under the age of twenty-one. Almost 200,000 two-year and four-year college students reported experiencing housing insecurities including homelessness and lacking stable housing. This study seeks to understand what homelessness looks like amongst NKU students and what resources are available, through the distribution of an online survey. The anticipated result is NKU students need more access to resources that will help homelessness. NKU may utilize the findings to improve services to its students.

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### **Generational Status and Student Debt Amount**

Kennedy Drayton  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Borrowing money for postsecondary education is common among college students, but some students could be prone to borrowing more due to their generational status. This cross-sectional study seeks to understand the relationship between generational status and the amount of money borrowed to pay for postsecondary education by data collected via an online survey. This study expects to find that first-generation students borrow more money while pursuing postsecondary education. Understanding the relationship between generational status and the amount of money borrowed can help Northern Kentucky University better educate students on financial literacy concerning postsecondary education.

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### **The Social Impact on Kinship Caregivers**

Melissa Raper  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Research shows that 2.7 million grandparents take on the responsibility of raising their grandchildren. Caregivers who are caring for a child or children that are not biologically their own experience financial, physical and a lack of access to important resources. The purpose of this study is to examine the social impact on kinship caregivers. The methodology is an IRB approved study utilizing a cross-sectional survey design purposive sampling. These findings can identify the need for social support for kinship caregivers and encourage local policy makers to create more support for them.

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### **The Impact COVID-19 has on the mental health of college students regarding academic success**

Tara Arrasmith  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: There has been a significant decline in mental health during COVID-19. Statistics have shown that college students have been affected by the pandemic, with an increase in depression, anxiety, substance, and alcohol use. This study explores how COVID-19 has impacted the academic success of NKU students. The methodology that will be used in this study is a 11-question survey that will be shared online through social media. The results of this study will help NKU determine which methods of instruction (online, synchronous, asynchronous, and in-person) are providing students with the greatest chance at academic success during this pandemic.

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### **Effect of framing on reported perceptions of affordable housing among NKU students**

Joshua Jerabek  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Practices such as issue framing are used to aggravate the harshly-split socio-political landscape in the United States. This practice involves using intentional language to elicit skewed responses, often to advance agendas regarding issues like affordable housing. This cross-sectional study uses a self-report online survey distributed via social media to determine if responses differ based on question framing. The study anticipates finding students are more apt to endorse causes when questions are phrased in support rather than in opposition, which may help identify methods of activating action for social issues.

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### **Impact of Childhood Trauma**

Elizabeth Tiemeyer  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Childhood trauma, abuse and neglect can lead to lifelong impacts on physical, mental, and emotional health. In the United States, 14% of children experience abuse and neglect. This can lead to lower school attendance, higher prevalence of mental health diagnoses, and lower income in adulthood. A brief self-administered, cross-sectional survey was used for data collection. Results are expected to show a correlation between childhood trauma, lower college attendance, and lower income potential. These findings can assist professionals in advocating for additional resources to aid individuals who have experienced trauma.

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### **Trauma and it's educational impact on middle school aged student**

Racquelle Murphy  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Trauma can be represented in several different ways, depending on the individual's response to what they have experienced. Research shows that trauma impacts an individuals ability to function daily, interact with others, self regulate and progress both educationally and socially. This cross-sectional, self-administered survey will examine the effects of trauma and how it greatly impacts middle school aged students and their abilities to learn and socialize appropriately. The results of this survey will bridge the gap in research and give additional insight and support to school systems into how to better serve students who have been affected by trauma.

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### **Depression amongst college students: A look inside Northern Kentucky University**

Rebecca Harrison  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Depression is a mental health diagnosis that can impact an individual's functioning. Depression affects 300 million people worldwide. This cross-sectional study, which will use a self-reported online survey, seeks to examine the prevalence of depression among college students and the effects of depression on students' academic well-being. This study expects to find that there is a high prevalence rate of depression in college students and that depression affects students' academic well-being. The findings will inform NKU on the potential needs for additional interventions that will assist students.

