


2021 Undergraduate Symposium on Research, Scholarship and Creative Endeavors

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"When we engage in research, we are exploring the unexplored. We are able to channel our inner child and use our curiosity to pry with a purpose, unearthing new knowledge to not only understand the world around us, but ultimately improve it."

Kai Clemons
Senior, Child
Psychology


KENT STATE
UNIVERSITY

SPECIAL THANK YOU



Michael Hawkins, Ph.D., for providing his expertise with our student researchers on writing the abstracts for their Symposium submissions.

Michael, Assistant Professor, University Libraries, works in the Map Library in Research and Instructional Services at Kent State University. He specializes in geography, geology, communication studies, journalism, and biological sciences.



Hilary Kennedy, Manager, Student Multimedia Studio and Spark Innovation Studio at Kent State University, who assisted our students in creating the posters/PowerPoints for their presentations to the Kent State University Undergraduate Symposium.

Kennedy works closely with maker technology and multimedia at University Libraries.



Alicia Marchand, who provided training for the presenters, judges, and moderators on Microsoft TEAMS, thus allowing the Undergraduate Research Symposium to be more seamless in a virtual format.

Alicia is an Applications Support Analyst in the Division of Information Technology at Kent State. She specializes in the improvement of digital collaboration and communication.



Zachary Mikrut, who instructed students regarding the appropriate and effective presentation style and delivery for their research at the Symposium.

Zachary is Interim Director of LaunchNet at Kent State University. Mikrut assists students, faculty, and alumni in entrepreneurship and innovation.



Linden Miller, who created the design for this year's brochure cover for the Undergraduate Research Symposium brochure and edited it.

Linden is studying Public Relations. She has been working as a Marketing and Communications Assistant with Kent State University's Office of Student Research since July 2020.



Sheila Pratt, who helped organize the 2021 submission categories for the Undergraduate Research Symposium and collected the necessary data for our master list of student submissions.

Sheila has worked at Kent State University for over twenty-three years. Currently, she is working with Research and Sponsored Programs, as well as assisting with the Office of Student Research.



Hayley Stokes, who collected student submissions, edited abstracts, and designed the interior of the program for the 2021 Undergraduate Research Symposium.

Hayley is studying English and Creative Writing. She started working as an intern with the Office of Student Research in January 2021.

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ART, ADVERTISING, ARCHITECTURE, & **ENGLISH LANGUAGE** *ARTISTIC PIECES*

Shannon Funk, Senior, Integrative Studies (General)

Mentor: Janice Lessman-Moss, M.F.A.

Comfort Cloth: Olfaction, Textiles, and Healing

My work explores the intersection among the healing properties of textiles, color, and herbs. Through scent, sight, and touch, the combination of the three gives added functionality to the cloth by drawing on nostalgic feelings of care and comfort. The cloth nurtures the body, mind, and

spirit. I infuse this ability into the textiles by using herbs and spices to dye my yarn. I then weave this into a large, thick, warm cloth that has pockets stuffed with dried herbs and spices. This creates a blanketing cloth that is comforting, healing, and protecting.

Kelly Harper, Senior, Theatre Studies (Performance)

Mentor: Yuko Kurahashi, Ph.D.

My Dear Aunt Flow – A Play About Periods

After 6 months of collecting stories and conducting interviews about menstruation, I wrote and devised a one-act play all about these diverse, comedic, political, heartwarming, and unifying stories. All of them are based on true stories and should shock and motivate the

audience for change. It was 2 days shy of opening as a full production in Spring 2020 before the university shut down due to COVID-19, and after some revisions after a year of personal and societal contemplations of justice, it will finally have a staged reading this spring.



“Art is not what you see, but what you make others see.” -Edgar Degas

ART, ADVERTISING, ARCHITECTURE, & **ENGLISH LANGUAGE** *ORAL PRESENTATIONS*

Katie Cirincione, Sophomore, French
Mentor: Sharon Bell

Symbolic Christian Subtext in Pierre Loti's Pêcheur d'Islande

Pierre Loti incorporates Christian subtexts throughout his 1886 novel *Pêcheur d'Islande*. The symbolic representation of Christian figures and imagery helps both to reflect and foreshadow plot points as well as the events and emotions experienced by the characters. This subtext allows for an understanding of the characters' suffering by comparing them and plot points to Christian figures and biblical events, adding another layer of

meaning to their characterizations. Loti also argues for larger ideas through his imagery, such as the ethicality of the draft. The overall effect of this style allows the reader to connect more deeply with the characters and plot, in addition to creating broader ideas and perspectives on events in the novel and their applications in the real world.

Lucy Jones, Senior, Art History
Mentor: Melanie Renee Roll, M.A.

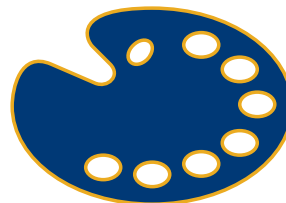
An Ecosemiotic Approach to Land Art

In my research, I aim to critique the motives of artists' use of landscape as a medium during the 1960's Land Art Movement. Examining several works through an ecosemiotic lens, we see that Land Art can signify the relationship a modern human has to the Earth. While often inevitably symptomatic of the Western ideology from which it was born, many works of Land Art mimic

Animistic monuments and practices. The question is whether the work is successful in its attempt to reestablish human attention and connection to the natural world, or if it is an expression of empty spirituality. In a time of increasing environmental crisis, it is important to examine whether a human mark on the land is disruptive or replenishing.

"RESEARCH IS FORMALIZED
CURIOSITY. IT IS POKING AND
PRYING WITH A PURPOSE."

-ZORA NEALE HURSTON



Shane McGinnis, Sophomore, Visual Communication Design

Mentors: Noel Palomo-Lovinski, M.F.A. & Sheryl Chatfield, Ph.D.

Clear and Effective Design

When walking around campus, students are bombarded with information at every turn. There are multiple signs for clubs, flyers on public health, and screens with event information. It is easy for infographics on a wall to be discarded due to poor design. To make sense of this abundance of information, students typically focus on the clearest or most appealing information sources. When not properly thought through, information designs may become busy and confusing. The solution is to focus on the user and tailoring the design to fit those users. By looking at key details in the design, readability and interest can be expanded to offer a clearer and more recognizable final product. Color, typography, and composition

are all important considerations when going through the design process. In this project, we wanted to see how each detail of the design affected the user response. Multiple information designs were made, with each either succeeding or failing in each of the three design principles. By allowing users to provide feedback, we were able to prove the importance of the principles and their role in well thought out design. This primary research is encouraging in support of this idea. However, more research and a larger sample size that is more representative of the general population will be necessary for the future to further decide the effectiveness of the design principles.

Madelyn Orcutt, Senior, Interior Design

Mentor: Ronn Daniel, NCIDQ, IDEC, M.Arch.

Performing Taste: The Queer Modernity of Designer Elsie de Wolfe

A pioneer of American interior decoration, Elsie de Wolfe (1859 - 1950) embodied modernity: cultural, intellectual, and professional. From her earliest days in the theatre to her later career as a professional tastemaker, socialite, and decorator, de Wolfe was a radical figure in her society. This paper will argue that de Wolfe's successes were made possible by performances of her identity. She created an aestheticized world around herself

that was beguiling to others, transportable, and available for purchase. De Wolfe established many of the principles of 20th-century American interior design practice, and her legacy echoes into the present. Using the lens of Susan Sontag's "Notes on Camp" (Against Interpretation, 1966), this paper proposes a revisionist and expansive reading of de Wolfe's radical legacy.

Anna Somerville, Senior, Music Education (Instrumental)

Mentor: Jennifer Johnstone, Ph.D.

The Unforeseen Charm of the Devil's Trill Sonata

The Devil's Trill sonata is renowned for both its intense difficulty and infamous legend. The composer, Giuseppe Tartini, dreamt one night that the devil was sitting at the end of his bed, playing a beautifully elaborate sonata. Tartini composed the Devil's Trill as an attempt to recall the music. There are many factors in Giuseppe Tartini's life that may have influenced this significant dream, including religious pressure

and familial tension. Tartini composed this sonata with deliberate intent to sound beautiful and virtuosic. The concept of the devil being depicted with sympathy, instead of as a symbol of evil, was an artistic concept of the Enlightenment. This paper explores how social, religious, and artistic elements of the time influenced Tartini's inspiration for creating the Devil's Trill.

ART, ADVERTISING, ARCHITECTURE, & **ENGLISH LANGUAGE** *POSTERS*

Christy Cecil, Sophomore, Advertising

Mentors: Sheryl Chatfield, Ph.D. & Noel Palomo-Lovinski, M.F.A.

KSU Bags to Benches

It is unknown how long it takes a plastic bag to decompose. It could take anywhere from a decade to a thousand years. Plastic bags photodegrade, which means they need sunlight in order to break down. However, most modern landfills are covered, blocking sunlight, so plastic bags in landfills may never photodegrade at all. This is why recycling plastic bags is so important. Through my research on recycling at Kent State University, I discovered that not only is there a lack of a system for recycling plastic bags, but that the current labels on trash cans direct people to throw away plastic bags. My goal is to implement

a system for recycling plastic bags at Kent State University. Through my visual and secondary research, I have created a plan for an informational advertising campaign, titled KSU Bags to Benches, that will raise awareness for plastic bag recycling on campus as well as implement a system for recycling plastic bags on campus, therefore, reducing waste. To implement plastic bag recycling on campus, my goal is to have Kent State University work with Trex; a company that works with communities and universities to collect plastic bags and will donate a high-performance composite bench to the school.

Joanna Georges, Sophomore, Fashion Merchandising

Mentor: J.R. Campbell, Ph.D.

The Success of Academic Makerspace Strategies

Academic makerspaces, such as Kent State's Design Innovation Hub, are increasingly becoming popular as the world embraces technological innovation. As the world prioritizes teamwork, universities are embracing cross disciplinary collaboration between students of different majors and interests. Thirty universities, including Kent State University, and their

academic makerspace programs have been thoroughly researched. Each academic makerspace program has been placed into one of three categories: College-Based, Multi-Unit, and Stand Alone. Based upon these makerspaces and the university's goal for the makerspace, the metrics that make a makerspace strategy successful will be determined.

Aiden Hartong, Sophomore, Visual Communication Design

Mentor: Sheryl Chatfield, Ph.D. & Noel Palomo-Lovinski, M.F.A.

Applying Circular Design to Vinyl Records

Faith King, Senior, English (Professional Writing)
Mentors: Vera Camden, Ph.D. & Valentino Zullo, Ph.D.

Losing the Body for the Text: How Cartoonists Help Us to Rethink Transcription

Comics continue to gain recognition as a unique form in the academy. Thus, it is important to include the voices of comics creators in the conversation, since they can illuminate our understanding of the power comics hold. To do this, Dr. Vera Camden and Dr. Valentino Zullo of Kent State University have conducted and recorded interviews with well-known cartoonists. This project looks at the challenges of preserving

each voice during transcription, as the recordings are transformed into a special issue of the Journal of Graphic Novels and Comics. It delves into the challenges of conveying both language and feeling, something comics look at as well, and discusses strategies to help transcribers overcome these challenges. It also features images referred to within the interviews.

Elizabeth Koenig, Senior, Interior Design
Mentor: Tina Patel, M.A., M.F.A., B.Arch.

Reassessing the Role of the Hallway in Education Facilities

The underutilization of hallways and demand for flexible learning opportunities call for reassessing the design criteria of in-between spaces in education facilities. Ray Oldenburg's investigation into environments outside the home and work revealed socially vital places, termed as 'Third Places,' that support and rejuvenate communities. This study poses the question: Can there be a paradigm shift in rethinking the hallways as third

places for students? Can these third places promote collaboration and interaction, both formal and informal? What design factors can be utilized within the hallways to foster these opportunities? A formal literature review and investigation of four case studies helped develop a set of design guidelines, used as a design toolkit, to engage students thoughtfully beyond the four walls of a classroom.

Alena Miskinis, Junior, Music (Piano Performance)
Mentors: Joshua Albrecht, Ph.D. & Wendy Matthews, Ph.D.

Translating Music into Words: Mapping the Minds of 19th Century Music Analysts through the Exploration of Figurative Language as Evocative Descriptors of Musical Expression in 19th-Century Music Periodicals

Music analysts of the 19th century consistently used figurative language to evoke their perceptions of the music when conveying the experience of hearing the music to those who had not heard it. We selected a corpus of 30 different 19th century music periodicals and collected figurative language describing orchestral, chamber music, and piano solo compositions. After collecting about 160 pages, we performed a

content analysis to sort the metaphorical language based on three different modes: (1) the metaphor types based on J. M. Williams' (1976) proposed model of metaphorical transfer across modalities; (2) the musical arrangement types of orchestral, chamber, and solo piano compositions; (3) personifications of music. Williams, J. M. (1976). Synaesthetic adjectives: A possible law of semantic change. *Language*, 32(2), 461-478.

Haley Van Cura, Junior, Exploratory

Mentors: Sheryl Chatfield, Ph.D. & Noel Palomo-Lovinski, M.F.A.

