

**UNIVERSITY *of* WEST FLORIDA**

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**STUDENT SCHOLARS**

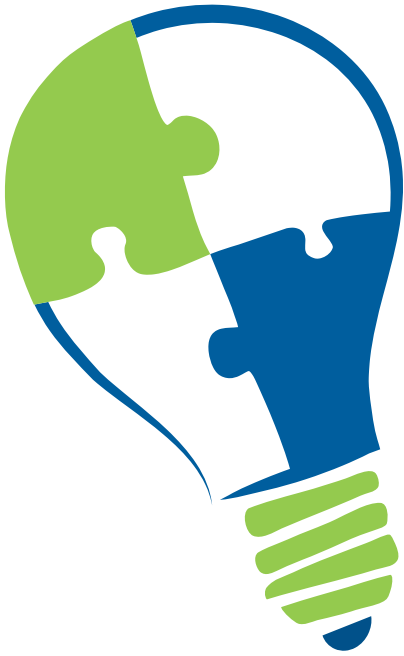
**SYMPOSIUM**

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**AND FACULTY RESEARCH SHOWCASE**

**2023**

**Event Program**



**UNIVERSITY *of* WEST FLORIDA**

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**STUDENT SCHOLARS  
SYMPOSIUM**

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**AND FACULTY RESEARCH SHOWCASE**

**Programs & Abstracts**

**April 20, 2023**

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# COLLEGE OF ARTS, SOCIAL SCIENCES, & HUMANITIES



## DEPARTMENT OF ANTHROPOLOGY

**Palmer Johnson**

**Anthropology**

***Radiocarbon Dating of Carbonized Wood from the Tristán de Luna Settlement***

**Co-Author(s): Parker Boles**

**Faculty Mentor(s): John Worth**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conference Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #2**

Our poster presentation includes background information regarding the history and context around De Luna's Spanish Settlement attempt in Florida back in the mid-16th century and follows with the notable discovery of carbonized wood and an iron spike believed to be contemporary to the activity of the settlement. We discuss why we decided to use C-14 (Carbon-14) radiocarbon dating of the carbonized wood in an attempt to provide evidence to support our hypothesis that the spike was from the settlement and retroactively date the spike. Charts and graphics showing context from the UWF Archaeology Field School are present throughout the poster. Theories are addressed to respond to the data from the C-14 testing and concluding statements are discussed lastly on our project followed by possible leads or avenues of investigations we may postulate from in the future of our research.

**Emily Romdenne**

**Anthropology**

***Modeling Embodied Social Inequity from Skeletal and Dental Tissues:***

***Presenting the Structural Vulnerability Profile (SVP) and Trait List***

**Co-Author(s): C. Kirk, Aliana Schwartz, Taylor Perritt, Katherine Miller Wolf,**

**Allysha Winburn**

**Faculty Mentor(s): Meredith Marten**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #1**

Lived experiences of social marginalization leave traces on skeletal and dental tissues. Traditional biological anthropology methods can model the extent to which sociocultural systems, or structures, and subsequent inequality may become embodied in an individual's skeleton. Our research group recently proposed the Structural Vulnerability Profile (SVP; Winburn et al. 2022) as a means

to supplement biological profile information (i.e. skeletal sex, age, ancestry, etc.) with data on embodied experiences. In this presentation, we introduce a SVP biomarker trait list (n=40) that can be applied during skeletal assessment to identify the degree of vulnerability, inequity, and resilience experienced by an individual during life. We present the results of an application of the SVP to 30 individuals from the New Mexico Decedent Image Database (NMDID; Edgar and Berry 2019). The anonymized medicolegal CT images were authorized for research purposes by next of kin and thus connect demographic data with skeletal data to better understand lived experiences. The SVP effectively links skeletal and dental markers of inequity to social and economic stressors that are embodied during life such as sex, social race, poverty, and access to medical care. While our SVP is initially applied to a forensic sample, we argue it has major implications for research in biological anthropology, bioarchaeology, and medical anthropology. Funding provided by a Wenner-Gren Post PhD Research Grant (#10277) and Anthropology Research Support at the University of West Florida.

**Adrian Thomas**

**Anthropology**

***Using ArcGIS to Test the Accuracy of LiDAR Scanning By Comparing to GNSS Data***

**Faculty Mentor(s): Mark Wolf**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #1**

LiDAR or Light Detection and Ranging is a technology used to create models of ground elevation from afar using lasers, and is a type of remote sensing. A process for researchers to detect physical attributes of an area indirectly. A LiDAR instrument consists of three component pieces to collect data. First, a laser produces light that is used as the measurement medium. The reflected light from the ground is collected by the photodetector sensor and optics, and then a receiver documents the exact position of thousands of data points in real time. There are 2 main types, Airborne LiDAR scanning and Terrestrial LiDAR scanning. GNSS (Global Navigation Satellite System) data is collected on the ground or on site, with a person holding a receiver device and collecting points individually. This occurs through satellite constellations that provide signals from space. The Satellites are synchronized with each other and they triangulate to come up with positioning. Nojpet&eacute;n or Tayasal as known by the Spanish (1441-1446) would be the last stronghold of the Itza Maya conquered by the Spanish (1697). Now, the city of Flores has been built atop of the island. Twenty-seven sites have been found in Lake Pet&eacute;n alone, primarily due to Rescue Archaeology, which leaves these findings room for doubt. This site has evidence of Preclassic (1800 B.C. - A.D 250 ) occupation, but is primarily a Post Classic site (A.D 900-1500). The purpose of this study is to test the accuracy of Lidar imagery by comparing it to GNSS data collected on the site of Flores, Guatemala using ArcGIS.

**Marissa Triola**

**Anthropology**

***Before the Gold Standard: Alternative Currency in West Africa***

**Faculty Mentor(s): John Worth**

**Session: Main Oral Presenters**

**Session Time: 10:30 a.m. - 12 p.m.**

**Location: Nautilus Chamber****Presentation Time: 10:30-10:45**

Manillas and cowry shells served as alternative currencies in the trans-Atlantic trade in West Africa. Cowries are marine snails native to the Indian Ocean whose shells were brought into West Africa by trans-Saharan traders and adopted as an everyday alternative currency exchangeable for anything from food to slaves. Manillas are brass bracelets with lozenge shaped feet that were produced in Europe exclusively for use as currency to trade with West Africa for slaves or other trade goods. This paper examines manillas and cowries that are part of a larger assemblage from the Elmina Wreck discovered by Dr. Gregory Cook in 2003. The analysis of the Elmina Wreck assemblage of manillas and cowries will be the basis for a comparison of both terrestrial and maritime contemporary assemblages. The conclusions of the comparison were that maritime assemblages, like the Elmina Wreck, present unprecedented insight into trade but only represent a singular event.

**Sebastian Vert****Anthropology*****History of the Archaeology of Spanish Missions in the U.S.*****Faculty Mentor(s): John Worth****Session: Main Poster Session****Session Time: 11 a.m. - 12 p.m.****Location: Conf Room AB****Presentation Time: 11 a.m. - 12 p.m.****Poster #4**

For this project, I analyze many publications and reports relating to archaeology of the Spanish Missions in the United States during the colonial period. This analysis examines how the processes and conclusions archaeologists have made not only changed over time, but also how early archaeological work at these sites, may have influenced later interpretations of the sites and the questions that were asked regarding these sites. To allow for a bigger pool of data, the literature that I examined were not solely focused on one particular region, but rather multiple states and their multiple sites. One reason for this is that sites are sometimes lost for one reason or another, whether by human actions or natural processes. Additionally, many authors of these reports did not visit sites again, but further research was conducted by later archaeologists, in which these older reports serve the purpose of not only informing future archaeologists of what they originally found, for further research and possible questions, but also providing insight into what exactly people were thinking in regard to Spanish mission sites in the past. As such, this paper will look into general areas such as the U.S. Southwest all the way to the East, exploring how archaeologists and historians interpreted the missions throughout the past 200 years, but how archaeology of one specific area influenced how later archaeologists viewed the whole of Spanish Missions in the United States

**Elizabeth White****Anthropology*****Determining the Origin of a Cow Tooth from the Luna Settlement Using Strontium Isotope Analysis*****Faculty Mentor(s): John Worth****Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #1**

Since excavations of the Luna Settlement began in 2015 there have been numerous studies centered around architectural features and ceramic assemblages on the site. Little has been done, however, on the faunal remains in relation to the subsistence strategies during the Luna period. For this project, a sample of a cow tooth from the 2017 excavations of the Luna site will be sent to UNC Chapel Hill's Isotope Geochemistry lab for strontium isotope analysis. Strontium that is taken in through plants can leave traces on animal bones, and the specific ratio of strontium isotopes ( $Sr\ 87 / Sr\ 86$ ) can indicate the origin of the animal. The results can be used to determine whether or not the cow was native to Florida, or if it was brought over with the Luna Fleet from either Mexico or Havana. The data from this study will assist in current thesis research being done by Pax Johnson on meat consumption at the Luna Settlement after the hurricane.

**Allysha Winburn****Anthropology*****Crime Scene Archaeology: Unearthing Forensic Science at UWF's Forensic Anthropology Field School*****Co-Author(s): Ashleigh Panko, Mikaela Aiken, Holley Handley****Session: Faculty HIP Showcase****Session Time: 8 a.m. - 9 a.m.****Location: Zoom****Presentation Time: 8:45 - 9:00**

UWF is the only university in the nation that offers a five-week, domestic field school dedicated to forensic anthropology. "Forensic Field Recovery" is a certified UWF High-Impact Practice and an Experiential Learning course. In it, students learn standard forensic methods for the discovery, documentation, and systematic recovery of human skeletal remains, through the application of archaeological survey and excavation methods to realistic simulations of surface scatters and clandestine burials. Students show up at 8am each day in their field clothes to slash their way through brush, probe sediments to identify grave disturbances, map and excavate replica skeletal deposits, and "bag and tag" evidence all while rigorously maintaining the security of mock crime scenes. At the end of the semester, teams of students publicly demonstrate their competence in a "real-time" field-recovery exercise, which lends a real-world, high-pressure edge to an experience students describe as extremely rewarding. Many other programs offer weeklong courses in forensic archaeological recovery methods, but a five-week field course puts students at a different level of practical competency. Students who complete this field school leave UWF as skilled recovery technicians, well poised to enter careers in law enforcement, cultural resource management, and the forensic sciences, in positions as crime scene technicians, archaeologists, and medicolegal death investigators. This presentation introduces attendees to the rigors, challenges, and joys of learning forensic anthropology at UWF.

**Seth Willoughby****Anthropology*****Roots of the Anglophone Crisis, and the Ambazonian War for Independence*****Faculty Mentor(s): Ben Burgen****Session: Main Poster Session****Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB****Presentation Time: 1 p.m. - 2 p.m.****Poster #1**

The current Ambazonian war of independence and the greater issue of the anglophone crisis, are both direct consequences of western nations purposeful linguistic and cultural alienation of African peoples during and after colonialism. This paper will examine the history of the colonial occupation of Cameroon by Britain and France in order to discern how exactly these colonial powers subjugated the people of the area in both body and mind. Then I will detail the incredibly harmful repercussions the differing policies in the anglophone, and francophone regions have continued to cause to this day, in the form of the Ambazonian war of independence. For one, the Introduction of conflicting European ideologies in the form of both languages and administrative systems created a natural rift in the cultures between the anglophone minority and the francophone majority. Secondly The perpetuation of these ideologies in the post-colonial world by bad actors propped up by western powers. Finally, the ill attitude and systematic discrimination by the francophone majority towards the anglophone minority. The Ambazonian war of independence and the greater anglophone crisis are results of colonial erasure of Cameroonian identity through homogenizing language and culture to such a degree that the people of Cameroon see different ethnicities in the different languages one speaks.

## DEPARTMENT OF ART & DESIGN

**Nell Arnett****Art & Design**

***Exploring the Combination of Digital Technology and Historical Printing Methods in Contemporary Art Practice***

**Co-Author(s): Megan Haytack, Sarah Teter, Karla McMillan****Faculty Mentor(s): Richard Rodriguez****Session: Visual Art Exhibit****Session Time: 11 a.m. - 1 p.m.****Location: Conference Room C****Presentation Time: 11 a.m. - 1 p.m.**

Presented in the form of live demonstration and “zines” (a self-published, non-commercial magazine), our research involves combining digital technology and machinery with historically-referenced printing methods, utilizing existing equipment and relationships in the community such as the newly establish SEA Makerspace and the UWF Historic Trust. The goals of our project are to provide interactive educational experiences for artists in the community, younger audiences who have an interest in art, and potential UWF students; explore the limitations of using technological techniques (laser etching, 3D printing, milling) for printmaking while referencing historical context, how printing has changed over time; and explore digital technology as a tool in contemporary art practice. Our overall goal is community education and outreach; this project will not only engage audiences in the arts, but also help others learn about the processes and tools available to them at the University of West Florida.

**Dylan Bass****Art & Design**

***Transforming Beach Conservation Data into a Visual Format for Erosion at***

**Pensacola Beach, FL.****Faculty Mentor(s): Joseph Herring****Session: Visual Art Exhibit****Session Time: 11 a.m. - 1 p.m.****Location: Conference Room C****Presentation Time: 11 a.m. - 1 p.m.**

I am, first and foremost, an illustrator. I focus on anatomy, specifically the hands. Inspired by Magritte, I am working on blending symbolism and realism of the human form rather than working purely figuratively. Because of the strange comfort when intermingling different materials, paints, inks, etc., digital and physical, I became an interdisciplinary artist working with digital and traditionally made art mediums. As a result, my main focus is to blend digital graphic design, computer-generated three-dimensional designs, physical charcoal, etc., to create artwork that joins symbolism and realism. This project, a series of three digitally altered 18x24 inch foam core posters, highlights the importance of the fight against beach erosion and the benefits of ecological preservation of specific locations. Along with these goals, I will use these posters to educate, inform, and transcend political boundaries, bringing particular issues to the forefront of public consciousness through my art. The posters feature digitally edited images from the Gulf Islands National Seashore from Gulf Breeze, Florida, collaged together to form unique landscapes that serve as backdrops for each poster's central message. Furthermore, I designed and built a kiosk to house the three 18x24 inch posters. The poster's kiosk will also feature shelves with pamphlets, hats, buttons, or t-shirts with QR codes. Once someone scans the code with their phone, it will navigate them to a page to go more in-depth on the research behind the posters and explain further reasoning as to why I decided to deliver my message through these three posters.

**Cori Bush****Art & Design**

***Designing Vinyl Decals, printing Digital Work, and Carving and Hand-Printing Linoleum Blocks for a Graduation Design Exhibition***

**Faculty Mentor(s): Joseph Herring****Session: Main Poster Session****Session Time: 10 a.m. - 11 a.m.****Location: Conf Room AB****Presentation Time: 10 a.m. - 11 a.m.****Poster #3**

In my personal art practice I seek to create a collection of balanced illustrations and designs. When creating a series I produce a large number of related pieces that are typically pinned to a wall in a cluster. This method of presentation allows the viewer to make their own connections of themes and visual motifs. For my graduation exhibition this May I am creating multiple clusters, each displaying work from one of my three disciplines of design: illustration, lino-printmaking, and digital graphic design. I am exploring new mediums of creating and presenting my artwork that pushes scale and creates a more interactive viewing experience, expanding the capabilities of illustration and design in the physical gallery space. I am incorporating larger, almost life-size, vinyl decals to my exhibition in order to draw viewers in. Having artwork that is not contained by a piece of paper will separate the boundary between my work and the viewer, creating a more immersive experience. Playing on scale, I will have pieces that

range from one square centimeter to multiple square feet. Placing very small drawings close to the ground or high up on the wall will make the viewer crouch or strain to get close to the piece and push this interactive sense of intimacy.

**Sara Chaimowitz**

***Screenprinting Bowls***

**Faculty Mentor(s): Justin Grubb**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

I will make a series of 12 screenprinted ceramic pieces, 6 handbuilt and 6 slip-casted. The slip casted pieces will be from moulds I will make from found objects. I will be using different Mason Stains to color slip to create my casted objects from the moulds I design. I will be applying different decorative techniques through screenprinting, slip-trailing as well as utilizing different underglaze techniques. Through screenprinting I will attempt to create usable underglaze decals of different images and words which are similar to commercially made decals. To do this I must create my own ink to use, I can then transfer onto the clay body at the leather-hard or bisqued stage of both slip-casted and handbuilt pieces. While different methods of screen printing has been around for a long time, the merging of screen printing and clay is still relatively new. There are artists that explore screenprinting on ceramics, such as Susan Kotulak. Her technique differs because she screenprints onto foam which she then uses for her transfers. I will be attempting to use the screenprinting technique to print onto blank newsprint which and I will then cut down to the size needed to apply to ceramic pieces as well as geliplates which allow me to roll my pieces over the image to transfer.

**Art & Design**

**Kaley Clarke**

***Creating a Brand Identity***

**Faculty Mentor(s): Joseph Herring**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #4**

For my project, I chose to create a brand identity that consists of multiple elements to form an identifiable design concept for a business. It will enable the business to be recognizable through a cohesive appearance that viewers can identify solely with them only and be reflected across all mediums, elements, and platforms utilized. I chose my business to be an art youth center that focuses around encouragement. The branding identity will serve as inspiration to youth while showing viewers what it is all about. It will consist of a logo, banners, posters, stickers, and other design elements. The design process begins with figuring out what kind of logo fits with the overall purpose of the center and then into incorporating that logo or secondary design elements into the rest of the identity. Research and development, as well as brainstorming and pursuing all directions to see what works best, is key to putting together an identity because it allows a designer to locate ideas and transfer them to sketches for a unique design package that represents your business.

**Art & Design**

**Kat Cook**

***Hand Building Realistic Flowers and Peacocks Using Colored Clay***

**Faculty Mentor(s): Justin Grubb**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

I make realistic flowers using colored clay instead of adding color glazes after the firing process. I also add flowers to peacocks instead of tail feathers and adding them to vases, bowls and/or plates. Creatively, I love to take a functional piece, add my own flair and turn it into a decorative piece. My goal has been to study realistic flowers, leaves and other plants. The shape of their petals and buds, texture, veins, and leaves to enable me to sculpt and form the flora as realistically as possible. My process is different from the traditional method. Ceramics are typically colored by applying a glaze after the first firing in the kiln then fired again so the glaze adheres to the piece. It can be very difficult to apply different colored glazes to a piece that has various designs attached. The glazes run and can mix together and the final outcome is a ceramic piece you've worked weeks on only to be ruined by a muddy mix of glazes. But since I add the color using mason stains in the mixing process, the final pieces are full of vibrant colors. Mason stains are a powder colorant that can be added to clay to give it different colors. While there are other artists who sculpt flowers out of clay, I haven't seen any that use colored clay. The majority of ceramic flowers are either a single color glaze or simply the natural color of the clay with a clear glaze applied. My goal is to take ceramics to the next level in floral art.

**Art & Design**

**Caroline Erb**

***Southern Mycophile - An Illustrated Zine of Southeastern Mushrooms***

**Faculty Mentor(s): Christopher Satterwhite**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

I created Southern Mycophile: 10 Mushrooms of the Southeast US as a fully illustrated zine featuring information about 10 select regional mushrooms. The intent of this project was to draw broader attention and interest for mushrooms as a unique part of Southeastern biodiversity, specifically by way of an accessible means of publication and distribution - the humble self-published zine. The first 150 printed copies of Southern Mycophile will be distributed for free on the UWF campus and at the Student Scholars Symposium, where the original 10 mushroom drawings will also be available for viewing.

**Art & Design**

**Angel Goldsby**

***The Day We Became Wolves***

**Faculty Mentor(s): Valerie George**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

American political tensions have been on the rise significantly over the past

**Art & Design**

years due in part to misinformation, racial aggression, and hyperfocus on culture, race, and identity. Such factors affecting our society can contribute to the drastic increase of these tensions, but there has yet to be a concrete consensus on the cause. *The Day We Become Wolves* analyzes these political tensions and searches for the root cause of such tensions. It also seeks to ask the viewing audience if political destabilization and growing violence in the United States could make us no different from the nature we see as brutal and depraved. It is an animatic broken into three short chapters that tell the story of a lesbian teenager in an ever-increasing world of violence, bigotry, and xenophobia. Its primary focus for analyzing these serious themes is representing or depicting characters in animalistic or animal-like depictions when violence occurs. The violence the main character witnesses heavily impacts her worldview and perception of safety within her conservative upbringing. As a result of such an upbringing, micro-aggressions, strict adherence to binaries within the confines of gender, race, and the current history of American racism will inevitably lead to large-scale conflicts and the collapse of the American social order. These animatics use these issues as a warning to the current American society and aim to educate older generations on how such issues lead to brazen violence while also explaining the general anxiety of younger audiences who witness such violence but cannot intervene.

**Alyssa Hice**

**Art & Design**

***Life: An Investigation on How Life is Grown from Conception to Birth***

**Faculty Mentor(s): Valerie George**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. – 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. – 1 p.m.**

I am an artist working primarily in digital media. Much of my artwork is driven by my experiences as a mother and what comes with being a mom. My work evokes a range of emotions relating to fear, sorrow, understanding, struggle, and love. These six panels show the struggles I went through during my pregnancy with my daughter, and how strong a mother's love is.

**Rachel Howard**

**Art & Design**

***les from the Emerald Isle: A Collection of Riso-Printed Irish Fairy Tales***

**Faculty Mentor(s): John Dougherty**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. – 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. – 1 p.m.**

Fairy and folk tales can reflect a culture's beliefs, fears, and superstitions. In a county that was secluded from many major events of ancient history, the Irish people preserved their stories of merrows, banshees, and magical islands through oral traditions. When they were finally published and distributed, they created a mythical world that was a sharp contrast to the modernity that other countries were embracing. The fairy tales we read today are a fusion between paganism and Christian influences and continue to reflect traditional Irish culture and values. For this project, I wanted to create a set of booklets that revolve around Irish fairy tales, and distribute them to the local community. I used this project as an opportunity to explore the Risograph. During this project, I learned

how to translate traditional drawings into riso prints with scanners and editing software. I created layouts that integrated illustrations and text. I also explored different illustration styles, and was influenced by printers from the English arts and crafts movement and fantasy illustrators. When researching, there was a lack of art for these fairy tales, allowing me to create my own designs. However, the lack of art acts as a reminder that these fairy tales are not incredibly popular. Creating these booklets can help introduce the local community to a unique aspect of Irish culture.

**Yuki Jhuo**

**Art & Design**

***Investigating the Effects of Film Developer Dilutions on Film Grain***

**Co-Author(s): Parker Hassebrock**

**Faculty Mentor(s): Jim Jipson**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. – 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. – 1 p.m.**

Dektol is an integral component of the photography department here at UWF. However, with Kodak slowly phasing out different products, we are not sure how much longer Dektol will be available. Therefore, we have decided to experiment with Marathon Developer to see how it compares to Dektol in regards to developing orthographic film. Using Marathon on orthographic film has not been experimented with at this institution so we have little information to base the possible switch from Dektol on. To research this issue, we took multiple 35mm negatives and projected them onto 4x5" sheets of orthographic film. This film was then developed using different dilutions of Dektol and Marathon which resulted in different contrast and grain density for each of the resulting negatives. The images were then projected onto large sheets of paper which allowed us to see the differences in the images better. We found that more concentrated dilutions of both the Marathon and Dektol resulted in much higher contrast photographs as well as much larger grain. Less concentrated dilutions resulted in much lower contrast photographs and finer grain. When comparing the high contrast photographs together we also found that Marathon was able to produce similar high contrast results while maintaining good detail while Dektol struggled slightly more in retaining the same detail. Therefore, we believe that Marathon would act as a suitable replacement for Dektol in regards to developing orthographic film

**Michelle Luther**

**Art & Design**

***The Exploration of Color Theory's Psychological Effects on the Viewer***

**Faculty Mentor(s): John Markowitz**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. – 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. – 1 p.m.**

Through my OUR grant I have been investigating color interactions, color variances due to time of day, and observation of natural colors within the landscape. I have made four landscape paintings of the same scene at different times of day: sunrise, noon, afternoon, and sunset. I have read books from the renowned color theorists Johannes Itten and Josef Albers including the works *Interaction of Color* by Albers and *Art of Color* by Itten. I have learned how color



relationships can drastically alter how the viewer perceives colors, and this effect has compelled me to tackle deeper exploration of this within this series. Albers's emphasis on experimentation being the key to fully grasping the effects of color theory has encouraged me to experiment in this series and learn from my experiences. I have been plein air painting to get a better sense of contrast of the times of day through direct observation. I also spent time during the studio to further work on layering paint and the color palettes. I made a painting schedule to ensure that each painting is worked on for two to four hours each week. Through this research and experimentation, I have a greater understanding of how color psychologically affects the viewer, and my newfound knowledge on color theory has made my work stronger. I will be applying and continuing this research and exploring the importance that color theory has on my work

**Ani Monteverde**

**Art & Design**

***Life Stages***

**Faculty Mentor(s): Valerie George**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

Art comes to me in waves, and as it crashes, I have my pencil in my hand, ready to explore what comes to mind. I am inspired by the natural art that surrounds me that contains endless possibilities. The earth is my subject inspiring me to create beautiful things. I do not limit myself to one medium, style, and concept. Art can be expressed in many ways giving me the reason to being a multimedia artist.

**Danielle Muir**

**Art & Design**

***Assistive Technology Design***

**Faculty Mentor(s): Thomas Asmuth**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

The prospect of prototyping a device for the visually impaired was inspired when I met an individual suffering from Stargardt Disease. The vision loss condition causes a gradual blurring in the center of the sufferer's field of vision, gradually leaving dependence on peripheral vision and eventually causing total blindness. Walking in unfamiliar settings and crossing traffic intersections are particularly difficult for the visually impaired, including those with Stargardt Disease. Large cities might provide audio aids built into crosswalks but such measures hardly exist elsewhere. Limited accessibility to assistive technologies for visually impaired pedestrians became the greater social issue inspiring my interdisciplinary research to design a 3D printed, electronic sculpture. How can User Experience research inform the design process of assistive device? Personal testimonies on the internet describe the everyday difficulties facing sufferers of visual impairment and a range of devices used to manage them. How can 3D design and electronic media aid in the development of assistive technology for this condition? My fascination manifested into an experimental design for an assistive device that competed with the numerous aids needed every day by the visually impaired. I imagined a lightweight, handheld device that anyone with

a 3D printer could download and print. Developing a simplified design process allows the project to contribute to open source research and accessibility. Thus, the wiring and programming instructions to recreate the project would also require little expertise. The design will be composed of two range sensing modules that act as eyes to detect obstacles and provide haptic, audio, and light feedback to alert the user of left and right side obstacles within a 6 meter range. The visually impaired pedestrian will carry the device in either hand aimed ahead of them to receive instant feedback. This interpretive model could lay new foundations in the development of assistive technology for sensory perception disabilities.

**Katie Romano**

**Art & Design**

***Waterfront Rescue Mission Rebranding Campaign***

**Faculty Mentor(s): Joseph Herring**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #5**

I am working to create an updated branding campaign (or "rebrand") for the Waterfront Rescue Mission (WRM), which has provided rescue and recovery services to the Gulf Coast for almost 75 years, funded by their 7 thrift stores, 1 online store, and ample community support. By conducting visual research, I have observed common characteristics of successful branding practices for non-profit organizations. I have focused on determining which visual characteristics best convey the Mission's personality through its brand voice, with the goal of communicating its guiding principles and underlying values to clients, customers, and supporters. Drawing on my research, I have done extensive sketching and concepting to best integrate these characteristics into the newly designed WRM logo. This logo will function within a system and will be applied to a variety of sub-brands and deployed onto a wide variety of deliverables. The completed brand will include designs for both print and digital applications, with considerations for their intended function within a non-profit retail environment.

**Lilly Stark**

**Art & Design**

***Environmentally Happy Painting***

**Faculty Mentor(s): John Markowitz**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

Florida is home to over 1000 natural springs, which is the largest concentration of freshwater springs on earth! The Florida springs are some of the most beautiful natural locations in the world- however they are being used and depleted like goldmines. The popularity of these places create geotags that affect environmental health in natural spaces t negative ways. I visit the springs as an earth tennant. There I have conversations with trees, peer into the eyes of aquatic animals, and listen to shells bustling in the springhead as I freedive. I connect with the beauty of nature and find a slice of peace among the freshwater veins of life. Through my research, photography, and oil paintings I plan to explore the various Florida springs and make photorealistic paintings of my favorite springs

both above and below water. I would like to make paintings to document the natural beauty of these environments before they decline further. I plan to do several live observational paintings and finish each over the course of a week. I will use photo references of the lictions taken with my go pro and iPhone with a wide angle shot. My goal is to make my painting process more environmentally friendly as well as healthier for me as an artist. I plan to use water activated oil paints and non toxic thinners and cleaners. I also will stretch and rabbit skin glue my canvases. I look to capture the beauty of the springs for generations to come in an effort to foster conversations on conservation.

**Laura Thompson**

***Connected Energy***

**Faculty Mentor(s): Jim Jipson**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

As an artist it is easy for me to find inspiration, especially from nature, where I feel I have a lot to learn. In this specific body of work I have created three experimental oil paintings. With these paintings I aim to create a connection to the Law of Conservation of Energy and humanity. The three paintings depict the lessons and inspiration taken from nature, as they portray life energy being transferred from the past to the present and future.

**Art & Design**

**Domani Turner-Ward**

***Resurrecting Data as a Phenomenological and Spatial Object***

**Faculty Mentor(s): Thomas Asmuth**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conf Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

**Poster #2**

This project explores meaningful communication of scientific findings and culminates in a maquette for a proposed sculpture that represents data taken from another UWF student's environmental data. In scientific and academic studies, there is often an epistemic disconnect that occurs among the processes of field studies, laboratory analysis, and data communication. Here, a method to bridge these gaps between phenomenological experiences and meaningful communication is offered by creating a sculpture that reveals environmental data as a spectrum and references the environment in which it was recorded. Planes is a proposed sculptural artwork that displays data from a nutrient study conducted by a former UWF student under the guidance of Dr. Matthew Schwartz. It is a three-dimensional model displaying hydrogeochemical data and is created using laser-etched slides illuminated by an LED strip governed by a microcontroller. The authors chose these aesthetics in response to the ineffectiveness of previously utilized two-dimensional graphs. Rather than the language of mathematical symbolism, this work explores what is possible when information is presented using color. This provides not only a more meaningful way to communicate the results of a specific scientific study but also acts as an exploration of conceptualization methods that can be applied to other issues.

**Art & Design**

**Lizzie Williams**

***Effects of Practicing Mindfulness***

**Faculty Mentor(s): Jim Jipson**

**Session: Visual Art Exhibit**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Conference Room C**

**Presentation Time: 11 a.m. - 1 p.m.**

Using meditation and introspection to better understand ourselves Utilizing mindfulness in regards to meditation, exploring spirituality, dream interpretation, and introspection can have positive effects on the psyche. Delving into the practices of mindfulness allowed me to contemplate my space in this universe, and learn more about myself, my essence, my core. Conceptually, I often explore the spiritual world in my works, which can naturally lead to fantasy and abstraction, which leads to an uplifting aesthetic akin to energy flowing throughout my works. Throughout exploration of different mindfulness, a healthier self-image and outlook on existence was gradually built. Studying artist such as Alex Grey allowed for different ideas relating to consciousness to be brought to light, such as astral projection and spiritual concepts from other belief systems related to consciousness. My works explore a bit into each area and allow an introduction to the unknowable energetic world surrounding us all. Dream interpretation was proven to be helpful to understanding my subconscious thoughts and worries - in almost terrifying accuracy. By keeping track of my dreams and analyzing them, I was able find areas that my soul was struggling with and focus meditation and solutions to those problems in my waking life. A box of dreams will be provided for others to see inside my resting unconscious. A series of paintings, a metal sculpture, a wooden sculpture, drawings, and explanation of my personal experience and growth as a human being will be provided. I intend to make others contemplate their existence while viewing my artworks.