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### **The perceived impact of permanent supportive housing programs.**

Tori Dixon  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: There is a homelessness crisis in America. Research shows that millions of people experience homelessness each year. Men, women and families with children live on the streets. The purpose of this exploratory, cross-sectional study is to examine the perceived impact of permanent supportive housing (PSH) programs. The implications of this study are expected to show that PSH programs provide low barrier entry to housing, are cost effective, have positive health outcomes and offer valuable wraparound services to the homeless. This study further implies that these programs are an effective strategy in the nation's fight to end homelessness.

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### **Eating Disorder Treatment**

Anna Richards  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Eating disorders are a complicated category of psychiatric diseases defined by psychopathology and unhealthy eating patterns that can lead to physical consequences. Through a self-administered survey, the results from this IRB approved cross-sectional study are expected to show the perceived impact of incorporating nutritious foods into a diet to address eating disorders. Research shows that a nutritious food diet can impact other mental health disorders positively including depression and anxiety. Therefore, knowing more about the perceived impact of incorporating these nutritious foods to address eating disorders will be beneficial for social workers to know when assisting future clients.

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### **Homelessness: The Impact on Children in Schools**

Aileen Schwarber  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: There is a lack of knowledge among both parents and school personnel with regards to the McKinney Vento Act and the federal definition of "homelessness." This lack of understanding leads to families and students not accessing available resources. This IRB-approved online study seeks to examine the perceptions and impact of the McKinney Vento Act in NKY. It is anticipated that results will highlight a general lack of knowledge about the McKinney Vento Act and resources for students struggling with homelessness. This information is critical to future social work initiatives, as it can inform future practice and advocacy efforts.

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### **The Impact of Social Activities on Binge Drinking in NKU students.**

Erica Swain  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: There is currently a critical public health concern regarding binge drinking. College-age individuals ranging from ages 18-22 represent at least 40 percent of the reported binge drinking episodes. This cross-sectional study, using a self-reported online survey will explore whether social activity involvement has a significant impact on binge drinking in college students. The study expects to find that more involvement in school related social activities correlates with an increase in binge drinking episodes in college students. Findings from this study can support future efforts in addressing binge drinking within a college setting.

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### **Student Loan Debt and Anxiety Amongst College Students**

Hannah Troll  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Previous research has shown that people who have student loan debt are affected in multiple ways: psychological well being, depression, and other mental health problems. This cross-sectional study, which will use a self-report online survey, seeks to examine the mental anxieties of NKU students who have student loan debt. It is anticipated that students with more student loan debt will report higher levels of anxiety. The results will help NKU understand the impact of student loan debt and can help lead to better resources for its students.

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### **Awareness and Utilization of Recourses Regarding Intimate Partner Violence**

Arica Stutz  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract:  
Some people experience physical, sexual, and/or psychological abuse by current or former romantic partners. This is intimate partner violence (IPV), and it affects ten million people per year in the U.S. The purpose of this cross-sectional study, which uses a self-administered online survey, is to understand if awareness of available resources on campus relates to the readiness/willingness to access these resources when necessary. The anticipated results are that there will be a connection between participants being aware of resources and their likelihood of utilizing them. Implications may be that social workers serving the college population can utilize resources more effectively.

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### **Perceptions of Mental Illness and The Criminal Justice System**

Sierra Osler  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Incarceration rates of individuals with a mental illness continue to increase exponentially. Local jails and prisons do not have the capacity or resources to treat mentally ill offenders. The purpose of this study is to determine society's perception of mental illness within the criminal justice system and their attitude towards diversion programs. This Cross-sectional study utilizing non-probability, convenience sampling will collect data via 17-question, self-administered survey, measuring the following constructs: perceptions of mentally ill offenders and attitudes towards alternatives to incarceration for mentally ill offenders. This information will help determine if individuals will be in support of alternative options to

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### **Exposure to Trauma and Incarceration Rates**

Brooke Young  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt-Taylor

**Abstract:** Trauma exposure is a serious public health issue that is impacting millions of Americans on a daily basis. Research shows that 89.7% of American adults have experienced at least one traumatic event in their lifetime. To understand the relationship that trauma exposure has on incarceration rates. This exploratory, cross-sectional study will utilize non-probability, convenience sampling to collect data. Expected results will show that exposure to trauma leads to a higher likelihood that a person will be incarcerated. Implications of this study may include highlighting the importance of trauma treatment and early interventions after trauma exposure.