Sustained Tone from Sustainable Reeds

This project focuses on how to make packaging for single cane reeds environmentally sustainable. Reeds are the main component for many woodwind instruments and must be replaced frequently, which generates much waste. Current packaging for single reeds is both excessive and difficult to recycle. Reeds are fragile and require special care to maintain their structural integrity. A solution must take into account the needed protection for reeds, while neither sacrificing the

environment or music. Research will include current material makeups and sustainability of reed packaging from scholarly articles as well as from actual packaging itself. Prototypes of alternative packaging will be created and tested under stress to act as a simulation. Through the principles of circular design, the aim of this project is to develop more minimal single reed packaging that can be reused.

BIOLOGY

POSTERS

Gabriella Grillo, Senior, Biology (Pre-Medicine/Pre-Podiatry/Pre-Dentistry)

Mentor: Robert Clements, Ph.D.

Tight Junction Proteins in the Corpus Collosum and Cortex of Mice

The purpose of this study was to evaluate tight junction protein changes during different time points of cuprizone treatment in the corpus callosum and cortex of mice. Cuprizone is a copper chelator that causes demyelination and is used as an animal model of multiple sclerosis. Demyelination is the result of the breakdown of the myelin sheath that insulates neurons and can cause nerve impulses to slow down or even fail. It is important to study demyelination because it causes neurological problems associated with multiple sclerosis and current treatments are lacking. Studies in our lab have shown an early breakdown of the blood brain barrier during cuprizone treatment. Tight

junction proteins are molecules that maintain the integrity of the blood brain barrier that protects cells in the brain. TJ proteins have barrier functions that hold cells together and facilitate signaling in the central and peripheral nervous system. Mice were given 0.3% cuprizone as a diet for two different time periods, three days and one week. The brains were extracted and sliced, and the tight junction proteins were immunolabeled and imaged using a confocal microscope. Cuprizone fed and control mice staining patterns were quantified and compared in the corpus callosum and cortex at three days and one-week of treatment.



“Scientific research is one of the most exciting and rewarding of occupations.”

-Frederick Sanger

Mason Harpster, Junior, Biology (Pre-Medicine/Pre-Podiatry/Pre-Dentistry)

Mentor: Jennifer McDonough, Ph.D.

The Search for Happy Chromatin: An Analysis of the Relationship Between Neurodegeneration and Serotonylation

Multiple sclerosis (MS) is an autoimmune disorder characterized by demyelination of the central nervous system (CNS). In addition to its role as a neurotransmitter, serotonin also plays a role in epigenetic modifications. Recent studies have found that serotonin levels are decreased in MS for reasons that are currently unknown. This is significant because serotonin plays a role in modifying histone 3. Because serotonin is

decreased, we have hypothesized that serotonylation, a post-translational modification, is decreased which leads to subsequent aberrant gene expression in MS. Using the cuprizone mouse model of MS and the APP mouse model of AD, we isolated brain tissue and looked at changes in serotonylation. Methods used to view these changes were Western Blotting, confocal imaging, and densitometry.

Violet Hutchison Goldinger, Junior, Biology (Molecular and Cellular Biology)

Lindsey Luczywo, Senior, Biology (Molecular and Cellular Biology)

Alyssa Riggle, Junior, Biology (Molecular and Cellular Biology)

Eric Takacs, Junior, Biology (Molecular and Cellular Biology)

Chiara De Arcangelis, Senior, Biology (Pre-Medicine/Pre-Podiatry/Pre-Dentistry)

Jacqlyn Caspers, Senior, Biology (Pre-Medicine/Pre-Podiatry/Pre-Dentistry)

Mentor: Helen Piontkivska, Ph.D.

Comparative Genomics of ADAR Editing in Humans and Mouse Excitomes

At normal levels, ADAR editing contributes to transcriptome diversity and brain health, but ADAR editing can become dysregulated leading to neurological and psychological disorders. ADAR editing is observed in both mouse and human. This project aims to identify orthologous genes across mouse and human genomes using Ensembl and MGI to identify specific codons that correspond to human editing targets. Additionally, a literature review is done to

evaluate the current state of knowledge about edited genes and the potential link to functions related to neurological and psychological health. The project focuses on 90+ human excitome genes that play a role in the excitatory pathways of the nervous system, e.g., GRIA2. Collected information can be utilized to better understand the evolution of genes with important functions in mammalian brains.

"Research is seeing what everybody else has seen and thinking what nobody else has thought."

-Albert Szent-Györgyi

Aiswarya Mukundan Nair, Graduate Student, Biology (Molecular and Cellular Biology)

Mohammed Enamul Hoque, Graduate Student, Chemistry (Biochemistry)

Mentors: Helen Piontkivska, Ph.D. & Soumitra Basu, Ph.D.

Exploring the Universe of Ping-Pong piRNAs and Their Gene Targets

piRNAs are small regulatory RNAs required for maintaining genomic stability, in the form of single-stranded small RNAs capable of binding to other transcripts. We examine genes potentially regulated by the ping-pong (PP) specific class of piRNAs to determine whether specific groups of genes are regulated by these. We found that PP-piRNAs have great diversity in the number of their targets. Pathway enrichment analysis of the top 4

piRNAs (4 piRNAs with the maximum number of targets) and those piRNAs with a single gene target was only done to see if their targets are concentrated in specific pathways, or whether they exhibit diversity in their targets. Our results offer insights into molecular regulatory mechanisms behind genome regulation by ping-pong piRNAs.

Tuan Kiet Trinh, Sophomore, Chemistry (Biochemistry)

Mentor: Songping Huang, Ph.D.

Study on the Antibacterial Activities of γ -ALOOH Nanoparticles Incorporated Vitamin K₃ Composites

The world has progressed in many realms, yet bacterial infections are one of the biggest threats to global health contributing to the mortality of numerous humans per year. To the greater extent of the cruelty, it has been shown that antibiotic-resistant bacteria strains have been causing serious deadly consequences. This study aimed to assess the possibility of using γ -ALOOH nanoparticles incorporated in vitamin K₃ composites as an antibacterial agent against *Staphylococcus aureus* and Methicillin-resistant *Staphylococcus aureus*. Herein, γ -ALOOH NPs

were prepared using hydrothermal synthesis following by incorporating with Vitamin K₃. After that, the composites were undergone antibacterial activity in vitro determination using Minimum Inhibitory Concentration (MIC) assay and Colony Forming Units (CFU) assay. The results showed that the newly synthesized composites exhibited a robust growth-inhibitory effect in both bacterial strains. In conclusion, the γ -ALOOH nanoparticles incorporated vitamin K₃ composites possess the promising ability to develop new antibacterial therapeutics.

Christopher Vadala, Senior, Biology (Molecular and Cellular Biology)

Mentor: Heather Caldwell, Ph.D.

Genetic Disruption of the Mouse Oxytocin System Results in Sex-Specific Differences in Social Memory and Neuronal Activation

Oxytocin (Oxt) is a neuropeptide that regulates social behavior and is important for the proper functioning of social memory. In rodents, social memory is frequently tested using a social discrimination test. It was hypothesized that male and female mice with disruptions in either their Oxt (—/—) or their Oxt receptor (Oxtr —/—), genes would have differing social memory and

unique patterns of neuronal activation. To date, behavioral testing and immunostaining for c-Fos (a protein used to measure neuronal activation) have been completed, but data not yet processed. No matter the findings, this work will lay the foundation for future work on the role of the Oxt system in forms of memory.

Benjamin Wales-McGrath, Senior, Chemistry (Biochemistry)

Noel-Marie Plonski, Ph.D. Candidate, Biology (Molecular and Cellular Biology)

Mentor: Helen Piontkivska, Ph.D.

To I or Not to I: Patterns of RNA Editing SARS-CoV-1 and 2 Infections

RNA-editing enzymes ADARs and APOBECs are overexpressed in response to viral infection and have been shown to play a role in antiviral immune response through viral genome editing, including in SARS-CoV-2 infection. However, a fundamental challenge in elucidating RNA editing patterns is linking levels of enzyme expression to editing pattern changes in the host genome. This is important to understand due to the significant

physiological effects changes in RNA editing as a result of viral infection (such as by SARS-CoV-2) could have. Here, we use publicly available RNA-seq data to examine RNA editing in Calu-3 lung cells infected with SARS-CoV-1/2. Our results show increased editing in infection, including higher levels in SARS-CoV-2, as well as a nuanced relationship between editing and expression.

BIOLOGY & ECOLOGY

POSTERS

Riley Eckert, Senior, Biology (Organismal Biology)

Mentor: Chris Blackwood, Ph.D. & Andrew Eagar, Graduate Student

The Break Down of Leaf Litter by Saprotrophic Fungi Isolated from Forests Dominated by Trees with Different Root Symbioses

Arbuscular (AM) and ectomycorrhizal (ECM) trees show significant differences with how they cycle soil nutrients and interact with fungi. To explore these interactions, we isolated fungi from AM and ECM forested plots to test the hypothesis that fungi decompose leaves differently depending on their surrounding mycorrhizal associations. Our isolates were grown on leaves from an AM and ECM tree, then tested on various carbon

substrates in agar to determine what they could break down efficiently. Results suggest that isolates taken from AM plots were more effective at breaking down components generally found in AM trees, while isolates from ECM plots were effective at breaking down both litter types. Our results provide a better understanding of how saprotrophic fungi interact with trees of both mycorrhizal types.



Hana Elsheemy, Senior, Biology (Pre-Medicine/Pre-Podiatry/Pre-Dentistry)
Mentor: Xiaozhen Mou, Ph.D.

Can Wastewater Treatment Samples be Used to Predict COVID-19 Infections Before They Occur?

Non-infectious RNAs from SARS-CoV-2 excreted in symptomatic and asymptomatic individuals' feces are detectable in wastewater three to seven days before increases in case counts. However, consistency in the time lag between locations and their usefulness in infection rate predictions is unclear. The potential correlation between excreted virus count (copies/L) and infection case counts in major Cleveland municipal wastewater plants (WWTP) was investigated. SARS-CoV-2

virus gene copies were quantified from Cleveland Westerly, Easterly, and Southerly WWTP from August 2020 to January 2021. Potential correlations of COVID-19 virus averages between wastewater monitoring and clinical testing were assessed. Analysis revealed a site-specific correlation in the three WWTP. Our study suggests that WW virus count trends can be a useful predictor that can aid community leaders in eliminating infections.

Nora Honkomp, Senior, Zoology
Mentor: Mark Kershner, Ph.D.

Exploring Shifts in Migration Phenology and Breeding Distribution of Declining North American Avian Aerial Insectivores

With climate change and its effects on seasonal timing and latitudinal temperature patterns, one might predict earlier spring arrival dates for migratory birds and northward shifts of breeding distributions. Our study aims to understand the effect of climate change on 19 avian aerial insectivores (i.e., birds that catch insects on the fly) by looking at shifts in the timing of spring/fall

migrations as well as changes in breeding ranges. We used datasets from eBird to assess the earliest and latest sightings of these species above a range of latitudes across the United States and Canada in 1990, 2000, 2010, and 2020. We used datasets from the North American Breeding Bird to find the center of abundance of each species in June from 1990-2019.

Morgan Hughes, Senior, Zoology
Mentor: Lauren Kinsman-Costello, Ph.D.

Temporal and Spatial Nutrient Trends in a Eutrophic Lake Erie Bay

Sandusky Bay, a shallow bay in Lake Erie, typically experiences harmful algal blooms (HABs) every year, which impact animal and human health. To control these HABs, nutrient trends in the bay must be understood. The goal was to determine how nitrogen and phosphorus vary across time and location in Sandusky Bay. Levels of nitrogen and phosphorus in the water were measured at multiple time points and locations over three

summers (2017-2019). Samples were processed, and graphs were constructed using Excel, R, and RStudio. For both N and P, the nutrient concentrations declined in a West-to-East fashion. N concentrations decreased throughout the season, while P was more variable. This indicates that these nutrients are up-taken and/or released by something else, such as sediment or algae.

Daiyanera Kelsey, Senior, Environmental and Conservation Biology (Environmental Policy and Management)

Mentor: Lauren Kinsman-Costello, Ph.D.

Soil Salinity in Wetlands: How Much Road Salt Do Stormwater Wetland Soils Retain?

During the winter, roads are treated with salt (NaCl) to prevent dangerous accidents resulting from precipitation and cold temperatures. However, road salt contributes to increased salt concentrations in freshwater ecosystems which can harm plants and animals that are adapted to live in freshwater. Preliminary work in the Kinsman-Costello lab has shown evidence that wetlands can remove salt from water and reduce

the transport of harmful concentrations of salt, but the fate of salt entering urban wetlands is unknown. We hypothesize that salt is stored in wetland soils. Preliminary results suggest an overall decrease in salt concentrations. Comparison of rain gauge data and connectivity data suggest that rain combined with snowmelt and heavy road salting contributed to an increase in salt concentrations.

Paisley Kostick, Senior, Zoology

Mentors: Jordyn Stoll, Graduate Student & David Costello, Ph.D.

Assessing the Accuracy of the BenthosTorch to Traditional Methods of Measuring Biofilm, Biomass, and Community Composition

With recent emphasis towards monitoring and protecting freshwater systems, cost-effective methods and tools are being developed. The BenthosTorch, which allows for quick in-field measurement of biofilm biomass and community composition, is one of these new tools. Biofilms contain many microorganisms that each possess a different combination of pigments. The BenthosTorch measures the absorbed wavelengths of the pigments, producing much quicker

depictions of community composition than traditional methods. In this study, biofilms were assessed using a BenthosTorch, chlorophyll-a, and microscopy. By comparing findings from the BenthosTorch to traditional methods, we will determine the reliability of data produced from the BenthosTorch. If the findings are accurate, it may facilitate more in-depth monitoring of algal communities by saving hours of time per sample.