**Art & Design**

**Maggie Brown**

***Reflections from Untitled (Winter)***

**Faculty Mentor(s): Thomas Asmuth**

**Session: Main Oral Presenters**

**Session Time: 10:30 a.m. - 12 p.m.**

**Location: Nautilus Chamber**

**Presentation Time: 11:45 a.m. - 12 p.m.**

This creative project attempts to reconcile my few, but poignant memories of my grandfather with those of my other relatives and the pain of those who lost loved ones during the Vietnam war. This sculptural piece is a mixed-media installation. The sculpture hangs in front of the monitor to suspend the crystal teardrops in the space between the viewer and the screen, creating distorted imagery, mimicking my own recollection of memory. Droplets hanging from the ceiling symbolize the literal suspension of tears, the continuous and unresolved pain of those who lost a loved one in the war. The view through the droplets a metaphor to pain reveals scattered memories as a performance. I re-enact memories of personal experiences, reflections from my mother to understand her experience as the child of a Navy Sailor during the Vietnam War, and primary source material from home videos during Christmas, where I have the strongest memories of my family members who are not here today. The research basis

**Art & Design**

for this piece is direct experience with family as well as historical record of relatives who lost loved ones in the war to inspire a deeper understanding of the war's emotional effect on a national and personal level. This piece draws conceptual inspiration from Lin's Vietnam Veterans Memorial, the familial-based performance art of Guillermo Gomez-Pena, and Mark Tribe's Port Huron Project. Those affected and curious about socially activist works and complex family relationships will be interested in this work.

**Micaela Shelingoski**

**Art & Design**

**Illustrate Comic Relief with Human-Like Food Characters**

**Faculty Mentor(s): Joseph Herring**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #2**

Whether viewing or creating an art piece of your own, there is some form of expression present in most work. You can view many of these expressions by walking down the aisle in your local grocery store. Many illustrators will use this media to convey their ideas through comic relief. My goal is to create a piece that invokes the message that not all artwork needs to convey a serious message to be effective. It is naturally a human trait for us to look for faces in things, so replicating that trait in my artwork would make an interesting piece, especially for creating human-like food characters. When researching, I focused on how artists effectively use illustrations, parody, and comic relief to convey serious and sometimes uncomfortable messages. To do this, I will combine all of my illustrations to exaggerate the message of comic relief. I have researched many artists' techniques and parodies to achieve this message. I will conduct further research on invoking a message through vibrant illustrations and comic relief. I will print my designs onto a movie standee-like presentation to get the feel of the 3D aspect of something popping out with some dimension. This research process will allow me to look further into how comic relief is evoked in illustrations and how it is exaggerated. Many artists use these in their pieces, so I see it as something that would be beneficial further to understand new techniques and further my knowledge and creativity.

**Brian Vargas**

**Art & Design**

**Brian Vargas's OUR Color Illustrations**

**Faculty Mentor(s): Joseph Herring**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #3**

When designing my three art books, I came across numerous amount of processes such as researching and producing each of the three art books created. The research process consisted of searching the psychology behind colors such as red symbolizes love, anger, stress, etc. Whereas, blue symbolizes calmness, sadness, anxiety, etc. I would also research symbolism such as the hands, eyes, crows, etc. I used this knowledge to create a narrative for each book. One of

the many artists that would use color to depict emotion was Pablo Picasso, who I researched in how he uses color within his works. As we continue, I also researched how films would use color to depict emotions as well. However, my process in creating my book was to dissect each clip into a frame-by-frame process so I can lay out a narrative in a motion picture in a book. However, I chose to research and learn the difference between a book and animation. What I learned was when creating animation or motion, we can control how much a subject is being presented. Whereas, in physical form, we can sit and look at the subject however long we need to see it. My goal was to learn how colors can impact a narrative or a canvas. In addition, color is an important asset to art and what we see in our everyday life because it can invoke emotions and describe emotions without having words I believe I achieved this goal through my research.

## DEPARTMENT OF COMMUNICATION

**Sylvia Davidson**

**Communication**

**Practical Effects Monster Design and Application**

**Co-Author(s): Micaiah Parson, Joey Morobitto, Dylan Tillery, Erin Casey,**

**Caroline Becker, Hales Wohlford, Brittney Barton, Jordyn Ewing, Madison**

**Wise, Jenna Gauthier, Kadance Jablon, Sara Jones, Veronica Lacroix, Yolanda**

**Jefferson, Jenny Woods, Bradley Cramer, Jr. (UWF Volunteer Fencing**

**Instructor)**

**Faculty Mentor(s): Paul Pilger**

**Session: Monster Effects and Short Film Cast and Crew Panel**

**Session Time: 12 p.m. - 12:30 p.m.**

**Location: Great Hall**

**Presentation Time: 12 p.m. - 12:25 p.m.**

Practical effects are tactile, physical creations that bring the world of a film to life. Puppets, costumes, prosthetics, and miniatures are just some examples of this world building art form that has been utilized less and less as we have entered the age of computer generated images, or, cgi. For my capstone, I wrote, directed, and produced a 12 minute short film which involved a monster at the center of its story. Utilizing the resources available through the Office of Undergraduate Research and my mentors guidance, my partner and I constructed our first practical effects monster design to represent the central theme of my film: unspoken family trauma. The mask we created involved a process of clay sculpture, rubber and plaster molds, layering latex within the mold, airbrush paint and foam applications. The film and project involved upwards of a dozen UWF students as designers, crew, and cast devoting themselves for up to 10 filming days on set with the final day planned for the scene involving the monster. The film, titled Minotaur, not only served as an exploration into the construction of a monster costume, but also the exploration of film as a medium and effective storytelling as an art. A portion of the cast and crew will be available for questions after the film's screening.

**Sylvia Davidson**

**Communication**

**Perception and Moving Images**

**Co-Author(s): Alex Love**

**Faculty Mentor(s): Jim Jipson**

**Session: Monster Effects and Short Film Cast and Crew Panel**

**Session Time: 12 p.m. - 12:30 p.m.**

**Location: Great Hall**

**Presentation Time: 12 p.m. - 12:30 p.m.**

The French philosopher Michel Foucault's psychological concept of "gaze" questions what it means to be a visible object and how that affects our autonomy in the context of the sociopolitical hierarchy. My partner and I sought to put a visual experience to this concept. Viewer is our silent surrealist horror short film made up of film camera stills processed in the dark room and scanned to be edited alongside digital video. The process was an exploration into our talents as both videographers and still photographers as it involved the use of five different cameras, each with a distinct style and effect on tone and message. We worked together to write and design a story that focuses on the theme of what it means to be looked at by people, cameras, and ourselves and the unease that can often cause as we cross the line from subject to object.

## DEPARTMENT OF ENGLISH

**George Cabanas**

***Meta-Consciousness and Mark Twain***

**Faculty Mentor(s): Kevin Scott**

**Session: Main Oral Presenters**

**Session Time: 10:30 a.m. - 12 p.m.**

**Location: Nautilus Chamber**

**Presentation Time: 10:45 a.m. - 11 a.m.**

Mark Twain's No. 44, *The Mysterious Stranger* deserves reexamination as an aggressively polemic text. In this presentation, I will use the final and most complete manuscript, the "print shop" version, published by the University of California Press (1969), to talk about how Mark Twain transforms himself from writer into an earthly representative of the deity with whom he had great tension, but also a long history of dialogue. Mark Twain's well-published observations about humanity as well as the likely influence of Vedantic teachings lead me to a hypothesis more complex than the overt nihilism and pessimism that is often ascribed to the work. I enter the conversation is the relationship between Twain and God in the context of meta-consciousness. That is, I will show how Twain applies transcendental notions of knowledge to speak, as if on behalf of God, to those who have corrupted universal truths and created a faulty thought. How did Mark Twain's interest in duality drive his creativity towards the construct of life as thought and distance himself from the moral sense to escape suffering? These findings represent the early stages of research in consideration of how the concept of meta-consciousness might be employed to interpret Mark Twain's later works. A version of this presentation was presented at the Ninth International Conference on the State of Mark Twain Studies at the Center for Mark Twain Studies, Elmira College, Elmira, NY, with generous support from the UWF Department of English.

**Benjamin Green**

***The Mysterious Philanthropist: Personifications of Economic Disparity***

**Faculty Mentor(s): Stephen Watson**

English

English

**Session: Main Oral Presenters**

**Session Time: 10:30 a.m. - 12 p.m.**

**Location: Nautilus Chamber**

**Presentation Time: 11 a.m. - 11:15 a.m.**

Not only does Mark Twain's "The Mysterious Stranger" refer to religion and metaphysics, but it also refers to the socioeconomic aperture of reality between the wealthy, immigrants, and the poor. Satan, who has the powers of an omnipotent god with unfathomable powers in the story, is the embodiment of Andrew Carnegie's "Gospel of Wealth" because of the way Satan manipulates money, which creates more unwanted consequences than reasonably presumed. Twain's viewpoint on the disparity between the wealthy, immigrants, and the poor is revealed throughout the story in the medium of Satan's morality, ideals, and comments. Andrew Carnegie, a businessman, philanthropist, and the founder of Carnegie Steel, was alive at the same time as Mark Twain. Carnegie's publication of "Gospel of Wealth" exposed his radical views regarding the financial relationship between the wealthy and the community. Although owning a monopoly in the steel industry, he asserts that accumulated personal wealth should be, in turn, given back to the community in the form of social welfare. Ultimately, this project aims to highlight the unique way Twain portrayed the socio-economic disparity of the United States of America in the early 1900s, as numerous groups faced discrimination and exploitation.

**Farrah Hale**

***Inquiries in the Teaching of Writing***

**Co-Author(s): Kimiko Lumsden, George Cabanas**

**Faculty Mentor(s): Raina Garrett**

**Session: Inquiries in the Teaching of Writing**

**Session Time: 2 p.m. - 2:50 p.m.**

**Location: Great Hall**

**Presentation Time: N/A**

This panel presentation brings together three new teachers of first-year composition (FYC) who designed curricular materials from a graduate seminar inquiry project. Inquiry is a critical methodology that emphasizes question-posing with the goal of genuine discovery. For the inquiry projects, completed in a Topics in Rhetoric course focused on composition theory and pedagogy, each presenter generated a question that guided research on a topic related to the teaching of ENC 1101 and ENC 1102. In "Communitary Participation and Interaction: Transforming the Classroom Through Community Engagement," Speaker 1 investigates communitary participation and interaction (CPI) in asynchronous, online courses, exploring, how can online instructors use language to increase engagement and an atmosphere of community-building. In "Ban this Inquiry," Speaker 2 researches the pedagogies of banned book culture, arguing that to ban a book is to ban inquiry; her project questions, how does one teach composition without inquiry? In "New Age Pedagogy," Speaker 3 explores the intersection among creative writing, digital humanities (DH), and FYC, arguing that we now live in the Digital Humanities Age. Speaker 3 questions how the teaching of writing must adapt to meet the needs of today's DH students.

**Adam Williams**

***Critical Theories in Composition Pedagogy***

English

English

**Co-Author(s): Sarah Madaris, Mia Stinemetz**

**Faculty Mentor(s): Raina Garrett**

**Session: Critical Theories in Composition Pedagogy**

**Session Time: 1 p.m. - 1:50 p.m.**

**Location: Great Hall**

**Presentation Time: N/A**

In this panel presentation, three new teachers of First-Year Composition (FYC) theorize innovative ways to teach writing. Drawing from disability studies, revisionary pedagogy, and literacy studies, this panel presents actionable, student-centered class activities and projects that foster access, agency, and reflection as integral goals of writing and rhetoric instruction. In #general: Using the Messaging Platform Discord in the Classroom to Foster Accessible Communication,” Speaker 1 investigates the use of the messaging platform, Discord, as a rhetorical tool that enables more accessible communication for students and faculty with disabilities and learning differences. Speaker 1 argues that students with disabilities and learning differences benefit from modes and means of communication other than standard emails - and through platforms such as Discord - communication expands to include emoticons and multi-media, which brings into the classroom rhetorical practices from everyday communication. In “Conversational Corrections: Informalizing Revisionary Pedagogy in First-Year Composition,” Speaker 2 redefines revision as reflective conversation and argues that the most effective way to help students understand the nuances of revision is to reconceptualize revision through more informal means such as speaking back to one’s own text, translating formal written language into spoken words, and reimagining high-stakes audiences as peers. In “Memoir-festo: The Literacy Landscape Project,” Speaker 3 presents a course unit, The Literacy Reflection Module, from ENC 1101, in which students blend genres and re-conceptualize their own literacy backgrounds as an introduction to academic writing and research. Through creating a literary landscape - a project that investigates the geographical influences that inform and influence literacy and cultural attitudes about reading and writing, first-year composition students remediate their relationships with literacy.

**Nancy Edele**

**English/Art & Design**

**“I’m Not That Person Anymore”: The Covid Years Through Student Eyes: High-Impact Practices in Writing and Art**

**Co-Author(s): Carrie Fonder, Cindy Seaburn**

**Session: Virtual Presentation**

**Session Time: N/A**

**Location: Gather Town**

**Presentation Time: N/A**

**Poster #VIRT-4-ENG**

A new window of opportunity for disruption and change also opens the door to further growth and transformation possibilities. Parth, student Our struggles with Covid have not ended, and no one knows this reality more clearly than our students. They are still, in 2023, attempting to process those critical changes in their lives. Their writing &ndash; reflective; decisive; factual; nuanced; often heart-wrenching &ndash; demonstrates a keen recognition of how their lives have changed. As a small team of researchers in the Humanities we engaged in a multimodal, multimedia project that documents and explores students’

experience of Covid through their artwork, music, and writing. We looked at ways they have come to terms with this critical and often traumatic time of isolation and social fracture by exploring their engagement in HIPs that enable them to build communities and create meaning and a sense of security together, as “they see what they have become when the world seemed to give them a reason to slow down” (Kathryn, UWF junior). We present these stories as examples of High-Impact Practices because that is what these stories have turned out to be, created by our students themselves. We emphasize the vital importance of validating our students’ experience and establishing it as part of the public discourse, both in the classroom and the larger community beyond campus. In this respect these stories represent engagement and service beyond the self, and our student’s stories are replete with this sense of connection, despite their frequent solitude.

## REUBIN O’D ASKEW DEPARTMENT OF GOVERNMENT

**Maggie Brown**

**Government**

**Gulf Coast Diplomacy Council: Facilitating Intercultural Exchange in the Pensacola Community**

**Faculty Mentor(s): Jocelyn Evans**

**Session: Main Oral Presenters**

**Session Time: 12:30 p.m. - 1:30 p.m.**

**Location: Nautilus Chamber**

**Presentation Time: 12:45 p.m. - 1 p.m.**

This presentation will include sharing the duties, responsibilities, and projects through my internship with the Gulf Coast Diplomacy Council. Specifically, impactful international delegations, collaboration with similar nonprofits, and my job as a Volunteer Coordinator for the Diplomacy Begins Here Summit. Personal anecdotes will be shared alongside photos in the slide presentation. The Gulf Coast Diplomacy Council is a non-profit organization in Pensacola dedicated to citizen diplomacy. This internship consisted of a mix of hybrid and in-person work. Goals for this internship include obtaining global interpersonal and communication skills, gaining connections within diplomacy, and growing my leadership abilities. Duties include creating personalized programs for each delegation according to their themes (ex. Gender Violence) through partnerships with local professional contacts and organizations. Other responsibilities include writing proposals for the Department of State to bring delegations to Pensacola, in-person facilitation of professional meetings between locals and international visitors, and other clerical and office duties. The most important skills learned through this internship are adaptability, flexibility, and precision. Citizen diplomacy is a constantly evolving field and line of work, where one has to think quickly and be shrewd when making decisions while representing Pensacola and the United States. Interpersonal skills are a continual work in progress through meeting professionals from different cultures and backgrounds every week. My contribution to this organization has been aiding in its transition back to in-person work.

**Maggie Brown**

**Government**

**Religion and the Modern State**

**Faculty Mentor(s): David Ramsey**

## DEPARTMENT OF HISTORY &amp; PHILOSOPHY

**Session: Exploring the Foundations of Politics****Session Time: 2 p.m. - 3 p.m.****Location: Nautilus Chamber****Presentation Time: TBA**

I analyze the phrase as if God did not exist in the context of international politics, citing the overwhelming failures of the secularization thesis, and examine Mark Juergensmeyer's claim that religion is the new ally of the nation-state (Juergensmeyer 1995). I argue that the universalizing characteristics of modern religion allow it to take on a role similar to secular nationalism, uniting a group of people politically. I consider whether this claim is likely to lead to further conflict or peace in the coming years.

**Zach Panici****Government*****Risen from the Ruins: Germany's Party of Democratic Socialis*****Faculty Mentor(s): David Ramsey****Session: Exploring the Foundations of Politics****Session Time: 2 p.m. - 3 p.m.****Location: Nautilus Chamber****Presentation Time: TBA**

I examine the election performance and ideological shifts of the Party of Democratic Socialism (PDS) in Germany. Using the data found in the Manifesto Project, I analyze how the party shifted in left- right ideology between election periods and how its performance was affected in each instance.

**Colby Teelin****Government*****Virtue and Vocation: Traditional Education's Answers to Society's Challenges*****Faculty Mentor(s): David Ramsey****Session: Exploring the Foundations of Politics****Session Time: 2 p.m. - 3 p.m.****Location: Nautilus Chamber****Presentation Time: TBA**

Philosophers and theologians have prescribed various theories of education's proper form and content. Theorists of classical education have made enduring contributions that are currently receiving renewed interest and attention. I examine two goals of classical educational theory and the ways in which modern theorists have revised and repurposed these goals in contemporary education.

**Ryan Whiteside****Government*****Assessing the Ideas that Guided the American Revolution*****Faculty Mentor(s): David Ramsey****Session: Exploring the Foundations of Politics****Session Time: 2 p.m. - 3 p.m.****Location: Nautilus Chamber****Presentation Time: TBA**

This paper examines some of the ideas or questions that lie at the heart of American Political Thought. I focus on the writings of four Americans George Bancroft, W.E.B. Du Bois, Learned Hand, and William F. Buckley in search of principles that are either consistent or inconsistent with the principles of the American Revolution. I conclude that America is, to a great extent, an ongoing dialogue with the principles that were deployed to vindicate this revolution.

**Logan Bevis****History & Philosophy*****A History of Brazil's Martial Arts Culture*****Faculty Mentor(s): Erin Stone****Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #2**

Scholars have conducted an infinite number of studies concerning various aspects of Latin American History. An obvious whole in the historical scholarship of Latin America is a lack of focus of the rich martial arts culture that exists in nearly every Latin American country. For the purpose of this project, I am going to focus specifically on Brazil's martial arts culture. Presently, Brazilians practice a number of martial arts including boxing, Brazilian Jiu Jitsu, Capoeira, Luta Livre, Vale Tudo, and many more traditional martial art styles such as karate, taekwon-do, and Muay Thai. They are one of the largest patrons of combat sports in Latin America and have produced a litany of champions throughout different combat sports styles and organizations. It has also exported one of the world's most popular and dominate grappling arts: Brazilian Jiu Jitsu. The purpose of this paper is to examine the historical roots of martial arts, both domestic and imported, that make up Brazil's martial arts culture. In addition, it will analyze the social mechanisms in place that created the fertile environment for Brazil to cultivate such a diverse and dominate martial arts culture that sees competitors in nearly every combat sport at the highest level.

**Sheri Boudreaux****History & Philosophy*****Ildefons Cerdà's Architecture for Urban Equality in Barcelona*****Faculty Mentor(s): Erin Stone****Session: Main Poster Session****Session Time: 1 p.m. - 2 p.m.****Location: Conf Room AB****Presentation Time: 1 p.m. - 2 p.m.****Poster #6**

Spanish architect, Ildefons Cerdà, was elected to craft a plan for a proposed extension of Barcelona in the mid-eighteenth century; the city was plagued by epidemics worsened by its enormous population contained within its medieval streets and structures. Cerdà designed his plan to create a city hospitable for the working-class by prioritizing adequate access to resources, such as fresh air and clean water, to residents on a per-capita basis. This extension, which is still known today as the Eixample, was ultimately implemented, but not without serious changes that deviated from Cerdà's vision. Marxist ideology was a foundation in Cerdà's plan, which structured class equality by, among other things, entailing that the working class and the bourgeoisie would live in shared buildings as opposed to income-segregated neighborhoods. Consequently, conflicting political interests chipped away at Cerdà's utopian visions. The Teora General de la Urbanizaci n was published by Cerdà in 1867, the same year Marx produced *Das Kapital*. Cerdà's work put Marx's theories into practice. He was the

first to seek to design the modern city with the wellbeing of all its residents in mind; in doing so, he created the study of urbanization and solidified his legacy in the social, urban, and political history of Spain.

**Sheri Boudreaux**

**History & Philosophy**

***Catholic Priest in a Protestant Land: How Anti-Catholicism Shaped Southern Identity***

**Faculty Mentor(s): John Jensen**

**Session: HIS5063 Historical Methods**

**Session Time: 9 a.m. - 11:15 a.m.**

**Location: Auditorium**

**Presentation Time: TBA**

This biographical presentation examines the life of Earle LeBaron, a Pensacola native whose virulent racism led to his split from the Catholic Church and expulsion from his career as a professor of history. The role of anti-Catholicism in the 20th century American South is only marginally represented in historical literature; its use as a tool to promote Protestant racism remains virtually unexamined. Using original research from LeBaron's personal documents, I argue that racism became a primary tenant of white Southern identity, superseding religious ideology and prompting LeBaron to leave the Church. This is supported by the emergence of anti-Catholic rhetoric in Southern media, including a 1910s surge in Florida that even resulted in legislative proposals to restrict Catholic influence. As a formally educated priest, LeBaron offers a unique perspective on the intersection between racism and religion by pushing his views to the farthest boundaries of social conformity & often surpassing them.

**Justin Crowder**

**History & Philosophy**

***Foreigners in the Spanish Civil War***

**Faculty Mentor(s): Erin Stone**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #7**

The Spanish Civil War began in the Summer of 1936 when top military generals launched a coup against the Republic and ended in April of 1939. Because of the close proximity to the Second World War it has often been looked at in hindsight as, a military laboratory to test the latest weaponry under battlefield conditions. Nazi-Germany and Fascist Italy directly intervened on the side of the Nationalists while the Soviet Union supported the Republic with war materials and equipment. In addition to this approximately 40,000 volunteers from over 50 nations joined in the conflict, mostly on the side of the Republic. This project examines different international forces that intervened and volunteered and to individually investigate both their motivations and impact on the conflict. Another goal is to see how international forces interacted and collaborated with the Spanish forces they fought alongside. Instead of looking at this event as a proxy war and prelude, a dress rehearsal for World War II, a pending conflict between the forces of democracy and fascism, the question of who these outsiders were and what their involvement strictly within the war itself is explored. The Civil War and its participants often get lumped into the Second

World War and the Holocaust, but those who experienced were living in real time without the knowledge of what was to come.

**Justin Crowder**

**History & Philosophy**

***World War Two, Urbanization, and Housing: Pensacola 1941-1947***

**Faculty Mentor(s): John Jensen**

**Session: HIS5063 Historical Methods**

**Session Time: 9 a.m. - 11:15 a.m.**

**Location: Auditorium**

**Presentation Time: TBA**

World War Two, Urbanization, and Housing: Pensacola 1941-1947 Pensacola urbanized in the first half of the twentieth century with the Second World War playing the largest role in its change and development. In a 1980 issue of the Florida Historical Quarterly James R. McGovern wrote about the changes in Pensacola from 1900 to 1945 and detailed many positive changes that occurred as a result. Although many improvements and developments happened Pensacola also went through problems and challenges that stemmed from them. From 1941 through 1947 Pensacola and Escambia County faced a housing crisis that has been overlooked and overshadowed by other events and in the broader historical context. Letters from a local woman, Lucille Boyer, and articles from the Pensacola Journal provide insight to how the situation came to be, how the government responded, and how average people experienced it.

**Aidan De La Garza**

**History & Philosophy**

***The Passo Honroso: Chivalry and Tournaments in Medieval Spain***

**Faculty Mentor(s): Erin Stone**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #6**

Ideals of chivalry, knighthood, and tournaments have always been linked in the collective medieval consciousness. Tournaments were organised and displayed for spectators of all classes, but particularly the nobility. They were the circus of the day, but also an essential locale for the pageantry and pride of knights. From simple jousts to elaborate weeks-long tourneys such as the famed Passo Honroso, held in 1434 at the bridge of Rbigo, Spain, the display of martial prowess was celebrated in many forms. Knights gathered from all over Europe, gathering and playing games of war, while real war perpetually brewed nearby. Spanish tournaments before 1400 have not seen a large amount of serious study. This is likely because the Reconquista occupied Spanish (and later historians') minds until its end in the late 15th century. One of the first records of a tournament in Spain dates from 1272, in Valencia, and others continued over more than a century, but it was not until the Passo Honroso that Spanish tournaments gained particular historical notoriety. I will examine the Passo Honroso and its significance with regard to Spanish ideals of knighthood, chivalry, and the larger context of war during the time of the Reconquista. I will do this with a sensitivity to the questions, why is this particular tournament special, and what distinguishes it in form and in attendance from other tournaments in Spain prior to the 15th century?

**Matt Denny*****Nearing The End of Empire: The Spanish-American War*****Faculty Mentor(s): Erin Stone****Session: Main Poster Session****Session Time: 1 p.m. - 2 p.m.****Location: Conf Room AB****Presentation Time: 1 p.m. - 2 p.m.****Poster #3**

On December 10, 1898, 400 years after the Spanish claimed, conquered, and colonized Puerto Rico and Cuba, the two islands were wrested from their control. The former became a Territory of the United States of America, while the latter became a nation of its own. With the conclusion of the short war, Spain had lost their first and last bastions in the Americas. As American Imperialism emerged fully upon the global stage, Spanish notions of empire sank further following the loss of most of its colonies outside of Africa throughout the 19th Century. What precipitated the loss of Spain's last New World colonies, why did they fight in 1898, and where does this war and its circumstances fit in the larger narrative of colonization and decolonization? The Spanish-American War, and its connecting events, was another step in disillusioning Old World empires about the costs of maintaining an empire and a warning sign of what was to come in the following century.

**Anonymous Grad Student*****Herstory: Women's Suffrage in Brazil*****Faculty Mentor(s): Erin Stone****Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #3**

Brazil, the most significant colony of the Portuguese Empire, remained influenced by its Iberian ancestors for centuries. One of the most enduring legacies Brazil has retained since its days as a Portuguese Empire is a society deeply rooted in patriarchal traditions, which has limited women from political participation and social freedoms. Brazilian women have had to fight for representation in government and social liberation. The fight for women's independence in Brazil began in the nineteenth century; however, the momentum for Brazilian women's suffrage made headway in the 1920s. Brazilian feminists rallied around one another to fight for their political and social liberation. In 1922, Brazilian feminist champion and icon Bertha Lutz established the Brazilian Federation for Women's Progress. Lutz's creation of this organization kickstarted the fight for woman's suffrage in Brazil. Through various protests and resilience, Brazilian women secured their right to vote in the early 1930s. Brazilian women of the twentieth century directly challenged the status quo of their country's patriarchal society, dating back to the Portuguese Empire's colonial times. The legacy of women's suffrage in Brazil is significant and has remained overlooked and ignored for nearly a century.

**Shelby Hanks*****The USS Relief: A Marvel of Military Medicine*****Faculty Mentor(s): John Jenson****Session: HIS5063 Historical Methods****History & Philosophy****History & Philosophy****History & Philosophy****Session Time: 9 a.m. - 11:15 a.m.****Location: Auditorium****Presentation Time: TBA**

Proper and quick medical treatment for wounded and ill soldiers has been a central point of concern in the history of war. Field hospitals and nurses are essential for immediate treatment on the battlefield. However, they could never match the power of the stationary city hospitals equipped with the latest medical technologies and doctors. During the Spanish-American War, the concept of a hospital ship came to fruition. The USS Relief was constructed in 1896 and started her full service in 1898 when the USS Maine exploded off the coast of Cuba. One of the first hospital ships deployed, The Relief was equipped with the latest medical technology, such as the X-Ray machine, complete supply lists always with enough to share, and the latest sanitation and quarantine techniques. The ability to move wherever she was needed most; the Relief was a marvel to the field of military medicine, saving the lives of men on both sides of the war. With the implementation of the hospital ships came the call to staff them with proper surgeons, stewards, and pharmacists, leading to the creation of the Hospital Corps on June 17, 1898. This act ensured that job positions in field medicine, especially those on hospital ships, would always be fulfilled by the Medical Department of the Navy. The growth in field treatment from the time of the Civil War through to World War I was astounding and can be directly contributed to the implementation of hospital ships, changing the effectiveness of wartime medicine forever.

**Dom Limle*****After Christopher Columbus: Power and Politics of the Spanish West Indies in the Sixteenth Century*****Faculty Mentor(s): Erin Stone****Session: Main Poster Session****Session Time: 10 a.m. - 11 a.m.****Location: Conf Room AB****Presentation Time: 10 a.m. - 11 a.m.****Poster #6**

The story of the West Indies did not end with Columbus death in 1506. Diego Columbus inherited his father's titles after a legal battle with the Spanish Crown and took his position as Viceroy in 1509. Diego Columbus administered the Spanish West Indies with absolute authority, ignoring the claims of authority from other royally appointed officials. Diego's actions began a political struggle between the Columbus family and the Spanish Crown. This project traces the story of the Columbus family in the early sixteenth century and the struggle for control of the Spanish West Indies.

**Ean Lundy*****A War in Hearts and Minds: Public Opinion and the Spanish-American War*****Faculty Mentor(s): Erin Stone****Session: Main Poster Session****Session Time: 11 a.m. - 12 p.m.****Location: Conf Room AB****Presentation Time: 11 a.m. - 12 p.m.****Poster #7****History & Philosophy****History & Philosophy**



The late nineteenth century began a marked change in the history of Spain, during which their empire saw its twilight years. From the very beginning of that century, they suffered numerous pitfalls, beginning with Napoleon's conquest all the way through the various revolutions that separated them from many of their territories in the Americas. The culmination of these losses peaked during the Spanish-American War, when the United States put the metaphorical nail in the coffin of Spanish imperial hegemony and took many of their oceanic territories. The Spanish-American War began, as is widely known, with the destruction of the U.S.S. Maine and the subsequent involvement of America in Cuba's push for independence in 1898. This research will seek to examine the conflict not through the physical battlefield, but rather through the landscapes of perception and popular opinion. In other words, this research will examine how and what people back home thought about the Spanish-American War, and the various national attitudes, biases, and outlooks that informed their perception. Areas of interest include the factors that went into the Americans' imperialist attitudes, the impacts of yellow journalism, and the parallel of an emerging imperial American power to that of a declining imperial Spanish power. What social, political, or other societal forces pushed American society and public opinion to embrace this imperial contest? What effect did societal pressures and public opinion have in Spain? These are questions that this research will hopefully answer.