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### **Presence of Risky Behaviors Within NKU Greek Life**

Samantha Myers  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

**Abstract:** There have been multiple severe issues from universities nationwide involving binge drinking, recreational drug use, and nicotine use, also referred to as risky behaviors. This study is conducted to show that these behaviors are affecting the Greek-affiliated students at NKU. Data is collected by administering an online survey through social media to NKU students. It is expected that the majority of Greek-affiliated students having participated in at least one of the behaviors is relatively high. Understanding the prevalence of risky behaviors can benefit the future of Greek Life at NKU.

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### **Strangulation in Domestic Violence Knowledge among NKU Students**

Angela Weinel  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

**Abstract:** Domestic Violence is a serious social problem that makes up 1/5 of violent crimes in the United States. Strangulation is particularly concerning as the risk of being a homicide victim after you are strangled is 800%. This study aims to identify the amount of education college students have about strangulation within domestic violence. This cross-sectional study will utilize a self-administered online survey via social media. It's expected to find that a low number of students have received education on campus about strangulation within domestic violence. Findings from this study may inform efforts to educate students about domestic violence at NKU.

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### **Communities Perspective of Youth who Emancipate from Foster and Kinship Care**

Sandra Jones  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

**Abstract:** Research shows that youth who age out or emancipate from foster and kinship care have higher criminal records, earlier pregnancies, are more likely to be homeless, are less likely to accomplish secondary education, and are less able to maintain employment. There is little information regarding community perceptions on this issue. A brief, self-administered survey using cross-sectional data will explore the community's perspective. The results of this study are anticipated to show the communities lack of knowledge and provide input to better serve the youth. These findings can promote the proper resources to effectively benefit the youth in care.

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### **Barriers to Bystander Intervention among NKU Students**

Brianna Smith  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Sexual Assault is one of the most common crimes happening. One in five females and one in 16 males will be sexually assaulted on college campuses. Due to this many college campuses have employed bystander programs to help prevent and educate students on sexual assault. An online survey will be distributed to NKU students to collect data of barriers to intervene as a bystander. This study expects to find that college students may not intervene in situations due to them not knowing a victim and/or judgment of their peers. These findings may help NKU improve bystander programs.

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### **Student Loan Debt and Mental Health**

Emily Black  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: The challenge of obtaining funding for college education often results in adverse effects on students' mental health. This study seeks to examine the association between student loan debt and mental health among Northern Kentucky University (NKU) students. An electronic Qualtrics survey will be administered via social media. This study expects that the prevalence of student loans affects the mental health of the NKU population. The findings of the study can be used to improve NKU's current student services.

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### **Perceptions of Working with the Intellectually Disabled/ Developmentally Disabled (ID/DD) Population**

Courtney Roland  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Past studies report that the intellectually disabled/ developmentally disabled (ID/DD) people are being discriminated against at a high rate. Thus, this study aims to examine the perception of the ID/DD population, as the perceptions of other workers may contribute to the discriminatory workplace environment. It is expected that people consider working with members of the ID/DD population to be a pleasant experience. This cross-sectional study will collect data through an online survey distributed on social media. Findings of this study will be informative to advocate for inclusion in the workplace.

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### **Alcohol Abuse Among NKU Students**

Rebecca Eckstein  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Jessica Averitt Taylor

Abstract: Alcohol abuse is when someone can not control their use of alcohol, constantly abuse alcohol, and believes in no negative consequences. Research has shown that alcohol abuse has been increasing since 2018, but little to no information on college students since COVID-19. A brief survey will help examine the expected increase in alcohol abuse amongst NKU students. The purpose of this study is to further educate students and staff on how alcohol can affect students mentally, physically, emotionally, and academically. The survey will be able to help social workers provide resources for our students on and off campus.