Anthony Pignatelli, Senior, Environmental and Conservation Biology (Conservation Biology)

Mentor: David Costello, Ph.D.

Land-Use Effects on Decomposition Rates and Immobilization of Nutrients in Urban Streams

A cotton-strip assay was used to measure decomposition rate and nutrient uptake by decomposing microbes (i.e., immobilization) within 19 streams across the Chattahoochee and Ocmulgee River Basins in Metropolitan Atlanta, Georgia (USA). Decomposition rates were strongly correlated to phosphorus immobilization rates suggesting that nutrient supply influenced carbon cycling. Using GIS and satellite imagery, we analyzed land-use patterns to identify potential

sources of phosphorus. The overall impervious cover was positively correlated with decomposition and phosphorus immobilization, but much stronger relationships were observed with low-intensity residential land areas. This suggests that increased rates of decomposition and immobilization could be due to lawn fertilizer application or an aging water infrastructure. Our study shows strong linkages between nutrient and carbon cycles in urban streams.

Sam Sharp, Senior, Environmental Studies
Mentor: David Ward, Ph.D.

The Role of Interspecific Competition and Nutrient Availability in Symbiotic Relationships Between Arbuscular Mycorrhizal Fungi and Juniperus virginiana

Arbuscular mycorrhizal fungi (AMF) form symbiotic connections with host-plant roots, providing nutrients, especially nitrogen (N) and phosphorous (P), in exchange for carbon, benefiting both members of the relationship. However, in phosphorous abundant soils, it is unclear whether host plants will benefit from AMF. It is also unclear whether competition-derived stress influences AMF colonization. Eastern redcedar (ERC; *Juniperus virginiana*), is a

tree species that obligates AMF. We tested soil nutrient content (N and P) and intraspecific competition (no competitors vs. competition with four ERC's), and harvested fine roots from three-year-old ERC's from three field sites in Ohio. After staining AMF with trypan blue and quantifying colonization under a dissecting microscope, our results suggest that high interspecific competition and low nutrient availability correlate with stronger symbiotic reliance.

Madison Wood, Junior, Geology
Mentor: David Singer, Ph.D.

Lead (Pb) in Urban Soils

Lead (Pb), a versatile metal, is commonly present in urban soils because of its wide range of industrial uses and its resistance to degradation. One way to identify if Pb is present in soils is through the use of scanning electron microscopy with electron dispersive spectroscopy, which can be used to identify Pb and other elements present, assisting in understanding the phases Pb is bound

in. The identification of Pb phases present in soils will aid in the identifying of potential bioaccessible Pb, which can assist in future investigations regarding total Pb and bioaccessible Pb data. This information may also be used to streamline future Pb soil analysis by reducing the number of steps taken to prove if Pb is present within soils.

“Without troublesome work, no one can have any concrete, full idea of what pure mathematical research is like or of the profusion of insights that can be obtained from it.”

-Edmund Husserl



BIOMEDICAL SCIENCES

POSTERS

Anna Anello, Junior, Neuroscience

Jasmin Beaver, Graduate Student, Psychology

Matthew Ford, Post-Baccalaureate, Psychology

T. Lee Gilman, Professor, Neuroscience

Mentors: T. Lee Gilman, Ph.D. & Jasmin Beaver

PMAT Deficiency Sex-Selectivity Influences D-Amphetamine-Induced Locomotor Sensitization

PMAT is a cation transporter that primarily takes up serotonin and dopamine. Our hypothesis was that mice with reduced or no functional levels of PMAT would have enhanced D-amphetamine sensitization in comparison to wildtypes. Over the course of 5 injection days of D-amphetamine, locomotion in males and females was recorded. Sensitization was calculated relative to locomotor activity on the first injection day. In female mice,

those with lower functional PMAT displayed less sensitization to D-amphetamine than their wild-type counterparts. In males, those with reduced functional PMAT showed greater sensitization to D-amphetamine in comparison to same-sex knockouts. Our findings indicate PMAT may contribute to the dopamine efflux caused by D-amphetamine.

Meghan Cawood, Junior, Biology (Pre-Medicine/Pre-Podiatry/Pre-Dentistry)

Mentors: Min Ho-Kim, Ph.D. & Eric Dyne, Graduate Student

Scanning Electron Microscopy Permits Measurable Microglia Morphological Changes in Pro-Inflammatory Conditions

Microglia are the innate immune cells of the central nervous system. They also act as the primary phagocytes of the brain, clearing pathogenic material to ensure brain health and homeostasis. Microglia exhibit a variety of morphological states. These states are related to the activation and the functionality of microglia. Our focus uses beta-amyloid peptides to better understand the role of morphology in Alzheimer's disease. This research poses to demonstrate the

capabilities of scanning electron microscopy (SEM) to assist in making a distinct and measurable analysis of microglia characteristics in variable inflammatory conditions. The measurable alterations of microglia will assist in both our understanding of microglia's morphological response in neurodegeneration as well as constructing therapeutics that could assist in the recovery of microglia homeostasis.



“The more important reason is that the research itself provides an important long-run perspective on the issues that we face on a day-to-day basis.”

-Ben Bernanke

Saroj Dahal, Senior, Mechanical Engineering Technology
Mentor: Hossein Mirinejad, Ph.D.

A Simulated Model for Neonatal Oxygen Transport System

Automated control systems can be designed for oxygen therapy to adjust the fraction of inspired oxygen (FiO_2) to meet the percentage of total hemoglobin bonded with oxygen (SaO_2). The goal of this summer research was to establish a computer model of neonatal oxygen transport systems to be later used as a patient model in the development of automated oxygenation control systems. The model was previously reported in the

literature and was reproduced in this work in Simulink, a graphical programming environment in MATLAB. The simulated model consisted of a respiratory sub-model and a cardiovascular sub-model linked together using an oxygen dissociation curve, a nonlinear curve relating the oxygen measurement in the arterial blood with SaO_2 . Simulation results were in agreement with those reported in the literature.

Benja Duff, Senior, Exercise Science (Exercise Physiology)
Emily Tagesen, Ph.D., Exercise Science (Exercise Physiology)
Mentor: Adam Jajtner, Ph.D.

Reliability of the Visual Analog Scale for Menstrual Cycle Symptoms and Impact

Purpose: To determine survey reliability on the presence and impact of menstrual symptoms within collegiate athletes. Methods: Athletes completed an electronic VAS anchored with “not at all”/ “often” regarding presence and “not at all”/ “severely impacted” regarding the impact of menstrual symptoms twice in one day. Data were analyzed using two-tailed dependent samples t-tests and $\text{ICC}_{3,1}$. Results: There was a correlation

without a difference between surveys in the presence of mood swings, loneliness, headaches, backaches, and bloating. There was a correlation without a difference between surveys in the effect of cramps, breast pain, and bloating on training. Surveys differed in how often athletes felt anxious and restless, and the effect of anxiety and backaches on training. Conclusion: Results suggest that some survey items are reliable.

Brittany Gorrell, Senior, Zoology
Mentor: Colleen Novak, Ph.D.

Variation in Muscle Thermogenic Response to Predator Threat Stimuli in Mice

With the growing obesity epidemic, we investigate mechanisms to increase caloric expenditure in mice by including muscle thermogenesis. Muscle thermogenesis can be acutely induced by predator odor; however, other stimuli may more potently activate thermogenesis. We investigated the potential multimodal activation of muscle thermogenesis in mice, hypothesizing that a greater thermogenic activation will be seen when exposed to the multimodal stimulus. After

habituation to experimental conditions, mice were presented with three stimuli in randomized order: control, ferret odor, and the multimodal stimuli. We observed a trend toward a similar effect with the multimodal predator and rat odor toward muscle thermogenesis. Later studies explored different predator odors individually. Cat fur showed no significant enhancement of response, though rat odor may show significance with additional statistical power.

Man Kshetri, Senior, Biotechnology

Keshav GC, Ph.D. Candidate, Biochemistry (Chemistry)

Mentor: Sanjaya Abeyirigunawardena, Ph.D.

N-Terminal Domain of rRNA Methyltransferase Enzyme RsmC is Important for Its Binding to RNA and RNA Chaperone Activity

Ribosomal RNA modification enzyme, Ribosomal small subunit methyltransferase C (RsmC) plays a dual role of methylating the exocyclic amine of G1207 of 16S ribosomal RNA and functioning as an RNA chaperone. RsmC carries Methyltransferase active C-terminal domain and catalytically inert N-terminal domain. This project is focused on identifying the importance of the N-terminal domain and its role in the RNA chaperone activity.

Site-directed mutagenesis was used to delete the C-terminal domain. Mutant proteins were purified using affinity chromatography. Mutant protein was found to have a lower affinity to both strands of helix 34 that carries G1207. Similarly, the RsmC deletion mutant influenced the annealing of helix 34 strands. These observations reveal the molecular mechanism of RNA chaperone activity of RsmC and its role in ribosome biogenesis.

Harley Moser, Senior, Biology (Molecular and Cellular Biology)

Mentor: Manabu Kurokawa, Ph.D.

Analysis of Whole Body Inducible HUWE1 Knockout in Mice

HUWE1 is a HECT-domain ubiquitin E3 ligase that plays numerous roles in cellular processes by promoting degradation of its substrates. Although it has been discovered that mutations in HUWE1 can lead to countless cancers or human diseases, given a number of the substrates with various cellular functions, the in vivo role of HUWE1 remains elusive. Importantly, conventional HUWE1 gene knockout (KO) leads to embryonic

lethality, which makes it difficult to analyze the role of HUWE1 in different tissues and organs. Here, we created whole body inducible HUWE1 knockout mice, in which HUWE1 was acutely deleted in 4-week-old mice. We show that inducible HUWE1 KO did not result in lethality, and we will discuss the phenotypes of the KO mice.

Olorunferanmi Oni, Senior, Exercise Science (Pre-Physical/Occupational Therapy/Podiatric Medicine)

Mentor: Angela Ridgel, Ph.D. & Peter Gates, Graduate Student

The Effects of Physical Activity on Sleep Quality in Parkinson's Disease Patients

Parkinson's disease (PD) is a widespread neurodegenerative disease characterized by motor and non-motor deficits. Physical activity (PA) has been shown to improve sleep in healthy populations. However, individuals with PD generally show low levels of activity. The purpose of this study was to analyze survey-based outcomes in the Fox Den survey database for associations between sleep and physical activity

variables in PD and individuals without PD. Data analysis & hypothesis testing was done using R and python statistical analysis software. There was a significant difference between sleep disturbance levels amongst PD vs nPD. Additionally, the days and hours of PA per week were higher in nPD than PD. Individuals with PD showed greater incidence of sleep disturbance and less physical activity than persons without PD.

Bishal Pokhrel, Senior, Biotechnology

Brad Popovic, Graduate Student, Biochemistry (Chemistry)

Mentor: Soumitra Basu, Ph.D.

In Vitro Model of Myelination, Demyelination, and Remyelination of Oligodendrocytes

Multiple Sclerosis, a neurodegenerative disease is caused by the degradation of oligodendrocytes in the Central Nervous System (CNS) which results in the degradation of the neuronal myelin sheath. This study is about an in vitro model regarding myelination, demyelination, and remyelination of myelin-producing oligodendrocytes. PMA, a cell differentiating agent is administered to study various levels of myelination. Lysolecithin, a cell

membrane integrating phospholipid, is used to study demyelination. The delivery of N-acetyl aspartate (NAA) using nanoparticles is used for the study of remyelination. The different levels of myelin production are verified through analysis of myelin-associated mRNA, proteins lipids via qRT-PCR, Western Blots, and TLC and GC/MS. The increase in myelin suggests that the remyelination therapy model was successful.

Courtnai Richardson, Senior, Chemistry (Biochemistry – Pre-Medicine/Pre-Osteopathy/Pre-Dentistry)

Mentor: Jennifer McDonough, Ph.D.

Mitochondrial Dynamics in APP/PS1 Mice Models

The goal of my research is to identify therapies for Alzheimer's disease (AD). I have hypothesized that enhancing one carbon metabolism with the methyl donor betaine will improve mitochondria in a mouse model of AD by decreasing the levels or activity of DRP-1. This protein causes excess fission of mitochondria in AD which generates

smaller mitochondria that are unable to make enough energy. I am testing my hypothesis by administering betaine (1%) in drinking water to 1-month and 3-month (n=3) AD mice and measuring the effects on DRP-1 and mitochondrial size.

Nathan Ritchey, Senior, Neuroscience

Nathan Mudrak, Senior, Biology (Molecular and Cellular Biology)

Mentor: Lique Coolen, M.Sc., Ph.D.

Chronic Contusion Injury Decreases Glutamatergic Axonal Inputs to Spinal Ejaculation Generator in Rats: Time Course

Chronic spinal cord injury (SCI) results in sexual dysfunction in men and rats. Ejaculation is controlled by a spinal reflex generator consisting of lumbar spinothalamic (LSt) cells. These cells convert sensory glutamatergic inputs into a coordinated motor output for ejaculation. Previous work showed SCI significantly reduced glutamate expressing axons. Currently, we tested the time course of the glutamatergic reduction. Male rats received a contusion injury and were

later perfused. Confocal analysis showed SCI significantly reduced glutamatergic inputs. It was also determined that similar reductions of glutamate containing axons were noted throughout the entire medial laminae at lumbar spinal levels. These data demonstrate an immediate, long-lasting impact on excitatory glutamatergic inputs to LSt cells and neighboring cells, which may contribute to sexual dysfunction following SCI.