**David Meron**

**History & Philosophy**

***Welcome to Our Home: Pensacola's Contributions to Soldier Entertainment During World War I***

**Faculty Mentor(s): John Jensen**

**Session: HIS5063 Historical Methods**

**Session Time: 9 a.m. - 11:15 a.m.**

**Location: Auditorium**

**Presentation Time: TBA**

Pensacola served as a representative World War I community for the Gulf Coast. World War I historian, Jennifer Keene, described the Great War as America's forgotten war. Scholarship on the American homefront during World War I is sparse. Among those stories not addressed include the war's impact on communities in the Gulf South. Pensacola contributed to the national effort during the war and provided morale for soldiers in the local area. Drawing from *The Pensacola Journal* one discovers how the community contributed to the entertainment of uniformed service members. To meet federal government expectations, Pensacola first enforced laws against providing liquor to uniformed service members, then eliminated the availability of sex workers. The community subsequently created alternative recreation. Members of the armed forces found a variety of activities in the community such as dances, open houses, and community singing events. Local efforts exceeded the federal government's expectations. Government affiliates provided entertainment for the troops while local groups like the Army and Navy Activities Committee coordinated community efforts,

**Mel Parchment**

**History & Philosophy**

***Dance, Dance, Revolution: Popular Culture and Festival Dramatizations of Battles Between Christians, Jews, and Moors in Spain and Mexico***

**Faculty Mentor(s): Erin Stone**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #8**

This research will be focused on festival performances and popular cultural representations of battle dramatizations between Moors, Jews, and Christians, particularly those actually performing these theatrical events and their varying political contexts. Tlaxcalan natives performed a mock battle that glorified Tlaxcalan successes through the lens of a Conquest of Jerusalem drama. Corpus Christi pageants are also a rich source of mock battles, and records of their long tradition will likely provide much room for analysis. The intersection of power, religious ideology, colonialism, and cultural expression is complex, assuring a promising avenue for research.

**Mel Parchment**

**History & Philosophy**

***"Poor Doomed Souls": Tragedy in a Great Lakes Maritime Community***

**Faculty Mentor(s): John Jensen**

**Session: HIS5063 Historical Methods**

**Session Time: 9 a.m. - 11:15 a.m.**

**Location: Auditorium**

**Presentation Time: TBA**

This paper analyzes the maritime community in the port of Manitowoc, Wisconsin, through the lens of the wreck of the *Sea Bird* steamer in 1868. As part of the Goodrich Transportation Company line of steamers, the *Sea Bird* was based in Manitowoc and traveled throughout Lake Michigan, transporting passengers to and from Chicago, Green Bay, and Milwaukee. On April 9, 1868, the *Sea Bird* caught fire and sank a few miles offshore from Waukegan, Illinois. Of the approximate eighty people onboard at the time of the disaster, only three survived, one of whom lived in Manitowoc. Nearly twenty victims lived and worked in Manitowoc or frequently visited family members residing there. Among these victims were James A. Hodges (the *Sea Bird* clerk), John Sorenson (a Norwegian ship captain and carpenter), Henry Nieman (a young deckhand supporting his widowed mother and siblings), Joseph D. Doucett (a former lumberman), and Charles Riechen (a German-born master carpenter in Goodrich's Manitowoc shipyard). Public coverage of the tragedy highlighted the port's maritime identity, but it also allows for a contemporary examination of the complex relationship between the residents of a developing nineteenth-century port and the lake upon which their community relied.

**Aubrey Pollard**

**History & Philosophy**

***The Peninsular Wars Effect on Iberian Colonial Secession***

**Faculty Mentor(s): Erin Stone**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conference Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #29**

The Peninsular War was a conflict fought between Napoleonic France and Spain, Portugal, and the United Kingdom from 1807-1814. Napoleon ordered Portugal to

cease trade with Great Britain but they refused, he used this as a provocation to invade Portugal with his then allied Spanish forces. After he captured Portugal he stationed French troops in Spain as well as installed his brother as Spain's new King. This conflict coincides with the Spanish War for Independence, and the main focus of this research project will be how the Peninsular War was the catalyst for many Latin American colonies to seek their independence from Spain. Coupled with new enlightenment ideals, these two forces help dramatically change the burgeoning Spanish Empire, and many Spanish wars of succession would follow the years after the beginning of the Peninsular war. I will show through my research that the Peninsular war began an influx of enlightenment ideals into the Spanish colonies, and how these two forces combined to bring independence to Spain's American colonies.

**Caleb Wilder**

**History & Philosophy**

***Daughters of the Redneck Riviera: The UDC in Pensacola***

**Faculty Mentor(s): John Jensen**

**Session: HIS5063 Historical Methods**

**Session Time: 9 a.m. - 11:15 a.m.**

**Location: Auditorium**

**Presentation Time: TBA**

The United Daughters of the Confederacy (UDC) has been an important organization in Southern history, and Pensacola is no exception. The Pensacola Chapter of the UDC dates back to 1899, making it one of the older chapters in the organization. In their founding documents, they state that the goals of the organization are to both honor the memory of fallen Confederate soldiers and to teach unbiased Southern history. The paper trail left by the chapter indicates a considerable amount of involvement with local education, such as their essay contests and scholarship programs. Through such activities, the UDC helped promote and maintain the Lost Cause narrative in Pensacola's schools. The essay submissions in these contests, reinforced by the documents from the UDC itself, idealize Confederate leadership and the pre-war South generally. The chapter was active for over a century and was involved in education for most of that time, but their influence can most clearly be seen in the mid-20th century. Most information about their contests and scholarship comes from the period between 1950 and 1970, and so this will be the primary area of focus for the project. Previous scholarship has primarily focused on the national organization and given little coverage of the Pensacola Chapter, likely due to the area being less populated. What this project seeks to accomplish is to reveal how the UDC influenced the historical narrative of the Civil War in Pensacola through education, and how the aftereffects of this would continue.

**Kyle Williams**

**History & Philosophy**

***Portuguese Conversion in the Kingdom of Kongo***

**Faculty Mentor(s): Erin Stone**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #4**

My research proposal is to explore what led to the conversion of an entire

kingdom in central Africa to Catholicism. Why did Kongo accept Christianity? What was the Christianity of Kongo and the expectations from it? How was Christianity practiced in Kongo different than the Catholicism of the Portuguese? Was conversion a goal of Portuguese expansion or merely a byproduct of their commercial goals? These are some of the questions that I will be attempting to understand in conducting research. More questions will develop, and these questions will most likely change or develop into new ones. My goal is to understand how Portuguese Catholicism was transmitted to central Africa and how this religious transference affected the indigenous religion and its participants.

**Raymond Ejikemeuwa**

**History & Philosophy**

***The Implications of the Christian Reconquest of Iberia***

**Faculty Mentor(s): Erin Stone**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #8**

The Implications of the Christian Reconquest of Iberia The paper explores the positive and negative implications of the Christian Reconquest of Iberia. Christian soldiers progressively retook the Iberian Peninsula from Muslim monarchs during the Reconquest period. The paper covers the Reconquista's historical background and critical events. The analysis then looks at the short and long-term impacts of the Reconquest on the social, economic, cultural, and political aspects of the Iberian Peninsula. Despite the Reconquest's beneficial advantages, such as the restoration of Christian power and the development of Christian civilization, the paper contends that the Reconquest also had several adverse effects, such as the persecution of non-Christians.

**Olaf Talbert**

**History & Philosophy**

***Iberian Influence on the Western Mediterranean***

**Faculty Mentor(s): Erin Stone**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #5**

I plan on researching the Iberian (mainly Spanish) influence on the major islands in the Western Mediterranean: Sicily, Sardinia, and Corsica, and to a lesser extent, Malta and the Balearic Islands. Whereas the majority of the focus tends to be looking at the Spanish and Portuguese Empires, and their expansion west into the Caribbean, North America, and South America, I believe the eastern expansion into the Mediterranean also bears examination. Sicily and Sardinia especially have the crossroads of the Mediterranean, seeing invaders like the Phoenicians, Carthaginians, Greeks, Romans, Goths, Spaniards, all the way to the present Italian and French states. Each of these civilizations have left marks on their cultures to a varying degree, however in my preliminary research, the Iberian (and specifically the Aragonese) invaders have made one of the more enduring impacts of all the overlords. This sparks an interest when considering

how overwhelming cultures like the Greeks and Romans were in antiquity, or the geographical proximity of Italy and France. Yet the impact of the Spanish on these islands has left an indelible mark on their architecture, language, government, and even agriculture and cooking. With their strategic location in the Central and Western Mediterranean, it is no wonder the islands were constantly overrun, though there is the question as to how and why Spain allowed these islands to fall out of their grasp, especially if there were such cultural inroads.

## DR. GRIER WILLIAMS SCHOOL OF MUSIC

**Abigail Mallory** Music  
**Les Cygnes, Trois Jour de Vendange, L'enamouree, Reynaldo Hahn 1874-1947**  
**Instrument or Voice Type: Mezzo-soprano**  
**Collaborative Pianist: Prof. Riley**  
**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.**  
**Location: Music Hall (also livestream in Great Hall)**

**Abigail Mallory** Music  
**Melodies - No. 5 L'Enamouree (3:30), No. 11 Fetes Galantes (2:08), No. 15 Les Cygnes (4:00), Reynaldo Hahn (1874-1947)**  
**Instrument or Voice Type: Mezzo-soprano**  
**Collaborative Pianist: Prof. Riley**  
**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.**  
**Location: Music Hall (also livestream in Great Hall)**

**Hannah Mills** Music  
**Reporting Back in Gratitude: UWF Singers at Florida ACDA**  
**Co-Author(s): Katie Hilliard, Morgan Whitehead**  
**Faculty Mentor(s): Peter Steenblick**  
**Session: Main Oral Presenters**  
**Session Time: 9 a.m. - 10 a.m.**  
**Location: Nautilus Chamber**  
**Presentation Time: 9:45 a.m. - 10 a.m.**

The UWF Singers submitted a blind audition tape in a peer-reviewed process and were accepted to appear at the annual Florida conference in Orlando—the only group accepted within the University-level category. The expectation was to present a curated collection of music in a dense, cerebral performance for all members of the organization -- choral professionals from throughout the region. Additionally, Hannah Mills was selected to present in an educational interest session on an underrepresented female composer from the Classical period.

**Chandler Ragan** Music  
**Concerto for Stan Getz Mvmt 1 - Con Fuoco, Half Note = 126, No Key, Richard Rodney Bennett 1936-2012**  
**Instrument or Voice Type: Tenor Saxophone**  
**Collaborative Pianist: Daniel Perkins**

**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.; Location**  
**Music Hall (also livestream in Great Hall)**

**Chandler Ragan** Music  
**Women in Jazz: A Look into the Life of Chilean Tenor Saxophonist Melissa Aldana**  
**Session: Lecture Recital**  
**Session Time: est 11 a.m. - 12 p.m.**  
**Location: Music Hall**

**Chloe Romack** Music  
**Concerto by Nikolai Rimsky-Korsakov, 1844-1908**  
**Instrument or Voice Type: Trombone**  
**Collaborative Pianist: Prof. Riley**  
**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.**  
**Location: Music Hall (also livestream in Great Hall)**

**Jade Ronca** Music  
**Mozart Concerto No. 20 in d minor, K.466 Mvt. 2 Romance, Wolfgang Amadeus Mozart (1756-1791)**  
**Instrument or Voice Type: Piano**  
**Collaborative Pianist: Prof. Riley**  
**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.**  
**Location: Music Hall (also livestream in Great Hall)**

**Brooke Ryan** Music  
**La Regata Veneziana, Gioachino Rossini (1792-1868)**  
**Instrument or Voice Type: Soprano**  
**Collaborative Pianist: Prof. Riley**  
**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.**  
**Location: Music Hall (also livestream in Great Hall)**

**Mackenzie Taylor** Music  
**Concerto In C Major, For Flute, Harp, and Orchestra. Transcribed for Piano. Movement 1, Wolfgang Amadeus Mozart (1756 - 1791)**  
**Instrument or Voice Type: Flute**  
**Collaborative Pianist: Prof. Riley**  
**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.**  
**Location: Music Hall (also livestream in Great Hall)**

**Mackenzie Taylor** Music  
**Controlling Your Spark- Managing Mental Health as A Musician**  
**Session: Lecture Recital**  
**Session Time: est 11 a.m. - 12 p.m.**  
**Location: Music Hall**

**Rachael Thacker**  
**Songs from Letters: An Analysis of Libby Larsen's American Art Song**  
**Session: Lecture Recital**  
**Session Time: est 11 a.m. - 12 p.m.**  
**Location: Music Hall**

**Nathaniel Vaughn**  
**Mozart concerto no. 3 in E flat major, 1. Allegro. 2. Larghetto 3. Allegro,**  
**Wolfgang Amadeus Mozart (Born: January 27, 1756 Death: December 5, 1791)**  
**Instrument or Voice Type: French Horn**  
**Collaborative Pianist: Prof. Riley**  
**Session: Musical Concerto**  
**Session Time: est 9 a.m. - 11 a.m.**  
**Location: Music Hall (also livestream in Great Hall)**

**Music**  
**Session Time: N/A**  
**Location: Gather Town**  
**Presentation Time: N/A**  
**Poster #VIRT-2-THE**

**Music**  
 Southeastern Theatre Conference (SETC) is a conference where performers can attend workshops, job fairs, and audition for professional theatre companies. My presentation will go over my experience at the conference and my takeaways from the conference.

**Ashley Lambros**  
**SETC 2023**  
**Faculty Mentor(s): Marci Duncan**  
**Session: Visual Art Exhibit**  
**Session Time: 11 a.m. - 1 p.m.**  
**Location: Conference Room C**  
**Presentation Time: 11 a.m. - 1 p.m.**

**Theatre**

The Southern Eastern Theatre Conference is a theatre conference for theatre patrons all over the Southern Eastern region of the United States. SETC provides cattle-call auditions, job fairs, performance competitions, and so many networking opportunities. SETC 2023 provided me an opportunity for forty plus professional theatre companies throughout the Southern Eastern part of the United States. I received a handful of callbacks, where I was given the opportunity to perform individually for the theatre companies. These companies then will hire for year round or summer work. I also spent time at the job fair, which is a set place for theatre companies to interview with technicians and teachers. I am interested in becoming a theatre teacher, so this opportunity was very great for me. After interviewing with several companies I received a few job offers after my expected graduation in the spring of 2023. Overall, SETC is an amazing way to network and receive jobs throughout the theatre community. Thanks to the OUR Travel Grant I was able to attend SETC this year.

## DEPARTMENT OF THEATRE

**Deja Gamble**  
**Wishful Thinking: An Original Play for New Audiences**  
**Co-Author(s): Alex Celis**  
**Faculty Mentor(s): Marci Duncan**  
**Session: Wishful Thinking**  
**Session Time: 12:30 p.m. - 1 p.m.**  
**Location: Auditorium**  
**Presentation Time: N/A**

**Theatre**

The exploration of new age performing arts has begun with the introduction of innovative theatre that challenges audiences to observe stories in a unique style and format. The presenter wishes to stage and perform the original written play, *Wishful Thinking*, to inspire new audiences to reach towards a hardly touched part of theatre named the fantasy realm. This realm allows audiences to perceive mythical realities and feel the essence and energy manifested by the production in a stage setting. Fantasy is a genre rarely ever explored in straight plays due to the technical limits and directorial interpretations of the production crew. However, the script *Wishful Thinking* allows the production to either be inexpensive or upscale because the essence of the fantasy realm lies within the written lines and the actors as the spoken word of the fairies aligns with the fantasy world they live in. The performance will be approximately 10 minutes performed by UWF actors, featuring a scene of a flower fairy, Ollie Petal, and a human, Holly Nova, who have a conversation about their own struggles of finding out who they are now and who they will be in the future. The setting is Holly's dream state, a lost garden with an abandoned burned down house and a graffitied wall expressing her inner struggles with coming out. Ollie enters in torn up clothing matching the wall with beautiful wings on her back.

**Leo Hamilton**  
**SETC Presentation**  
**Faculty Mentor(s): Glenn Breed**  
**Session: Virtual Presentation**

**Theatre**

## COLLEGE OF BUSINESS



## DEPARTMENT OF ACCOUNTING & FINANCE

**Nicholas Jarrett**  
**Tesla Corporation: An Ethical Analysis of Company Strategy**  
**Faculty Mentor(s): Steven Snyder**  
**Session: Main Poster Session**  
**Session Time: 1 p.m. - 2 p.m.**  
**Location: Conf Room AB**  
**Presentation Time: 1 p.m. - 2 p.m.**  
**Poster #9**

**Accounting & Finance**

Tesla, Inc. is a company that society views as achieving ethical goals in terms of its electric automobiles that claim the badge of zero emissions. While Tesla, Inc.'s products align with Sustainable Development Goals (SDGs), can the same be said of its corporate strategy? As time passes, society's views of what is ethical evolve and condemn the old ideas of what is ethical. This research aims to perform a strategic analysis of Tesla, Inc. to compare the company's guidance to recent societal trends and determine if its current strategy is or will be at risk of becoming unethical in the eyes of society. The research proposed will analyze the company and societal trends through available documents and information, including company financial data, industry data, public studies, and various academic journals. This study aims to show how society's shifting views on ethical practices impact a corporation's strategy and how the corporation plans according to society. Assessing a well-known company's strategy in relation to societal beliefs, this research will outline the importance of using and maintaining ethical management practices when determining an overall company strategy for both the present and future.

## DEPARTMENT OF BUSINESS ADMINISTRATION

**Ashanae Pinder**

**Business Administration**

***Engaging Students in Business Forecasting***

**Co-Author(s): Philip Billings**

**Faculty Mentor(s): Julie Williams**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #9**

Business forecasting is a critical operations management skill. In this pedagogical research, we created, piloted, and improved a series of forecasting exercises that included data visualization, group discussion, statistical methods, and judgmental forecasting. In a core quantitative business class in operations management, students were given a fictitious but realistic business scenario for a hospital laboratory seeking to forecast laboratory testing demand. Students role-played laboratory staff, graphed fictitious data, discussed qualitative and quantitative factors, studied fictitious examples of laboratory dashboards, practiced statistical forecasting methods, worked in groups to develop a forecast, received instructor feedback, and reflected on their experience.

## DEPARTMENT OF COMMERCE

**Sydney Alger**

**Commerce**

***U Choose Awards***

**Co-Author(s): Sydney Alger, Jaileen Cruz, Sophia Kraus, Gabrielle Reid Waldo**

**Faculty Mentor(s): James Mead**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #10**

In today's marketplace successful brands must develop and maintain distinctive images in order to sustain their competitive advantage (Cifci et al, 2016). By applying the concept of Consumer-Based Brand Equity (CBBE) it is presumed that an answer to each of the following questions can be found: Will an increased engagement between local businesses and University students have an affect on the businesses CBBE over a period of time? and What roles do Geography, social media presence, online reviews, and incentivized marketing play when students attempt to define a given company's overall Brand Equity? There has been many new developments within the area of CBBE over the last ten years (Cifci et al, 2016). How businesses land in the mind of various consumers can be susceptible to a host of different influencers. By creating an ongoing and recurring measure of these influences and their effect on a brand's equity, we hope to gain a better incite into the vulnerabilities and strengths of that equity within the local business market. Further, we believe that by conducting and supporting this bilateral engagement between consumer and business, it may be possible to encourage better decision making both in consumption and production. It is theorized that by creating a database of mutually agreed upon standards, it is also possible to increase the amount of students who are well informed on the local area while increasing the overall utility for producers and consumers alike.

**Vitaly Brazhkin**

**Commerce**

***Partnership with UPS to Deliver Real-World Experience to UWF Students***

**Session: Faculty HIP Showcase**

**Session Time: 8 a.m. - 8:15 a.m.**

**Location: Zoom**

**Presentation Time: 8 a.m. - 8:15 a.m.**

"Partnership with UPS to Deliver Real-World Experience to UWF Students" is a HIP Faculty Showcase submission for the "Internships and Field Experiences" category. The slide presentation describes and illustrates a series of real-world experiences provided by UPS to students of TRA 3990 "Air Cargo and Aviation Logistics" class recently developed by Dr. Vitaly Brazhkin and currently open to supply chain logistics majors. The experiences include a tour of the UPS station at the Pensacola International Airport, including a cargo aircraft tour, a tour of the UPS sorting facility in Pensacola, and a guest speaker appearance of a UPS manager in class. The experiences are spread out throughout the semester and are timed to integrate with the course material. This kind of experiential learning creates strong cognitive and affective outcomes. The students described the class and their field experiences as "one of the best," "valuable," "eye-opening," and "extremely helpful" and "vital" in determining their future career paths. Interested students of this class are offered entry-level employment opportunities by UPS as a way to get their foot in the door of this global company that has a culture of promoting from within. The partnership with UPS is expected to continue and grow to include new field experiences in the Pensacola and Mobile areas.

**Iriana Castro Diaz**

**Commerce**

***Ethics and Supply Chain Incidents: Deontology, Deontic Logic, and Agency***

**Faculty Mentor(s): Stephen LeMay**

**Session: Virtual Presentation****Session Time: N/A****Location: Gather Town****Presentation Time: N/A****Poster #VIRT-8-CMRC**

Deontology, deontic logic, and agency can combine to reveal ethical issues in disastrous incidents. If that were all they could do, it would mean little. This analysis focuses on what they can do to teach managers and government officials how to approach situations ethically. The focus is on learning from history, albeit grim incidents from that history. We focus on government officials as deontic agents, pointing out that they establish the eco-system for corporate, worker, and individual behavior. We analyze two key cases here as a way to demonstrate the methodology and the kinds of supply chain incidents to which it would apply&mdash; The Aral Sea and the Gerdec explosions.

## COLLEGE OF EDUCATION & PROFESSIONAL STUDIES



### DEPARTMENT OF ADMINISTRATION & LAW

**Koen Dunlap****Administration & Law****Stare Decisis: An Important but Sporadic Fixture of the American Judicial and Legal System****Faculty Mentor(s): Jennifer Brinkley****Session: Main Poster Session****Session Time: 1 p.m. - 2 p.m.****Location: Conf Room AB****Presentation Time: 1 p.m. - 2 p.m.****Poster #11**

This thesis project's main goal is to analyze the American legal principle of stare decisis (mainly referring to precedence), its role in the modern-day American legal and judicial systems, and its role in influencing and molding these systems over the course of U.S. history. This project has primarily been conducted through scholarly readings on stare decisis, legal precedence, and American court procedures and practices in order to get a full understanding of stare decisis and different legal views of the principle. Furthermore, extensive data has been compiled on numerous landmark and arguably legally important U.S. Supreme Court cases from the founding of the U.S. to the present. In each of these cases, the legal arguments, the role that case precedence played in these arguments, and the final decisions of the courts have been recorded and analyzed to determine how stare decisis may have affected the outcomes. The hope in studying and analyzing this topic is to further Americans' understanding of the American legal and judicial systems, Americans' knowledge of the extent to which stare decisis has influenced these systems over time, whether this influence has been more positive or negative to the stability of American courts,

and to inform Americans roughly how much they can expect for stare decisis to play a role in state and national courts in the future.

## DEPARTMENT OF CRIMINOLOGY & CRIMINAL JUSTICE

**Michael Martin****Criminal Justice & Criminology****Exploring the Various Characteristics of Custodial Grandparent Led Households****Faculty Mentor(s): Natalie Goulette****Session: Main Poster Session****Session Time: 11 a.m. - 12 p.m.****Location: Conf Room AB****Presentation Time: 11 a.m. - 12 p.m.****Poster #13**

Grandparents often take on the responsibility of raising their grandchildren when needed, even if it is only temporary. In this study, we interviewed grandparents to explore why they choose to take on that responsibility. This study aims to explore the various characteristics of custodial grandparent-headed households. In order to explore these characteristics, we conducted qualitative interviews with custodial grandparents. We asked about their overall involvement in the grandchild's life, how they discipline behavior and their grandchildren's general behavior outside of school. In addition, Grandparents were asked to describe their physical and mental health, financial means, and social support system. Finally, the grandparents were asked if there were any other areas of support they wished existed to help them raise their grandchildren. The Santa Rosa County school board recruited participants for the study. The interviews took place outside of the grandparents' home to ensure not to burden the grandparents and provided a quiet secluded environment. The interviews were digitally recorded and transcribed. The goal is to take the information from the transcribed interviews and create a qualitative survey to gather data on the remaining custodial grandparent-led households in Santa Rosa County.

## SCHOOL OF EDUCATION

**Betty Bacon****Education****Analysis of the Impact of Self-Leadership and Spiritual Disciplines on Christian Leadership****Faculty Mentor(s): Mark Malisa****Session: Virtual Presentation****Session Time: N/A****Location: Gather Town****Presentation Time: N/A****Poster #VIRT-9-EDU**

As the current demographic of Christian college presidents in the United States near retirement age, a significant rise in turnover rate for Christian Higher Education (CHE) leadership will become increasingly apparent. The all-consuming, ever-changing roles of senior-level administrative positions will require extraordinary leadership at the helm of higher education institutions

which is increasingly competitive, demanding, and under consistent scrutiny from inside and outside organizations. Analysis of contemporary data concerning key sustaining factors in CHE senior-level administrators reveals an immediate need for studies illuminating fruitful Christian education leaders' self-leadership and spiritual discipline habits. Therefore, this presentation explores historical and contemporary literature highlighting the crossroads of individual self-leadership and spiritual disciplines in Christian leaders. Through first exploring the conceptual foundations of Christian spirituality and theology, this paper studies the relevant exercises of spiritual disciplines and self-leadership that contribute to leaders developing an abiding and loving relationship with God. An additional analysis of the impact of self-leadership and spiritual disciplines on leaders' spiritual, physical, emotional, and mental development is offered.

**Thanh Bui**

**Education**

***Linking between two models of teaching: literature review.***

**Co-Author(s):** **Phuong Vy Le**

**Faculty Mentor(s):** **Giang-Nguyen Nguyen**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #10**

This is a study on how to improve sustainability in education in Vietnam, especially in higher education. We look at the comparison between two teaching styles, teacher-centered and student-centered models, and their pros and cons as foundations for the improvement of teaching methods. Then, we are interested in linking the backward model design and problem-based learning models to improve the learning experience of college students in Vietnam.

**Maggie Johnson**

**Education**

***Elementary Pre-Service Teachers' Psychological Needs in Learning to Teach Mathematics***

**Faculty Mentor(s):** **Giang-Nguyen Nguyen**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #13**

This research study assesses motivation of elementary pre-service teachers (PST) for learning and teaching mathematics focusing on PST needs in the teacher preparation programs as they are prepared to teach mathematics. This is part of a larger study assessing pre-service teachers' motivation for learning and teaching mathematics. The goal of the study was to understand pre-service teacher needs in a teacher preparation program. The overarching question is: What are elementary pre-service teacher needs about becoming mathematics teachers?

**Tim Morse**

**Education**

***A Descriptive Report of a Promising Practice for Teaching Math Content to Students With Disabilities***

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #14**

In accordance with several federal laws, teachers are to use evidence-based practices when they teach students with disabilities. An evidence-based practice is one for which multiple, high-quality research studies have been conducted that prove the practice is effective in teaching a student a targeted learning objective. However, before a sufficient number of studies have been conducted, available evidence needs to be considered for the purpose of determining whether teachers should consider using a teaching practice that has not yet been established as an evidence-based practice. In this poster presentation, I will explain a process I followed to identify what is referred to as a promising practice for teaching math content to students with disabilities. A promising practice is one for which some research studies have proven the practice's effectiveness, but not enough for the practice to be established as an evidence-based practice. As a result of attending this presentation, a participant will be able to: 1. Define the terms evidence-based practice, promising practice, and emerging practice. 2. Explain how an evidence-based review is conducted for the purpose of identifying an evidence-based practice. 3. Discuss how simultaneous prompting can be described as a promising practice for teaching math content to students with disabilities. 4. Identify future topics that need to be investigated in order for simultaneous prompting to be established as an evidence-based practice. 5. List procedural guidelines for teachers to follow for the purpose of ensuring fidelity of implementation when using simultaneous prompting to teach math.

**Mads Murray**

**Education**

***Open Educational Resource for K-6 Florida Teacher Certification Examination***

**Faculty Mentor(s):** **Jennifer Stark**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #9**

In an effort to make an affordable, up-to-date resource for Elementary Education and Exceptional Student Education students preparing to take the K-6 Florida Teacher Certification Examination (FTCE), Dr. Jennifer Stark, in the School of Education, is developing an Open Educational Resource (OER). This OER focuses on the science subtest portion of the K-6 examination and is designed with the intent of providing prospective teachers with reference material they can utilize in the course and afterward. The class, SCE 4310: Teaching Science in the Elementary School, in which this OER will be used focuses on Effective Science Instruction. This portion makes up only 20% of the science subtest competencies. Creating this textbook helps address gaps in students background knowledge in Life Science, Physical Science, and Earth and Space Science, which is required for teaching elementary science. This effort aims to eliminate disparities that may exist in access to study materials and create a common baseline for students preparing to take the FTCE. The sources that allow this OER to be created are Pressbooks and H5P Interactives. Pressbooks is an online platform for self-publishing books in multiple formats: e-books, textbooks, webbooks, and print-ready

PDFs. H5P Interactive is an open-source content collaboration framework based on JavaScript; it aims to make it easy for everyone to create, share and reuse interactive HTML5 content. These sources, in tandem, ensure that the learning content is accessible and contemporary. With increased accessibility, there is anticipation for an increased first-time pass rate on the FTCE K-6 science subtest.

### Mercedes Musto

#### ***Educational Podcasting: A Review of the Literature***

**Faculty Mentor(s):** Giang Nguyen-Nguyen

**Session:** Main Poster Session

**Session Time:** 10 a.m. - 11 a.m.

**Location:** Conf Room AB

**Presentation Time:** 10 a.m. - 11 a.m.

#### **Poster #8**

Advances in online teaching and learning in a post-pandemic world inspired educators to experiment with alternative mediums for the dissemination of knowledge aligned with the modern educational process. One emergent technological trend is educational podcasting. Podcasting is defined as a public or private digital audio file with high accessibility delivered in an asynchronous format online that is currently being used by learners who have shifted from reading lengthy textbooks to engaging in cognitive auditory learning sessions. Thirteen scholarly articles were systematically reviewed to derive trends and themes throughout the literature regarding the topic of educational podcasting. Nine articles reviewed had dates ranging from 2019 to 2021, and four articles reviewed dated from 2008 to 2017 to cover pre-pandemic educational podcasting perceptions. All scholarly articles included podcasting, sometimes referred to as m-learning, and covered a range of fields such as social work, medical education, business, and higher education. Trends and themes derived from the vast majority of scholarly literature on podcasting usage in educational settings include; effectiveness, efficiency, and engagement. While several articles review the challenges of educational podcasting implementation, the majority of the articles explore the gaining popularity of emergent technology to enhance student learning, improve content accessibility, and cultivate engagement between students, professionals, and the community.

### Education

(Cooney, 2017), the impact of free educational materials (Kadada & Tshabalala, 2020), and how OER use may affect test scores (Wynants & Dennis, 2022). All of this information is integral to the conversation of OER efficacy, but for those responsible for the development and dissemination of OER, one crucial point is missing &ndash; how to create OER that students like. Some literature sources offer analysis of student perception of quality and experiences surrounding OER use, but the findings are narrowly focused on OER use and do not include any implications for the development process. This literature review aims to answer the question: What specific features do learners prefer in OER textbooks? This review compiles studies described in twelve articles, all published in the most recent decade, in an attempt to answer this question. The objectives of this review are to compare suggestions for improvements against the existing relevant yet limited literature to provide recommendations for additional research to address gaps in existing literature to include the student perspective.

## DEPARTMENT OF SOCIAL WORK

### Daymen Tompkins

#### ***The OUR Works Experience***

**Faculty Mentor(s):** Jenny Reed

**Session:** Main Poster Session

**Session Time:** 11 a.m. - 12 p.m.

**Location:** Conf Room AB

**Presentation Time:** 11 a.m. - 12 p.m.

#### **Poster #14**

There are several Federal Work study positions available at the University of West Florida; one position in particular is the OUR WORKS! Program Research Assistant. As an assistant in this program you are given the opportunity to test your research skills and have fun while doing it; and for those who want to work in the field of social services this job can provide much of the experience a student will need to start applying for jobs when they graduate. The problem however is that too many are unaware of the advantages posed by such a program and in order to share that knowledge this presentation will discuss in depth the steps of joining OUR WORKS, the daily life of a student in a research position, the hours worked, etc. A position like this is not always favored due to the deemed "tedious" work of research, and an understanding of the comings and goings in the daily life a researcher could have a major impact on the thoughts and actions of those who might wish to participate in the program.