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### **Personal Values: A Barrier to Mental Health Awareness?**

Desiree West  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Mental health is often viewed separately from general health in the mainstream U.S. culture. The perception about mental health varies from one individual to the next. Using an online survey distributed via social media this study examines NKU students' personal values and their effects on perceptions of mental health. It is predicted that one's personal values do impact one's own perception of mental health. Findings could inform NKU about efforts needed to improve mental health awareness and care for their entire student body and reduce chances for mental health crises.

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### **Impact of binge drinking among Northern Kentucky University students**

Caleb Smith  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Binge drinking impacts college students in negative ways such as legal consequences, decreased academic functioning, unintended physical injuries, and underlying health conditions. This cross-sectional study aims to evaluate the frequency of binge drinking and the impact it has on academic wellness using a self-report online survey distributed through social media. The author anticipates finding that among students with higher frequencies of binge drinking, there will be significant impacts involving health and academic wellness. The findings from this study may inform NKU of the potential needs of resources that will promote safe practices on and off campus for all students.

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### **College Students' Self-Projected Ability for Empathetic Support**

Taylor McNamee  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: Past research indicates that up to 67% of college students have experienced a traumatic event. Trauma's effects are invasive and impact one's holistic functioning. Healing from the effects of trauma takes an empathetic presence. Based on extant research, empathy is a crucial factor in buffering the effects of trauma. This present study investigates college students' empathetic ability. This data was collected via an online survey distributed on social media. The findings have a potential impact on the knowledge of the overall supportive environment of college campuses. This can lead to changes in the resources college campuses provide to trauma survivors.

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### **Communication Campaign**

Addison Bradley  
Communication Studies  
Communication  
Informatics

Faculty Sponsor: Zach Hart

Abstract: In striving to identify multilayered barriers for Hispanic and Latino populations in Northern Kentucky, the communication campaign proposed in this project addresses messaging obstacles of Education, Empowerment, Respect, a grassroots nonprofit with the mission of resettlement relief and advocacy for diversity-related challenges. Modifying their social services framework is fundamental for minority focused messaging that cultivates multiculturalism within the region. Targeting situational factors affecting marginalized groups imparts cultural competency within diverse settings, while building rapport within the community. Elevating salient messages across growing Spanish-speaking populations fosters appropriate resource allocation to expand EER's services.

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### **Medical Deserts' Influence on Healthcare Insecurities in Varying Communities**

Marissa Craig  
Neuroscience and Integrative Studies  
Integrative Studies  
Arts and Sciences

Faculty Sponsor:

Abstract: The lack of accessible and quality healthcare has created medical insecurities and healthcare disparities which has led to a decline of the overall health of populations in certain regions. These areas can be classified as medical deserts, a certain area in which medical, behavioral, mental, dental, and/or pharmaceutical health care services are extremely limited or altogether unavailable due to socioeconomic factors or physical distance. Medical deserts can then be categorized as rural, frontier, or urban based on location, population, and other contributing factors. Although each of these regions experiences medical deserts in a variety of ways, none of them possess sufficient capabilities to meet the standard of care that we all expect and deserve.

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### **Evaluating mask wearing opinions among college students during Covid-19 Pandemic**

Robert Sanders  
Social Work  
School of Social Work  
Health and Human Services

Faculty Sponsor: Reiko Ozaki

Abstract: The Covid-19 pandemic has required college students to wear a mask while on campus. A Facebook survey was conducted to gauge the opinions of Northern Kentucky University students regarding how they feel the mask mandate has affected their college experience both mentally and socially. A cross-sectional study with non-probability convenience sampling was utilized, base of the results the university can adjust ways to continue to understand comfort level of students while on campus. Through this study, you will understand the effect of wearing mask for safety and comfort of students.