Teresa Wesley, Senior, Neuroscience

Jacob Corey, Senior, Neuroscience

Mentor: John Johnson, Ph.D. & Kirsten Maricic, Graduate Student

Effects of Peripheral Inflammation on Neural Activity and Behavior

Diminished motivation or interest in participating in everyday activities is one symptom of depression. It is also a prominent symptom of sickness behavior in response to an immune challenge. Interestingly, approximately half of all individuals with depression show elevated circulating inflammatory responses. The goal of the present study is to investigate how inflammatory responses affect exploratory

behavior in a rat model. Rats were either injected with saline or E. coli, then exploratory behavior was recorded in an open-field test. Brains were collected to quantify the activation of neural pathways. We hypothesized that inflammatory responses following E. coli administration would activate neural pathways involved in sickness behaviors but inhibit neural pathways involved in motivation and reward.

FASHION DESIGN & MERCHANDISING

ARTISTIC PIECES

Madeline Begari, Junior, Fashion Design

Mentor: Joanne Arnett, M.F.A.

All-Access

This project aims to solve issues related to disability and getting dressed and seeks to empower the wearer by giving them ways to feel more independent. For years, the clothing industry has only vaguely explored the challenges that people living with disabilities (PLWD) face every day when getting dressed. While many concerns have been solved for the environmental

and societal barriers in other fields of interest, the real struggles that PLWD are facing are the mundane tasks. Samples were done to determine the strongest closures for placing along high stress seamlines, while still maintaining accessibility to the body. The goal was to keep seamlines sleek and reduce bulk while still creating “normal” clothing.

“THE COMMON FACTS OF TODAY
ARE THE PRODUCTS OF
YESTERDAY’S RESEARCH.”

—DUNCAN MACDONALD



FASHION DESIGN & MERCHANDISING

POSTERS

Bipasana Bajracharya, Junior, Fashion Design

Mentor: Joanne Arnett, M.F.A.

Functional Fashion for Upper Limb Amputee

My research is on garment modification for those with limited arm mobility due to unilateral, bilateral amputated upper limbs or hemiplegia. Prosthetics do not sufficiently serve the need of every person with amputations. Garment modification is necessary to make dressing easier without the use of prosthetics. Garment adaptations are as inconspicuous as possible, adding accessories like loops for dressing sticks,

loose-fitting clothing and using slippery woven fabric instead of knit fabric for convenience, using a magnetic snap in place of buttons for manageability, use of larger than usual buttons that protrude higher so they can be used with a dressing stick. Pockets are modified to be larger and at the front, instead of side and back for easy reach. Shoelaces are replaced with snap closures or elastics.

Jordan Bigelow, Senior, Fashion Merchandising

Mentor: Tameka Ellington, Ph.D.

The Unbought Collection: An Ode to Black Womanhood

As society continues to evolve, African American culture is on a move to be more socially influential in the interests and habits of Generation Z African Americans. This case study was developed to address the need in the fashion marketplace for cultural and social representation that focuses on Black women and femme consumers. Months of research resulted in The Unbought Collection, a line of 8 looks designed for African American

women inspired by the essence of the 1970's Black Power movement and its muse Shirley Chisholm. The project captured the essence of Black womanhood and conjured a fashionably social dialogue. As a result, this project was selected as one of 20 winners of the 2021 Virgil Abloh-Post Modern Scholarship, supported by the Fashion Scholarship Fund.

Rachel Caton, Senior, Fashion Merchandising

Mentor: Mourad Krifa, Ph.D.

Consumer Clothing Disposal Habits & Biodegradability

The fashion industry is responsible for most of the world's pollution due to mass textile disposal. Even though there are better alternatives, consumers still seem to choose cheap over environmentally friendly. The objective of this study is to examine US consumers' clothing disposal behavior and explore the potential value they perceive in reusability and biodegradability in apparel products. To achieve this objective,

exploratory research was conducted on consumer behavior, fast fashion, and biodegradable fibers. Then a content analysis was conducted to examine how consumers react to certain characteristics of this subject. As a result, a potential marketing strategy was brainstormed to help promote the value and use of natural fibers over synthetic in apparel.

Rachel Caton, Senior, Fashion Merchandising
Mentor: Catherine Leslie, Ph.D.

Japanese Street Fashion - The Kawaii Rebellion

The purpose of this study was to explore the impact of a series of 10 informational lectures on increasing cultural sensitivity and understanding. Knowledge gained in major and minor classes was supported with intensive research on many aspects/styles of Japanese subculture. A series was developed and presented through live stream, recorded, and posted with participants voluntarily completing a Qualtrics survey after each session. Results were analyzed to gain insights and draw

conclusions on Japanese Street Fashion, specifically, and Japanese Culture, overall. Respondents indicated a greater awareness and appreciation for fashion contributions from Japan. Furthermore, this experience broadened intercultural understanding. The presentations provoked thought about cultural expression through dress, encouraging participants to be more mindful about using inspiration respectfully and avoiding misguided appropriation.

Alexandra Chrisman, Senior, Fashion Merchandising
Mentor: Jonghan Hyun, Ph.D.

Natural Resources: Water Use

This research focused on understanding consumers and the consumers' priorities when they are shopping for new clothing. Taking the different steps in this research process such as literature research, a content analysis of consumer reviews on YouTube videos, and an online survey that was created, it is found that consumers are not well educated on the usage of water in the

fashion industry and that companies need to become more transparent about this topic. Results being that consumers would be willing to shop more sustainable brands if they were aware of the harm the fashion industry has on the environment. Even if the cost of each garment were higher consumers would shop these brands knowing they are helping the environment.

Rigney Cunningham, Senior, Fashion Merchandising
Mentor: Jonghan Hyun, Ph.D.

Consumer Preferences in the Fashion Industry: Inter-Fiber Competition

This research focuses on understanding consumer preferences towards natural and synthetic fibers and the effect the fibers have on the purchase decision-making process. Additionally, it does a dive into Gen-Z and the generation's fiber preference. After exploratory research from sources such as Cotton Works and Sourcing Journal, there was a content analysis done of reviews of a cotton workout shirt and comments

under two YouTube videos about natural and synthetic fibers. Additionally, an online survey taken by those in Gen-Z was administered. The content analysis showed that consumers don't value synthetic fibers over natural ones. The survey was not as conclusive but showed that Gen-Z doesn't value sustainability and fiber preference as much as the initial research showed and isn't as price-conscious as was thought.



Sophia Fallieras, Senior, Fashion Merchandising
Mentor: Mourad Krifa, Ph.D.

Consumer Disposal Habits and Biodegradability

Today, the apparel industry is one of the world's most polluting industries with unsustainable practices continuing post-purchase. With the rise of fast fashion, young consumers are not being taught proper consumption and disposal habits despite their behaviors having huge impacts on the environment. As the lifecycle of clothing gets shorter, global textile waste and ecosystem pollution increase. Our main objective is to study consumers' disposal habits and examine the value

they perceive in more eco-friendly options, such as reusability and biodegradability of apparel products. In order to meet this objective, we conducted in-depth industry research and a content analysis of consumer behavior. Overall, this research will help aid in creating strategies that transform the current linear fashion model into a more circular, environmentally cautious industry.

Allison Mann, Senior, Fashion Merchandising
Mentor: Jonghan Hyun, Ph.D.

Quantitative Assessment of Consumer Resonance with Respect to Cotton in the Athleisure Market

This research revolves around the idea of athletic wear. Athletic wear is currently dominated by the synthetic fiber world, which is slowly deteriorating our oceans and environment. This project explores the idea of incorporating cotton into our athletic apparel to better catalyze the theme of sustainability in the fashion industry and to overall reduce the carbon footprint that the athleisure market currently has. I have assessed how consumers feel about athleisure products that are cotton-based or 100% cotton via a content analysis method. Research was conducted based on various athletic apparel brands' websites, and the comments that consumers left on cotton-based products. A survey was also executed to

explore what consumers generally look for out of their athletic apparel, to see if the two correlate. The data collected was then analyzed to answer the research question of "What are consumers' main benefits and drawbacks with cotton-based athletic apparel?" As results showed, the top qualities that consumers found in cotton-based athletic apparel are the same qualities that consumers look for in their athletic apparel. Overall, this research proves that cotton is an excellent addition to athleticwear and would give a more sustainable approach to the increasingly popular athleisure industry, without compromising the attributes that are most important to consumers.

Mansiben Patel, Senior, Fashion Merchandising
Mentor: Catherine Amoroso Leslie, Ph.D.

Power Dressing and its Importance in Modern Democracy

The aim of this research is to study the significance of Power Dressing in a modern democracy by exploring the dynamics of clothing, concerning the power it portrays for women holding prominent positions in public office. This study discusses a selection of iconic women politicians from different countries and their way of Power Dressing. Built on a foundation of scholarly articles, newspapers, and current events,

this research accomplishes its motive through data analysis from a survey developed by the researchers. This study provides a platform for understanding the association between fashion and politics, the concept of Power Dressing, and its significance in a modern democracy, especially for women. With changing dynamics of society, this study forms aid in understanding perceptions of stakeholders in contemporary events.

Onyx Salone, Senior, Fashion Merchandising
Mentor: Rachel LoMonaco-Benzin, Ph.D.

Being Black in Beauty

The objective of this research was to propose a solution to the lack of diversity in the beauty industry through the creation of a new line and marketing campaign. The researcher identified a gap in the market after researching the needs of the Black consumer in regards to marketing, shopping preferences, and product development. This research aligned with a shift in consumer needs following social unrest in 2020. Companies

were put in the spotlight to speak out against social justice reform and struggled to connect authentically with consumers. As a result of the identified gap, the researcher created a skincare line and marketing strategy developed specifically for Black consumers that catered to their skincare needs in hopes to promote constructive change within the beauty industry.

Samantha Segerman, Senior, Fashion Merchandising
Mentor: Jonghan Hyun, Ph.D.

Consumer Preferences for Cotton Athleisure

This study focused on consumer perceptions and preferences of cotton athleisure and what elements would lead a consumer to purchase cotton athleisure. After thorough research, it can be determined that consumers are open to purchasing cotton athleisure. According to the

results, consumers enjoy the fit aspect of cotton athleisure along with the comfort and style. While athleisure garments are not meant to withstand vigorous exercise programs and wear, consumers are concerned about the garments' durability, even as an athleisure piece.

Darby Spillan, Senior, Fashion Merchandising
Mentor: Jonghan Hyun, Ph.D.

Clothing Disposal: Consumers' Perception and Habits

This research investigates consumers' perceptions and habits toward clothing disposal. The study was conducted by an online survey via Qualtrics, a content analysis regarding consumer comments on resources related to the topic of clothing disposal, and extensive literature review research. After all the data was collected it was analyzed in order to come to a conclusion of each question at hand. The results indicated that consumers have a

generally positive perception of clothing disposal, the main method used by consumers is donating, and if more information were available to consumers, they would be more likely to purchase planet-friendly apparel or change their choice of disposal to a more sustainable method. Lastly, there was no general difference in the method used between Generation Z and Millennials.



Natalie Steenbock, Junior, Fashion Merchandising
Mentor: Catherine Leslie, Ph.D.

Perception of Face Coverings as Fashion

The purpose of this study was to examine Generation Z's perception of face coverings as fashion, exploring the new cultural norm and how the norm interacted with fashion. Specifically, the study investigated Generation Z's relationship with face coverings, and if that relationship is influenced by fashion involvement. Overall, data from 200+ participants indicated at least a subtle positive correlation between high fashion

individuals and perception of face coverings as fashion. This created an opportunity for the fashion industry to adopt face coverings as a trend, and for companies to begin offering fashionable face coverings for high fashion involvement individuals. This study added to our knowledge of how cultural shifts are adopted into fashion, and how social trends are reflected in the fashions of a time.

Kaylyn Wenzel, Junior, Fashion Merchandising
Mentor: Lauren Copeland, Ph.D.

Gucci x Fair Trade: A Case Study

Fair Trade is dedicated to paying producers a living wage and investing in the community they live in. The organization implements strict standards for the companies they collaborate with to ensure that their producers are being treated fairly. Gucci, the Italian luxury brand, has both the prestige and influence to be successful in a collaboration with Fair Trade. Through this

collaboration, Gucci x Fair Trade, a nine-piece collection will be unveiled. Also, upon purchase, the customer will receive a QR code that will allow them exclusive access to the Fair Trade AR feature on Gucci's official app. The feature will allow them to track their garments throughout the supply chain, learn more about Fair Trade, and how to extend the life cycle of a garment.

NURSING *POSTERS*

Connor Attrell, Senior, Nursing
Mentor: Denise McEnroe-Petitte, Ph.D., R.N.

An Unconventional Collaboration: Cosmetology and Nursing

Cosmetology is an exciting field that an individual can use to enter the workforce. A focus of educational programs needs to include an understanding of the importance of health care and the consequences of the care. Little to no research has been found regarding conditions a cosmetologist faces, the diseases they may come across, and the severity of those diseases. The aim of this project is to assess the knowledge deficit of and to educate cosmetology students about the

diseases that customers may present at the salon. This project will enhance the understanding of different diseases, warning signs, and potential problems that clients may be experiencing. It will also help create awareness about different protective measures these future cosmetologists should apply. This project will encourage inter-professional collaboration as well as increase the knowledge of the clients and cosmetology students.