### Social Work

## DEPARTMENT OF INSTRUCTIONAL DESIGN & TECHNOLOGY

### Charli Swanson

### Instructional Design & Technology

#### ***An Exploration of OER Literature: What Do Students Want?***

**Faculty Mentor(s):** Kathy Andresen

**Session:** Main Poster Session

**Session Time:** 1 p.m. - 2 p.m.

**Location:** Conf Room AB

**Presentation Time:** 1 p.m. - 2 p.m.

#### **Poster #12**

Open Educational Resources (OER) have been used in academia with ever-increasing popularity since 2001 (Carson et al., 2012). Abundant research literature focuses on OER topics, such as cost benefits over traditional textbooks



# HAL MARUCS COLLEGE OF SCIENCE & ENGINEERING



## DEPARTMENT OF BIOLOGY

**Hope Barrett**

**Biology**

***Gaining Experience in a Laboratory Setting***

**Faculty Mentor(s): Alexis Janosik**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #10**

Thorough knowledge and practice of proper laboratory protocols is essential for lab safety, and gaining experience in a research setting can be helpful for building a resume as a scientist. Through the University of West Florida's OUR Works! Program it is possible for undergraduate students to have the opportunity to evolve as scientists. The project goal was to learn new skills as an undergraduate researcher and apply those to an existing operation. The procedure focused on quantifying the concentration of microplastics at various sea turtle nesting sites along Pensacola Beach. Microplastics are plastics smaller than 5 mm, and they have become so prevalent in the earth's biosphere that they are present in nearly every ecosystem, including marine and coastal environments. Impacts of this substance have not been fully realized, especially in the case of how they affect sea turtles. The goals of this project were to develop research skills in data collection and recording and to determine the concentration of microplastics at sea turtle nesting sites. A density separation process was implemented to separate the plastics from the sand, and that was further processed using vacuum filtration. Then, samples were analyzed using microscopy and heat testing the plastics, and the color, size, and quantity of the microplastics were recorded. This project has provided the opportunity for networking with experienced scientists and learning laboratory skills to determine possible repercussions of microplastics on nesting sea turtles and their hatchlings.

**Ian Bell**

**Biology**

***Cytotoxicity studies of Benzo[h]thiophene Derivatives against Gram-positive bacteria***

**Co-Author(s): Maria Pena Bu, Beloved Choi**

**Faculty Mentor(s): Prerna Masih**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #7**

The widespread and indiscriminate use of common antibiotics worldwide has led to the development of antimicrobial resistance. These actions have led to the issue in which these microbes that were once susceptible to such antibiotics are no longer affected strongly enough to cure common infections. However, this area of necessary research has been neglected in the pharmaceutical industry due to less commercial return. Therefore, there is an imminent need of the new class of antibiotics. Benzo[ b ]thiophene is a class of sulfur-containing molecules that exhibits a wide range of biological activities, including antimicrobial activity. An understanding of the mechanism of action of benzo[b]thiophene as an antimicrobial agent is critically lacking. This work is focused on determining the cytotoxic potential of benzo[b]thiophene derivatives on *S. aureus* (Gram-positive bacteria). RealTime-Glo MT Cell Viability Assay (Promega) was used to obtain more detailed cell growth/viability information. This assay can be used to evaluate the time and dose-dependent response of the test molecule. Using this assay the cell viability can be monitored in the same sample well over time due to the nonlytic nature and rapid response of the assay. The luminescence is proportional to the number of live cells in the culture. This study will provide valuable information about the time and dose dependence effects of the selected benzo[b]thiophene derivatives on Gram-positive organisms.

**Emma Bowland**

**Biology**

***Naturally Occurring Frequency of Antimicrobial Resistances in Human-Skin-Associated Yeasts***

**Co-Author(s): Yasemin Fidan**

**Faculty Mentor(s): Joe Lepo**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #15**

We investigated naturally occurring resistance to selected antimicrobials in strains of lipid-dependent human-associated yeasts such as *Malassezia furfur*. *M. furfur*, which is in the normal microbiota of human skin, requires lipids in skin oils to grow. Yeasts are defined as unicellular fungi, some of which may transform into a filamentous mold form under certain growth conditions. *M. furfur* may exacerbate dermatitis, as well cause systemic infections in immunocompromised patients. This project assessed the naturally occurring resistance to a range of biocides that kill or inhibit human-skin-associated lipid-dependent yeasts. Microorganisms (mostly within Domain Bacteria) typically exhibit spontaneous mutation rates to drug resistance of about 1 in 10<sup>8</sup> cells per generation 1 in 100-million cells per generation due to spontaneous genetic mutation and rarely by horizontal gene transfers from other microorganisms. Selected biocides were previewed using plate-diffusion experiments analogous to the Kirby-Bauer disc-diffusion method to establish any potential biocides. These were later tested on Petri plate agar cultures containing lethal concentrations of the biocides to assess natural resistance. Any resistant colonies were then transferred to another plate containing the lethal concentration of the same biocide to establish that the clone had the same level of resistance. Of the Biocides tested, two have shown great potential: chlorhexidine, an ingredient of OTC mouthwashes is a cationic disinfectant that binds negatively charged cell surfaces and kills some human-

associated yeasts, and terbinafine, an active ingredient of OTC antifungal creams that also inhibits synthesis of ergosterol, a component of yeast cell walls.

### Heaven Brandt

#### ***Characterization of Dopamine Receptors on Neutrophils***

**Co-Author(s):** Alexandra Seppanen

**Faculty Mentor(s):** Peter Cavnar

**Session:** Main Poster Session

**Session Time:** 9 a.m. - 10 a.m.

**Location:** Conf Room AB

**Presentation Time:** 9 a.m. - 10 a.m.

#### **Poster #4**

Neutrophils are the immune system's first line of defense against infections and bacteria, and they alone make up about 70% of the leukocytes in the human body. Dopamine has been found to be present in many tissues like bone marrow, suggesting that immune cells are regulated by dopamine. However, there is differing reports on whether human neutrophils have the five dopamine receptors, and it is unknown if the cell line PLB-985, a human myeloid leukemia cell line that can be differentiated into neutrophils using DMSO, will have the dopamine receptors. The purpose of this study was to use indirect immunofluorescence and flow cytometry to detect dopamine receptor expression on differentiated PLB-985 cells. To do this, PLB-985 cells were differentiated six days prior and then the cells were blocked of all FC receptors using FC block, then primary and isotype control are added to bind to the dopamine receptor, secondary antibody with FIT-C was added to bind to the primary antibody if the receptor was present. Then with flow cytometry, the more fluorescence present in a sample indicated the presence of the indicated dopamine receptor. The results found that of the three already finished trials of dopamine receptor 2, 3, and 4, DRD3 was found to be present on the cell.

### Korrie Brown

#### ***Quantifying and Comparing Microplastics in Coquina Clams (*Donax variabilis*) along Northwest Florida Beaches***

**Co-Author(s):** Natalie Simmons

**Faculty Mentor(s):** Alexis Janosik

**Session:** Main Poster Session

**Session Time:** 9 a.m. - 10 a.m.

**Location:** Conf Room AB

**Presentation Time:** 9 a.m. - 10 a.m.

#### **Poster #11**

Coquina clams (*Donax variabilis*) are small common intertidal clams along the Gulf of Mexico. These small clams can provide excellent insight into microplastic pollution because of their abundance and filter-feeding abilities, making them viable bioindicators. Microplastics are a common form of marine pollution. Plastics do not break down but instead get smaller and smaller in size as time goes on. This makes them a difficult form of pollution to reduce but can also lead to larger problems as all animals consume the microplastics at all trophic levels. The objective of this project was to quantify and compare microplastic contamination in coquina clams across the coast of Northwest Florida. By collecting specimens from 5 beaches throughout this area, and analyzing them

### Biology

for microplastics using microscopy, it is possible to understand and compare microplastic contamination in not only the clams but also their habitat. Preliminary results indicate that microplastic contamination is evident in all specimens analyzed. Contamination of microplastics in coquina clams indicates that microplastic pollution is prevalent within all sample collection sites.

### Denise Carrillo

#### ***The Protective Effects of Exercise on Binge Alcohol Use-induced Neuron Injuries***

**Co-Author(s):** Anonymous Co-Author

**Faculty Mentor(s):** Youngil Lee

**Session:** Main Poster Session

**Session Time:** 9 a.m. - 10 a.m.

**Location:** Conf Room AB

**Presentation Time:** 9 a.m. - 10 a.m.

#### **Poster #26**

Alcohol use disorder (AUD) is a very prevalent issue in today's society. Because alcohol consumption can release feel-good hormones like dopamine and serotonin, many people can become dependent on it. Consistent binge drinking has been shown to decrease brain matter within the hippocampus and piriform complex, which regulate learning, memory, and olfactory processes. Moderate alcohol use and exercise stimulate similar areas of the brain, specifically the mesocorticolimbic pathway, which is involved in our body's natural reward system. Because exercise has been shown to have protective effects on the body, it was hypothesized that exercise might help protect brain cells against the harmful effects of binge drinking. Human brain cells were cultured, subjected to excessive ethanol consumption, then exposed to the exercise mimetic AICAR. Cellular death and regeneration were observed via fluorescent markers and compared among the groups. The protein concentration was obtained via Bradford assay. Western blots were then completed to analyze and compare concentrations of specific proteins among the samples. It was found that the samples containing AICAR had fewer cellular death markers under fluorescent microscopy compared to their ethanol-only counterparts. Future research will be completed surrounding mitochondrial biogenesis and how it is affected by binge drinking. This project was supported by the UWF Office of Undergraduate Research and the UWF MARC scholars.

### Cooper Catalani

#### ***Effects of *Bifidobacterium longum* exposure on the gut microbiome of *Drosophila melanogaster****

**Co-Author(s):** Andrew Pomareno

**Faculty Mentor(s):** Hui-Min Chung

**Session:** Main Poster Session

**Session Time:** 9 a.m. - 10 a.m.

**Location:** Conf Room AB

**Presentation Time:** 9 a.m. - 10 a.m.

#### **Poster #5**

People with digestive problems typically have poor gut microbiome diversity. A popular method for improving one's gut microbial health is through the consumption of probiotics, which introduce live bacteria into the digestive system with the intent of increasing diversity. However, the benefits of probiotics are

### Biology

### Biology

still uncertain as there is limited research proving their effectiveness. The goal of this project was to examine if probiotics could increase gut microbiome diversity. *Drosophila melanogaster* was used as a model organism. Previously, we found the microbiome composition in wild-type flies had greater diversity than that of ADH mutant flies. The ADH flies cannot produce the Alcohol dehydrogenase (ADH) protein, which is essential for metabolizing alcohol. We hypothesized that by introducing *B. longum* probiotic into fruit flies' diet, their gut microbiome diversity could be increased. For our methodology, we fed both ADH n1 and wild-type fruit flies with two kinds of food: food without- and with *B. longum*. For each of the four groups of flies, offspring flies were dissected, followed by gut DNA isolation and subsequent amplification of the 16S rRNA DNA. The data was then analyzed with EPI2ME. Our current results showed that wild-type flies exposed to *B. longum* had an increase in diversity compared to the control group, while the ADH flies exposed to *B. longum* did not change. This suggests genetic makeup may have a substantial impact on the effectiveness of probiotics at influencing the gut microbiome. In conclusion, our data is consistent with our hypothesis and sheds light on research in the field of gastrointestinal health for humans.

**Beloved Choi**

**Biology**

***Synthesis of 3-chlorobenzo[b]thiophene Derivatives for Structure-Activity Relationship (SAR) Studies***

**Co-Author(s): Terelan Le, Mackenzie Woods**

**Faculty Mentor(s): Prerna Masih**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #16**

Synthesis of 3-chlorobenzo[b]thiophene derivatives for structure-activity relationship (SAR) studies Prior research has shown that 3-halobenzo[b]thiophene derivatives with cyclohexanol, cyclopentanol, and dimethyl alcohol substitution at the second position have significant inhibitory activity against bacteria. These 3-halobenzo[b]thiophene derivatives possess a secondary alcohol group at the second position and have been found to possess antibacterial properties in Minimum Inhibitory Concentration (MIC) and time-kill assays. A useful and convenient method of synthesis of these derivatives is a two-step synthesis. Pre-cursors to the benzo[b]thiophene derivatives can be synthesized by Sonagashira Coupling reactions which are cross-coupling reactions that use a palladium catalyst and copper co-catalyst to form a Csp<sup>2</sup>-Csp or Csp<sup>3</sup>-Csp bond between a terminal alkyne and an aryl or vinyl halide. The precursors are then cyclized using an environmentally friendly cyclization reaction using table salt (NaCl) and Copper Sulfate (CuSO<sub>4</sub>) as reagents and ethanol (EtOH) as a solvent. This research pursues the synthesis of further benzothiophene derivatives including the substitution of phenol for cyclohexanol at the 2-position, and the addition of various halides at the 4-position. The products were purified through column chromatography. As detailed in previous research, there are issues with the dehydration of the secondary alcohol, particularly with the heat and the reaction of copper with silica in the process of dry loading the column. Further studies and possibly different methods are required for improved yield of products. All products were confirmed through spectral analysis.

**Brenna Cunningham**

**Biology**

***My Experience Participating in the OUR Works Work-Study Program***

**Faculty Mentor(s): Viktoria Bogantes**

**Session: Virtual Presentation**

**Session Time: N/A**

**Location: Gather Town**

**Presentation Time: N/A**

**Poster #VIRT-12-BIO**

Abstract This presentation describes experiences working with the University of West Florida OUR Works! Work-study program along with the skills and experiences that were gained over the course of the Spring 2023 semester. This program provided an opportunity to gain professional experience while also earning a paycheck. Over the course of this Spring semester under the guidance of a research mentor, key abilities and techniques were attained through working on projects that focused on developing essential skills including performing routine laboratory maintenance, common techniques used in marine biology research, and evaluation of scholarly articles. A major project in the lab involves the generation of DNA barcodes of understudied taxa from the Gulf of Mexico, thus multiple collection trips will be conducted during the Spring semester to increase taxon representation of a variety of marine invertebrates. This experience has shown me the importance of collaboration and effective communication within laboratory settings, these skills are essential to create an adequate work environment. Overall, the OUR Works! Work-study program provided a unique opportunity to gain practical experience in a particular field of study while also helping aid in the development of qualifications and information that will be useful throughout academic and professional careers.

**Bethany Davis**

**Biology**

***Using Bioinformatics to Understand the Complete Mitochondrial Genome of the Lemon Shark***

**Co-Author(s): Viktoria Bogantes Aguilar, Oliver Shipley, Austin Gallagher, Philip Shearer, Mark Parrish**

**Faculty Mentor(s): Alexis Janosik**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #14**

The lemon shark (*Negaprion brevirostris*, Poey, 1868) is a common species of requiem shark that inhabits shallow subtropical waters of the Atlantic and eastern Pacific oceans. The species is not usually a threat to humans but faces negative human impacts, therefore being currently listed at Near Threatened on the IUCN Red List. Current genetic studies show insights into population genetic structures, philopatry, aging, and microsatellite sequences. For this research project, we partnered with Beneath the Waves and Big Blue Collective, nonprofit organizations dedicated to using science and technology to promote ocean conservation, to report the first complete mitochondrial genome sequence of the lemon shark *Negaprion brevirostris*. The circular genome was composed of 17,009 base pairs with 13 protein coding genes, 24 transfer RNAs, and 2 ribosomal RNAs. The multi-gene phylogeny using protein-coding genes from the mitochondrial

genome, resulted in *N. brevirostris* clustering with other closely related species, which is consistent with other recent phylogenetic studies. These data provide new information on the genetic profile and evolutionary history of Atlantic lemon sharks, which can support novel studies of lemon shark population connectivity for poorly-studied, small island developing nations and can also be applied to broader conservation genetics and future evolutionary studies of elasmobranchs.

**Alexia Figueroa**

**Biology**

**Short Term Variability in Sulfide Levels and the Effect on Seagrass Beds Abstract**

**Faculty Mentor(s): Jane Caffrey**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #16**

This research investigates why there are influxes in diurnal variation in dissolved O<sub>2</sub> levels and why sulfide concentrations vary in Big Lagoon bayous in Escambia County, Florida during different times of the year and days over the summer. As sulfide enters the bayous through ground pore water from sulfate reduction by bacteria, sulfide oxidation can reduce oxygen levels, increase stress in *Halodule wrightii* potentially reducing rates of photosynthesis. I anticipate that the sulfide levels are the highest during the day-night and during the warmer months as that is when there is the most water pollution due to industrial and recreational use of land and water. Sulfide, nutrients, and chlorophyll-a will be measured weekly. I will also analyze chlorophyll a and compare it to my standard chlorophyll a, as chlorophyll a is used to observe the trophic condition of a body of water. I also will confirm the hypothesis that sulfide is harming seagrass beds and this harm is spreading deeper into beds through the close contact of seagrass. Over the last few decades, sulfides have been identified as harmful phytotoxins. Little is known about the effects of sulfide on *Halodule wrightii* seagrass compared to other seagrass species. Recent data suggests that sulfide can get into plants and lower the levels of dissolved O<sub>2</sub>. Dissolved O<sub>2</sub> is also an important indicator of water quality levels. High porewater sulfide concentrations in Florida Bayou seagrass beds are shown to be affected by higher sulfide levels than surrounding bayous have led to seagrass die-offs.

**Conor Flannigan**

**Biology**

**The Comparison of Microbiome Diversity of Coquina Clam (*Donax variabilis*) and Soil Across Pensacola Beach**

**Faculty Mentor(s): Hui-Min Chung**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #11**

Microbiome diversity is the diversity of bacteria, fungi and other microorganisms living together in each habitat (Barko et al. 2018). Microbiome composition in each location, such as a beach, can give a glimpse of the level of human activities and pollution ecologically. The goal of this project was to compare the microbiome diversity of coquina clams and sand samples collected from Casino Beach and

Santa Rosa Beach in the great Pensacola area, Florida. We hypothesized that as Casino Beach has more human population and thus more pollution than Santa Rosa Beach, both the coquina and sand samples from Casino beach would have significantly higher microbiome diversity than those collected from Santa Rosa. The methodology we used involved the following: 1) collecting coquina and sand samples from these two beaches, 2) isolating DNA from the samples, followed by 3) amplifying and sequencing the 16S rRNA DNA. After sequencing, the data was examined using bioinformatic analysis to profile microbiome composition of the original sample. The results showed that: A) For the coquina microbiomes, the most abundant bacteria present in the Casino Beach were totally different from those collected from the Santa Rosa. The Casino Beach coquina microbiome had 36 total bacteria genera detected, which was 21 more than that from the Santa Rosa coquina. B) For the sand microbiomes, both beaches share similar bacteria genera. The Casino Beach sand microbiome had 108 bacteria genera detected, which was 52 more than that of Santa Rosa. In conclusion, both the coquina samples and beach sand samples collected from Casino Beach had significantly higher microbiome diversity than those from the Santa Rosa. The data is consistent with our hypothesis that human population has a significant impact on microbiome diversity.

**Molly Hayne**

**Biology**

**Using Museum Specimens for Taxonomic and Molecular Research**

**Faculty Mentor(s): Viktoria Bogantes**

**Session: Main Oral Presenters**

**Session Time: 9 a.m. - 10:30 a.m.**

**Location: Conf Center Lounge**

**Presentation Time: 9:00-9:15**

Natural history museums are valuable repositories of biodiversity that can provide insight into the evolutionary diversification of organisms living and extinct. Yet, genetic data often remains locked away in formalin-fixed museum specimens, as this fixation process preserves tissues but crosslinks proteins and DNA, resulting in fragmented sequences. This leaves unanswered questions about phylogenetic relationships as well as the presence of cryptic species within previously described species. Cryptic species occur when genetically distinct individuals are found to be erroneously grouped together due to their morphological similarities. One species in particular, the marine annelid worm *Terebellides stroemii*, has been the subject of recent morphological and molecular studies, in which the presence of multiple cryptic species has been indicated. However, older museum deposits of *T. stroemii* have not been re-evaluated since their initial collection and identification. Thus, it is possible that these samples may have been misidentified and could represent other members of the genus *Terebellides*. To comprehensively investigate and revise the taxonomy of a species such as *T. stroemii*, it is necessary to use both morphological and molecular techniques, so that morphological findings can be corroborated and compared to underlying genetic information. Here we investigate the taxonomy of preserved museum specimens of *T. stroemii* by conducting a morphological analysis, designating morphotypes, and developing a protocol for extracting DNA from formalin-fixed tissues. The contributions made by this project will help build a more thorough genetic record of *Terebellides*, and will build on previously established methods for unlocking genetic data in museum specimens. This knowledge is essential for creating more informed

conservation efforts and ensuring that the collections deposited in museums are credible and comprehensive sources for future research

**Kameron Horak**

**Biology**

***Analysis of the Anthropogenic Effects of Nutrient Overloads in the Bayou Ecosystems of Pensacola FL***

**Co-Author(s): Cameron Donofrio**

**Faculty Mentor(s): Alexis Janosik**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #3**

Water quality is a crucial aspect of any aquatic ecosystem, affecting anything from the natural appearance of the water body to the overall health of the organisms inhabiting the area. The state of Florida is home to multiple bayous, mostly in the panhandle. Beginning in the early 2000s, the Marine Science Academy at Booker T. Washington High School formulated an annual project for the junior class to go out as teams and collect water quality samples in Bayou Texar, a bayou which runs throughout the city of Pensacola, FL. In the spring of 2020, the COVID-19 pandemic constituted a state of lockdown in most provinces in which the citizens were homebound. This phenomenon ultimately resulted in a flourish of nature, effectively shifting the natural ecosystems' annual nutrient cycles in Pensacola, FL Site 1, situated directly underneath a bridge that has undergone heavy construction in recent years, presents an area with high levels of industry run-off. Site 2, surrounded by residency and urban development, portrays an area with a projected degree of run-off associated with home-owning, such as fertilizers. Sites 3 and 4 are strategically located in city parks, presenting high levels of recreational activity and the nutrient byproduct associated with it. This study recreates the protocols of water sampling in 2020 for the fall of 2022 to observe hyper-specific changes in water quality parameters that are estimated results of human-based activities and interferences, all of which have been altered since the start of the COVID-19 pandemic.

**Danielle Huntinghouse**

**Biology**

***Biocides Effective Against Lipid- Dependent Yeast and Dermatophytic Molds Associated with Human Skin***

**Co-Author(s): Emma Bowland, Cassie Owens**

**Faculty Mentor(s): Joe Lepo**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #1**

The University of West Florida Health, Leisure, and Sports (HLS) gym equipment, locker, and shower facilities were found to be colonized by potential human microbial pathogens in prior studies. This project aimed to focus on eukaryotic pathogens in Kingdom Fungi, specifically lipid-dependent human-associated yeasts and potentially pathogenic keratinolytic skin molds that cause skin diseases such as acne, athlete's foot, ringworm, and fungal nail infections. The research questions

were whether biocides added to shampoos and topical antifungal creams can kill or inhibit the growth of lipid-based yeasts and if novel biocides exist that are safe for contact with human skin and effective against both skin pathogens. The project used two assays to test the relative efficacy of sanitization agents. The growth of lipid-dependent human-associated yeasts representative organism, *Malassezia furfur*, was monitored on a Modified Sabouraud Dextrose Agar, while potentially pathogenic keratinolytic skin molds were monitored on Rose-Bengal Agar. Microbiocidal efficacy of the biocides was assessed through screening by a plate-diffusion or Kirby-Bauer disc-diffusion method and Phenol Coefficients (PC). This project aimed to identify suitable antimicrobials that would target these species of organisms and support the use of the biocides in products proposed to help the skin conditions caused by the microbes. This project has produced data that supports the biocidal efficacy of several additives often used in products for these conditions. These biocides include Terbinafine and Chlorhexidine.

**Angelique Jefferson**

**Biology**

***The Potential Effect of Microplastics on the Brain***

**Faculty Mentor(s): Jill Van Der Like**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #2**

Microplastics (MPs; less than 5mm) are a form of pollution that stem from the overabundance of plastic use. These contaminants pollute the oceans, rivers, soil, sewage, and sediment causing unavoidable exposure that has led to a concern over the potential impacts on human health. It is suspected that humans can intake MPs through inhalation, ingestion and dermal contact. While inside of the body it is unknown what specific tissues and organs the MPs congregate in or what pathways the particles take to get there. Considering that the brain is the control center of the body, it is vital to understand if an uptake of these particles can lead to irreversible damage. This is a fairly new topic of study so current research uses varying methods and produce contradictory results. This review summarizes the animal models that are used for the studies, how their results relate to one another, and possible causes for the discrepancies. Furthermore, the potential implications of MPs as a vector for heavy metals is discussed. This literature review will contribute to a better understanding of the relationship between MPs and the chemical interactions in the brain.

**Erica Kim**

**Biology**

***Creating Peptide Inhibitors of Epidermal Growth Factor Receptor for Cancer Treatment***

**Faculty Mentor(s): Rodney Guttman**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #23**

Receptor tyrosine kinases (RTK) are membrane-bound proteins involved in the regulation of key cellular processes, including propagation and motility. Recent

research has revealed potential links between the dysregulation of RTK signaling and carcinogenesis. Epidermal growth factor receptors (EGFR) are one of twenty different RTK subfamilies. This transmembrane glycoprotein is also well-established as a contributor to signaling pathways involved in tumor proliferation and metastasis. Bacterial amplification was conducted using the EGFR-GFP cDNA in DH5 $\alpha$ ; E. coli bacteria. After restriction enzyme digestion and sequencing, the purified plasmids were used for transformation with competent strains. The subsequent experiments with mammalian HeLa cells produced less than 10% transfection efficiency, as visualized through cell imaging and flow cytometry. These preliminary results necessitated optimizations in the amounts of DNA and transfection reagent. Future experiments will use phage panning to pre-clear a 12-mer library against non-transfected HeLa cells to purge non-specifically binding phage. Following the amplification of the unbound phage, phage display with transfected EGFR-GFP-HeLa cells will allow for identification of specialized protein-protein interaction. Multiwell plate systems may be utilized to observe consequent effects on cellular motility. The performed optimizations will benefit future investigators, and facilitate explorations of the anti-oncogenic factors influencing cell proliferation or migration. Additionally, phage display has been used to identify therapeutic targets for a variety of human conditions, some of which are on the market today. These are of particular interest as cancer remains a leading cause of death worldwide, and metastases are the main cause of cancer mortality.

**J.J. Lane**

**Biology**

***Identifying the Signaling Pathway of Defense-Related Proteins in Dioscorea bulbifera (Air Potato)***

**Faculty Mentor(s): Theodore Fox**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #8**

*Dioscorea bulbifera* (air potato) is a species of yam native to Africa, Asia, and Australia. However, the plant has spread to Florida, where it is classified as an invasive and noxious species, meaning it is extremely detrimental to surrounding ecosystems, crops, and livestock. This study aims to build from previous work and identify the defense mechanism of air potato on the RNA (ribonucleic acid) level. To accomplish this, the signaling pathway of the defense-related proteins that are mechanically challenged with bacterial or fungal pathogens must be identified. The paramount research question involved in this experiment is the identification of the signaling pathway involved in the induction of defense related proteins in the cells and apoplast of *Dioscorea bulbifera* (air potato). The first and most important step in this experiment is to isolate clean, intact RNA to assess the gene expression of defense-related proteins. RNA extractions for plants are typically clear, but air potato samples show significant pigmentation. A high concentration of phenolic compounds is presumed to be the cause of pigmentation, making RNA isolation abnormally difficult. The overall goal of this research is to study the defense mechanism of the air potato to facilitate further studies in reducing the invasive plant's environmental impact.

**Brennen Lewis**

**Biology**

***Detection of Alzheimer's-Modified Tau via Phage Display***

**Co-Author(s): Enid Sisskin**

**Faculty Mentor(s): Rodney Guttmann**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #20**

Alzheimer's is a relentless neurodegenerative disease that ranks as the seventh leading cause of death worldwide, with its prevalence increasing alongside the human lifespan. Over fifty-five million people suffer from Alzheimer's and other dementias globally. Despite decades of research, no cure exists, treatment options are limited to controversial drugs, and accurate antemortem diagnosis remains elusive. Other dementias display nearly identical signs and symptoms to Alzheimer's, with only subtle differences in their molecular basis. Tau, a protein essential for maintaining axonal structure, adopts unique pathological conformations in related neurodegenerative diseases called tauopathies. Alzheimer's-altered tau exhibits distinct structural properties. However, most diagnostic tools considered specific for Alzheimer's are either in clinical trials or have yet to reach them. We aim to contribute to potential diagnostic methods by developing an affordable, high-throughput biomarker assay based on tau's conformational and biochemical alterations in Alzheimer patients' biofluids. We are employing phage display to generate novel peptides that specifically bind to Alzheimer's-unique tau derived from the cerebrospinal fluid of clinically diagnosed patients. This assay could facilitate Alzheimer's diagnosis decades before onset, providing time for preventative measures and enabling physicians and researchers to monitor disease progression

**Ed Li**

**Biology**

***Preparing For The Next Pandemic: Avian Influenza***

**Faculty Mentor(s): Enid Sisskin**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #1**

Predicting the next pandemic is an uncertain task, as outbreaks can occur at any time and location. However, it's recognized that the factors that contribute to the emergence of pandemics include increasing population density, changes in land use, agriculture practices, climate change, and the increase of trade and travel. "Bird flu", also known as avian influenza, is a viral disease that mostly affects birds but can also be transmitted to humans. The virus has the potential to mutate and spread rapidly, causing a pandemic. These viruses are of the Orthomyxoviridae family and are divided into subtypes based on the two surface proteins hemagglutinin and neuraminidase that they possess. The bird flu virus is not caused by bacteria, but by a group of RNA viruses called influenza A viruses. However, like any respiratory illness, individuals with bird flu may be more susceptible to bacterial infections due to weakened immune systems or complications. The next pandemic involving bird flu could probably emerge from

newly mutated strains of the virus that is highly transmissible among humans. The virus could spread rapidly through the population, causing widespread illness and potentially overwhelming healthcare systems. To prepare for the next pandemic, it's essential to monitor and track the spread of bird flu in birds and humans. This means monitoring and testing any new strains of the virus and developing effective vaccines and treatments. In conclusion, the potential for the next pandemic involving bird flu is a significant concern, and it is essential to remain vigilant in monitoring.

### Allie Linkous

#### ***Cell-Based Measurement of EGFR with FRET***

**Faculty Mentor(s): Rodney Guttmann**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

#### **Poster #12**

Cancer is a devastating disease impacting a significant portion of the population. Due to the heterogeneous nature of cancer, a single drug cannot effectively target all the complex mechanisms involved in tumor progression and survival. Continuous research is, therefore, necessary to gain insight into the disease's molecular underpinnings, improve treatment, and ultimately achieve a cure. Bacteriophages offer a promising avenue for cancer therapy. In this study, we investigate the direct impact of bacteriophages on epidermal growth factor receptors (EGFR), which are known to be mutated in several types of cancer. Mutations of EGFR, a receptor tyrosine kinase (RTK), inhibit apoptosis, increase cell proliferation, and metastasis of cancerous cells. To fully comprehend the scope of this receptor, we have been developing techniques to introduce it into our HeLa cell line. Once expressed on the cell membrane, we plan to assess our ability to modulate EGFR action using a phage-based panning approach. This approach will ultimately identify novel antagonists that prevent EGFR from perpetuating cancer cell development. By focusing on this specific RTK, we aim to pave the way for new cancer drug development.