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### **Environmental Justice: Advocacy for the Hazardous Coal Ash in Appalachia**

Maria Truitt  
Environmental Science  
Biological Sciences  
Arts and Sciences

Faculty Sponsor: Suk-hee Kim

Abstract: Coal Ash is not considered hazardous waste, disregarding its concentrations of toxic heavy metals and other noxious constituents. Different components of coal ash, such as fly and bottom ash, also create particulate matter which is linked to the four leading causes of death in the United States (heart disease, cancer, respiratory disease, and stroke). This study addresses the concerns with coal ash not being considered hazardous despite adverse human and environmental impacts. Along with a dissection of history linking money and coal connected lobbyist, and how that reflects in the politicians representing Appalachian counties and states with rural populations while also identifying other socio-economic trends. This study analyzes the disproportionate impact these toxins have on local communities and assesses different forms of advocacy for these regions.

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### **The COVID-19 Pandemic and Mental Well-Being in College Students**

Hope Wagner  
Pre-Art Therapy  
Psychological Science  
Arts and Sciences

Faculty Sponsor: James Taylor

Abstract: Current research reveals substantial evidence that the mental health of people have been affected by the COVID-19 pandemic. However, there is limited research on the mental well-being of college students, especially during this phase of the pandemic. This cross-sectional study will examine the mental well-being of NKU students utilizing the WHO-5 Well-Being Index. The results of this survey reveal a variation of mental well-being in college students, with attention given to specific areas of optimism and concern. The findings will highlight future implications for not only research, but for college administrators concerned about the mental well-being of students.

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### **Does Rival Fan Animosity Vary by Sporting Context? A Replication and International Expansion**

Jonah Krebs  
Accounting  
Marketing, Sports Business and Construction  
Management  
Business

Faculty Sponsor: Joe Cobbs

Abstract: My purpose is to replicate a domestic study that compared sports fans' reactions to rivals, and extend the study to the foreign context of Indian Premier League. I expect fans' animosity is heightened in context with greater physicality. Furthermore, fan animosity in the IPL will be significantly less when compared to North American leagues. Replicated measures of prejudice, discrimination, schadenfreude, and disidentification toward rivals were collected for a cross-sectional sample of fans (n = 3465). Overall, NFL fans maintained the highest measures of animosity toward rivals, while IPL fans convey significantly lower animosity than American fans.

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### **Framing Poverty in the Media**

Addison Bradley  
Communication Studies  
Communication  
Informatics

Faculty Sponsor: Stacie Jankowski

Abstract: In the construction of poverty alleviation, this multi-faceted issue obscures the complex and delicate nature of discussing the harsh implications it entails. The responsibility of mass media to accurately convey the diverse conditions of poverty has reached an incessant cycle of familiar inadequacies that fail to fully represent these people and their environments. In examining textual content from global news organizations reporting on poverty, affected populations are often undermined and plagued by inferiority through culturally created assumptions and insufficient knowledge about the issues being faced by millions. A detachment of harmful lifestyle labels fights the negative stigma in misrepresentation.

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### **Effects of Note-Taking and Retrieval Practice on Memory Performance**

Vincetta Kahmann  
Psychology  
Psychological Science  
Arts and Sciences

Faculty Sponsor: Kalif Vaughn

Abstract: Note-taking is a fundamental skill that is critical for student learning and success. We explored (a) whether note-taking was more effective with guided versus unguided prompts and (b) whether those prompts were more effective when used for note-taking or retrieval practice. Participants were divided into four groups: control, retrieval, guided notes, and regular notes. The control group watched a video and took a final test on its contents. Both the retrieval and guided-notes groups watched the video and received prompts; however, the retrieval group receives them after the video (as retrieval cues) and the guided-notes group receives them during the video (as note-taking cues). The regular-notes group did not receive any prompts but were given the chance to take notes during the video. Results and implications are discussed.