Hannah Call, Sophomore, Nursing

Cathryn Pecjak, Sophomore, Nursing

Mentors: Kimberly Cleveland, J.D., MSN, R.N., C-MBC & Joel Hughes, Ph.D.

Early Emerging Themes of Student Anxiety and Resilience During the COVID Pandemic

Introduction: Student anxiety levels have increased in the wake of the COVID-19 pandemic. Purpose: The purpose of this narrative study was to understand student experiences in the early COVID-19 pandemic. Methods: Students enrolled at Kent State University were surveyed in three randomly selected cohorts in late March and early April. Students were asked to complete an unstructured question after completing the survey. Inductive thematic analysis with open coding procedures was used to determine themes (Elo & Kyngas, 2008). Comments from UNS were evaluated to determine any unique considerations. Strategies to ensure trustworthiness of data included peer debriefing and inquiry audit. Results: The study revealed three themes underlying students'

perceptions of COVID-19. No themes were unique to UNS. Conclusion: UNS and UGS related common themes surrounding perceptions of increased anxiety and resilience. Further research is needed to determine whether these themes were sustained and whether they negatively impacted anxiety and resilience scores. References: Elo, S., & Kyngas, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107-115. Marken, S. (2020, December 15). Half of college students say COVID-19 may impact completion. Gallup. <https://news.gallup.com/opinion/gallup/327851/half-college-students-say-covid-may-impact-completion.aspx>.

Bernadette Freesty, Sophomore, Nursing

Kate Kennedy, Sophomore, Nursing

Mentors: Kimberly Cleveland, J.D., MSN, R.N., C-MBC & Joel Hughes, Ph.D.

Early COVID-19 Survey: Kent State Undergraduate Nursing Majors Report Greater Knowledge Regarding COVID-19 and Increased Perceived Risk of Contracting COVID-19 When Compared to Non-Healthcare Majors Early

Introduction: Limited research is beginning to identify factors that contribute to UNS anxiety in the wake of the pandemic. Purpose: Hypotheses: 1) UNS will report higher perceived knowledge of COVID than UGS and greater perceived risk of contraction than UGS. Methods: 30,996 college students were surveyed beginning in March. Just over 5,500 valid responses were obtained.

Knowledge about COVID-19 and perceived risk of contraction were rated on a Likert scale. Results: UNS reported a higher knowledge of COVID-19 and a higher perceived risk of infection than UGS. Conclusion: This study supports development of university programs to address UNS fear of contracting COVID.



"MODERN MEDICAL ADVANCES HAVE HELPED MILLIONS OF PEOPLE LIVE LONGER, HEALTHIER LIVES. WE OWE THESE IMPROVEMENTS TO DECADES OF INVESTMENT IN MEDICAL RESEARCH."

-IKE SKELTON

Jasmine Hickey, Senior, Nursing
Mentor: Alice Colwell, MSN, CNE, RNC-NIC

Smoke and Mirrors

The purpose of this research is to determine if there is a relationship between the usage of electronic nicotine delivery systems (ENDS) among late adolescents and young adults and how these products are being marketed to the users. ENDS products include items such as electronic

cigarettes, vape pens, and e-hookahs. The survey resulted in the majority of the participants stating that they were not often influenced by the ENDS product's marketing. Instead, family and friends who use the products or appealing flavors were more influential in their decision to use.

Jessica Hobbs, Sophomore, Nursing
Abby Stankard, Sophomore, Nursing
Mentor: Kimberly Cleveland, J.D., MSN, R.N., C-MBC

Early COVID-19 Survey: University Nursing Students Report Less Anxiety and No Difference in Adherence to Avoidance Behaviors Than Non-Health Majors

Introduction: Anxiety levels of undergraduate nursing students (UNS) compared to non-health-related majors (UGS) during the early COVID-19 pandemic remain unstudied. Purpose: To evaluate whether key avoidance behaviors negatively impacted UNS anxiety levels. Hypothesis: UNS have higher self-reported compliance with avoidance behaviors than UGS. Methods: 30,996 Kent State University students were surveyed, and 5,547 responses were obtained. Anxiety was assessed using the PROMIS emotional distress short forms v1.0 (Cella et al., 2010; Cronbach's $\alpha = .95$). Results: UNS reported lower anxiety than UGS. There was no relationship between program of study and adoption of avoidance behaviors. Conclusion: Dissemination of COVID-19 public

health information and university communications may have increased the use of avoidance behaviors. Further study is needed to explain lower anxiety in UNS. References: Cella, D., Riley, W., Stone, A., Rothrock, N., Reeve, B., Yount, S., ... & Cook, K. (2010). The Patient-Reported Outcomes Measurement Information System (PROMIS) developed and tested its first wave of adult self-reported health outcome item banks: 2005- 2008. *Journal of clinical epidemiology*, 63(11), 1179-1194. Ersin F, Kartal M. (2020). The determination of the perceived stress levels and health protective behaviors of nursing students during the COVID19 pandemic. *Perspect Psychiatric Care*, 1-7. <https://doi.org/10.1111/ppc.12636>.

"After all, the ultimate goal of all research is not objectivity, but truth."

-Helene Deutsch

Annie Jenkins, Sophomore, Nursing

Mario Romito, Junior, Nursing

Mentor: Karen Mascolo, DNP, R.N.

Developing Professional Identity and Mitigating Incivility in Nursing

Incivility plagues nursing in academia and the clinical setting. Nursing students and novice nurses are particularly vulnerable to this type of lateral violence. Current research is primarily focused on recommendations to educate students on how to mitigate incivility utilizing professional behavior. Students have an increased likelihood of developing professional identity and incivility mitigation skills when they have a strong sense of relatedness and community in the learning

environment. Organizations and extracurricular groups can provide such an environment for students by guiding them in understanding, learning, and implementing professional practices. A literature review was conducted using phrases “professionalism and nursing”, “new nurses and professional behavior”, and “group membership and nursing” through MEDLINE, ERIC, Health Source: Nursing/Academic Edition, and CINAHL Plus with full text.

Samantha Magyar, Junior, Nursing

Julia Justice, Junior, Nursing

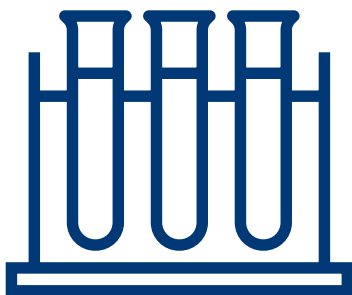
Serena Troung, Junior, Nursing

Mentor: Kimberly Cleveland, J.D., MSN, R.N., C-MBC

Adolescent Vaping: A Proposal for Research During COVID

Adolescent vaping has become prevalent among adolescents as 19.6% of high schoolers and 4.7% of middle schoolers report using these products (Wang et. al, 2020). E-cigarette or vaping is linked with negative health effects such as lung injury (EVALI), death, and other negative adverse effects (Shinbashi & Rubin, 2020). Due to limited research on adolescent vaping, we propose a mixed method sequential explanatory study.

Online surveys will be administered to public suburban middle schoolers and high schoolers to identify student demographics, involvement in vaping, and knowledge of the health effects of vaping. Interviews via zoom will be conducted with students who report using vape products. The results will provide insight into reasons for increased vape use and potential health education interventions that can deter this behavior.



**“EVERYTHING IS
THEORETICALLY
IMPOSSIBLE, UNTIL IT IS
DONE.”**

-ROBERT A. HEINLEIN

Kayla O'Donnell, Senior, Nursing

Madeline Sterling, Senior, Nursing

Mentor: Mary Anthony, Ph.D., R.N. & Sara Bayramzadeh, Ph.D., M.Arch.

A Literature Review of Interruptions and Disruptions in Complex Healthcare Environments and the Effects of Environmental Design

Background: In critical care environments, interruptions and disruptions are common occurrences, allowing breaks in patient care to occur. Purpose: This literature review focused on observing how environmental factors affect workflow and interruptions in order to identify effects. Search Strategy: The literature review included articles published after 2000, conducted in critical care environments, related to interruptions and disruptions, and incorporated

physical characteristics. Results: The literature search yielded 1,158 articles. After screening, 21 eligible articles remained. Studies took place in ORs, ICUs, and Level 1 Trauma rooms. Synthesis of Evidence: Layout, equipment, and communication deficits were the biggest causes of interruptions. Implications for Practice: Disruptions are common in healthcare settings and future research should focus on mitigating interruptions to avoid missed or delayed care.

Anna Pascoe, Sophomore, Nursing

Dominique Nguyen, Sophomore, Nursing

Mentor: Tracy Dodson, MSN, R.N.

Modeling as a Pedagogical Strategy in Nursing Education: A Systematic Review

Intro: Recent research has shown that novice nurses are not meeting the minimum competencies required of a graduate nurse. Therefore, nursing programs are taking a closer look at pedagogical strategies and how to prepare new nurses. In particular, modeling is a strategy in which an expert demonstrates a nursing competency, which the students can then repeat. In nursing education, observational learning

through modeling has been shown to enhance engagement by providing students the ability to watch and cognitively rehearse professional behaviors. Research Question: This systematic review was conducted to determine the types of modeling present in undergraduate nursing education today, how nursing programs are utilizing this strategy, and how using this can improve current nursing education.

Samantha Stark, Sophomore, Nursing

Mckenzie Sklar, Sophomore, Nursing

Mentor: Yvonne Smith, Ph.D., APRN-CNS

Full Practice Authority for APRNs

The lack of full practice authority (FPA) for advanced practice registered nurses, including the certified registered nurse anesthetist (CRNA), is a state-by-state issue, and a large contributor to barriers in the healthcare system. Currently, CRNAs practice under the authority and supervision of a surgeon or anesthesiologist; however, FPA would allow APRNs to "evaluate patients, diagnose, order and interpret diagnostic

tests, initiate and manage treatments" (AANA), leading to countless benefits. A recent study discussed a temporary lift to the supervision during Covid-19 and noted that no harm resulted from allowing FPA to these qualified nurses, an idea that is supported by many other sources throughout our review of the literature. Based on our findings, CRNAs and other APRNs should be given FPA throughout the U.S.

Victoria Wallace, Sophomore, Nursing

John Zingale, Sophomore, Nursing

Mentors: Amy Petrinec, Ph.D., R.N. & Dana Hansen, Ph.D., APRN, ACHPN

COVID-19 Pandemic: Fraud in Online Recruitment of Families at Risk for Post Intensive Care Syndrome

The purpose of this project is to describe fraudulent activity in an online survey. Nearly 5 million patients are admitted to the ICU in the US annually. An ICU admission of a critically ill adult patient is stressful for families, and they are at risk for developing Post Intensive Care Syndrome-Family (PICS-F), a syndrome composed of symptoms of depression, anxiety, and post-traumatic stress. The impact of the COVID-19

pandemic has resulted in restricted visiting of ICU patients by families. An online survey was employed to recruit families of ICU patients hospitalized during the COVID-19 pandemic. The survey included PICS-F symptoms and comfort level of family involvement. A stipend was offered as a concession for time. Evidence of fraud was detected and methods to address the activity implemented.

Caitlin Woodward, Junior, Nursing

Mentor: Dana Hansen, Ph.D., APRN, ACHPN

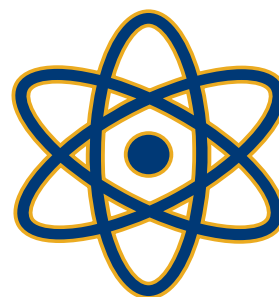
Live Simulation: A Method to Improve Interprofessional Collaboration and Patients' End of Life Experiences

As patients approach the end of life, they need to have final conversations with loved ones for positive end-of-life experiences. However, these conversations can be difficult, requiring facilitation by healthcare providers. End-of-life conversation education is needed for peaceful patient death, which is possible with live simulation. The PICO question is how does an interprofessional live simulation affect end-of-life knowledge in nursing and medical students? *Methods* This literature review compiles the existing knowledge of interprofessional end-of-life

care simulations and the gaps in the literature from various databases. Results/Discussion upon completion, fourteen articles involved interdisciplinary end-of-life simulations. Half of these articles contained simulations with successful education. The remaining discussed the need for hands-on education prior to becoming a care provider. In conclusion, the literature was not vast, but those who used simulation found it successful. End-of-life conversation simulation should be implemented in undergraduate programs to improve future patient care.

"EVERY GREAT ADVANCE IN
SCIENCE HAS ISSUED FROM A
NEW AUDACITY OF IMAGINATION."

-JOHN DEWEY



PHYSICS, CHEMISTRY, & MATERIALS

CHEMISTRY

ORAL PRESENTATIONS

George Roush, Sophomore, Aerospace Engineering (Physics)

Carter Verderico, Freshman, Aeronautical Systems Engineering Technology

Mentor: Syed Shihab, Ph.D.

An Autonomous Drone Delivery Network for Mars

In the near future, human astronauts and researchers will travel the distance to Mars to establish various research centers and habitats there, requiring a continuous supply from Earth. In light of the cost and complexity of orchestrating supply missions for each individual research center, and the uneven Martian terrain, a potentially efficient and practical approach for delivering supplies involves first dropping

supplies to a single distribution center and then transporting them from there to the locations of interest by air using drones. To evaluate the feasibility and performance of our proposed drone-based Martian supply approach, we are considering both fixed-wing and rotor-wing drones of varying payload capacities, charging times, and ranges based on currently existing aircraft designs in our simulation study.