### Joel Lukens

#### ***A Study of the Lifecycle of Pyrocystis Fusiformis in Osmotic Shock, Light Shock, and Nutrient Shock and the Recovery from Stasis***

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

#### **Poster #15**

Dinoflagellates can form harmful algae blooms (HAB's) when nutrients and environmental conditions are ideal, creating potentially toxic and anoxic areas. When non-ideal conditions exist, these phytoplankton have mechanisms in place to withstand harsh environmental stress. Some of these algae have what's called a resting stage, that allows them to remain dormant until conditions improve. This work explores the resilience of these organisms to high and low stress environments. In a feast or famine approach, this work will examine how

### Biology

different stressors and additives may affect the life strategy of this resilient, yet delicate species of dinoflagellate. Specifically, dinoflagellate recovery from a resting stage and initiating sexual reproduction will be identified. Cations such as:  $\text{Ca}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{NH}_4^+$  /  $\text{NH}_3$  and anions including  $\text{NO}_2^-$ ,  $\text{NO}_3^-$  and phosphates were augmented and monitored to compare the effect that a change in nutrients play on the life cycle of the organisms. This monitoring was achieved via discrete analyses and ICP-OES. The Utermöhl method was used to enumerate proliferation of algae. Tracking the lag phase and exponential phase, will give a better understanding of the impact of man-made pollutants on the detrimental algae. In addition, examining the osmotic relationship with a saltwater organism and fresh water introduction can show what elements have the larger potential to initiate HAB's that endanger fresh and marine environments. This work may also suggest approaches for control of HAB.

### Tucker McDonald

#### ***Analyzing The Association Between Wintering Waterfowl And Environmental Variables In Northwest Florida Estuaries***

**Faculty Mentor(s): Philip Darby**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

#### **Poster #18**

Several species of waterfowl pass through Northwest Florida estuaries in winter. Different factors potentially influence when and where these birds occupy these estuaries. UWF biology teams have been surveying 30 land-based points for wintering waterfowl from 2013 through 2023. Waterfowl counts were conducted within a 500-meter radius of survey points using spotting scopes; counts were done one to two times monthly, October through April. The purpose of this project was to examine the association between waterfowl counts and environmental factors, including tides, recent weather, and presence of seagrass. Some environmental data were obtained online (e.g., [tidesandcurrents.noaa.gov](https://tidesandcurrents.noaa.gov)) and RStudio (statistical software) was used to extract data specific to our waterfowl survey dates and locations. In winter 2023, we tested a protocol for seagrass sampling in waterfowl survey areas. Surveyors followed 10 predetermined transects (mapped in Google Earth) in a boat and collected seagrass at five equidistant points along each transect to document seagrass presence / absence. These data are currently being analyzed. Also, UWF professor Jane Caffrey provided her seagrass survey data and we are looking for overlap with our waterfowl survey points. Preliminary assessment of these data were similar to our findings: *Thalassia testudinum* and *Halodule wrightii* were found at survey locations, with *Thalassia* the most abundant. This may indicate that the waterfowl species found at these sites target *Thalassia testudinum* for foraging. The long-term goal of this project is to match preexisting environmental data with new seagrass and waterfowl data collected from all 30 survey sites.

### Biology

### Alexis Mitchem

#### ***Inventoring elasmobranchs in the lower Pensacola Bay system utilizing environmental DNA metabarcoding***

**Co-Author(s): Viktoria Bogantes**

### Biology

**Faculty Mentor(s): Alexis Janosik**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #12**

Sharks, skates, and rays are essential to promote the health and diversity of our oceans. Female elasmobranchs often utilize estuary and freshwater areas for reproductive purposes in the spring and summer seasons. However, very little is known about areas that migrating elasmobranch species may be utilizing for reproduction. Due to the frequent presence of elasmobranch species in shallow waters of the Gulf of Mexico, it is likely that the lower Pensacola Bay system is being utilized by elasmobranchs for important nursery habitats. Detection of sharks in coastal ecosystems can be challenging using conventional methods. The objective of this project was to employ environmental DNA (eDNA) metabarcoding to identify areas of active use by elasmobranchs in the Pensacola Bay System. These tools are non-invasive and more cost-effective compared to conventional sampling. Surface water samples were collected at 10 Pensacola Bay System sites once per month for four months at low tide. universal elasmobranch primers were used to amplify elasmobranchs and the generalist elasmobranch primer set is used for amplification of a portion of the 12S mitochondrial rDNA. Amplified fragments were then sent for high throughput sequencing and sequences will be taxonomically assigned using a bioinformatics pipeline. Detected elasmobranchs will be investigated based on detection from the sampling sites, and the timeline in which they were collected. This study will advance our knowledge of crucial areas that are in need of protection to promote the preservation of keystone species that reside along the Gulf Coast.

**Sarafina Mowe**

**Biology**

***Temporal Variation of Microplastics Accumulated in Marine Demosponges in Pensacola Sound***

**Faculty Mentor(s): Alexis Janosik**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #2**

Microplastics are ubiquitous within marine ecosystems. Their diverse composition, size, and shape have made categorization very difficult in understanding the natural effect microplastics have on marine inhabitants and the overall environment. To address and resolve the issues caused by microplastics within the marine environment, an in-depth analysis of the accumulation rate and characterization of microplastics is needed. Marine sponges serve as large filtration systems that pump large quantities of seawater within a marine environment. Thus, the ability of marine sponges to potentially obtain microplastics from the water column within their inner tissue make them ideal candidates to sample and analyze the variation and temporal trends of microplastics. The objective of this study is to determine and measure the accumulation of microplastics in common demosponges over a temporal pattern. By studying the classification and abundance of microplastics within

demosponges, a concrete trend can be supported in order to create a better understanding of how the amount of microplastics change overtime in marine ecosystems. For this study, sponges were collected from Naval Live Oaks National Seashore located in Gulf Breeze, Florida. Each month, six different demosponges will be collected and stored for later processing and analysis. Furthermore, a sample of seawater will be collected in close proximity and similar depth of the sponges obtained to serve as the control variable. Once collected, selected demosponge tissue will be processed and digested to identify the quantity and type of microplastics present to establish a correlation in microplastics filtered. Additionally, DNA barcoding will be employed on the sponge tissue sample to determine the taxonomic identification of the demosponge collected. Ultimately, the data collected will be compared to see which month and overall season has the highest accumulation of microplastics.

**Daniel Neidigk**

**Biology**

***Experiment Evolution as Treatment for Alzheimer's Disease in Drosophila***

**Faculty Mentor(s): Rodney Guttmann**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #9**

Some individuals who display the pathological hallmarks that characterize Alzheimer's disease (AD) but are not afflicted with cognitive decline. The ability to maintain cognitive function despite the presence of pathology is referred to as cognitive reserve. This project aims to identify the molecular pathways involved in cognitive reserve using *Drosophila melanogaster* (DM) models of Alzheimer's disease. Specifically, a theoretical approach using the methods of experimental evolution to drive a population of AD-like *Drosophila* carrying a tau mutation to develop cognitive reserve is proposed. To accomplish this, a population of AD-like DM will be placed in a single population cage along with wild-type flies and be forced to compete for limited resources. The first generation of AD-like DM will be generated using random mutagenesis of the initially isogenic AD-like fly. It is hypothesized that AD-like flies with cognitive decline will be unable to survive, given that their limited cognitive abilities will prevent them from effectively competing with wild-type flies for resources. In contrast, AD-like flies with mutations that promote cognitive reserve will be better capable of survival. After 90-99% of mutant flies have died, the surviving mutant flies will be back-crossed to the P1 mutant to maintain tau-mutation stability. It is expected that this process will eventually create a generation of tau mutant flies that demonstrate cognitive abilities comparable to those of wild-type flies despite maintaining an AD-like tau mutation. This approach will monitor the successful trajectory of the evolution of increased cognitive reserve through survival curve analysis and measures of cognition.

**Heather Patten**

**Biology**

***University of West Florida Campus Ecosystem Study: Using Dendrochronology to Analyse Tree Growth of Longleaf Pines***

**Co-Author(s): Sarah Rabinowitz**

**Faculty Mentor(s): Frank Gilliam**



**Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #25**

The University of West Florida campus was constructed among second-growth longleaf pine stands that survived extensive logging in the region. Previous studies estimated, based on a model from southern Georgia, that oldest stems at UWF were ~200 yr old. More accurate age data can be obtained from disks collected locally from recently fallen trees. In September 2020, Hurricane Sally impacted UWF as a Category 2 storm. We sampled cross-sections of longleaf pine blowdowns by Sally for age determinations. Two natural areas of the UWF campus were chosen for sampling: Edward Ball Nature Trail and Baars-Firestone Wildlife Sanctuary. For each sampled section, diameter at breast height (DBH) and number and width of annual rings were recorded. Based on 50 sampled trees, linear regression revealed a statistically significant DBH/age relationship. Applying this to DBH measurements of 2,165 stems on the main campus indicates that the oldest longleaf pines are ~130 years old, consistent with historical records. Mean age for the Trails site was significantly lower than that of the Sanctuary, suggesting that they represent sites of contrasting land-use history. Annual growth rates of older pines were negatively correlated with temperature. Directions of stem windthrows did not vary between natural areas and were consistent with characteristics of the eyewall of Hurricane Sally with strongest wind gusts moving from a southeast to northwest direction. This study confirms that college/university campuses can be used as a units of ecological study in a way that takes advantage of stochastic events such as tropical cyclones.

**Maria Jose Pena Bu****Biology*****Synthesis of Benzo[b]thiophene Derivatives with Potential Antimicrobial Properties*****Co-Author(s): Beloved Choi, Mackenzie Woods****Faculty Mentor(s): Prerna Masih****Session: Main Poster Session****Session Time: 11 a.m. - 12 p.m.****Location: Conf Room AB****Presentation Time: 11 a.m. - 12 p.m.****Poster #21**

Antimicrobial resistance is a current global public health threat that jeopardizes the treatment and prevention of infections. Therefore, there is a constant need for new drugs that can overcome multi-drug resistant infections. Previous research studies have shown that benzothiophenes have promising antimicrobial properties and thus, are good candidates for antimicrobial drugs. This research focuses on the synthesis of novel benzo[ b ]thiophene derivatives with potential potent antimicrobial activity against diverse pathogens. The synthesis of desired derivatives was performed using Sonogashira coupling reactions, Grignard reagent reactions, and cesium fluoride mediated C-C bond formation reactions. The cyclization of alkyne intermediates was performed using copper (II) sulfate/sodium chlorida and bromodimethylsulfonium bromide (BDMS). The structure of all the synthesized compounds were confirmed by spectral data. Further, their antibacterial activity was evaluated via microdilution susceptibility method and

their minimum inhibitory concentration (MIC) was determined. In summary, several different compounds were successfully synthesized and cyclized. Some compounds showed promising antimicrobial activities.

**Mckenzie Petersen****Biology*****Synthesis of Novel Benzothiophene Derivatives with Possible Antimicrobial Activity*****Faculty Mentor(s): Prerna Masih****Session: Main Poster Session****Session Time: 2 p.m. - 3 p.m.****Location: Conf Room AB****Presentation Time: 2 p.m. - 3 p.m.****Poster #5**

As a result of the widespread and prolonged use of common antibiotics, the evolution of drug resistant bacteria has escalated and has posed a major threat to global health. New classes of antibiotics are constantly now in high demand due to this recent rise of bacterial multidrug resistance. While striving to find a new class of antibiotics, Dr. Masih's lab has observed several target compounds with a benzo[b]thiophene ring that have demonstrated promising antibacterial activities against gram-positive bacteria. After obtaining the preliminary data, the goal of this project has been to continue to further modify these compounds in an attempt to increase their efficacy against fungi and certain gram-positive and gram-negative bacteria. The hypothesis was that the modified compounds would result in a decreased resistance to bacteria and fungi. The compound was synthesized using a modified Morita-Baylis-Hillman Reaction, such as the scheme of reaction shown in scheme 1. Afterwards, these compounds were further screened in common pathogenic bacteria and the minimum inhibitory concentration values were determined by measuring the absorbance of the growth of bacteria in a 96-well plate. Through continued synthesis and observation of novel benzothiophenes we hope to synthesize a potent antimicrobial molecules with increased efficacy and broader applicability against fungi, gram-negative, and gram-positive bacteria.

**Andrew Pomareno****Biology*****Investigating the Effect Lactobacillus plantarum Probiotics have on Gut Microbiome of Drosophila melanogaster*****Co-Author(s): Cooper Catalani****Faculty Mentor(s): Hui-Min Chung****Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #6**

The natural microbiome present in humans is an important indicator of one's health. Often, people will use probiotics with the goal of improving gut health. However, current research on probiotics still has not been completely proven to be beneficial to human health. To investigate if probiotics help support gut health, the fruit fly *Drosophila melanogaster* was used as a model organism. We hypothesized that providing certain probiotics to the fruit flies would increase gut microbiome diversity. Previously, our research indicated that wild-type

(WT) flies had higher bacterial diversity compared to ADH mutant flies, which cannot properly metabolize ethanol because they cannot synthesize alcohol dehydrogenase. The experimental methodology started with providing the WT and ADH flies to *L. plantarum* (experimental group) or no *L. plantarum* (control group) in their food consumption for two weeks. For all four groups, the offspring fly guts were dissected and their DNA was isolated, followed by amplifying the bacterial 16S rRNA DNA. The amplified DNA was then sequenced and analyzed by EPI2ME. Our preliminary results indicated there was more bacterial diversity in the WT flies after consuming *L. plantarum*, but no change in the ADH flies. In conclusion, the results are consistent with our hypothesis that *L. plantarum* probiotics increased the gut microbiome diversity for WT flies, but not for ADH gene mutant flies. The conclusions from this project are important, as they shed light on our knowledge of probiotics and their effects on human health

**Sarah Rabinowitz**

**Biology**

***The University of West Florida Campus Ecosystem Study: Variation in Species Composition, Soil Fertility, and Soil Microbiome in Hardwood Versus Pine stands***

**Co-Author(s): Elizabeth Hargis, Brenton Davis**

**Faculty Mentor(s): Frank Gilliam**

**Session: Main Poster Session**

**Session Time: 11 a.m. – 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. – 12 p.m.**

**Poster #19**

Numerous factors influence the composition and diversity of soil microbial communities, which in turn exert a profound impact on plant species occupying the soil and the biogeochemistry of essential plant nutrients. This study compared the soil microbiome of two adjacent stand types -- hardwood- and longleaf pine- dominated -- and addressed the following questions: (1) how do tree species composition and structure vary with forest type? (2) how does soil fertility vary with stand type? (3) how does soil microbiome vary with stand type? Twelve 0.04 ha circular plots were established in each stand type to assess tree community composition and structure and to sample mineral soil for three separate analyses: assessment of soil fertility, measurement of total carbon and nitrogen (N), and extraction of genomic DNA for assessment of microbiome communities. All live stems greater than or equal to 2.5 cm diameter at breast height (DBH) in each plot were identified to species and measured for DBH to the nearest 0.1 cm. Mineral soil was taken to a 5-cm depth and oven dried at 38 degrees C prior to analyses. Hardwood stands were dominated by flowering magnolia and southern evergreen oaks and were significantly higher in stem density, species richness, and species diversity; pine stands were dominated by longleaf pine and live oak. Although soils of both stand types were highly acidic, the hardwood stands were generally higher in fertility, especially regarding total and available N. The overstory and soil microbial communities exhibited evidence of linkage among all sample plots combined. When assessed separately by stand type, only hardwood-dominated stands displayed evidence of overstory/microbial linkage.

**Sarah Rabinowitz**

**Biology**

***Screening Lipid-Dependent Yeasts for Microbial Biological Surfactants***

**Faculty Mentor(s): Joe Lepo**

**Session: Main Poster Session**

**Session Time: 9 a.m. – 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. – 10 a.m.**

**Poster #14**

Biologically produced “surface-active agents” -- commonly termed “biosurfactants” -- have applications in environmental bioremediation of oil spills and numerous industrial applications, e.g., microbially enhanced oil recovery [MEOR], paints, cosmetics, and birth control. Microbial biosurfactants are produced amphipathic molecules from yeasts or bacteria. One category of microorganisms that has been poorly investigated for biosurfactant activities is lipid-dependent yeasts that are symbiotic on human skin. Because lipids in skin oil are hydrophobic, their efficient use as a C-source likely requires a surfactant. Therefore, lipid-dependent yeasts are promising candidates for surfactant-producing microbes. One yeast of interest, *Malassezia furfur*, is found on several mammals including humans, and is associated with diseases/disorders such as pityriasis versicolor, systemic infections, and dandruff/seborrheic dermatitis. The questions that were addressed are: Do lipid-dependent human skin symbiotic yeasts produce biosurfactants and are such surfactants excreted into the growth medium or are they part of the cell? The assay techniques utilized to determine biosurfactant activity were the Sheen screen assay, Bacterial Adhesion to Hydrocarbons, Surface Tensiometer, and the ability to stabilize an emulsion. Quality assurance was guaranteed using surfactant-producing organisms, such as two gram-positive bacteria isolated from the Gulf of Mexico: DF1, a strain of *Rhodococcus facians* and GoMEX2; a stain of *Acinetobacter* spp.; a gram-negative strain of *Pseudomonas aeruginosa* (ATCC-9027), and *Saccharomyces cerevisiae* will serve as a negative (non-surfactant-producing yeast) control.

**Hannah Roscom**

**Biology**

***Testing the Antifungal Activity of Novel Benzo[b]thiophene Derivatives Using Microdilution Susceptibility Assay***

**Co-Author(s): Sharmin Afroz, Maria Jose Pena Bu, Beloved Choi**

**Faculty Mentor(s): Prerna Masih**

**Session: Main Poster Session**

**Session Time: 2 p.m. – 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. – 3 p.m.**

**Poster #6**

*Candida albicans*, *Candida tropicalis*, *Candida parapsilosis*, and *Aspergillus niger* are four opportunistic fungal strains that are growing increasingly resistant to antifungal drugs and can cause infection in immunocompromised humans. All three-candida species are known as some of the most virulent of the candida species. *Aspergillus niger* is the most versatile filamentous fungal strain and is known to be hazardous to human health through consumption. As different fungal strains and species develop resistance to antifungal treatment, the development of novel therapeutic agents is necessary. In order to develop novel therapeutic agents, investigating the therapeutic effects of chemical compounds

that have previously shown antifungal activity becomes increasingly important. Benzo[b]thiophene derivatives have shown to possess antimicrobial activity in previous studies. A topical antifungal drug named Sertaconazole has been approved by FDA to treat athlete's foot. Azole is known to have high toxicity and antibiotic resistance has been observed for this class of antifungal agents. Thus, there is an urgent need of a new class of antifungal agents. The novel benzo[b]thiophenes derivatives have been synthesized in Dr. Masih's lab. The antifungal activity of these synthesized compounds will be assessed using microdilution susceptibility assay and the Minimum Inhibitory Concentration (MIC) will be determined. The information obtained in these experiments may be used to obtain structure-activity relationship (SAR) of benzo[b]thiophene derivatives.

**Maddy Scott**

**Biology**

***Identifying Bacterial Phage Specific to Calpain Cleaved Tau In-vitro and In-situ***

**Faculty Mentor(s): Rodney Guttman**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #13**

Calpains are a family of calcium-dependent thiol-proteases implicated in various conditions and diseases, including Alzheimer's Disease (AD). In diseased states, calpains become overactivated due to elevated intracellular calcium levels. Calpains are extensively researched in AD studies because of their suggested association with neurofibrillary tangle formation. Phage display is a technique employed to examine protein binding interactions. Phage libraries consist of millions of bacteriophage variants, which can be screened to selectively identify phages that bind to a specific target. This project aims to identify bacteriophages that bind specifically to tau proteins cleaved by calpain. Calpain activity is resistant to phosphorylated tau, a type of post-translational modification found in higher amounts in AD tau. Human cerebrospinal fluid (CSF) samples from both AD and control patients were treated with calpain and phage to observe differences in the amount of calpain-cleaved tau present in each sample. Recent research at UWF has identified phages that bind specifically to calpain-cleaved tau in both AD and control CSF samples. Overall, tau is more resistant to calpain cleavage in AD samples. Calpain-cleaved tau offers a potential biomarker for Alzheimer's Disease, and phage display provides a means to identify this biomarker.

**Charlie West**

**Biology**

***Comparing Marine Host Efficacy For Marine Bacteriophage Hunting***

**Co-Author(s): Andrew Brown, Brittany Yencho**

**Faculty Mentor(s): Hui-Min Chung**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #7**

Bacteriophages are a type of virus that injects genetic information into a bacterium and hijacks the bacterial replication mechanism to produce and

assemble more phages. Phages are extremely abundant and believed to infect a single bacterial species. With studies over 100 years, only a fraction of the phage genomes are annotated and most were discovered using terrestrial bacterial hosts. Our goal is to test the efficiency and specificity of bacterial hosts native to Pensacola Beach, Florida, to improve the success of marine phage hunting. *Microbacterium oleariorum* and *Erythrobacter citreus* were chosen from environmental cultures to compare against a commonly used host, *Microbacterium foliorum*. We hypothesized that, due to higher prevalence in nature, the bacteria cultured from the hunting site would provide a higher number and variability of phage than *M. foliorum*. This was tested using samples from various shoreline levels on Pensacola beach to hunt phages with all three hosts. In addition, host-specificity can be studied using existing *M. foliorum* phages to infect *M. oleariorum*. Our methodology used modified phage hunting protocols and plaque assays, with spot tests for specificity. Results showed a high number of plaques recorded with *E. citreus*, inconclusive results using *Microbacterium* (more trials in progress), and a previously identified *M. foliorum* phage, Zepp, infected *M. oleariorum*. This showed the cross-species infection capabilities of certain bacteriophages. In conclusion, we have identified at least one bacterial strain for marine phage hunting; this study will shed light on new bacterial hosts with high effectiveness for marine bacteriophage hunting.

**Hue Worrells**

**Biology**

***Determining the conditions that influence gelatinous macrozooplankton communities in the Santa Rosa Sound and Gulf of Mexico***

**Faculty Mentor(s): Christopher Pomory**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #22**

*Mnemiopsis leidyi* are secondary consumers native to the Gulf of Mexico (GOM) that dominate coastal waters under ideal conditions. *M. leidyi* is a known prey item for another ctenophore, *Beroe ovata*, which commonly occurs in the same area. *M. leidyi* and *B. ovata* have also invaded the Black Sea. The rapid expansion of *M. leidyi* into the Black Sea and surrounding seas has caused a depletion of ichthyoplankton and mesoplankton, leading to a decline in commercially important fish stocks and trophic cascades. *M. leidyi* and *B. ovata* likely encounter hypoxic events in both the Black Sea and GOM as they are commonly found in near shore waters more susceptible to hypoxia. Hypoxia is known to give *M. leidyi* an increased advantage over its zooplankton prey. As anthropogenic impacts continue to increase hypoxic events in estuarine and coastal ecosystems, it is imperative to understand other conditions that control gelatinous zooplankton populations in their native range. Transect video surveys, via a GoPro attached to a kayak, targeting gelatinous macrozooplankton of a location in the Santa Rosa Sound and GOM have been conducted in order to make this characterization. A multiple linear regression will be used to help determine this characterization. It is hypothesized that temperatures around 25 degrees Celsius and stable salinities between 20 and 30 PSU will have the highest populations of both *M. leidyi* and *B. ovata*.

**Brittany Yencho****Biology*****Marine Bacteriophage Hunting on Pensacola Beach Using Erythrobacter citreus as Host*****Co-Author(s): Andrew Brown****Faculty Mentor(s): Hui-Min Chung****Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #19**

Bacteriophages are viruses that infect bacteria cells, using them as a host for replication. Bacteriophages exist abundantly in all environments, and specialize in infecting particular hosts. The presence of phage helps keep the population of bacteria in balance. The project goal was to learn more about marine phages using bacterial strains isolated from the marine environment. We chose *Erythrobacter citreus* as the host to perform host-dependent phage hunting due to its presence on Pensacola Beach. We hypothesized that due to the ubiquitous presence of phage, we would be able to isolate phage associated with *Erythrobacter citreus* from the same area. Our methodology involved: a) collecting sands of three categories from Pensacola Beach: dry sand, wet sand at the water line, and underwater sand; b) producing filtrates from each category, c) using plaque assays to infect *E. citreus*, identify phage, and determine the success rate from each of the sand categories, and d) isolating and purifying phages from the identified plaques. Our results showed that phage hunting from dry sand yields the highest percentage of plaques, whereas only few were found from the sands of the other two categories. In conclusion, we have identified at least two separate marine phages from dry sand based on different morphologies and are currently isolating the phage DNA to be sent off for sequencing to confirm the identity of the phage species. As more research knowledge is gathered on marine bacteriophage, this brings us closer to understanding the ecology and pathology of marine phages.

**Brittany Yencho****Biology*****Quantifying Microplastics on Pensacola Beach Relative to Sea Turtle Nesting Sites*****Co-Author(s): Lindsay Curl****Faculty Mentor(s): Alexis Janosik****Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #13**

Plastics, both macro and micro, have become an integrated part of human life. Microplastics are plastics smaller than 5 mm, that were either produced at this size or have broken down to this size. Microplastics have been found in coastal sediment samples from around the world and within the digestive tract of many marine animals. The full ecological impact of microplastics has yet to be realized, especially for sea turtle species. Sea turtles exclusively lay eggs on beaches, including Pensacola Beach, which exposes adult and hatchling turtles to microplastic contamination in the coastal sediment. The goal of this research

project was to establish the concentration of microplastics on Pensacola Beach relative to human traffic and sea turtle nesting sites. Methodology involved 1) gathering sand samples from four locations relative to a sea turtle nest: the nest, the dune directly up the beach from the nest, the water line directly below the nest, and a water sample directly below the nest; 2) processing water samples using vacuum filtration; 3) processing sand samples through density separation using a concentrated salt solution to separate the lighter microplastics from the heavier sand grains followed by vacuum filtration; and finally, 4) analyzing the quantity, color, size, and type of microplastic. Preliminary results have shown microplastics in abundance from all samples. Quantifying microplastics on Pensacola Beach is important for determining how coastal microplastic pollution is distributed relative to human traffic and where the highest exposure of microplastics could occur for nesting or hatchling sea turtles.

## CENTER FOR ENVIRONMENTAL DIAGNOSTICS & BIOREMEDIATION

**Anthony Alberda****CEDB*****Characterizing the Fish and Invertebrate Seagrass Communities within Santa Rosa Sound, FL (USA)*****Co-Author(s): Kaylin Regan, Hue Worrells, Amanda Croteau, Geoffrey Smith****Faculty Mentor(s): Jane Caffrey****Session: Main Poster Session****Session Time: 2 p.m. - 3 p.m.****Location: Conf Room AB****Presentation Time: 2 p.m. - 3 p.m.****Poster #8**

Seagrass beds are critical habitats which provide primary production and carbon storage, and serve as nursery grounds for a plethora of marine life. Rising temperatures and other anthropogenic-induced factors are expected to alter the composition of aquatic communities, including seagrass beds. In this study, the seasonal trends in the fish and invertebrate communities were cataloged for the Santa Rosa Sound at Shoreline Park in Gulf Breeze, Florida. Shoreline Park is a high-activity human use area for fishing and swimming. Using a combination of seining and dip netting, fish and invertebrates were collected and enumerated in seagrass beds and the surrounding sandy areas. Water quality was also collected using a YSI multimeter. Samples were collected between February and September. The dominant fish species collected from the seagrass was the Pinfish, *Lagodon rhomboides*, and the dominant invertebrate species were Decapod shrimp, including Grass Shrimp, *Palaemonetes* spp., and Broken-back Shrimp, *Hippolyte* spp. Water parameters were consistent with that of an estuarine system with good water mixing and brackish salinity. The results from this study provide a baseline of the fish and invertebrate communities present at Shoreline Park. This baseline can be used for future analysis of community change and assessment of the overall health of seagrass beds and associated faunal communities of Shoreline Park and other seagrass beds within the Santa Rosa Sound.

**Shelby Brasfield*****Zooplankton Community and Water Quality Monitoring of Perdido Bay*****Co-Author(s): Mackenzie Rothfus****Faculty Mentor(s): Amanda Croteau****Session: Main Poster Session****Session Time: 11 a.m. – 12 p.m.****Location: Conf Room AB****Presentation Time: 11 a.m. – 12 p.m.****Poster #17**

Phytoplankton are microscopic photosynthetic organisms which serve as primary producers within aquatic ecosystems. As the basis of aquatic food chains, plankton communities serve as an indicator of the overall health of a system. High biomass and low diversity are indicators of eutrophication which is when water becomes enriched with nutrients which helps create the conditions for harmful algal blooms. Phytoplankton communities are also influenced by other environmental factors such as salinity, light availability, and temperature. This project monitors plankton communities within Perdido Bay and its tributaries by sampling from 20 locations across the estuarine gradient and characterizing them using flow cytometry. Each site is sampled monthly over the course of a year from October 2022 to September 2023. Samples are collected from the surface and preserved using Lugol's solution. Ambient conditions (temperature, salinity, oxygen, pH, turbidity) are measured with a YSI, and water samples are collected for nutrient concentrations and total suspended solids. Each sample is processed using a Flow Cam at 10X magnification, and phytoplankton are identified to the lowest possible taxonomic level. Diversity indices, abundance (numbers per liter), and biovolume metrics are calculated. Analysis of these metrics will allow us to see how the phytoplankton community is dispersed in the bay. We will analyze phytoplankton metrics with paired water quality samples to determine the relationship between population metrics and abiotic factors such as salinity, nutrient concentrations, and turbidity.

**Sarafina Mowe*****Continuation of Time Series Database for Pensacola Beach Microbial Ecology*****Co-Author(s): Elizabeth Everett, Dixie Lauderdale, Sydney Lawson****Faculty Mentor(s): Wade Jeffrey****Session: Main Poster Session****Session Time: 2 p.m. – 3 p.m.****Location: Conf Room AB****Presentation Time: 2 p.m. – 3 p.m.****Poster #9**

Establishing baseline parameters for a given environment is important when trying to understand how anthropogenic or natural disturbance events affect an ecosystem. Microorganisms are important to the overall health of marine ecosystems. They are the foundations for critical food webs and are responsible for nutrient cycling. By collecting data including dissolved nutrients, bacterial production, primary production, temperature, salinity, and microbial diversity, researchers can understand temporal trends. Ultimately, a long-term time series database can be used to evaluate the health of an environment and determine effects resulting from disturbance events. We collected seawater samples biweekly for the last seven years at the Pensacola Beach Pier. Surface

**CEDB**

water samples were collected via bucket-cast at the end of the pier and abiotic factors such as temperature and salinity were measured using a CTD. Water samples were then stored in a cooler and transported back to UWF campus for further analyses of bacterial production, primary production, chlorophyll a, molecular diversity, and dissolved nutrients. Now in the seventh year, year-to-year seasonal fluctuations are becoming increasingly evident. Analysis of bacterial and primary production indicates that temperature is a main driver. In this oligotrophic environment, other metadata appeared to be less influential on productivity. Previous data collected also suggest a negative relationship between temperature and chlorophyll-a concentration which also impacts secondary heterotrophic production. This time-series project is intended to continue for years to come to further solidify baseline trends in Coastal Gulf of Mexico microbial dynamics.

**Isabella Orrantia Marmol****CEDB*****Optimizing Primers for DNA Extraction of nifH – Do Epiphytes Play a Role in N Fixation?*****Co-Author(s): Lacey Bowman, Lisa Waidner****Faculty Mentor(s): Jane Caffrey****Session: Main Poster Session****Session Time: 12 p.m. – 1 p.m.****Location: Conf Room AB****Presentation Time: 12 p.m. – 1 p.m.****Poster #3**

Seagrasses are important organisms that play important roles in aquatic environments. From providing nursery and feeding grounds, to absorbing nutrients in the water like nitrogen and phosphorus, enhancing water quality. They also store carbon and act as carbon sinks, an important process in fighting climate change ( McRoy and Barsdate, 1970 ; Pernice et al., 2016 ). Epiphytes are algae that along with prokaryotes colonize seagrasses, and some may fix nitrogen. Nitrogen fixing bacteria have nitrogenase, the enzyme responsible for nitrogen fixation which is encoded by the nifH gene. Epiphytes may prove beneficial to seagrasses by increasing available nitrogen, productivity and growth of seagrasses ( Tarquinio et al., 2018 ). We are studying how epiphyte abundance might affect nitrogen fixation rates in seagrasses in the Pensacola Sound, from sites that differ in land usages to compare conservation areas with developed areas. Is nitrogen fixation affected by the presence of epiphytic activity in high nutrient systems? The goal is to optimize four different nif H gene primers: Cyanobacteria A, Cyanobacteria B, Heterocystous cyanobacteria Z, and -Proteobacterium. DNA will be extracted from epiphyte material scraped off of Thalassia testudinum and Halodule wrightii leaves collected in the Santa Rosa Sound. Optimal conditions will be verified using quantitative polymerase chain reaction (qPCR) followed by gel electrophoresis. These primers will provide a baseline for studying the amounts of nif H genes in seagrass blades, to better understand the role of epiphytic activity. Nitrogen fixation is not commonly studied, this will provide key information on sources of nitrogen to seagrass beds.