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### **Student Learning Projects develop essential career skills.**

Nathaniel Bullock  
History  
History  
Arts and Sciences

Faculty Sponsor: Rebecca Bailey

Abstract: Based on results from a student research project at NKU, SLPs are outstanding skill-building assignments. As part of my HIS 314 course with Dr. Bailey, I created a SLP infographic for the WV Mine Wars Museum on Tom Felts, which developed me as a future historian. Making an infographic presented a new challenge to concisely tell a story in a visually appealing way. I contacted a leading researcher to verify an image. I upheld integrity through ensuring fair use was demonstrated. Most importantly, it gave me a new perspective of public history and connected my skills to the field.

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### **Underepresentation of Immigrant Women in Appalachian History**

Makayla Ruoff

History

History

Arts and Sciences

Faculty Sponsor: Rebecca Bailey

**Abstract:** Historical findings suggest that ethnicity, language, and culture influence women's lives more than gender. However, historical representation of women's lives in Appalachia rarely reflected realities faced by immigrant women. Before 1900 Mingo County, West Virginia was a predominantly native white community, but coal mining led to a rapid rise in immigrants. The story I present shows how immigrant women's lives in Mingo County proves the historical findings. I used evidence from local oral histories and the state archives to understand women immigrants' day-to-day lives in Mingo County, West Virginia as an example of the immigrant woman's Appalachian assimilation experience.

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### **Using Physics Of Eclipsing Binaries to Optimize Binary Models**

Jessica Beatrice

Physics

Physics, Geology and Engineering Technology

Arts and Sciences

Faculty Sponsor: Nathan De Lee

**Abstract:** The PHOEBE code was created to aid in the complex computation process involved with analyzing data obtained from eclipsing binary stars. Traditional binary modeling software focuses on the gravitational interaction between the two stars in the binary. To this analysis, PHOEBE adds modeling stellar surfaces to create more accurate models, making it possible to fit real data to solve for unknown parameters of the binary system. I will model an eclipsing binary system comparing changes in brightness and radial velocity of two stars as they eclipse one another and discuss the challenges inherent in fitting a complex system like this.

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### **Racial and Ethnic Diversity: Online Learning and Student Success**

Jude Thornton

Social Work

School of Social Work

Health and Human Services

Faculty Sponsor: Suk-hee Kim

**Abstract:** The purpose of this study is to analyze pre-survey data to learn student, faculty, and staff experiences, perception, and awareness of racial and

ethnic diversity within the online learning environment at Northern Kentucky University. The study seeks to gather opinions from the Norse community about the impact of diversity on student success. The Online Learning and Student Success Initiative, a hub for diversity eLearning, is being developed in response to needs identified by the community in a pre-survey. The goal of the Initiative is to equip the NKU community with tools to develop culturally competency, regardless of field.

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### **Neil Burkinshaw: Mine Workers Hero**

Connor Whalen

History

Education

Faculty Sponsor: Rebecca Bailey

**Abstract:** Neil Burkinshaw was the lawyer that defended the mine workers of Mingo County after the events of the Matewan Massacre. He defended the mine workers as well as he could, but in the end the U.S. government sided with the mining companies, prolonging the plight of the miners for another 10 years at least. We should care about Mr. Burkinshaw because he fought for adequate workers rights. The lesson we learn from Neil Burkinshaw is that sometimes no matter how convinced you are that you are right, sometimes an unfair system makes the wrong decision to only help itself.

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### **Evaluation of Histone Deacetylase Inhibitors (HDACis) Using Computer Modeling**

Nathan Price

Chemistry

Chemistry

Arts and Sciences

Faculty Sponsor: Lili Ma

**Abstract:** Histone deacetylases (HDACs) remove acetyl groups from histones and change the conformation of the chromatin structure. Overexpression of HDACs can lead to too much deacetylation of histone proteins, leading to different kinds of cancer in the human body. One of those histone deacetylases is HDAC8, which is linked to leukemia. Six different compounds were analyzed as potential HDAC8 inhibitors using computer modeling software GOLD and MOE by docking them into the HDAC8 active site. Results showed that compound 16 had very promising effects as an HDAC8 inhibitor, with a ChemScore range of 44.1584-40.9574.

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