PHYSICS, CHEMISTRY, & MATERIALS

CHEMISTRY

POSTERS

Isaac Davanzati, Junior, Aerospace Engineering

Mentor: Blake Stringer, Ph.D.

Tradeoff Analysis of Different Rocket Engine Combustion Cycles with Emphasis on a Hybrid Fuel Cell and Electric Pump Driven Cycle

This project investigates the feasibility of using fuel cells to power electric fuel pumps for use in large rockets. In today's aerospace industry, large-scale, high-efficiency rockets are powered by heavy and costly turbopumps. Indeed, the complexity and weight of a rocket's turbopump assembly can easily approach 50% of the total rocket cost. To reduce cost, the use of electrical pumps has been found to be practical for some companies. However, the inefficiency of current

battery technology continues to inhibit their feasibility for use in larger rocket systems. Fuel cells, if used as a rocket engine's power supply, could use the propellants themselves to generate the electricity required to power an electric pump. If the fuel cell power output can exceed a certain threshold, this would eliminate the need for heavy, inefficient batteries on smaller class rockets and could potentially replace complex and expensive turbomachinery in larger rockets.

Jacob Grant, Senior, Aerospace Engineering
Mentor: Hossein Mirinejad, Ph.D.

Design of an Advanced Control Algorithm for Hemorrhage Resuscitation

Nearly 40% of the mortality associated with traumatic injuries worldwide is due to uncontrolled or insufficiently controlled hemorrhaging. Fluid resuscitation is vital to effectively control hemorrhaging by restoring lost blood volume. The precise control of fluid dosing is of great importance during resuscitation. This work intends to establish a new fluid resuscitation control algorithm to provide optimal fluid dosing

in various hemorrhage scenarios. Current research leverages the results of the optimal control approach to design a model predictive control (MPC) algorithm for fluid resuscitation. The control goal is to reach the target blood volume, which serves as the output for the algorithm. In the next step, the MPC controller will be integrated with a testbed and evaluated against real-world hemorrhage scenarios.

Stanley Nerkowski IV, Junior, Aerospace Engineering

Isaac Davanzati, Junior, Aerospace Engineering
Mentor: Ali Aziz, Ph.D., Fellow ASME, ASNT, PE

Turbofan Engine Performance Simulation Study Under Selected Failure Scenarios of Rotating and Hot Sections Components

The purpose of this project is to use a jet engine simulator to analyze changes in engine performance under the failure of engine components that impact the performance of the aircraft. We are able to deduce the change in performance when we compare these simulations to a normal flight. When analyzing the performance of these simulations it is necessary to consider all environmental and engine

parameters, but namely altitude and thrust are considered. The typical flight duration for a private light jet is about two hours, and this simulation will model a trip from Columbus, OH to Washington D.C. During this flight, we will reach a maximum cruise altitude of twenty-three thousand feet traveling at about two hundred and fifty miles per hour.

Ryan Williams, Senior, Physics
Mentor: Bjorn Lussem, Ph.D.

Developing an Automated Process for the Anodization of Organic Field-Effect Transistors

Organic field-effect transistors have shown a wide variety of potential uses. Techniques have needed to be developed to study and improve their design. One of the most effective ways to improve these transistors is to work on methods to produce a large amount of these transistors. This allows statistical trends and data to be generated, which specifically allows the transistor's important aluminum-oxide gate to be perfected. An

automated system can be created through the programming of various microcontrollers and motors to automatically create these gate layers. The system can automatically disperse samples of aluminum into a solution while applying a steady voltage. This produces the aluminum-oxide layers through anodization and allows for a large-scale production of transistors for further in-depth study.

Eric Yokie, Senior, Physics
Mentor: Hamza Balci, Ph.D.

Measuring DNA Binding Conformations and Dynamics of Replication Protein A

Replication Protein A (RPA) is the most abundant single-stranded DNA (ssDNA) binding protein in eukaryotes. RPA is involved in key DNA metabolic processes, including replication and repair, which makes understanding its binding kinetics essential. RPA has six DNA binding domains, each with different affinities for binding to ssDNA. Individual binding domains may disassociate while others are bound, creating a dynamic binding process. Using a single-molecule

fluorescence-based assay, we observed a systematic shift in the binding conformation of RPA as a function of salt concentration. The distributions of conformations at all salt concentrations were heterogeneous but were dominated by two states. This suggests certain binding domains dissociate from DNA earlier than others as the salt concentration is increased, highlighting the complicated nature of the RPA-ssDNA interactions.

PROFESSIONAL PRACTICE, OUTREACH, & ENGAGEMENT *ARTISTIC PIECES*

Jesi Taylor, Sophomore, Accounting
Mentor: Cody Holland, M.A.Ed.

Blackboard to Canvas

Our project proposal tackles the issues with the current state of Blackboard classrooms. We noticed professors' Blackboard pages were difficult to navigate. Creating stress and anxiety for students and faculty alike. Our hope is that by creating templates for each class, we can give easier access to classroom materials and aides. Our Canvas templates will be made with influence from students and faculty, giving them the ease,

access, and an organized of an online classroom experience. Overall, we are trying to address the issues that Blackboard has presented to both faculty and students. We propose creating a template through Canvas that allows an easier and more accessible online classroom for both students and faculty. In conclusion, our project will improve the online learning experience by creating an easy and accessible learning platform.

**"SCIENCE IS BEAUTIFUL WHEN IT MAKES SIMPLE EXPLANATIONS OF
PHENOMENA OR CONNECTIONS BETWEEN DIFFERENT
OBSERVATIONS."**

-STEPHEN HAWKING



PROFESSIONAL PRACTICE, OUTREACH, & ENGAGEMENT

ORAL PRESENTATIONS

Nina Ali, Junior, Exercise Science (Pre-Physical/Occupational Therapy/Podiatric Medicine)

Brian Johnson, Freshman, Nursing

Deanna Baccus, Freshman, Computer Science

Angelina Lagunzad, Junior, Entrepreneurship

Kyle Nenadovich, Freshman, Medical Technology

Joshua Bailey, Sophomore, Journalism

Purva Chauhan, Freshman, Paralegal Studies

Mentor: Cody Holland, M.A.Ed.

Revamping the Campus Tours

Our goal is to improve campus tours to make them more engaging and informative for prospective students. Many current Kent State students who have gone on tours in the past have had negative experiences compared to other college tours. Our project will focus on creating major-specific and interactive events. We will work with Emily Hervol, director of campus tours, to help gather additional ideas and insight for our project. Our

ideas include adding photo/tye-dye booths, raffling off items, and giving out Kent State merchandise. We would also work with campus tour guides to ensure they are creating a positive and engaging experience for future students. Overall, implementing these features will help to increase student enrollment, increase school-spirit, and set apart Kent State from competitors.

Jenna Kerns, Junior, Biotechnology

Bryce Funk, Freshman, Digital Sciences (Digital Systems Software Development)

Katie Masko, Freshman, Exploratory

Piper Tell, Freshman, Exploratory

Nicholas Ditz, Freshman, Exploratory

Justin Schroeck, Freshman, Geology

Mentor: Cody Holland, M.A.Ed.

Connections Around the World

Kent State University has always taken pride in being a friendly and welcoming place for international and domestic students. Something we have noticed is that there appears to be a disconnect between domestic and international students. We believe that if domestic students are given the opportunity to connect with international students, it will help build long-lasting relationships on campus. We think that

creating a program that connects international and domestic students once the international student is admitted will create a welcoming environment for them. To do this, we will be working closely with Dr. Eron Memaj, the International Student Affairs Director. We hope by pioneering this project, Kent State University will be an overall stronger, welcoming, and inclusive campus for all students.

Veronica Rodriguez, Sophomore, Aeronautics (Flight Technology)

Noah Weedon, Freshman, Aeronautics (Flight Technology)

Kia Render, Freshman, Theatre Studies (Production)

Nadia Gibson, Freshman, Exercise Science (Exercise Specialist)

Callie Lufkin, Freshman, Mild Childhood Generalist Social Studies (4-6) Endorsement Preparation

Mentors: Amanda Woodyard, M.A. & Cody Holland, M.A.Ed.

Food Insecurity and Sustainability

Many college students struggle with food insecurities. Without having a proper meal, students are not able to focus on their studies or engage in daily activities. Around 32 percent of Kent State students have experienced food insecurity. Acknowledging the waste created on campus from throwing away food at the end of the night, our goal is to help eradicate the overwhelming amount of students that face food

insecurity by making our campus more sustainable and economically aware. Our project is designed to help our university and community by increasing the composting spaces available and incorporating Food Waste Apps into our food services. Creating a community-first mindset providing meals for students and the Kent community. We hope to make a lasting impact by implementing these changes.

Leah Scoggins, Sophomore, American Sign Language/English Interpreting

Isabella Carde, Freshman, Early Childhood Education

Seth Heald, Freshman, Mechatronics Engineering

Genna Rynders, Freshman, Finance

Jenna Rosco, Education in Integrated Language Arts

Tessa Gabriel, Sophomore, Architecture Studies and Construction Management

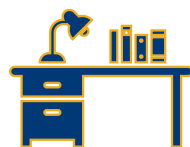
Erin Stock, Sophomore, Nursing

Mentor: Cody Holland, M.A.Ed.

Food in a Flash

Food in a Flash is an inclusive project designed to make food readily available across campus. By partnering with an established app, adding delivery will be effortless. Adding said delivery service will appeal to students and faculty alike. The program is in a 'for students by students' design. Students would aid the dining hall to deliver the food to students. Food would be easier

to access as a whole. Now, students with physical or mental health concerns have an easier time getting food. We as students want more options for food delivery so that we may, as well as other students and faculty, have opportunities to get the food we need in any situation that was delivered to students by students.



Ethan Smith, Sophomore, Digital Sciences

Camryn Kwiatkoski, Freshman, Political Science (International Relations – Comparative Politics)

Iris Mencher-Ilich, Freshman, Public Health (Global Health)

Jasmine Grimm, Freshman, Speech Pathology and Audiology

Jenna Myers, Freshman, Public Health (Pre-Medicine, Dentistry, Osteopathy)

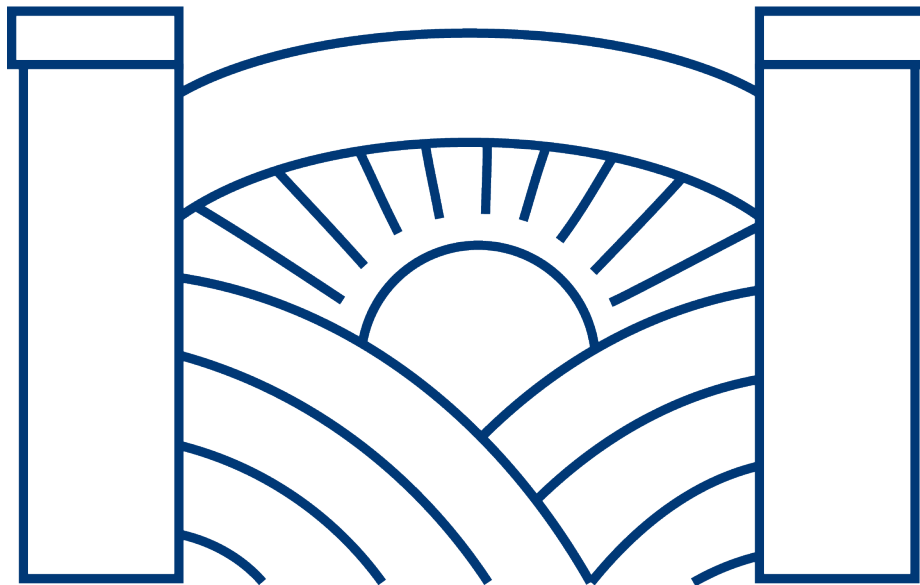
Nathan Snipes, Freshman, Finance

Mentor: Cody Holland, M.A.Ed.

Mental Health Outreach App

Kent State offers a multitude of mental health resources; however, a majority of students are not aware of them. We propose a bridge to this gap by implementing a communication and outreach platform where students can easily locate different mental health services. This tool would be embedded into the pre-existing KSU Mobile app. It would offer links and contact information for various offices and departments, an anonymous

bulletin where students can engage in discussion regarding their struggles with mental health, and a communiqué about stigmatized topics such as group therapy, suicide awareness, and reaching out for help. We believe this would allow students, staff, and faculty to easily find resources designed to help them overcome battles, as well as breakdown the stain on mental wellbeing.



“THE WHOLE STRUCTURE OF SCIENCE GRADUALLY GROWS, BUT ONLY AS IT IS BUILT UPON A FIRM FOUNDATION OF PAST RESEARCH.”

-OWEN CHAMBERLAIN

PROFESSIONAL PRACTICE, OUTREACH, & **ENGAGEMENT** *POSTERS*

Lauren Bennett, Senior, Geography
Josef Chiboroski, Senior, Geography
Karissa Duff, Junior, Geography
Gillian Feasel, Senior, Geography (Geographic Information)
Brianna Fernandez, Senior, Geography
Spencer Gibbs, Junior, Geography
Gage Koontz, Senior, Geography
Cassandra Likouris, Senior, Geography
Patrik Pearson, Junior, Geography
Kaitlin Rigdon, Senior, Geography
Patrick Rongers, Senior, Geography
Christopher Sweigert, Senior, Geography
Maxwell Yoder, Junior, Geography
Mentor: Jennifer Mapes, Ph.D.