**Cassie Owens****CEDB*****Correlations Between Dermatological Characteristics of a Human Population and Presence of Lipid-Dependent Human-Pathogenic Yeasts Such As***

**Malassezia spp.****Co-Author(s): Emma Bowland****Faculty Mentor(s): Joe Lepo****Session: Main Poster Session****Session Time: 2 p.m. - 3 p.m.****Location: Conf Room AB****Presentation Time: 2 p.m. - 3 p.m.****Poster #10**

We investigated whether specific skin characteristics of a population seemed to influence the presence of culturable lipid-dependent yeast on human facial skin. To mimic the human skin conditions that make it possible for *Malassezia* to grow, media known as modified Sabouraud Dextrose agar and broth (mod-SDA and mod-SDB) were developed. Additionally, a Qualtrics survey was created that allowed participants to input their skin characteristics. We sampled eighty participants on their forehead and nasal folds with sterile cotton-tipped swabs dipped into mod-SDB. Both swabs and streaked mod-SDA plates were placed in the incubator for approximately 48 hours as *Malassezia* strains flourish at 37 C or higher. Roughly 31% of participants had lipid-dependent yeast grow from one or both facial skin regions. We found that skin type does play a moderate role in the growth of lipid-dependent yeast, with combination skin yielding the highest amount and dry skin yielding the least amount of growth. This finding supported the idea that these yeasts would be found in oilier regions of the face as opposed to dry regions due to their lipid-dependence. 80% of participants who grew lipid-dependent yeast had a history of skin ailments, with acne and dandruff being the most common. However, normal skin with no history of skin ailments was also found to be a common subgroup that grew these yeasts. These findings support the notion that most skin types harbor lipid-dependent yeasts, but many of these yeasts thrive on skin types described as normal to oily.

**Wesley Wilmot****CEDB**

**Overview of Antibiotic Resistance Among Naturally-Occurring Bacteria, with a Focus on Methicillin-Resistant *Staphylococcus aureus* (MRSA): Possible Presence of the *mecA* Gene in Pensacola Bay Area Water and Sediment Samples**

**Faculty Mentor(s): Lisa Waidner****Session: Main Poster Session****Session Time: 10 a.m. - 11 a.m.****Location: Conf Room AB****Presentation Time: 10 a.m. - 11 a.m.****Poster #17**

Antibiotic resistance among clinical and environmental strains of bacteria is common. Methicillin-resistant *Staphylococcus aureus* (MRSA) infections can cause serious problems. The gene, *mecA*, in *S. aureus* encodes PBP2A, conferring resistance to beta-lactam antibiotics. Environmental DNA (eDNA) from water and sediment can contain *mecA*, indicating MRSA are present in a variety of environments. For example, *mecA*-positive DNA from brackish, fresh, and seawater samples have been identified from shrimp aquaculture farms and populated beaches, plus from the Great Lakes and European rivers. DNA from sediments, including beach sands, also contain *mecA*, previously found in California and Florida beaches, and in urban runoff sediments. Additionally, sites near water treatment plants (sewage outfalls), often have *mecA*. There

are limited sample surveys in the Southeast US, with none from the Pensacola area. We will survey water and sediment eDNA from nearby waters, focusing on the marine/estuarine sediment environment. A variety of existing (already published) *mecA* primer pairs will be used to screen eDNA samples from the Gulf of Mexico shelf, lower Pensacola Bay System, as well as some eutrophic urban estuaries such as Bayou Texar. This survey of local water and sediment samples, and its findings, are not meant to instill anxiety in the reader. Rather, the acknowledgement of the broad scope of *mecA* presence is meant to encourage susceptible individuals to avoid exposure, and hopefully dissemination of results will inform future policy-makers and scientists in urban planning, here, and elsewhere.

**DEPARTMENT OF CHEMISTRY****Ian Bell****Chemistry****Spilling the Beans on Caffeine Content: A Statistical Review****Co-Author(s): Kiara Barlet, Jay Callahan, Victoria Hennick, Georgia Ness, Jennifer Willis****Faculty Mentor(s): Karen Barnes****Session: Main Poster Session****Session Time: 12 p.m. - 1 p.m.****Location: Conf Room AB****Presentation Time: 12 p.m. - 1 p.m.****Poster #5**

Within the following experimental design, the caffeine content of three different roasts of coffee (including blonde, medium, and dark of the same brand, "Amazon Fresh &acirc;") were analyzed using High-Performance Liquid Chromatography (HPLC), in order to determine which of the three roast contained the highest caffeine concentration. A statistical analysis of the data was then performed in order to analyze the accuracy of the data collected, including calculations such as the Q-test, T-test, and F-test, before determination of the averages and standard deviations of the different samples of each brew for comparison. From the analyses performed, the final results showed that the dark roast was found to deliver the largest average jolt of caffeine, when compared to the other roasts brewed and tested.

**Justin Bobbitt****Chemistry****Determination of Capsaicinoids in Peppers with HPLC & GC-MS****Co-Author(s): Jonah Fisher****Faculty Mentor(s): Karen Barnes****Session: Main Poster Session****Session Time: 12 p.m. - 1 p.m.****Location: Conf Room AB****Presentation Time: 12 p.m. - 1 p.m.****Poster #16**

Concentrations of capsaicinoids in various organic pepper and chili samples were determined using high performance liquid chromatography (HPLC) and gas chromatography mass spectrometry (GC-MS). The family of capsaicinoids capsaicin, dihydrocapsaicin, and nordihydrocapsaicin affect the sensory receptors

in such a way that signals heat or spice and is measured as pungency and piquancy, with higher concentrations sensed as hotter or spicier. Samples were homogenized in methanol solutions, and analytes separated with heat and centrifuge. Standards of capsaicinoids were made and used for quantitative analysis against samples from ancho, arbol, and ghost peppers. Sample solutions were injected into Agilent 1260 HPLC with a reverse-phase 3.0 m C-18, 4.60 x 100 mm column and UV/Vis detector at 222 nm. Resulting capsaicinoid content was within 10% of known Scoville heat unit ranges (SHU) that are continually refined over time as averages of pepper population(s). Presence of capsaicinoid compounds was confirmed with GC-MS.

**Faith Christofferson**

**Chemistry**

***Development of novel fluorophores for H<sub>2</sub>S detection in the live human cell***

**Co-Author(s): Declan McGurk, Langley Knighten, Prena Masih**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #20**

Hydrogen sulfide (H<sub>2</sub>S) is a gaseous molecule commonly known as a gas transmitter that is responsible for signaling in various metabolic pathways within human cells. H<sub>2</sub>S also plays an important role as an endogenous modulator in the central nervous system. Several diseases, such as hypertension, Parkinson's, Alzheimer's, and diabetes mellitus have been linked with abnormality in H<sub>2</sub>S concentrations in human cells. Detection of H<sub>2</sub>S is unreliable due to the volatility and oxidizability of the molecule, however, it can be detected within the cell with a help of a fluorophore organic molecule. The fluorophore absorbs light energy of a specific wavelength and after losing energy by relaxation reemits light with lower energy or longer wavelength than that of the absorbed light. We will discuss our current progress in the synthesis of a nitro-containing pyridine-based organic molecule. After the successful completion of the synthesis of this molecule, we believe that when the nitro group is treated with H<sub>2</sub>S it will get reduced to the amine group and result in strong fluorescence in the green region of the spectrum. Finally, we also plan to incorporate the molecule in the cells to study its application as the biosensor of H<sub>2</sub>S.

**Tori Costilow**

**Chemistry**

***Bang for your Bark: A Comparative Analysis of Dog Food by ICP-OES, Mycotoxin Testing, and FTIR***

**Co-Author(s): Owen Wright**

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #20**

The way that people care about their pets and what they feed them has grown and evolved over many years. Dog food in kibble form was made around 1950 by Nestle Purina, which is one of the oldest and most popular dog food companies

in the world. People today are also willing to spend more than ever on pet food, with a global spend in the billions for dog food alone. Advertisements play into this spending by pushing people to believe that certain brands of dog food are better or worse for their dog in terms of ingredients, flavors, and processing. There is a widely believed notion in the present day that cheaper pet food will cause illnesses or even shorten life for pets. This experiment aims to analyze and compare dog foods from all price ranges for heavy metals and minerals, mycotoxins, and fat content. Utilizing inductively coupled plasma-optical emission spectroscopy (ICP-OES) to analyze the mineral or heavy metal content, antibody test strips for mycotoxin analysis, and Fourier transform infrared (FTIR) for fat content analysis. As the dog food industry grows, the importance of analyzing the quality and safety of these products is of the utmost significance.

**Bianca Dawson**

**Chemistry**

***Preparation of Chitosan based films for photosensitization of singlet oxygen***

**Co-Author(s): Daesha Henry, Farah Lino**

**Faculty Mentor(s): Patrick Barber**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #15**

Chitin (a polymer of N-acetylglucosamine) is one of the most abundant natural polymers on earth and can be found in crustacean shells, fungi, and insects. Chitosan (a polymer of glucosamine) is produced commercially for a wide variety of applications. Our group has focused on the use of these waste materials as a sustainable path to functional materials for environmental remediation applications. We believe the combination of sourced waste materials and more energy efficient ball milling techniques will provide a low-cost option for water purification. Here we present the development and modification of chitosan for the photosensitization of singlet oxygen. Our use of ball milling techniques for more sustainable chemical modification will be discussed, as well as the results showing the generation of singlet oxygen.

**Jonah Fisher**

**Chemistry**

***Advancements in Handheld Raman Spectroscopy***

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #6**

Raman Spectroscopy is a quick and effective tool in analytical chemistry for chemical identification. The identification takes place by projecting a monochromatic light source at a sample causing the molecule to vibrate and scatter. The indirect scattering molecules are then condensed and observed by the detector to provide a structural fingerprint used to identify the compounds in question. Metrohm MIRA XTR DS proves to be the smallest handheld Raman Spectrometer on the market yet retaining higher sensitivity and resolution

in the small package. Loaded onto the MIRA XTR is an extensive and growing library, (20,000+ entries), along with a lower powered laser to aid in battery longevity. The extensive range of attachments allows for nearly any application of identification. Ranging from a immersive sampler, a right angle attachment for substances in a bag or on a table, and even a Autofocus Standoff attachment which is essentially a binocular allowing measurements of dangerous compounds up to 2 meters away. The most effective application of this instrument is in law enforcement / narcotics and in pharmaceutical applications. Having the ability to test through any container, any surface, any distance, and still maintain high accuracy and resolution of compound spectral data allows users to effectively identify compounds in a very short amount of time from anywhere in the field to the lab to a crime scene.

**Hannah Gaskin**

***Evaluating the Antioxidant Capacity of Different Natural Products***

**Co-Author(s): German Barrios, Bianca Malone**

**Faculty Mentor(s): Sabyasachi Chatterjee**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #22**

Oxidative stress is a phenomenon caused by an imbalance between increased levels of reactive oxygen species (ROS) and a low activity of antioxidant mechanisms in cells and tissues [Luo et. al., 2020; Garc a-S nchez et.al, 2020]. ROS plays a pivotal role in several physiological phenomena including cell signaling and mitochondrial energy production [Zorov et al., 2014]. The aim of the project is to investigate naturally occurring antioxidant molecules for their potential as agents to reduce reactive oxygen species. The question of interest is which natural product contains the highest level of naturally occurring antioxidants compared to other natural products. Our general methodology will be to produce extracts from various sources. We will then examine the contents of these extracts and identify their active ingredients. We will use spectroscopic methods to determine the level of effectiveness of the antioxidant when used with four different antioxidant assays. A possible shortcoming of our methodologies is the level of extract produced may be less than intended if they are not extracted correctly. Another possible shortcoming is the production of incorrect UV readings based on system error or unclean cuvettes. The data collected will be presented in table format and will be derived from four different assays: DPPH, ABTS, FRAP, and CUPRAC. Comparable data helps determine which fruits, foods, and herbs have antioxidant properties. Many people can benefit from the information provided in this study by learning which natural products contain antioxidants that can reduce oxidative stress in the body most effectively.

**Kevin Graciano**

***Intraocular Pressure Correlates with Increased c Fos Immunoreactivity in the Thalamic Paraventricular Nucleus in a Rat Model***

**Faculty Mentor(s): Karen Molek**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Chemistry**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #11**

Purpose: Elevated intraocular pressure (IOP) is the primary risk factor for glaucoma, and lowering IOP is the only known treatment. However, IOP fluctuates in a circadian manner, and there is some evidence that fluctuation in IOP may be a risk factor for disease progression. The purpose of this project was to better understand how the brain, and specifically the dorsomedial hypothalamus (DMH), regulates IOP. Previous work has shown that direct stimulation of the DMH induces IOP elevation. We hypothesized that stimulation of the SCN, the master time-clock for circadian rhythms, would increase intraocular pressure (IOP) and produce downstream excitation of neurons in the dorsomedial hypothalamus (DMH). c-Fos is a marker for neuronal activation, thus we investigated whether SCN stimulation would evoke IOP increases and c-Fos expression in the DMH Using a stereotaxic approach, a variety of substances were used to chemically stimulate the SCN of male Sprague-Dawley rats (250-320g). 1 h following stimulation, animals were euthanized and brains collected. 30µm coronal sections from the DMH region were collected and stained for c-Fos using fluorescently labeled antibodies. Two independent reviewers scored the regional staining intensities from 1-5. c-Fos signaling in the DMH was not correlated to IOP response after SCN excitation. However, cFos signals within the paraventricular nucleus of the thalamus (PVT) were positively correlated with IOP increases after SCN excitation ( $R^2 = 0.5$ ,  $p < 0.003$ ). Neither heart rate, mean arterial pressure, nor intracranial pressure were significantly correlated with PVT c-Fos intensity or c-Fos levels in the DMH. c-Fos immunoreactivity in the PVT that correlates with IOP increases following SCN stimulation may represent the first evidence of a role for the PVT in regulating IOP.

**Anne Harper**

***Photo-Chemically Produced Reactive Oxygen Species by Motor Oils***

**Faculty Mentor(s): Pam Benz**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #9**

Petroleum products are introduced into the environment through a variety of mechanisms and are shown to produce highly reactive oxygen species through photochemical reactions. One example is motor oil contamination which can come from sources including cars, trucks, and recreational water vehicles. Motor oils both synthetic and non-synthetic can produce potentially toxic components through natural weathering processes. To help assess overall ecosystem impact, a key consideration in understanding the mechanism of toxicity is examination of components produced through photochemical processes. Water accommodated fractions (WAFs) are samples of water mixed with oil and are commonly used to mimic environmental conditions when an oil spill occurs. Over time, water soluble species form and partition into the water phase of the WAF. This study examined photochemical degradation and subsequent toxicity of various synthetic oils when exposed to artificial sunlight for 6 hours. Benzoic acid served as a radical trap for any hydroxyl radical ( $\cdot\text{OH}$ ) species produced. Using high

**Chemistry**



performance liquid chromatography (HPLC), the resulting formation of para-hydroxybenzoic acid (p-HBA) was measured and total OH flux determined.

**Kate Harper**

**Chemistry**

***Advances in Instrumental Analysis: Quantification of Mineral Content in Simulant Soils by ICP-OES***

**Co-Author(s): Rosemary Nguyen**

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #17**

Simulant soils have become a popular addition to laboratories for the study of agriculture, particularly on extraterrestrial planets. Soils were obtained from Exolith labs, which were simulated to represent Martian and Lunar soils. For the purpose of this study, a PerkinElmer Avio 200 Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) instrument was utilized in order to determine the mineral content in the simulated soils. Soil samples were digested in nitric acid and analyzed by the ICP-OES instrument, and mineral content was quantified against known elemental standards.

**Victoria Hennick**

**Chemistry**

***Development of a Novel Environmentally Benign Multi-Component Reaction (MCR)***

**Co-Author(s): Peyton Stalcup**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #10**

Benzo[b]thiophene scaffolds form the backbone of many pharmaceutical products. Their uses in medicinal chemistry include antidepressants, anti-inflammatory, and anti-tumor among other possibilities. In the traditional multi-step synthesis, the product after each step needs purification. This can lead to increased chemical waste and loss of product. Multi-component Reactions (MCR) are considered green or environmentally friendly because in these reactions several organic molecules are added to form a complex product in a one-pot, single-step synthesis, where purification is only needed once. In this work, we aim to describe the synthesis of complex benzo[b]thiophene in single pot MCRs. Further exploration into this field could yield more efficient synthesis, as well as create a foundation capable of being altered with different substituents for varied applications.

**Erica Kim**

**Chemistry**

***Worth the Hype? Analyzing Centella Asiatica Components in Skincare Using Solid Phase Micro-Extraction (SPME) and Gas Chromatography-Mass Spectrometry (GC-MS)***

**Faculty Mentor(s): Karen Barnes**

**Session: Virtual Presentation**

**Session Time: N/A**

**Location: Gather Town**

**Presentation Time: N/A**

**Poster #VIRT-1-CHM**

The cosmetic industry regularly markets new lines of products focused on the latest trendy ingredient. Recently, skincare companies advertised ointments and balms with pseudo-pharmaceutical benefits under the portmanteau of “cica”-care. The supposed plant ingredient, *Centella asiatica*, is well-documented in medicinal texts across the Asian continent. While most prevalent in Ayurvedic and traditional Chinese remedies, this flowering herb also originates in countries such as Malaysia, Brazil, Nepal, and Kenya. Contemporary studies have suggested properties of wound healing, anti-inflammation, and improved cognition. *C. asiatica* is best recognized by its eponymous centelloids, or its pentacyclic triterpenes and triterpenoids. However, a comprehensive profile of its smaller secondary components was used in this project as a basis of reference in testing cosmetics for the plant ingredient. This system of comparison was quantified by giving each tested product a point for monoterpenoids, monoterpenes, or sesquiterpenes found in the plant leaves alone. Aggregated lists of detected compounds were also juxtaposed with lists produced after testing non-“cica”-care topical products. Samples were run using a solvent-free and low-preparation extraction method known as SPME, or solid phase micro-extraction. The volatiles were adsorbed onto a specially coated fiber, exposed within the headspace of a sample vial. These analytes were desorbed for analysis when the fiber was re-exposed within the injection chamber of a gas chromatography-mass spectrometry instrument. This method was used to compare volatile compounds found in the plant leaves, in a selection of popular “cica”-care products, and in a number of comparatively cheap and dermal creams. The resulting rankings decreased confidence in the majority of the product label claims, and called into question the validity of the marketed hype.

**Langley Knighten**

**Chemistry**

***Development of Novel Fluorophores for H2S Detection in the Live Human Cell***

**Co-Author(s): Faith Christofferson, Delcan McGurk, Prerna Masih**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #17**

Hydrogen sulfide (H<sub>2</sub>S) is a gaseous molecule commonly known as a gas transmitter that is responsible for signaling in various metabolic pathways within human cells. H<sub>2</sub>S also plays an important role as an endogenous modulator in the central nervous system. Several diseases, such as hypertension, Parkinson's, Alzheimer's, and diabetes mellitus have been linked with abnormality in H<sub>2</sub>S concentrations in human cells. Detection of H<sub>2</sub>S is unreliable due to the volatility and oxidizability of the molecule, however, it can be detected within the cell with a fluorophore organic molecule. The fluorophore absorbs light energy of a specific wavelength and after losing energy by relaxation reemits light with lower energy or longer wavelength than that of the absorbed light. We will

discuss our current progress in the synthesis of a nitro-containing pyridine-based organic molecule. After the successful completion of the synthesis of this molecule, we believe that when the nitro group is treated with H<sub>2</sub>S it will get reduced to the amine group and result in strong fluorescence in the green region of the spectrum. Finally, we also plan to incorporate the molecule in the cells to study its application as the biosensor of H<sub>2</sub>S.

**Langley Knighten**

**Chemistry**

***Development of Cheap Alternative to Automated Column Chromatography***

**Co-Author(s): Declan McGurk**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #24**

In organic chemistry labs, column chromatography is widely used to separate a final product from the side products and contaminants of a reaction mixture. The problem with manual column chromatography, is that it is time consuming, and you must continually evaluate how many more fractions need to be collected. Instruments have been fabricated that can automatically check each fraction and stop collecting once all the product has been collected. However, these instruments are too expensive for schools that do not have sufficient resources. Therefore, we present an inexpensive alternative design for an automated column chromatography system. The most impactful component of the setup is a custom UV Spectrometer that can measure the UV absorption in real time. It will be made with UV photodiode array (PDA), an interface board for the PDA, and a raspberry pi to see the absorption in real time. Inexpensive pump and fraction collector have been acquired and employed for the automated elution and collection of the solvent and currently we are working on the production of PDA. Upon successful completion, we will be able to automate the fraction collection process, meaning that column chromatography can be automated from end to end for magnitudes cheaper than commercially available auto-columns.

**Josh Legaspi**

**Chemistry**

***Synthesis of a Ligand Mimicking the Active Site of a Metalloenzyme***

**Co-Author(s): Mariana Sabino**

**Faculty Mentor(s): Ajay Lajmi**

**Session: Main Oral Presenters**

**Session Time: 1 p.m. - 1:45 p.m.**

**Location: Conf Center Lounge**

**Presentation Time: 1 p.m. - 1:15 p.m.**

Small molecule enzyme mimics are commonly used to study the structure and function of enzymes. The goal of this work is to synthesize and characterize ligands of metalloenzyme mimics to use them for rapid in vitro screening of therapeutic inhibitors of those enzymes. This presentation will describe the synthesis and characterization of one such ligand, namely, mono-6-deoxy-6-(1,5,9-triazacyclododecanyl)- $\beta$ -cyclodextrin (TACD- $\beta$ -CD) from 1,5,9-triazacyclododecane (TACD) and mono-6-deoxy-6-(p-toluenesulfonyl)- $\beta$ -cyclodextrin (OTs- $\beta$ -CD) to form the desired TACD- $\beta$ -CD. The ligand is designed to

have a Zn(II) and Ba(II) coordination site for cooperative catalytic hydrolysis of an activated substrate. Data from Michaelis-Menten kinetics will be presented to demonstrate substrate dependence of the catalytic reaction.

**Peyton Lewis**

**Chemistry**

***Detecting Capsaicinoids in Topical Analgesics using Solid-Phase Microextraction***

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #18**

Detecting capsaicin and dihydrocapsacin in peppers has already been achieved using direct extraction solid phase microextraction. This research aims to focus on detecting small concentrations of capsaicinoids in topical analgesics using headspace solid phase microextraction.

**Farah Lino**

**Chemistry**

***Preparation of Chitosan Films for Photosensitization of Singlet Oxygen***

**Co-Author(s): Bianca Dawson, Daesha Henry**

**Faculty Mentor(s): Patrick Barber**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #16**

Chitin (a polymer of N-acetylglucosamine) is one of the most abundant natural polymers on earth and can be found in crustacean shells, fungi, and insects. Chitosan (a polymer of glucosamine) is produced commercially for a wide variety of applications. Our group has focused on the use of these waste materials as a sustainable path to functional materials for environmental remediation applications. We believe the combination of sourced waste materials and more energy-efficient ball milling techniques will provide a low-cost option for water purification. Here we present the development and modification of chitosan for the photosensitization of singlet oxygen. Our use of ball milling techniques for more sustainable chemical modification will be discussed, as well as the results showing the generation of singlet oxygen.

**Bianca Malone**

**Chemistry**

***Evaluating the Antioxidant Capacity of Different Natural Products***

**Co-Author(s): Hannah Gaskin**

**Faculty Mentor(s): Sabyasachi Chatterjee**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #21**

Oxidative stress is a phenomenon caused by an imbalance between increased levels of reactive oxygen species (ROS) and a low activity of antioxidant

mechanisms in cells and tissues. ROS plays a pivotal role in several physiological phenomena including cell signaling and mitochondrial energy production. The aim of the project is to investigate naturally occurring antioxidant molecules for their potential as agents to reduce reactive oxygen species. The question of interest is which natural product contains the highest level of naturally occurring antioxidants compared to other natural products. Our general methodology will be to produce extracts from various sources. We will then examine the contents of these extracts and identify their active ingredients. We will use spectroscopic methods to determine the level of effectiveness of the antioxidant when used with four different antioxidant assays. A possible shortcoming of our methodologies is the level of extract produced may be less than intended if they are not extracted correctly. Another possible shortcoming is the production of incorrect UV readings based on system error or unclean cuvettes. The data collected will be presented in table format and will be derived from four different assays: DPPH, ABTS, FRAP, and CUPRAC. Comparable data helps determine which fruits, foods, and herbs have antioxidant properties. Many people can benefit from the information provided in this study by learning which natural products contain antioxidants that can reduce oxidative stress in the body most effectively.

**Declan McGurk**

**Chemistry**

***Development of Novel Fluorophores for H<sub>2</sub>S Detection in the Live Human Cell***

**Co-Author(s): Langley Knighten, Faith Christofferson, Prena Masih**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #13**

Hydrogen sulfide (H<sub>2</sub>S) is a gaseous molecule commonly known as a gas transmitter that is responsible for signaling in various metabolic pathways within human cells. H<sub>2</sub>S also plays an important role as an endogenous modulator in the central nervous system. Several diseases, such as hypertension, Parkinson's, Alzheimer's, and diabetes mellitus have been linked with abnormality in H<sub>2</sub>S concentrations in human cells. Detection of H<sub>2</sub>S is unreliable due to the volatility and oxidizability of the molecule, however, it can be detected within the cell with a help of a fluorophore organic molecule. The fluorophore absorbs light energy of a specific wavelength and after losing energy by relaxation reemits light with lower energy or longer wavelength than that of the absorbed light. We will discuss our current progress in the synthesis of a nitro-containing pyridine-based organic molecule. After the successful completion of the synthesis of this molecule, we believe that when the nitro group is treated with H<sub>2</sub>S it will get reduced to the amine group and result in strong fluorescence in the green region of the spectrum. Finally, we also plan to incorporate the molecule in the cells to study its application as the biosensor of H<sub>2</sub>S.

**Declan McGurk**

**Chemistry**

***Development of Cheap Alternative to Automated Column Chromatography***

**Co-Author(s): Langley Knighten**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #21**

In organic chemistry labs, column chromatography is widely used to separate a final product from the side products and contaminants of a reaction mixture. The problem with manual column chromatography, is that it is time consuming, and you must continually evaluate how many more fractions need to be collected. Instruments have been fabricated that can automatically check each fraction and stop collecting once all the product has been collected. However, these instruments are too expensive for schools that do not have sufficient resources. Therefore, we present an inexpensive alternative design for an automated column chromatography system. The most impactful component of the setup is a custom UV Spectrometer that can measure the UV absorption in real time. It will be made with UV photodiode array (PDA), an interface board for the PDA, and a raspberry pi to see the absorption in real time. Inexpensive pump and fraction collector have been acquired and employed for the automated elution and collection of the solvent and currently we are working on the production of PDA. Upon successful completion, we will be able to automate the fraction collection process, meaning that column chromatography can be automated from end to end for magnitudes cheaper than commercially available auto-columns.

**Jason Neidigk**

**Chemistry**

***Generation of Mcm and Setx Double Knockout Cells Using CRISPR/Cas9***

**Faculty Mentor(s): Karen Molek**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #14**

DNA double strand breaks (DSBs) are generated by genotoxic agents such as ionizing radiation, chemotherapeutics, and oxidative stress, and during physiological processes such as V(D)J recombination. Unrepaired or mis-repaired DSBs can lead to genomic instability and cancer. DSBs activate DNA Damage Response (DDR), which can promote DSB repair using one of two major pathways: non-homologous end joining (NHEJ) and homologous recombination (HR). HR is the major pathway in S and G<sub>2</sub> phase where it accurately restores DSBs using sister chromatids as a template. NHEJ directly ligates two DNA ends and is the primary DSB repair pathway in G<sub>0</sub>/G<sub>1</sub> phase cells due to the lack of sister chromatids. DDR, which includes the detection and repair of DSBs, is regulated by phosphatidylinositol 3-kinase related protein kinases including Ataxia-telangiectasia-mutated (ATM) and DNA-dependent protein kinase catalytic subunit (DNAPKcs); ATM and DNAPKcs redundantly regulate NHEJ, but the mechanism behind it is not completely understood. NHEJ finds another use in V(D)J recombination; DNA is cleaved by lymphocyte specific RAG endonuclease which cleaves at two gene segments and their adjacent RAG recognition sequences. RAG cleavage generates four separate DNA ends that are repaired by NHEJ. A previously conducted whole genome CRISPR/Cas9 guide RNA (gRNA) screening identified that Setx, which codes for the helicase senataxin, and a DNAPKcs-dependent pathway have overlapping functions in NHEJ. Another

helicase, MCM, was previously shown by a collaborator to be phosphorylated by DNAPKcs. The hypothesis of this project is that the MCM helicase has overlapping functions in NHEJ with Setx. Using CRISPR/Cas9, Mcm3 and Mcm2, which encode two subunits of the MCM helicase, were inactivated in wild-type (WT) and Setxdeficient cells. These cells were then arrested in the G0 phase and assessed for their ability to repair RAG DSBs by NHEJ. Although the knockout was successful in all attempts, it was concluded by use of Western Blot, Southern Blot, and FACS analysis that the double knockout of Mcm and Setx had minor to no significant effect on NHEJ when compared to wild type cells.

**Jason Neidigk**

**Chemistry**

***A Study of a Tertiary Intermediate in the Synthesis of Carboxypeptidase A Active Site Mimic***

**Faculty Mentor(s): Ajay Lajmi**

**Session: Main Poster Session**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Conf Room AB**

**Presentation Time: 9 a.m. - 10 a.m.**

**Poster #22**

Small molecules have commonly been used to study and mimic the function of enzymes and their ligands, and while a mimic of the ligand of carboxypeptidase A has been successfully synthesized, yields remain rather low with common literature yields are within the range of 30-72%. The process to synthesize such mimics is rather arduous with typical synthetic methods taking multiple steps requiring many hours of work. For example, in this project, triazabicyclodecene (hexa) is alkylated with propane ditylosate, KOH, and KBr; extracted; hydrolyzed; extracted further; and evaporated leaving 1, 5, 9-triazacyclododecane (TACD). Through such processes, product loss is prevalent. In trying to increase yields, a tertiary, carbocation intermediate was found in mass spectrometry, and it was hypothesized that if the cation peak is seen in the mass spectrum, then it must exist in some form that can be isolated, and if isolation is possible, it can be studied further. However, if a carbocation forms, even for a miniscule amount of time, the KOH opens the ring structure leaving partially reacted intermediates that show in NMR spectra. The goal of this project is to isolate and purify the carbocation intermediate as well as increase yields of the orthoamide and, in turn, TACD. Higher yields of TACD can then be used to create ligand structures for metalloenzymes.

**Rosemary Nguyen**

**Chemistry**

***Advances in Liquid Chromatography Mass Spectrometry***

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #31**

Liquid chromatography mass spectrometry (LCMS) is an analytical technique used to perform separations and identification of unknown compounds. Shimadzu's LCMS-8060 is the latest model featuring a newly developed UF-Quarry ion guide to increase the sensitivity and accuracy of detecting compounds. The LCMS-8060

also features a triple quadruple tandem mass spectrometry to further increase the resolution and sensitivity of detecting microliters of a sample. Altogether, the LCMS can be used in various applications from detecting toxins in pesticides to studying blood composition.

**Rosemary Nguyen**

**Chemistry**

***Analysis of Quinine using Surface-Assisted Laser Desorption/Ionization Mass Spectrometry***

**Co-Author(s): Anonymous Co-Author, Anonymous Co-Author**

**Faculty Mentor(s): Karen Molek**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #32**

Surface-assisted laser desorption/ionization mass spectrometry (SALDI-MS) was used to analyze pure quinine. SALDI-MS reduced the fragmentation and increased ion formation with the removal of a matrix interference. To increase ion formation and energy desorption, transition metal oxide (TMO) nanoparticles were used as surfaces for quinine. TMO nanoparticles were used because they offer a large surface area-to-volume ratio for the analyte to receive enough energy to ionize and produce a higher signal with low background interference. In previous studies, iron (II,III) oxide (Fe<sub>3</sub>O<sub>4</sub>) and cobalt (II,III) oxide (Co<sub>3</sub>O<sub>4</sub>) were successfully used to study small biomolecules. In this study, pure quinine was analyzed using small iron (II,III) oxide, large iron (II,III) oxide, small cobalt (II,III) oxide and large cobalt (II,III) oxide nanoparticles as SALDI-MS surfaces. The data was analyzed by comparing the average peak intensities and signal-to-noise (S/N) for each nanoparticle, and were run multiple times to ensure reproducibility.

**Zach Patane**

**Chemistry**

***Synthesis of Pyrrole Substituted Nanographene***

**Co-Author(s): Charlie Womack**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #11**

Graphene is an allotrope of carbon that is made of a single layer of carbon atoms arranged in a hexagonal honeycomb-like structure. Graphenes should be extended to at least 100 nm in both directions. Nanographene is a subset of graphene and should have up to 100 nm diameter. Nanographene has attracted attention due to its interesting electronic, optical, and magnetic properties. However, the atomically precise construction of nanographene has been found to be challenging and has been achieved only a handful of times by synthetic organic chemists. Substitution with heteroatoms with these all-carbon sheet-like polycyclic aromatic hydrocarbon structures has been proven to be extremely difficult. The incorporation of heteroatoms can alter the shape and electron distribution of this nanographene and therefore can facilitate the finetuning of the electronic, optical, and magnetic properties. Our current attempts to

efficiently synthesize pyrrole substituted nanographene will be presented along with current challenges and their mitigation. If successful our method will revolutionize the synthesis of heterocyclic fused nanographene and will have ample application in the field of organic semiconductors.

**Joey Peterson**

**Chemistry**

***A Simple Method for Determining the Authenticity of Saffron by UV/Vis Spectroscopy***

**Co-Author(s):** Rosemary Nguyen, Vu Pham, Richard Fell

**Faculty Mentor(s):** Karen Barnes

**Session:** Main Poster Session

**Session Time:** 12 p.m. - 1 p.m.

**Location:** Conf Room AB

**Presentation Time:** 12 p.m. - 1 p.m.

**Poster #18**

Saffron is an extremely expensive spice and is vulnerable to adulteration. This presents a UV/Visible spectroscopy method for analyzing saffron to determine its authenticity. Authentic samples of saffron and potential adulterants were studied.

**Anna Pons Aguade**

**Chemistry**

***Effect of peptide GK-1 on T-cell proliferation of mice infected with Taenia crassiceps***

**Faculty Mentor(s):** Karen Barnes

**Session:** Main Poster Session

**Session Time:** 10 a.m. - 11 a.m.

**Location:** Conf Room AB

**Presentation Time:** 10 a.m. - 11 a.m.

**Poster #19**

Human cysticercosis is a parasitic disease caused by the cestode *Taenia solium*. Neurocysticercosis (NCC) is the most severe form of the disease. This parasitic disease mainly affects underdeveloped countries and commonly causes seizures. Due to immigration and globalization, cysticercosis has been spreading worldwide becoming a global concern. Intra-peritoneal murine cysticercosis caused by *Taenia crassiceps*, another cestode that closely resemble *T. solium* is used as an experimental model. The tapeworm of *T. crassiceps* may be developed in the intestine of foxes and dogs and their eggs can develop to the larval stage in rodents. Cysticerci can also reproduced by budding in the peritoneal cavity of mice. The peritoneal infection induces a decrease in the specific cell proliferation. On the other hand, the peptide GK-1, that belong to *T. crassiceps*, induced high level of protection against cysticercosis and has been proved to improve immunity as an immunomodulator. Considering this, we propose that GK-1 may increase the immunity against cysticercosis and could be useful to treat NCC. Its effect on the specific immunity was studied measuring the specific cell proliferation of blood lymphocytes by flow cytometry. To achieve this objective, BALB/cAnN mice infected with *T. crassiceps* mice were treated with GK-1 or saline. The cell proliferation technique was standardized using mice cells. Mononuclear mice blood cells are separated and cultivated to analyze them with by flow cytometry. It was observed that GK-1 modified the expected level of cell proliferation. However, further experiments must be performed using new stocks of GK-1 to consolidate the information obtained.

**Anna Pons Aguade**

**Chemistry**

***Identification and Quantification of Carcinogen Compounds in Carotenoid Foods Through Solid-Phase Microextraction Gas-Chromatography Mass Spectrometry***

**Co-Author(s):** Maddie Tarrance

**Faculty Mentor(s):** Karen Barnes

**Session:** Main Poster Session

**Session Time:** 9 a.m. - 10 a.m.

**Location:** Conf Room AB

**Presentation Time:** 9 a.m. - 10 a.m.

**Poster #18**

Furan and benzene are highly volatile, non-polar aromatic compounds that can be formed in food, for example coffee. These compounds are formed via oxidative or thermally driven mechanisms and are toxic for humans since they can cause cancer. Furan is formed mainly in low acid canned and jarred foods containing carotenoids, such as baby foods that require high thermal processing for food safety concerns. Volatile carcinogens are often identified using a gas-chromatograph mass spectrometer (GC-MS), an analytical technique combining the properties of a gas-chromatography instrument and a mass spectrometer. The gas-chromatography column separates the molecules within a sample. Each molecule is then eluted off from the column at different rates which allows the mass spectrometer to ionize the molecules. Each ionized molecule is detected using a mass to charge ratio, allowing to identify the components of the sample. Recently, the solid phase microextraction, also known as SPME, has been combined with GC-MS to obtain more accurate results in the identification of specific molecules, such as furan. This technique involves a fiber coated with an extraction phase. The analytes of the sample are absorbed by the fiber and can be then transferred to a GC-MS for identification. Volatile compounds such as the carcinogens of this study will migrate into the headspace and can be captured on the SPME fiber. Sample preparation is dramatically simplified. After consolidating a sensitive and reproducible technique to identify furan and its derivatives, baby food will be studied to limit the formation of carcinogenic compounds, for example by adding antioxidants.

**Mikayla Porter**

**Chemistry**

***Analysis of Acetaminophen Using Cyclodextrin Enhanced Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry***

**Co-Author(s):** Elijah Mayo, Rosemary Nguyen, Victoria Drake

**Faculty Mentor(s):** Karen Molek

**Session:** Main Poster Session

**Session Time:** 1 p.m. - 2 p.m.

**Location:** Conf Room AB

**Presentation Time:** 1 p.m. - 2 p.m.

**Poster #16**

Matrix-assisted laser desorption ionization mass spectrometry (MALDI-MS) was used to analyze pure acetaminophen, a common analgesic and antipyretic. In the analysis of large biomolecules, such as peptides and proteins, matrix fragmentation was insignificant as it mainly appears in the 500 m/z region, outside of these molecules mass spectrum range. However, smaller organic molecules like acetaminophen (151 m/z), were obstructed by matrix

fragmentation. In previous studies, cyclodextrins have been shown to decrease matrix fragmentation and enhance signal for small mass analytes. Cyclodextrins are macrocyclic oligosaccharides composed of glucopyranose subunits that are commonly used in biomedical research for drug delivery mechanisms. In this study, the analysis of pure acetaminophen was conducted using  $\alpha$ -cyclodextrin and  $\beta$ -cyclodextrin combinations in varied solvents. The results were analyzed by comparing peak intensities and signal-to-noise ratios for each enhancement.

**Ian Ramirez de Arellano**

**Synthesis of 1,4,8 - Triazacycloundecane (TACU)**

**Co-Author(s): Vu Pham**

**Faculty Mentor(s): Ajay Lajmi**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #23**

Macrocyclic polyamines serve as ligands to coordinate with metal ions and commonly used to mimic active sites of zinc containing metalloenzymes. One such amine, 1,5,9-Triazacyclododecane (TACD), coordinates zinc ions through its nitrogen atoms. The goal of this experiment was to reduce the ring size of TACD to synthesize 1,4,8-Triazacycloundecane (TACU), in order to study the effect of the macrocyclic ring size on the capacity of the polyamine's capability of coordinating with zinc ions (Zn(II)) ions in comparison to TACD and subsequently on its function to hydrolyze activated ester and amide substrates. The research plan entails alkylation of hexahydropyrimidopyrimidine (1,5,7-Triazabicyclo[4.4.0]dec-5-ene) using 1,2-bis(tosyloxy)ethane to attach an ethyl group to hexahydropyrimidopyrimidine to form an ortho-amide intermediate that resembles a guanidinium ion structure, which will then be hydrolyzed with sulfuric acid to form TACU. The samples of ortho amide and TACU will then be characterized using GC-MS (Gas Chromatography-Mass Spectrometry) and NMR (Nuclear Magnetic Resonance Spectroscopy) for confirmation of successful synthesis.

**Ian Ramirez de Arellano**

**Advancement of High Performance Liquid Chromatography**

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #7**

High Performance liquid chromatography (HPLC) is an analytical technique used to separate, identify, and quantify components in a mixture. The HPLC works by pumping solvent with an analyte through a column and the fraction eluate is then read by a detector. Generally, HPLC's are large instruments that are heavy in weight and large in size. Pittcon revealed that affordable, compact, and mobile HPLC's are available for use. Axcend is a company based off Utah that specializes in making small, mobile HPLC that only weigh 18lbs. The small, compact nature of the Axcend HPLC means that traveling with the instrument is seamless and the storage or placement of the HPLC in a lab is easy. The intuitive software and

simple design of the HPLC makes it a perfect learning ground for new chemists getting familiarized with HPLC's before using larger ones. The instrument is also programmable and customizable as a user can save prior work done via the software used by the HPLC. Most importantly of all, the Axcend HPLC is eco friendly. The HPLC pumps solvent at 0.5 to 1 microliters per second, which means that the waste build up is miniscule compared to its larger counterpart. Overall, the Axcend LC is a smart choice when it comes to purchasing a HPLC due to its affordability, size, and ease of use.

**Chemistry**

**Daniel Russell**

**Determination of Quinine in Cinchona Bark**

**Co-Author(s): Jonah Fisher, Audrey Stemen**

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #8**

This experiment is focused on measuring the amount of quinine in cinchona bark from *Cinchona officinalis* using ultraviolet-visible spectrophotometry and fluorescence spectroscopy methods.

**Chemistry**

**Mari Sabino Masculi**

**Synthesis of a Thiadiazole Calpain Protein Mimic**

**Co-Author(s): Josh Legaspi**

**Faculty Mentor(s): Ajay Lajmi**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #12**

A calpain protease will be activated by a ligand mimic with the synthesis of two histidine and one cysteine functions from ethane dithiolate acid by using 2,2'-thiobis(ethanamine). To accomplish this the atoms from two histidine and one cysteine amino acid residues are believed to be mimicked from one sulfur and two nitrogen atoms. To guarantee that mono substitutions are made in the two nitrogen atoms, a mono-tosylation will be done in a stoichiometric bimolecular nucleophilic substitution reaction (SN2) on these nitrogen atoms. Another SN2 reaction will be done with the product already formed. To finalize, hydrobromic acid (HBr) and acetic acid (HAc) are going to be used to deprotect the two amine nitrogens. The ligands generated are going to be used in substrate-dependent studies designed to advance our understanding of the role and regulation of calpain proteases in diseases and conditions such as stroke, cataracts, heart disease, and muscular dystrophy.

**Chemistry**

**Zac Sanders**

**Synthesis of the Precursor for Nanographene Via Electrophilic Cyclization Reaction**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Chemistry**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #15**

Nanographene is a small section cut out from the larger aromatic graphene compound. Due to interesting optoelectronic effects, nanographene is incredibly useful in the organic semiconductor industry. By altering the functional groups attached to the highly aromatic nanographene, it can be tuned to emit and absorb light at various wavelengths, and therefore generate cost-efficient methods to synthesize molecules with potential use in the semiconductor industry. Our efforts on the novel and efficient method for the synthesis of nanographene precursors will be discussed. Currently we are synthesizing the desired starting compound, a box shaped dialkyne molecule using Sonogashira coupling reactions. This compound will be further cyclized using various electrophiles. Successful completion of this project will simplify the functionalization of the nanographene precursors, which has not been achieved in previous literature.

**Kayla Spencer**

**Chemistry**

***Determining Hydroxyl Radical Production and Metal Contaminants in Marinas Near Downtown Pensacola***

**Co-Author(s): Anne Harper, Kalani Dempsey, Josh Pfneisel**

**Faculty Mentor(s): Pamela Benz**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #19**

Environmental contamination from petroleum products is a hazard to not only marine organisms but can also dramatically affect human health. Potential effects include hazards to the environment and marine life and can have a negative economic impact on tourism. Oil spills not only include crude oil seepage but can also come from recreational aquatic vessels. Examination of waters from local marinas in Pensacola, FL can help determine the level of contamination of oil that is spilled or leaked from recreational vessels. This project will examine photochemical production of hydroxyl radical (OH) various samples including accommodated fractions (WAFs) created from crude oil (Jay, FL) and water sampled from local marinas. WAFs incubated with Jay, FL crude oil will be collected after 7 days and tested for OH formation using the method of Zhou and Mopper via high-performance liquid chromatography with UV/VIS detection (1). WAFs and water samples from local marinas will be tested for OH formation (using the HPLC method mentioned previously) as well as trace metals by ICP-OES. Trace metals such as iron are known to produce OH photochemically through the photo-Fenton reaction (2, 3). This will help us determine the source of OH formation in locally obtained waters.

**Audrey Stemen**

**Chemistry**

***MassWorks™ Software for Improved Mass and Spectral Accuracy in Mass Spectrometry***

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #20**

MassWorks™ software, developed by Cerno Bioscience, provides a more affordable alternative to high-resolution mass spectrometry for obtaining mass spectra exhibiting high mass accuracy as well as high spectral accuracy. The software operates by approaching calibration from an atypical perspective; instead of aiming to directly measure a more accurate spectrum, mathematical transformations are employed to greatly improve the accuracy of the spectrum. This includes an approximately 100 times improvement in mass accuracy as well as correction of peak shape without altering the peak integration. MassWorks™ software provides a method for differentiating between compounds with very similar masses as well as isotopic variances. The calibration technique also enables quantitative mixture deconvolution not otherwise possible by mass spectrometry.

**Maddie Tarrance**

**Chemistry**

***Determination and Comparison of Xanthophyll Carotenoid content in Age Related Macular Degeneration Vitamins versus Vegetables through UV-visible Spectrometry and High Performance Liquid Chromatography***

**Co-Author(s): Anna Pons Aguade**

**Faculty Mentor(s): Karen Barnes**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #15**

Age related macular degeneration is an ocular disease that targets the retina, the portion of the eye that converts light into electrical signals that are received by the brain to create the images we see. Age related macular degeneration is the leading cause of irreversible blindness in adults over 60 and affects millions of people across the world (BrightFocus Foundation, 2021). Two of the main causes of age related macular degeneration are heredity and dietary deficiencies. There is no cure for this disease however, preventative vitamins are available and recommended to slow disease progression. Carotenoids play a significant role in the prevention of age related macular degeneration due to their ability to act as antioxidants and reduce oxidative stress in the retina. Carotenoids are found in large concentrations in the retina as macular pigments. Lutein and Zeaxanthin are a specific type of carotenoid called xanthophylls which make up the macular pigment (The Importance, 2020). Alongside the benefits aforementioned, these compounds protect against age related macular degeneration (Mozaffarieh et al 2003). The supplementation of these carotenoids is shown to increase macular pigment density to protect against degeneration. Many vitamin supplements are advertised to prevent or slow the progression of macular degeneration and contain varying contents of vitamins, minerals and carotenoids. Lutein and Zeaxanthin are consistently mentioned as main ingredients in these supplements. In a previous study, the mineral composition of these supplements

was determined to explore differences between brands. High levels of these advertised carotenoids are also found in varying food groups. We aim to test whether these vitamins are effective or if dietary changes to increase the prevalence of high carotenoid foods can be just as effective. The carotenoid content of our samples will be extracted by using different organic solvents and solvent mixtures. Extracts containing carotenoids will be separated and determined by HPLC, a high performance liquid chromatograph with UV/Vis detection in order to determine specific lutein and zeaxanthin content according to their retention time and characteristic absorption spectra (Luengo et al., 2014).

**Lindsay Wolfe**

**Chemistry**

***Analysis of Small Molecule Interactions with the Use of Fluorescence and UV Spectra***

**Faculty Mentor(s): Sabyasachi Chatterjee**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #26**

Ionic liquids are becoming more attractive for their use of solvents due to their versatility of properties, noting their ease of use in a lab due to low vapor pressure, non-flammability, and their ability to be recycled. Green chemistry is a beneficial concept for sustainability and costs with the exploration of such methods are of utmost importance for both the economy and environment. This project will look into the possibilities available to chemists for the use of ionic liquid interactions for broader uses. Our goal is to look at how small molecules within bovine serum albumin (BSA) may interact with ionic liquids. The use of ionic liquids as a solvent are used often for organic synthesis, catalysis, inorganic synthesis, nanomaterial synthesis, and enzymatic reactions. Use of ionic liquids as a solvent with enzymes allows for high activity, stability, and selectivity. Such properties make for ionic liquid solvents to be highly sought after for use. This information was analyzed by the use of fluorescence and UV spectroscopy to observe the interactions between the protein within the ionic liquid. The observations within the spectroscopy indicated successful interactions between BSA and ionic liquids. As concentration of BSA increased, higher levels of interactions were observed. These observations were expected within the ionic liquid. This has shown that protein binding from BSA is possible within ionic liquids. The use of ionic liquids for protein absorbance levels have been shown to be effective. The significance of this finding is high due to the possibilities available to us through the process of protein binding interactions.

**Charlie Womack**

**Chemistry**

***Development of Environmentally Benign Bromocyclization Reaction***

**Co-Author(s): Zach Patane, Maria Jose Pena Bu, Prerna Masih**

**Faculty Mentor(s): Tanay Kesharwani**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #12**

Benzothiophenes are aromatic, heterocyclic compounds that display potential in organic fields such as materials and pharmaceuticals. Therefore benzo[b] thiophene is not only used in conducting polymers and in organic electronic devices but also is the core structure present in various FDA-approved drug molecules. The goal has been to develop and optimize new synthetic pathways of benzothiophenes, which are to be used as building blocks in previously mentioned fields of chemistry. The current synthesis of benzothiophenes requires toxic chemicals, dangerous reaction conditions, and hazardous byproducts, and results in moderate to lower yields of the product. Bromine is a toxic liquid and handling such chemicals is difficult in industrial-scale reactions. In addition, the byproduct generated when bromine is used is methyl bromide: a DNA alkylating or mutating agent. The focus of this project has been to create new pathways with less hazardous starting materials while retaining good yields of product. The synthesis optimization has focused primarily on the optimization of the solvent, time, and equivalence.

## DEPARTMENT OF COMPUTER SCIENCE

**Muhammad Usman Aslam**

**Computer Science**

***Future of Data Science (Emerging Technology Trends: A Perspective Analytics on Large Dataset of Research Databases)***

**Faculty Mentor(s): Shusen Pu**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conference Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #24**

This undertaking analyses the evolution of Emerging Technologies around the globe, using the predictions made in the Horizon Report, published yearly from 2004, MIT Technology review and predictions made by Institute of Electrical and Electronics Engineers (IEEE). This research applies social evaluation, primarily based on Google Trends, and Bibliometric analysis, with data of scientific publications from IEEE, MIT, Questia online Library, JSTOR, Springer, Hindawi and Web of Science, with a purpose to discover which technology had been a hit and sincerely impacted mainstream training, and which one failed to have the anticipated impact. This mission gives guidelines that can be beneficial to those who are looking forward to investing in new research regions. INDEX TERMS: Evaluation methodologies, emerging technologies, postsecondary education, media in education, educational technology, technology forecasting, computer aided instruction, mobile learning.

**Jackson Bare**

**Computer Science**

***Applying Cybersecurity and Software Engineering Principles to Develop an Educational Cybersecurity Game***

**Co-Author(s): Cody Morton**

**Faculty Mentor(s): Bernd Owsnicki-Klewe**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**



**Presentation Time: 2 p.m. – 3 p.m.**

**Poster #14**

An increasing number of organizations have utilized gamification in the past decade for education. Major gamified platforms such as TryHackMe and HackTheBox have emerged to educate people about cybersecurity, but there are still not enough people pursuing cybersecurity to meet the workforce demand. This project aims to design and develop an educational cybersecurity-focused game to address a logical gap between educational applications for elementary children focused on cyber safety and those for upper high school and collegiate students. This application would provide a way for teenagers who are beginning to think about career options to learn about the cybersecurity field with minimal technical knowledge. This web application will be developed as a capstone project using the Agile Scrum methodology. Additional resources and tools used include Visual Studio Code, GitHub, and standard web frameworks. Using the current body of research, certain gamification elements will be incorporated, including a measure of progress, visual elements, avatars, collaboration, and minigames. Users will be able to choose a real-world cybersecurity role and complete simplified real-world cybersecurity tasks in the form of minigames. An application that gamifies learning about cybersecurity roles and tasks in a way that requires minimal technical knowledge is expected to be accomplished by the end of the capstone course.

**Sarah Cameron**

**Computer Science**

***A Case Study of AP Computer Science Principles: A Student's Perspective***

**Co-Author(s): Tony Pham**

**Faculty Mentor(s): Sikha Bagui**

**Session: Main Poster Session**

**Session Time: 2 p.m. – 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. – 3 p.m.**

**Poster #13**

With the increased demand for computer science degrees in the work force, computer science is becoming more prominent in the high school. Advanced Placement: Computer Science Principles (AP CSP) is one course that serves as a bridge into computer science. Code.org provides a year long curriculum for this AP course to be led by teachers in the classroom. With the recency of the course, a reflection on the curriculum from the student's perspective is in order beyond the simple pass rates of students. This study breaks down the strengths and weaknesses of the course generally and personally for two students who took the course and exam in high school. Results show there are many strengths compared to weaknesses in relation to the Code.org curriculum; however, the course fails to teach and engage students if not executed properly by a teacher.

## DEPARTMENT OF EARTH & ENVIRONMENTAL SCIENCE

**Liliana Blouin**

**Earth & Environmental Science**

***Geomorphic Nesting Preferences of Sea Turtles on Santa Rosa Island, Florida***

**Faculty Mentor(s): Phillip Schmutz**

**Session: Main Oral Presenters**

**Session Time: 9 a.m. – 10:30 a.m.**

**Location: Conf Center Lounge**

**Presentation Time: 9:45 a.m. – 10 a.m.**

With increasing human development along coastal areas, sea turtle nesting rates have seen a decline, resulting in a status of either endangered or threatened for all seven species. Studies show that sea turtles, to promote clutch survival, look for specific beach geomorphic characteristics when nesting. Furthermore, sea turtles adapt their preferences to the regional beach morphological makeup as studies show variance from one location to another for the same species. The objective of this study was to document sea turtle geomorphic nesting preferences on Santa Rosa Island, Florida, United States to fill the gap in data for this area. Using an Emlid RTK GPS at 23 nest sites during the summer of 2022, topographic profile lines were taken. Profile measurements began at the foredune extending to the end of the foreshore slope with specific points taken at the dune peak, vegetation line, nest, and high tide line. Raw latitude, longitude, and elevation data were converted to distance measurements using ArcGIS Pro. Results indicate that sea turtles have a specific range of nesting elevation preference as nest elevations were primarily between 1.5 and 2.0 meters above mean sea level. Data also revealed a moderate range in the foreshore slope extending 2.6 degrees with a median slope of 6.2 degrees. Additionally, a majority of sea turtles nested between 5.0 and 15.0 meters from high tide with a median distance of 13.0 meters, indicating a nesting preference closer to the water than the dune, which had a median nesting distance of 29.5 meters.

**Kaylin Colvin-Reece**

**Earth & Environmental Science**

***Using Interviews to Explore the Reasons for the Support of Solar Energy in Florida Gulf Coast Counties***

**Faculty Mentor(s): Kwame Owusu-Daaku**

**Session: Main Oral Presenters**

**Session Time: 9 a.m. – 10:30 a.m.**

**Location: Conf Center Lounge**

**Presentation Time: 10:15 a.m. – 10:30 a.m.**

Florida holds some of the United States' highest solar energy potentials. However, this renewable resource has historically gone untapped &ndash; with one of the reasons being a lack of support based on political ideology towards solar energy. A masters thesis on the Influence of Political Affiliation Toward Support of Solar Energy in Gulf Coast Counties in Florida found that political party affiliation played a significant influence on survey respondents' support (or lack thereof) for solar energy. What this quantitative study could not reveal was the specific reasons for such support and why questions surrounding energy independence were the only ones that were independent of political party affiliation. This research seeks to qualitatively explore, via interviews, respondents' views on energy independence and their reasons for supporting various solar energy initiatives such as power purchase agreements, renewable portfolio standards, and statewide solar fields. Survey respondents who indicated openness to being interviewed further about their responses were reached out to via email to set up interviews. The interview questions were developed based on the results of the survey and have been expressed in three different formats based on political party affiliation. Upon completion, both Republican and

Democratic responses were transcribed and analyzed using a qualitative data analysis software known as MAXQDA. This presentation will focus on supplying insight into these political party affiliations and the nature of their support towards solar energy. Such insight can better ensure that solar energy policies address partisan ideologies and thus garner greater support.

**Sophie Freeland** **Earth & Environmental Science**

**North Port St. Joe: Education Access and Quality**

**Co-Author(s):** Kaylee Beasley, Jake Phillips, Haile Wetherington

**Faculty Mentor(s):** Kwame Owusu-Daaku

**Session:** Port St. Joe Health Equity Assessment

**Session Time:** 11 a.m. - 1 p.m.

**Location:** Zoom

**Presentation Time:** TBA

Education is an integral part of being able to achieve a healthy life. It can impact the jobs an individual will have access to, thus affecting the income of the individual. Low-income persons struggle to afford adequate housing, healthcare, and additional living expenses. When looking at communities like North Port St. Joe, the access or lack thereof to quality education can cause detrimental effects not only to individuals but to future generations as well. The paper mill, located in North Port St. Joe, shut down; leading to changes in population, job opportunities, and more. Overall, this research compares the community of North Port St. Joe and the rest of the city of Port St. Joe on the basis of education access and quality. This research specifically examines data for the years 2013, 2016, 2019, and 2021; indicating a downward trend in the population and school enrollment due to a lack of jobs and housing. The research reveals a disparity between North and South (i.e. the rest of) Port St. Joe. It is important to examine situations, such as North Port St. Joe, to design solutions to improve the quality of life for the residents living there and to ensure that other communities are not experiencing the same disadvantages.

**Kolby Harp** **Earth & Environmental Science**

**Port St. Joe Health Equity Assessment: Community Context and Voices**

**Co-Author(s):** Liliana Blouin, Carlee Hoagland, Jaxson Landwehr

**Faculty Mentor(s):** Kwame Owusu Daaku

**Session:** Port St. Joe Health Equity Assessment

**Session Time:** 11 a.m. - 1 p.m.

**Location:** Zoom

**Presentation Time:** TBA

North Port Saint Joe is a highly racially segregated neighborhood in Gulf County, Florida. The operation of a paper mill in the community for nearly sixty years led to both environmental and health injustices. In an effort to better understand the inequities faced, local community members were interviewed and provided an opportunity to share their experiences living in North Port Saint Joe. Interviews with residents were transcribed and coded using the qualitative data analysis software MAXQDA. The interviews were analyzed to find mentions or allusions to themes related to health. This research provides firsthand accounts of health disparities suffered by citizens of North Port Saint Joe and presents these findings by identifying common themes among the statements provided by the community. Health themes mentioned include but are not limited to distance

to healthcare, the Covid-19 pandemic, mental health, physical strain from labor, and exposure to pollutants from industrial activity. Identifying the shared perceptions of disparities among community members supports a broader goal of developing a comprehensive assessment of health equity. The resulting assessment will be utilized in the creation of a plan to advance the health equity in North Port Saint Joe.

**Benjamin Harris** **Earth & Environmental Science**

**Port St. Joe Health Equity Assessment: Neighborhood and Built Environment**

**Co-Author(s):** James Cole, Chris Bickham

**Faculty Mentor(s):** Kwame Owusu-Daaku

**Session:** Port St. Joe Health Equity Assessment

**Session Time:** 11 a.m. - 1 p.m.

**Location:** Zoom

**Presentation Time:** TBA

North Port St. Joe (NPSJ) is located near a former paper mill that previously provided jobs and by extension supported the local economy of the town. In this environmental health equity assessment, buildings and other constructed features of NPSJ are analyzed, categorized or extrapolated, to determine if the local community is environmentally safe, and the quality of life, pertaining to ease of access to various amenities, is comparable to the rest Port St. Joe (PSJ). GIS will be used to survey neighborhood features such as sidewalks, trails, drainage structures, and distance to commodities such as hospitals or grocery stores. This assessment will use census data to compare population density, home value, rates of vacant properties & homeownership rates. Census data will also be used to investigate the year structures on each side of the town were built, as well as other physical characteristics such as home size, residents per bedroom, and vehicles per household. Findings may show that housing, homeownership rates, and home values for citizens of NPSJ may not be up to the same standard as in PSJ. Results may also show NPSJ residents walking farther to reach commodities, lacking sidewalks, and having poor drainage than their PSJ counterparts. This study will examine the potential environmental and housing discrimination of the residents of NPSJ, as these citizens deserve living conditions that are sufficient and equitable to those in PSJ.

**Nelson Kowu** **Earth & Environmental Science**

**Economic Contexts and Trend**

**Co-Author(s):** Olivia Enkey, Amari Mitchell

**Faculty Mentor(s):** Kwame Owusu-Daaku

**Session:** Port St. Joe Health Equity Assessment

**Session Time:** 11 a.m. - 1 p.m.

**Location:** Zoom

**Presentation Time:** TBA

North Port St. Joe (NPSJ), the historically African American segregated community of Port St. Joe (PSJ), is a case of an overburdened community which has been subjected to the unequal distribution of environmental harms. Due to its proximity to the polluting paper mill and the community's historical legacy of segregation, the community has suffered negative health outcomes making it difficult for residents to attain health equity. This segregation has also resulted in economic disinvestments in NPSJ compared to the rest of the city of Port St.

Joe. In this health equity assessment of PSJ, we will be investigating economic opportunity with regards to investments, income brackets, job and industry types, and industry trajectories. We analyze data from US Census Bureau and Florida Health Chart to highlight the disparities in income levels, access to education and housing, and how these ultimately adversely impact the social determinants of health, making it difficult for residents of NPSJ to live a healthy life. We then relate these findings to determinants of health, and discuss how NPSJ residents health equity levels compare to the rest of PSJ by utilizing graphs and percentages to illustrate our research. We aim to provide critical insights into the underlying causes of health inequity and to inform efforts to address and eliminate such disparities while promoting environmental and social change for the community of NPSJ. Our ultimate goal is to contribute to the attainment of good health and well-being for all residents of PSJ.