Spatial Analysis of Food Insecurity in Portage County: Identifying Gaps in Food Assistance Programs

Food insecurity is a challenge for many Americans. In 2019, 10.5% of people living in the U.S. experienced food insecurity at some point during the year, and the number reached as high as 23% in 2020 as millions lost their jobs during the pandemic. Locally, most research on food insecurity provides information at the county scale. Our research examines the geography of food insecurity in Portage County at the

neighborhood scale. We identify the contrast between food pantries and grocery stores that provide food assistance programs such as SNAP with food deserts where access to fresh produce is lackluster. We also specifically examined the needs of students at Kent State University, identifying a location for a second campus food pantry.

“WE HAVE THIS VERY CLEAN PICTURE OF SCIENCE, YOU KNOW, THESE WELL-ESTABLISHED RULES WITH WHICH WE MAKE PREDICTIONS. BUT WHEN YOU’RE REALLY DOING SCIENCE, WHEN YOU’RE DOING RESEARCH, YOU’RE AT THE EDGE OF WHAT WE KNOW.”

-LISA RANDALL



Jaiden Morales, Sophomore, Digital Media Production

Peyton Prall, Freshman, Psychology

Jackson Stanley, Freshman, Exploratory

Allyson Bresnahan, American Sign Language/English Interpreting

Emily Nicoletti, Freshman, Psychology

Mentor: Cody Holland, M.A.Ed.

Get to Know SRVSS

SRVSS is not getting enough recognition. During research, we found events by the office to include everyone, but it is not enough. SRVSS needs to be well known across campus. We will accomplish this by advertising the office in many ways. When implemented, we want to see a lot more conversation. It does not end there though. Word

of mouth will carry this the furthest, and we hope to have a constant conversation about the office and its services. In the end, we want to see this topic and office as a social norm, not something that only caters to the audience of people that have been directly affected. It needs to be a thing that everyone talks about.

Katherine Pandolfo, Junior, Fashion Merchandising

Natalie Stewart, Freshman, Marketing

Isabella Alvarino, Freshman, Fashion Design

Eva Malasi, Freshman, Psychology

Bryton Ellis, Freshman, Music Education (Instrumental)

Madeline Henning, Freshman, Psychology

Devin Oates

Kevin Wagner

Mentor: Cody Holland, M.A.Ed.

Increasing Personal Safety at Kent State

In order to limit the number of dangerous instances that Kent State students experience, we want to provide safe solutions by increasing outdoor lighting and evaluating parking spots, as well as providing resources regarding sexual assault and harassment. To take action, we will determine dark areas on campus by contacting the departments that conduct the lighting safety walk. Additionally, allowing students to use parking

spots closer to their residence halls reduces their risk while returning from their vehicles. We will also encourage the use of mobile safety apps to protect students as they walk. The goal of this project is to provide resources and effectively utilize areas around Kent State to further the security of students and ensure that safety is a top priority.



"There is no end to education. It is not that you read a book, pass an examination, and finish with education. The whole of life, from the moment you are born to the moment you die, is a process of learning."

-Jiddu Krishnamutri

Christopher Vadala, Senior, Biology (Molecular and Cellular Biology)

Jack Palmer, Freshman, Computer Information Systems

Christina Farnsworth, Freshman, Exploratory

Grace O'Malley, Freshman, Nursing

Emily King, Freshman, Public Relations

Kalli Gambill-Donley, Freshman, Human Development and Family Studies (Family Life Education)

Mentor: Cody Holland, M.A.Ed.

A Firmer Handshake

There have been many students and faculty having issues finding jobs or internships and finding students to fulfill positions using the current platform at Kent State, Handshake. We want to find a way to expand the platform to make jobs and internships more available and help get more students involved with the program. We will be developing marketing strategies to publicize

Handshake on campus. We will also be researching Handshake itself to see if it is possible to make changes or whether an alternative system needs to be developed. Handshake or whichever platform we move forward with will be more accessible across campus for students to make use of. Student involvement will improve throughout campus with more available jobs and internships.

PSYCHOLOGY

ORAL PRESENTATIONS

Rose Englert, Senior, Psychology (Counseling Careers)

Emily Turkily, Junior, Psychology (Counseling Careers)

Mentor: Arne Weigold, Ph.D.

Internet Gaming Disorder: Psychological Well-Being in Gamers Exhibiting Low, Moderate, and High-Risk Behaviors

Internet gaming disorder (IGD) has recently been recognized as a mental disorder. However, research on IGD has neglected to examine how gaming might compensate for psychological well-being that is missing in life. Therefore, we examined 301 adult gamers exhibiting low (46.2%), moderate (32.2%), and high (21.6%) levels of disordered behaviors on psychological well-being (positive emotions, engagement, relationships, meaning, and accomplishment) and distress

(negative emotions and loneliness), both in life and while gaming. Low-risk gamers experienced the lowest levels of distress, both in life and while gaming, whereas high-risk gamers experienced the highest levels of well-being while gaming. Moderate-risk gamers had similar levels of well-being while gaming to low-risk gamers and similar levels of distress in life and while gaming to high-risk gamers.

**"Education is not preparation for life;
education is life itself."**

-John Dewey

Sophia Finizia, Junior, Psychology

Mentor: Julie Evey, Ph.D.

Caffeine, Sleep, and Grades: A Correlational Study

Caffeine is a stimulant that is regularly consumed by a large amount people worldwide. Although there are many perceived benefits from using caffeine, there may be some downfalls. Caffeine is shown to be correlated with lower academic performance and reduced sleep quality. Shorter sleep duration is also linked to lower academic

performance. The current study takes a correlational approach to find the strength of the relationship among sleep duration, academic performance, and caffeine intake. Data collection will be complete in the next two months. Implications of the findings will be discussed.

PSYCHOLOGY

POSTERS

Autumn Browning, Senior, Psychology

Mentor: Patricia Tomich, Ph.D.

Managing the Pandemic

This research compared lifetime trauma exposure reported during the COVID-19 pandemic with an age- and gender-matched comparison group in terms of lifetime trauma exposure, PTSD symptoms, and physical and mental health. Participants (N = 70) were undergraduates (81% female; 94% White; M age: 20.64) who completed online surveys. Results indicated more than 80% in both groups reported at least one lifetime trauma. Contrary to expectations, no participants

in the pandemic group reported anything associated with the pandemic as their most distressing life event. In addition, there were no between-group differences in PTSD symptoms, physical health, or mental health. Taken together, these findings suggest that clinicians should consider the notion that although living through a pandemic may be stressful, most individuals are successfully managing the pandemic.

**"RESEARCH IS CREATING NEW
KNOWLEDGE."**

-NEIL ARMSTRONG



Kai Clemons, Senior, Psychology (Child Psychology)

Elizabeth Jean, Graduate Student, Psychology (Child Psychology)

Keaton Somerville, Graduate Student, Psychology (Child Psychology)

Tiffany Rowell, Graduate Student, Psychology (Child Psychology)

Mentor: Angela Neal-Barnett, Ph.D.

Through a Black Lens: An Exploration of Media Images and the Acting White Accusation

Black adolescent girls can be vulnerable to stereotypical negative media images, as it can contribute largely to their perception of self and potentially influence their behavioral expectations in society. One form of societal critique is the acting White accusation (AWA), where several Black adolescent girls report being accused of displaying stereotypically White characteristics. The current study seeks to analyze the relationship between the AWA and exposure to,

appraisal of, and identification with media stereotypes of Black women. In addition, we examined the role of ethnic/racial identity in these relationships in our sample (n=40). We found significant associations between appraisal of Black media images and receiving the AWA, both associated with the acting White accusation, and both intensity. Future research should aim to address the significance of the findings to the extant literature.

Morgan Diefenderfer, Junior, Psychology

Mentor: Patricia Tomich, Ph.D.

Is It Bad to Think, "Pets Are People Too?"

Some people may contend that "pets are people too." This research compared pet owners with age- and gender-matched non-pet owners (N = 120) in terms of their beliefs about pets, quality of life, and mindfulness. Participants were undergraduates (62% female; 78% White) who completed online surveys. Results indicated that pet owners had more anthropomorphic beliefs regarding pets than did non-pet owners. Also, for pet owners

only, more anthropomorphic beliefs were related to worse physical and mental health, and less mindfulness. These findings support the notion that it may be bad to think "pets are people too." Overall, clinicians should consider the notion that individuals who report extreme closeness to pets may benefit from mindfulness interventions that, in turn, may improve their overall quality of life.

Maya Granot, Senior, Psychology (Counseling Careers)

Mentors: Joel Hughes, Ph.D. & Anthony Vander Horst, Ph.D.

Tenure Track, Non-tenure Track, and Part Time Faculty Reported Similar Psychological Distress Early in the COVID-19 Pandemic

In this study, we compared levels of psychological distress in full-time faculty tenure track (TT), full-time non-tenure track faculty (NT), and part-time contingent faculty (PT). On March 17th, 2020, all Kent State University full-time faculty were emailed a survey, yielding 682 valid responses meeting inclusion criteria for these analyses (62% female, 87% white). Measures included the Kessler Psychological Distress Scale (K6, cite, Cronbach's

$\alpha = .83$), an item assessing the risk of contracting the virus, and demographic items. A 2 (sex; male vs. female) by 3 (faculty status; TT vs. NT vs. PT) factorial design revealed no significant main effects or interactions. TT, NT, and PT faculty experienced elevated psychological distress as the COVID-19 pandemic unfolded. Implications and limitations discussed.

Heather House, Senior, Psychology (Counseling Careers)

Logan Kochendorfer, Graduate Student, Psychology

Kathryn Kerns, Faculty, Psychology (Counseling Careers)

Mentor: Kathryn Kerns, Ph.D.

Validation of a Measure of Emotion Regulation for Children in Middle Childhood

Coping strategies play a significant role in childhood development and require investigation. We sought to add to the validity of the Negative Emotion Regulation Inventory (NERI), a questionnaire that assesses coping in specific emotional situations. 105 preadolescents completed an altered version of the NERI and measures of anxiety and parent-child attachment. We tested if the scenarios were related to children's emotions and coping strategies. We

replicated findings that coping varied by emotional situation. As expected, we found significant correlations between coping and anxiety as well as secure parent-child attachment. These replications provided evidence for the reliability and validity of the adapted NERI and suggest the measure can capture coping strategies. Future studies could use the NERI to identify coping strategies that promote positive mental health.

Jessica Livingston, Senior, Psychology

Mentor: Amy Sato, Ph.D.

An Examination of Emotional Eating Among Emerging Adults: Understanding the Role of Food Insecurity

Introduction: This study aimed to examine associations among food insecurity, biological sex, and emotional eating in emerging adults. Methods: Participants included 232 college students (82.3% female; 83.2% Caucasian; BMI: $M=25.28$, $SD=5.20$; Age: $M=19.90$, $SD=2.45$) who completed the Household Food Security Survey Module: 6-Item Short Form and Emotional Eating Scale ($\alpha=.93$). Results: Food insecurity was positively associated with emotional eating

($B=1.35$, 95% CI[.24, 2.48]), controlling for BMI. The association was stronger for males than females. Conclusions: Emerging adults, particularly males, with food insecurity may be at greater risk for emotional eating. Future research should investigate risk factors, such as stress. Interventions promoting healthy eating may benefit from addressing participants' food security.

Nasha Manitkul-Davis, Senior, Psychology

Hanna Schmetzer, B.A., Psychology

Lauren Almes, B.A., Psychology

Mentor: John Gunstad, Ph.D.

Student-Athletes' Mental Health Concerns Regarding COVID-19

A total of 437 NCAA Division I student-athletes completed the Coronavirus Anxiety Scale (CAS) as a part of a pre-season evaluation. Despite being at elevated risk of exposure, student-athletes

endorsed low levels of coronavirus-related anxiety, and more research is needed to understand the mental health effects of Covid-19 in athletes.

Taylor Miller, Junior, Psychology

Mentors: Christopher Was, Ph.D. & Maren Greve, Graduate Student

Temptations of a Remote Learner: How University Students are Adjusting to Distance Learning

In this experimental study, the objective is to explore a relationship between mind-wandering and multitasking during distanced learning sessions at home. Particularly, we are interested in college students who have been forced to engage with online classes due to the pandemic. The importance of understanding this possible relationship is furthering academia in accordance with student behavior, especially amidst the wave of technological advancement that is ubiquitous

in university settings. The expectation of this study is that participants will perform best in the control condition that has no distractions (despite their own individual mind wandering), and the irrelevant probe condition will do the worst on the posttest. Ultimately, how does having multimedia distractions during synchronous lectures or sessions impact the student's ability to concentrate?

Diana Semilia, Junior, Aeronautics (Aeronautical Studies)

Mentor: Jason Lorenzon, J.D.

The Cycle of Mental Illness Stigma in the Aviation Industry

Psychological problems among pilots are a threat to flight safety, and the outcome of deteriorating mental health can be catastrophic. With cycles of stigma existing in the aviation industry, pilots may be reluctant to disclose mental health problems for fear of losing their license to fly. Many pilots may be managing depressive symptoms without

treatment due to the fear of negative career impacts. Because of the unique and challenging working conditions of pilots, the aviation industry, as well as the Federal Aviation Administration, should encourage and provide support for treatment with the same concern as any other physical illness or injury.

Hayley Shasteen, Senior, Psychology

Mentor: Rachael Blasiman, Ph.D.

Defining Brain Fog: A Preliminary Analysis

Brain fog is a cognitive symptom experienced by people with chronic conditions, such as systemic lupus erythematosus and fibromyalgia, and is poorly defined. Research investigating brain fog has produced varying results that do not create a cohesive definition for brain fog. We designed a qualitative study to investigate how brain fog is individually experienced by members of different chronic condition populations to understand the underlying features of this symptom, including

impacted cognitive symptoms, impacts to social relationships, and how healthcare professionals view this symptom and approach treatment. Participants were interviewed and asked questions that address the individual experience of brain fog. To date, we have interviewed 87 participants with varying conditions. We use grounded theory to explore the cognitive systems impacted by brain fog.



Hayley Shasteen, Senior, Psychology
Mentor: Rachael Blasiman, Ph.D.

Impacts of Shift Work on People with Chronic Conditions

In this project, we aim to understand how shift work impacts people with chronic conditions, such as systemic lupus erythematosus or multiple sclerosis, as compared to people without chronic conditions. Current research efforts have revealed that shift work is a risk factor for developing numerous chronic conditions, and that shift work, in general, leads to dysfunction in cognition as

well as an increase in physiological maladies. However, there remains a lack of research regarding how shift work impacts those who already have a chronic condition. We examine differences in objective and subjective cognition, physical symptoms, sleep, and sleep-wake activities between shift workers with chronic conditions and those without.

Katie Sheldon, Senior, Psychology
Kaitlyn Warakomski, Junior, Psychology
Mentors: Christopher Was, Ph.D. & Maren Greve, Ph.D.

Assessing the Shut-Down: Examining Changes to Student Motivation and Volition Due to the COVID-19 Pandemic

The types of academic goals students set greatly determine the self-regulation of study habits. The study aims to observe goal orientation and motivation during virtual learning due to COVID. The main objective is to see the performance and motivation levels of students for the classes after COVID and if goal-orientation has been altered after a year of virtual learning has been implemented. To get this information, the

students will provide insight on studying habits, help-seeking behaviors, testing habits, test anxiety, and self-regulation behaviors. Demographics that pertain to this study are class ranking, GPA, gender, age, and the format of the classes taken to see the outcomes of virtual learning. We will use path analyses to examine the relationships among our variables.

Emma Smith, Senior, Psychology
Mentors: Joel Hughes, Ph.D. & Heather Neifert, Graduate Student

Active Coping Strategies Are Superior to Passive Coping Strategies for College Student Anxiety During the Novel COVID-19 Pandemic

COVID-19 has greatly impacted people's lives. Active coping strategies are shown to work better for general anxiety than passive strategies, yet no studies examined the effect of active versus passive coping strategies on anxiety in college students during the COVID-19 pandemic. Undergraduate college students enrolled in classes during Spring semester 2020 (n=181, [%]

female; [%] White) completed questionnaires measuring coping strategies (Brief COPE), anxiety (PROMIS Anxiety), and perceived stress (Kessler Stress Scale) via Qualtrics between April 6, 2020 and June 6, 2020. Correlational analysis showed that active coping is better than passive coping for anxiety in college students during the COVID-19 pandemic.



Elizabeth Straub, Senior, Psychology
Mentor: Judith Gere, Ph.D.

The Effect of Event Type and Mindfulness on Self-Expansion

The current study investigates experiences of self-expansion after both positive and negative events within a romantic relationship and the potential impact of mindfulness on self-expansion outcomes. We hypothesized that individuals would experience similar levels of self-expansion, regardless of the valence of the event. We also hypothesized that individuals higher in mindfulness would report higher levels of self-expansion following a positive or negative event

with their romantic partner. This study uses data from 316 individuals in a romantic relationship that were recruited from a subject pool. Multilevel modeling was used to conduct all analyses. Contrary to our hypotheses, individuals experienced greater self-expansion after a positive event with their partner, when compared to a negative event and higher mindfulness, scores did not predict increases in self-expansion.

SOCIAL SCIENCE, EDUCATION, & PUBLIC **HEALTH** *ORAL PRESENTATIONS*

De'Asia Benjamin, Junior, Public Health (Community Health Outreach and Development)
Mentor: Clare Stacey, Ph.D.

Covid-19 Affecting the Mental Health of Pregnant African American Women

As we know, underrepresented women, particularly African American women face higher rates of stressors. This study considers how Covid-19 impacts the mental health of pregnant African American women. Interviews explored the kinds of stressors impacting pregnant African American women during COVID and the social support they

receive from family, friends, and employers to cope with these stressors. The study uses a stress process model approach to interpret findings (Pearlin 1981). These findings help us to understand how African American women are coping with the pandemic.



"I have this extraordinary curiosity about all subjects of the natural and human world and the interaction between the physical sciences and the social sciences."

-Ian Hacking

Kiara Carter, Senior, Economics
Mentor: Curtis Reynolds, Ph.D.

Peer Effects of On-Campus Students

Within Labor Economics, there is a growing literature on peer effect spillovers. Peer effects, in education, examine how a student's characteristics or innate ability might affect the achievement outcomes of their peers. Within the peer effect literature in post-secondary education, peer groups are often examined within dormitories. The Kent State University dataset used is interesting. In this dataset, peer groups are defined within First Year Experience classrooms, which are mandatory courses taken by freshman

students in their first semesters at KSU. First, we distinguish the differences between our two student groups of interest, off and on campus students. We find that there are distinct differences between the two student groups and that the proportion of a student's class that is on-campus is insignificant for off-campus students. Given these differences, we will then analyze how the quality of student achievement outcomes might affect one another's grade point average or retention outcomes.

Destiny Ezeliora, Sophomore, Neuroscience
Khalil Looney, Graduate Student, Educational Studies
Mentor: Elizabeth Piatt, Ph.D.

Mental Health, Racial Identity, and Masculinity in the Black Male Collegian

Racism, depression, and everyday stressors negatively affect the mental health of African American men, an understudied demographic. To study this underrepresented group, we made a web-based survey asking male-identifying African Americans a series of questions about experiences of racial discrimination, depressive symptoms, masculinity, racial identity, and demographic. The goal of this study is to see how all these previously

mentioned factors affect the willingness of the demographic to seek mental health services on campus. A vast majority of the participants reported never having used mental health services on campus or otherwise. Although this study does not directly benefit the participants, we hope that the data that is collected will help improve access and destigmatize mental health services for African American men on college campuses.

Delonte Goodman, Junior, Mechatronics Engineering Technology
Brook Lyn Mercado, Sophomore, Biology
Jaela Perkins, Junior, Communication Studies
Mentor: Kelly Cichy, Ph.D.

The Impact of Social Capital on the Mental Health of TRIO Students

Research suggests that social capital contributes to the stressors that college students face, and stressors can lead to poor mental health, which can impact academic performance and relationships. We hypothesize that the more social capital (i.e., funds, access to information, and connections) a student holds, the less likely they are to experience stressors and poor mental health. Respondents include individuals between

the ages 18-25 years old (Target N = 150) in TRIO programs (i.e., Upward Bound, Student Support Services, and McNair Scholars Program). Respondents will complete an online Qualtrics survey. To test the hypotheses, we will examine the correlations between social capital, stressors, and self-rated mental health. Implications for meeting the mental health needs of TRIO students will be discussed.

SOCIAL SCIENCE, EDUCATION, & PUBLIC **HEALTH** *POSTERS*

Essence Edmonds, Junior, Nursing
Mentor: Mary Wilson, Ph.D.

Police Brutality in America

George Floyd's death came six weeks after the police fatally shot Breonna Taylor, a 26-year-old Black woman, during a midnight "no knock" raid on her home. It came ten weeks after the killing of Ahmaud Arbery, a 25-year-old Black man, who was chased down by a White father and son in a pickup truck as he jogged in his neighborhood. These deaths seemed to spark the reminiscence,

from 400 years ago, of oppression of Black people. During a pandemic that sickened and killed many African Americans, the deaths unleashed a rampage against oppression that became the catalyst for uprisings of people to pour into the streets by protesting and demanding justice and an end to police brutality around the whole world.

Kiara James, Junior, Public Health (Community Health Outreach and Development)
De'Asia Benjamin, Junior, Public Health (Community Health Outreach and Development)
Tayjua Hines, Junior, Pan-African Studies (Community Activism, Strategy and Development)
Sarah Robinson, Senior, Psychology
Mentor: Kelly Cichy, Ph.D.

The Impacts of Peer Mentorship on Underrepresented Students in Higher Education

Research finds that students, particularly underrepresented students, benefit from faculty or staff mentors, whereas less is known about the role of peer mentors. This research expands upon prior research by exploring how peer mentorship contributes to college students' mental health. Respondents include young adult men and women ages 18-25 years old (Target N = 150), including students served by TRIO programs (i.e., Student Support Services and McNair Scholars

Program). Respondents will complete an online Qualtrics survey and answer questions about access to student mentors on campus and their mental health. To test the hypotheses, we will examine the correlations between access to student mentors and self-rated mental health. Implications for programming to support the mental health needs of TRIO students will be discussed.



Brooke Moeller, Senior, (International Relations – Comparative Politics)

Mentor: Ashley Nickels, Ph.D.

Gentrification and Neighborhood Change: Competing Narratives Among Nonprofit Actors

The findings from this project are part of a larger study that explores how narratives on neighborhood change transform over time, and how local governing powers shape dominant narratives about neighborhoods. We examine competing narratives of neighborhood change through an in-depth analysis of local news-media coverage in Grand Rapids, MI. Using inductive and deductive coding, we draw on 20 years of local news-media and nearly 190 articles to analyze the

competing and evolving narratives of neighborhood change. Further, we evaluate how residents, developers, and local community-based organizations perceive the visible processes of neighborhood change, such as the construction (or lack thereof) of low-income housing. This research contributes to the existing literature on gentrification and the role of local nonprofits and community-based organizations in these processes.

Mary Oprandi, Senior, Integrative Studies (General)

Mentor: Richard Adams, Ph.D.

Learning from Disasters: Comparative Study of the 2018 California Camp Fire and the 2010 Haiti Earthquake

This work aims to explore and provide an overview on the disasters of the 2018 California Camp Fire and the 2010 Haiti Earthquake. It also discusses potential solutions for dealing with and preventing possible future disasters. These disasters are compared over their circumstances, commonalities, and differences. The disasters are examined through multiple lenses with influences from the field of disaster sociology. This work

hopes to inspire others to become more involved in their communities to prepare for future disasters through the exposure of the findings from these events. In terms of presentation, this will be a digital compilation. It will feature visual aids to provide context on the disasters and accessibility options. Graphs and organizers will be used to help demonstrate data and comparisons.

Aidan Taylor, Senior, Pan-African Studies (The Arts in Culture and Society)

Mario Coachman, Senior, Architecture

Ruby Greenwood, Junior, Nutrition

Zoe Sims, Senior, Psychology

Mentor: Kelly Cichy, Ph.D.

Mental Health Stigma and Its Effect on Marginalized TRIO Students

Research shows that marginalized communities often are the last to seek mental health services, despite suffering from them at alarming rates. This study will examine the associations between mental health stigma and TRIO students' (i.e., Student Support Services, McNair Scholars Program) mental health knowledge and comfort in seeking services. Respondents include men and women ages 18-25 years old (Target N = 150) with

a focus on first-generation/low-income students and underrepresented students. Respondents will complete an online survey and answer questions about their feelings of shame and/or stigma and their comfort and knowledge related to mental health. We expect higher stigma will be associated with less comfort and knowledge related to mental health. Implications for improving mental health among TRIO students will be discussed.

Jessica Vari, Sophomore, Nursing

Anne Ritz, Sophomore, Nursing

Mentor: Jay Hays, Ph.D.

The Effects of Racism on Black Maternal Mothers and Their Children

This presentation shows that institutional racism plays a role in the higher mortality and morbidity rates of female minorities, specifically Black women, due to the policies created out of racism in the United States of America. The number of deaths occurring during and after labor has been increasing, along with the number of severe complications during labor. This research explores

how the increased morbidity and mortality rates in maternal health are affected by the prominent racism within both the American society and health care system, which is caused by the policies created out of slavery. It explains why it is important that we, as healthcare workers, address the issue of racism in American society in order to help the lives of maternal Black women.

Meghan Williamson, Junior, Speech Pathology and Audiology

Mentors: Jennifer Roche, Ph.D. & Susan Fisk, Ph.D.

Misinterpreting Intentionality About Women: Acoustic and Socio-Indexical Cues to Confidence

Women who communicate like men (e.g., confidently or assertively) are sometimes socially penalized for how they communicate. Listeners have been shown to take advantage of acoustic cues to confidence to interpret intentionality in women speakers. We extend this line of research to include listeners' evaluations of confident speech as a function of socio-indexical cues to gender. We used a matched-guise design to digitally manipulate speaker gender and cues to

confidence. Results indicated that listeners accurately interpret speaker cues to confidence, but listeners tend to differentially interpret the speakers' acoustic cues to lack of confidence based on speaker gender. Findings suggest that conceptions about gender-specific communication styles may lead to misinterpretations of intentionality about women, potentially accounting for some of the barriers women face during communication.