**Nelson Kowu** **Earth & Environmental Science**

***Environmental Injustice History of North Port St. Joe***

**Faculty Mentor(s): Kwame Owusu-Daaku**

**Session: Main Oral Presenter**

**Session Time: 1 p.m. - 1:45 p.m.**

**Location: Conf Center Lounge**

**Presentation Time: 1:30 p.m. - 1:45 p.m.**

North Port St. Joe (NPSJ), a predominantly black neighborhood of Port St. Joe-FL, suffered from the adverse effects of a polluting paper mill in the past, from 1935 when construction started to 1997 when the mill shut operations. Due to its history of segregation, the neighborhood has suffered worse outcomes such as frequent flooding, degrading lands and the contamination of water, which the impacts of Hurricane Michael in 2018 and the COVID-19 pandemic have heightened. Residents have in the past raised, and continue to raise, concerns of limited involvement in planning decision-making processes and systemic racism. This master's thesis proposal presentation aims to examine historical events of environmental management and planning, operations of city authorities, and racial discrimination against the neighborhood and its residents and, how the effects of these have resulted in environmental injustice and vulnerability of the community to environmental risks. I will adopt a narrative inquiry methodology, to uncover the stories and experiences of residents, and to understand the historical, social, political, and economic factors that have perpetuated these injustices. I will also analyze oral history interviews and archival records to situate environmental injustices in historical context. The study will likely highlight the complex interplay between environmental injustice, socio-economic factors and other forms of systemic oppression. The findings of this study will inform efforts to address environmental injustice in NPSJ and will contribute to a broader understanding of the complex and interconnected factors that give rise to environmental injustice.

**Hannah Lupenski** **Earth & Environmental Science**

***Campus Composting Program***

**Faculty Mentor(s): Chasidy Hobbs**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #25**

University Composting plans are very beneficial for the local environment and help to lower waste and conserve water usage for community gardens on campus. The implementation of a campus composting program can help to lower greenhouse gas emissions as well as provide local gardens with nutritious compost for their soils and an educational medium for individuals to learn sustainable practices. The intention of this research was to identify the best strategies to use to implement a successful and effective campus wide composting program for the University of West Florida's Pensacola campus. In order to determine the most appropriate way to build a comprehensive and efficient composting program, a survey was used to assess the understanding, preferences and intentions of individuals on campus related to composting. Students, faculty, and staff were evaluated on their overall understanding of composting in general, awareness of the positive impacts of community composting, their willingness to participate in the program and educational workshops, and their overall motivation for a campus composting program. The survey was also used to determine whether a quick composting tutorial would influence participants willingness to participate in the campus wide program. The survey results were used to create a detailed plan of implementation, along with a proposal of funding for specific equipment and maintenance needed to run the program. This research aims to raise interest and involvement in sustainable practices on campus, to provide students with future opportunities for research and sustainable action locally and to help launch the campus composting program.

**Ashley McDonnell** **Earth & Environmental Science**

***Health (In)Equity Assessment: Disease & Death***

**Co-Author(s): Anna Meyering, Brook Proffitt, Heidi Messerly**

**Faculty Mentor(s): Kwame Owusu-Daaku**

**Session: Port St. Joe Health Equity Assessment**

**Session Time: 11 a.m. - 1 p.m.**

**Location: Zoom**

**Presentation Time: TBA**

St. Joe Paper Mill started operation on the banks of north Port St. Joe around the 1950s. Almost seventy years later, diseases and deaths circling this area are being brought to light. The impacts of inherent chemical exposure through the ground and the effects of contaminants, like Lead, Arsenic, and Polychlorinated Biphenyls (PCBs), is important to understanding the ways in which the residents and their lives are changed. Throughout this Health (In)Equity Assessment, Florida Health Charts and US Census Data will be used to analyze life expectancy, infant and maternal mortality rates, various diseases and their occurrences, mental health, and injury and violence prevalence. Additionally, data on soil contamination from aforementioned chemicals will be reviewed in their connection to community based diseases, like cancer, and bodily functions. Furthermore, data will be categorized into the geographical regions of north Port Saint Joe and south Port Saint Joe. Overall, this assessment is needed to show how the community of north Port St. Joe has been disproportionately affected by the presence of the toxins produced by the papermill. With potential establishment of a liquefied natural gas plant on the same site, it is important to illustrate the dire need of a cleaner, healthier community.

**Heidi Messerly****Earth & Environmental Science*****Social and Political Aspects on Harmful Algae Blooms in the State of Florida- An Update*****Faculty Mentor(s): Kwame Owusu-Daaku****Session: Main Poster Session****Session Time: 9 a.m. - 10 a.m.****Location: Conf Room AB****Presentation Time: 9 a.m. - 10 a.m.****Poster #27**

While significant research exists on the formation and spread of Harmful Algal Blooms (HABs), the social and political relations surrounding HABs is less well understood. There remains much discussion on the biophysical formation of HABs without equitable discussion of the role of humans in such processes. As such, the objective of this literature review is to discern the social and political factors influencing the causes and effects of HAB growth in the state of Florida with a focus on human impacts. This research began in 2019 and this poster presents an update to the research as at 2023. This literature review branches into two topics connected to the social and political factors influencing HAB growth. The first is the influence of urban and agricultural runoff, and relevant federal policies. The second is an examination of state strategies to protect the human population by mitigating existing HABs and preventing further formation of HABs by people, While the CWA allocates pollution accountability measures for the betterment of the environment, the line that is drawn between point and nonpoint sources is contingent on politics. We also found that at the state level, pitting the opinions of politicians against the expertise of scientists undermines the efficacy of any strategy to address HABs. While we do not yet fully understand how we can efficiently and successfully manage all HABs, we can take some initial steps to do so by focusing explicitly on human attributable causes.

**Kwame Owusu Daaku****Earth & Environmental Science*****(North) Port St. Joe Health (In)Equity Assessment*****Session: Faculty HIP Showcase****Session Time: 8 a.m. - 9 a.m.****Location: Zoom****Presentation Time: TBA**

Twenty-eight (28) students (25 undergraduate, 3 graduate) enrolled in GEO4005/5007 Environmental Management and Planning for the Spring 2023 semester have been tasked by Team North Port St. Joe of Cohort 7 of the Interdisciplinary Research Leaders program to conduct research to inform the construct a health (in)equity profile for (North) Port St. Joe. Students are working in teams and engaging with team members Mr. Dannie Bolden of the Pioneer Bay Community Development Corporation of North Port St. Joe, Dr. Christian Wells of the University of South Florida, and their course instructor (who is also a team member) - as well as Dr. Ayesha Johnson of the University of South Florida who will use the students research to construct the health (in)equity profile. Using various data sources students are identifying potential disparities in health (very broadly defined) amongst residents of the neighborhood of North Port St. Joe and the rest of the city Port St. Joe - wherever possible. Students selected their choice of teams according to their preference (which was honored on a first-come first-served basis) for the following themes: community context and voices,

neighborhood and built environment, transportation, education access and quality, economic context and trends, healthcare access and quality, healthcare access and quality, disease and death. The instructor has required students to submit an outline, full draft, and final write-up of their research, in addition to presenting at the UWF Symposium. This high impact practice introduces students to project planning and management skills, as well as equity practices.

**Kwame Owusu Daaku****Earth & Environmental Science*****Coding Interviews for the North Port St. Joe Oral History Project*****Session: Faculty HIP Showcase****Session Time: 8 a.m. - 9 a.m.****Location: Zoom****Presentation Time: TBA**

Thirty-eight (30 undergraduate, 8 graduate) students enrolled in EVR4870/5435 Urban Planning for the Fall 2022 semester worked collaboratively in eight teams to code a combined total of twenty-four (24) oral history interview transcripts about the experiences of residents of the predominantly black community of North Port St. Joe-FL growing up and/or living in the community and the (environmental) injustices they have experienced over the course of their lives. These interviews were conducted and transcribed by students enrolled in the prior Spring 2022 course Environmental Management and Planning (GEO4005/5007). The interviews were coded using a qualitative analysis software called MAXQDA. Students coded the interviews building on an initial code developed by a student for their Summer Undergraduate Research Program (SURP) experience with the instructor during the Summer 2022 term. The students enrolled in this Fall 2022 Urban Planning course expanded on this initial code and coded the interviews according to broad themes that were informed by the transcripts of the interviews. As there were twenty-four (24) interviews, each team received three (3) interview transcripts from the instructor to code, as well as the initial coding file to expand upon. The instructor required three distinct submissions for the project: 1) A Full Draft of Coded Interviews, 2) A Presentation on the Coded Interviews 3) A Final Submission of the Coded Interviews (incorporating instructor feedback). Students made learning gains in the specific project related skills: identifying patterns in information, working effectively with others, and preparing and giving oral presentations.

**Kwame Owusu Daaku****Earth & Environmental Science*****Administering and Analyzing the Results of a Streambank Erosion Awareness and Knowledge Survey*****Session: Faculty HIP Showcase****Session Time: 8 a.m. - 9 a.m.****Location: Zoom****Presentation Time: TBA**

Ten (10) students enrolled in EVR4039 Community Engagement in Earth and Environmental Sciences for the Spring 2023 semester are working to analyze the results of a survey they administered via Qualtrics. The survey questions were developed by students enrolled in the prior Fall 2022 course Environmental Science, Politics, and Policy (GEO4004/5331). Each current student selected a subtopic of questions to input in Qualtrics prior to the survey administration. The instructor then administered the survey via Qualtrics to all registered

voters in Escambia County, with listed email addresses. The email addresses were obtained from the Florida Division of Elections. So far the survey has yielded about 240 responses. Students will analyze the responses to collectively determine how much respondents are aware of streambank erosion and know about the issue with regard to ten (10) subtopics. These subtopics include the definitions of streambank erosion, the state of knowledge concerning streambank erosion, (local) annual rates of streambank erosion, the relative contribution of streambank erosion to downstream sediment supply, natural causes of streambank erosion, and how streambank erosion affects the following: aquatic environments, water quality, local fisheries, and the local economy. Students will analyze the results of the survey along the subtopics they selected using descriptive statistics, and will collaboratively communicate their findings via a composite poster for the survey. This high impact practice project provides students with an experience conducting research and working collaboratively as research is an inherently collaborative endeavor.

**Kwame Owusu Daaku** **Earth & Environmental Science**  
***Learning the Dynamics of Surveying through Design & Distribution***

**Session: Faculty HIP Showcase**  
**Session Time: 8 a.m. - 9 a.m.**  
**Location: Zoom**  
**Presentation Time: TBA**

Forty (36 undergraduate, 4 graduate) students enrolled in GEO4004/5331 Environmental Science, Politics, and Policy for the Fall 2022 semester worked collaboratively in ten (10) teams of four (4) students each to develop questions for a survey to assess Escambia County's residents awareness of and knowledge on streambank erosion. Simultaneously students individually had to log three hours of distributing a resilience survey to residents of Pensacola on behalf of the Pensacola and Perdido Bays Estuary Program. The instructor, with the guidance of another professor whose research expertise is streambank erosion, broke down the survey focus into ten (10) subtopics. The instructor required three distinct submissions for developing the survey questions: 1) An Outline of Survey Questions, 2) A Full Draft of Survey Questions 3) A Presentation of the Survey Question Development and Distribution Experience 4) A Final Submission of the Survey Questions (incorporating instructor feedback). For the resilience survey distribution, each student logged a total of three hours distributing flyers of the Pensacola and Perdido Bays Estuary Program resilience readiness survey. These flyers contained QR codes and weblinks to the survey for recipients to complete the survey electronically on their own time. This distribution occurred at public events such as Gallery Night and the Seafood festival, as well as at tables set up at local libraries. Collectively, these two experiences enabled students learn how to develop survey questions, as well as learn the community engagement skills needed to approach people to take a survey.

**Kwame Owusu Daaku** **Earth & Environmental Science**  
***The Strengthening Our Social foundation (SOS) project***

**Session: Faculty HIP Showcase**  
**Session Time: 8 a.m. - 9 a.m.**  
**Location: Zoom**  
**Presentation Time: TBA**

Twenty-nine students (21 undergraduate, 8 graduate) enrolled in GEO4357/5358 Environment and Economy/Society for the Spring 2023 semester have been embarking on a 12-week social experiment called the Strengthening Our Social foundation (SOS) project to practice more ecologically sensitive living. The SOS project provides us with an opportunity to grapple with each of the twelve (12) building blocks of our social foundation as characterized by the doughnut (a relationship they have been learning about in the course) in incremental ways. The 12 building blocks are: Energy, Water, Food, Health, Education, Income and Work, Peace and Justice, Political Voice, Social Equity, Gender Equality, Housing, and Networks. Each week, the instructor requires students to make a journal entry reflecting on their experience with implementing an aspect of the SOS project. The journal entries have no length requirement but increase in length each week due to the cumulative nature of the SOS project. The instructor assigned students into eight project check-in teams, for students to meet or engage weekly to track/ assess/discuss/encourage one another on their project implementation progress. The eight graduate students are the de facto coordinators of these check-in teams and responsible for submitting minutes of the team meetings. After the 12 weeks, students will create an image representing their experience of the SOS project or what they would like to convey to someone else to take up/know more about the SOS project). Students will also present, by check-in teams, their experience embarking on the SOS project to the instructor and each other.

**Kwame Owusu Daaku** **Earth & Environmental Science**  
***Facilitating Collaboration in High Impact Practice (HIP) Course Projects***

**Session: Faculty HIP Showcase**  
**Session Time: 8:30 a.m. - 8:45 a.m.**  
**Location: Zoom**  
**Presentation Time: TBA**

Over the 2022/2023 academic year, I have employed collaborative projects as HIPs in the following courses: EVR4870/5435 Urban Planning, GEO 4004/5331 Environmental, Science, Politics, and Policy, IDH3042 Honors Core: Systems Thinking; GEO4005/5007 Environmental Management and Planning, GEO4357/5358 Environment and Economy/Society, and EVR4039 Community Engagement in Earth and Environmental Science. In such projects, I utilize scaffolded submissions to ensure students are making progress towards the final output of the collaborative course project for each course. I also require assessments of collaboration for each scaffolded submission. I developed a spreadsheet with functions to calculate a student's final score on a submission which is a function of the team score for that submission and their cumulative collaboration assessment score. With the HIP funding I received, I was able to employ a graduate assistant to assist me keep up with keeping up with the assessments for five of these six courses as I often fell behind on assessing collaboration, hindering the assessments from achieving their purpose of increased collaboration with each subsequent submission. My graduate assistant will also assist me finalize all final reports and dissemination outputs for collaborative projects that require such reporting to a project partner, before the end of June. The most significant benefit of having assistance with assessment is that I was able to compute final grades for all my Fall courses, the Friday before the Tuesday deadline which has never been the case since Fall 2017 when I started at UWF with collaborative course projects.

**Kinsley Pendleton****Earth & Environmental Science****Port St. Joe Healthcare Access and Quality****Co-Author(s):** Joshua Farre, Blessing Kirk, Nellie Rudini**Faculty Mentor(s):** Kwame Owusu-Daaku**Session:** Port St. Joe Health Equity Assessment**Session Time:** 11 a.m. - 1 p.m.**Location:** Zoom**Presentation Time:** TBA

Healthcare Access and Quality are one of the most important factors when it comes to health equity in a community. For this reason, as part of a health (in)equity assessment for Port St. Joe, multiple healthcare factors within the city of Port St. Joe have been analyzed with a special focus on the contrast between the North Port St. Joe area and the surrounding area in the city of Port St. Joe. Topics such as residents with health insurance, frequency of emergency room visits, location and availability of health facilities are all examined and detailed by utilizing Florida Health Charts and US Census data. Our research indicated that there are 7.2% more disabled individuals, 4.7% more persons with health insurance, and less access to medical facilities in North Port St. Joe than its counterpart. This data indicates that residents within North Port St. Joe have inequitable access to and quality of healthcare compared to their rest of Port St. Joe counterparts. This may represent a lower quality of life provided to North Port St. Joe residents compared to the rest of Port St. Joe.

**Destiny Pennington****Earth & Environmental Science*****The State of Being in-Between: Demystifying Ritual, Social, and Environmental Liminalities through Terminology*****Faculty Mentor(s):** Kwame Owusu-Daaku**Session:** Main Oral Presenters**Session Time:** 9 a.m. - 10:30 a.m.**Location:** Conf Center Lounge**Presentation Time:** 10 a.m. - 10:15 a.m.

Liminality in sociocultural studies has been used to describe states of in-between, either ritual or spontaneous, since the early twentieth century. Researchers have applied this concept to a variety of situations, such as social reform, coming-of-age transitory periods, and natural crises. Despite liminality's wide and growing use as a lens for sociocultural analysis of many world problems, including environmental change, the jargon surrounding this concept has not experienced much evolution since its inception and popularization by Arnold van Gennep and Victor Turner. As a result, the distinction between terms such as liminal, and liminoid have not taken strong positions in present conversations. Current emphasis on the value of liminality as a lens for observation has highlighted the need for more specific understanding of relevant historic jargon. This project thus far has sought to determine the historic presence of several terms of liminality used to describe individuals or communities, such as liminar, liminoid, and liminal. To do so, a variety of analytic literature was reviewed for appropriate verbiage. Defining the situations that fall into liminality, liminoidity, and liminarism, as well as where consideration of more than one of these may be appropriate, encourages distinction between different states of in-betweenness. Classifying these states based on key characteristics creates access to unique identities within this realm, including those of cultural practice and social reform liminality, or even different states of the biophysical world, which impinge directly on human life.

**Osei Richins****Earth & Environmental Science****Port St. Joe Health Equity Analysis- Transportation****Co-Author(s):** Peter Salvucci, Luke Badrac, Jake Losquadro, Vincent Black**Faculty Mentor(s):** Kwame Owusu Daaku**Session:** Port St. Joe Health Equity Assessment**Session Time:** 11 a.m. - 1 p.m.**Location:** Zoom**Presentation Time:** TBA

The correlation between human health and access to reliable transportation is a growing concern in modern-day environmental management and planning. Transportation is a necessity for a number of day-to-day tasks that are essential to the well being of individuals. As a part of a health (in)equity assessment for Port St. Joe, this document serves to analyze the data comparing the North Port St. Joe community to the rest of the city of Port St. Joe. This is a very important analysis, because access to reliable transportation, either public or private, increases the accessibility of each individual to essential services such as; healthcare, food, and education. Transportation is also essential to most people as a means to be employed and receive an income. Unreliable means of transportation can be correlated with isolation which can cause serious mental conditions like depression, furthering the importance of reliable transportation. In modern America, transportation is detrimental to the lives of each individual. However, traditional transportation such as cars and other vehicles account for almost thirty percent of all carbon emissions in the United States. Carbon emissions are correlated to climate change which often degrades quality of life. This implies that it is important to look at alternatives to traditional transportation such as walking and biking. For many people, walking may be more financially prudent than paying for a ride or purchasing a vehicle. However, without proper walkability in established community areas, transportation without the use of personal vehicles becomes impossible.

**Hannah Tetreault****Earth & Environmental Science*****Community Awareness and Knowledge of Streambank Erosion*****Co-Author(s):** Neil Anthonsen, Alex Bassil, Kaylin Colvin-Reece, Sophie**Freeland, Adam Gustafson, Amanda Hull, Kaylee Joiner, Ashley McDonnell,****Wade Woolford****Faculty Mentor(s):** Kwame Owusu-Daaku**Session:** Main Poster Session**Session Time:** 9 a.m. - 10 a.m.**Location:** Conf Room AB**Presentation Time:** 9 a.m. - 10 a.m.**Poster #28**

Escambia County Florida's streams have been threatened by erosion (particularly of their banks) at several points throughout the county. Public knowledge on this issue is important as the level of resident knowledge on the issue will help determine the amount of support that any conservation and regulatory efforts receive. This research seeks to identify the awareness and nature of the knowledge of Escambia County, FL residents on the phenomenon of streambank erosion. Responses to a survey (n=220) distributed via Qualtrics to all registered voters in Escambia County, with listed email addresses via the Florida Division of Elections, will be evaluated to determine how much respondents are aware of streambank

erosion and know about the issue with regard to certain subtopics. These subtopics include the definitions of streambank erosion, the state of knowledge concerning streambank erosion, (local) annual rates of streambank erosion, the relative contribution of streambank erosion to downstream sediment supply, natural causes of streambank erosion, and how streambank erosion affects the following: aquatic environments, water quality, local fisheries, and the local economy. The results of this survey will be analyzed along these subtopics using descriptive statistics. The results provide an initial overview of what residents know about streambank erosion and can inform environmental policymakers and professionals about the potential actions to address streambank erosion.

**Monica Woodruff**

**Earth & Environmental Science**

***Microplastics in Soil: Identifying Their Prevalence in Northwest Florida and Their Effects on the Growth of Kale***

**Faculty Mentor(s): Johan Liebens**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #27**

Current estimates suggest that land used for agriculture and horticulture has up to 13,000 microplastics per kilogram of soil, which is almost double the amount of microplastics found per kilogram of ocean water. Given that microplastics in soil can have a negative effect on the growth of some crops, this research studied the effects that different amounts of microplastics in soil might have on kale and investigated the prevalence of microplastics in agricultural soils in Northwest Florida. Kale was planted from seed at a greenhouse in four groups of six replicates each with 0g, 0.045g, 7.5g, and 15g of microplastics. After cultivation, average stem diameter, number of leaves, root biomass, shoot biomass, seed germination, and chlorophyll content of the kale were averaged for each group and compared with ANOVA and post-hoc testing. The kale in groups with greater amounts of microplastics were hypothesized to experience more negative effects on growth than groups with smaller amounts of microplastics. Soil samples were collected from a farm in Walnut Hill, From the Ground Up Community Garden in Pensacola, and the University of West Florida Community Garden. Microplastics were extracted from these soils using density separation with NaI and NaCl, organic matter was removed with 30% H<sub>2</sub>O<sub>2</sub>, and the microplastics were classified by size, shape, and color and quantified by their mass concentration and abundance. The community garden soils were hypothesized to have higher amounts of microplastics than the rural farm soil from Walnut Hill.

## DR. MUHAMMAD HARUNUR RASHID DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

**Katie Balent**

**Electrical & Computer Engineering**

***Thermostore***

**Co-Author(s): Nick Newkirk**

**Faculty Mentor(s): Sam Russel**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

Thermostore is a project designed to serve a need to provide a temporary storage solution for temperature controlled materials which require log records. The final product Thermostore yielded a portable temperature regulating storage system which can record internal temperature readings in a database, and alarm the user in the event of an out of temp condition. This project is focused on medical applications such as blood or pharmaceuticals. Thermostore has a battery back-up that can be used to keep its items at the desired temperature for a maximum of 2 hours. This is designed as both a backup in case of power loss within a medical facility and for short term transportation. The user-interface allows the user to set the temperature, see the real time temperature and a battery level to indicate when low battery is approaching. The data is stored in an SQL database, and includes a time stamp, the set temperature, the actual temperature and an indication if the lid was open or not. This is a security feature to indicate when items are being removed or placed in the cooler. Overall Thermostore is a transportable cooler with battery backup and security measures designed to be used for the transportation and short term storage of biomedical products.

**Brad Hernandez**

**Electrical & Computer Engineering**

***Autonomous SLAM Mobile Robot***

**Co-Author(s): Blake Emerson, Sam Sorenson**

**Faculty Mentor(s): Ronda Easley**

**Session: Virtual Presentation**

**Session Time: N/A**

**Location: Gather Town**

**Presentation Time: N/A**

**Poster #VIRT-3-ECE**

The goal of this project is to develop, test, and deliver an autonomous SLAM (Simultaneous Localization and Mapping) mobile robot whose purpose is to teach and demonstrate the mobile robotics concepts of localization, path-planning, and mapping.

**John Kreuser**

**Electrical & Computer Engineering**

***Design and Implementation of a Robotic Chess Arm with Object Detection AI***

**Co-Author(s): Connor Oldham, T.J. Miller, Brandon Moberly**

**Faculty Mentor(s): Mohamed Khabou**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

This project aims to challenge human chess players on a physical chess board by employing state-of-the-art techniques in robotics and artificial intelligence. The goal is to not only compete against human players but also to surpass existing chess robots. Our innovative design eliminates the need for cumbersome interfaces and bulky chess boards, commonly seen in commercial chess robots. Instead, we utilize a computer vision system to monitor the board and a lightweight, versatile robotic arm to manipulate the pieces. Our robotic

arm features 4 degrees of freedom and an impressive reach of over 30 inches. This design allows for adaptability across multiple chess boards, significantly enhancing the robot's versatility and robustness. Central to this project is our advanced object detection AI, which is instrumental in recognizing and tracking chess pieces on the board. The object detection AI, based on computer vision technology, is capable of identifying and locating objects within images or videos. This process involves training an artificial neural network, such as a convolutional neural network (CNN), to recognize specific patterns and features within an image that correspond to a particular object. In our project, a custom-trained CNN is employed to accurately detect chess pieces on the chessboard. Upon detecting a human player's move, the system consults the renowned Stockfish chess engine to determine the optimal countermove. This information is then relayed to the robotic arm, which carries out the physical move on the board. The seamless integration of these components enables our robot to engage in a full game of chess against a human opponent. By showcasing the advanced capabilities of object detection AI, as well as the seamless integration of robotics and artificial intelligence, this project holds significant promise for the scientific community. Furthermore, the success of this project has the potential to inspire further advancements and applications in the fields of robotics, computer vision, and machine learning.

**Remy Rheault** **Electrical & Computer Engineering**

**2023 Lunabotics: NASA Lunar Mining Competition**

**Co-Author(s):** Alexa Alvarez, Rene Preston

**Faculty Mentor(s):** Tarek Youssef

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

Our UWF capstone team has been selected to participate in this year's Lunabotics Challenge hosted by NASA. The objective of the challenge is to develop a device that can navigate a simulated lunar terrain, excavate lunar regolith, and collect and deposit the regolith into a designated bin within a 15 minute time limit. Project Description NASA has tasked competition participants to design a system that fits within the constraints outlined in the competition guidelines. While remaining within the mass restrictions and the dimensional envelope, we have designed a remotely operated battery powered system for harvesting simulated icy regolith (a material similar to gravel) under a 30cm bed of granular material (in our case sand). This robotic device consists of four subsystems; our propulsion system featuring four direct drive geared DC motors capable of driving each wheel individually, our harvesting system consisting of a linearly actuating auger commonly used in agricultural applications. The robot's payload storage and unloading system uses a ramped profile and linear actuator to deposit simulated icy regolith 0.5m off the surface of the mining area as per NASA guideline. The final system is the telerobotic control system managed by a Raspberry Pi microcontroller board fed inputs from a remote control that allows for control of all the other robot subsystems by the operator. The telerobotic robotics system developed by our team for the NASA Lunabotics Challenge proved to be a successful solution for lunar surface excavation.

**Andrew Rodriguez** **Electrical & Computer Engineering**

**NASA Mining Bot**

**Co-Author(s):** Cody Smith, Arthur Thomas, Samuel Peterson, John Richards, Robert Kincaid

**Faculty Mentor(s):** Sam Russel

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

The NASA challenge calls for a mining robot that can effectively excavate soil from the ground within a 0-minute run time. The robot is designed to be remote-controlled, equipped with advanced sensors and tools that enable it to navigate and mine underground resources efficiently under the supervision of a human operator. The robot's innovative design incorporates a robust drivetrain, powerful digging arms, and precise control systems, allowing it to navigate challenging terrain and extract valuable resources. The robot's ability to be controlled remotely allows for real-time adjustments to be made by the operator, maximizing the efficiency of the mining process. The mining robot is a cutting-edge technological solution that has the potential to revolutionize space exploration and mining operations on extraterrestrial bodies, with the added benefit of reducing risks associated with human operations.

**Mariah Stebbins** **Electrical & Computer Engineering**

**Zookeeper Robot**

**Co-Author(s):** Odalys Rodriguez, Blessing Kirk, Samantha Vakiti

**Faculty Mentor(s):** Sam Russel

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

Our team's capstone project was based on the IEEE (Institute of Electrical and Electronics Engineers) SoutheastCon 2023 Hardware Competition, and we still hope to compete in it. The competition mocks a hurricane that has destroyed a theme park, where debris needs to be disposed of and animals need to be saved. The tasks include dispensing chips, moving items to the recycling bins and pond, and picking up and stacking items on top of each other. The objective of our project was to design an autonomous robot, with a manipulator arm, that has the capabilities to maneuver through an obstacle course and complete the various tasks. Our design includes a plow to push obstacles out of the way, a manipulator arm to pick up and stack items, a dispenser to dispense chips, and various sensors to detect colors, lines and lights. We have created an obstacle course, a replica of the one that will be used in the competition, to test the robot. We are still in the process of programming and testing the robot to be more accurate and we are still determining the most efficient way to complete the tasks. This project has advanced our knowledge about hardware, programming, designing, and wiring. The OUR funding has given us the opportunity to not only design, build, and create a robot as a team, but it has also given us valuable hands-on experience.

**Kimberly Vissepo** **Electrical & Computer Engineering**

**Resistor Vending Machine**



**Co-Author(s):** Quin Godwin, Aryn Hightower, Hunter Rose

**Faculty Mentor(s):** Sam Russel

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

Resistors purchased by the University of West Florida (UWF) arrive on large cardboard spools, requiring instructors and teaching assistants (TAs) to manually count and cut resistors to place in bins and dispense to students. This method is cumbersome, time consuming, and makes it difficult to track inventory. Students know too well what it is like to set up a lab or project only to find out the resistors selected are incorrect. Resistors are commonly either wrongly placed in labeled bins or misread as the identification strip colors are misinterpreted, like what is thought to be gold is actually brown. The aim of this project is to improve the accuracy and convenience of disbursement of resistors to students in UWF's Circuits Lab. The resistor vending machine houses nine identical modules, each with the ability to count, load, cut, and distribute breadboard resistors of various values. Each module holds up to 500 resistors and functions in connection with an LED touch screen to dispense or load the resistor tape. The LED screen displays the amount of resistors currently available within the machine and allows the user to choose the amount to be dispensed and cut. The resistor vending machine allows students to save time by dispensing the desired amount of resistors promptly, thus potentially increasing a student's efficiency in coursework and allowing students to study more. The resistor vending machine can increase productivity, save time, improve classroom organization and inventory accuracy, and can be conveniently placed in schools, laboratories, or workshops that use breadboard resistors.

## DEPARTMENT OF INFORMATION TECHNOLOGY

**Ke'Aundrix Ware**

**Information Technology**

**Comparison of Student Activity Levels Pre- and Post- COVID-19 Pandemic**

**Faculty Mentor(s):** Dallas Snider

**Session:** Main Poster Session

**Session Time:** 12 p.m. - 1 p.m.

**Location:** Conf Room AB

**Presentation Time:** 12 p.m. - 1 p.m.

**Poster #21**

The purpose of this research is to compare the activity level of college students pre and post COVID-19 restrictions using an Actigraph GT9X wristband. This research is a follow-up to a UWF IRB-approved study (2020-195) in the Spring 2020 semester, where data collection was completed prior to shutting down in-person operations in March 2020. The goal for this study is to examine what different factors may influence a college student's activity level. Participants wore the Actigraph wristbands for a period of one week. Additional information was collected from pre and post surveys. The study is being conducted in Pensacola and surrounding areas.

## DEPARTMENT OF INTELLIGENT SYSTEMS & ROBOTICS

**Bethany Crow**

**Intelligent Systems & Robotics**

**Rapid Prototyping of Obstacle Mapping and Avoidance for Autonomous Mobile Platform with a Robotic Arm**

**Co-Author(s):** Desmond Peters, Kobi Menser, Alex Little, Brian Bauman, Kaleb

**Todd**

**Faculty Mentor(s):** Hakki Erhan Sevil

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

The past few semesters the Pick and Place Team's goal has been to develop a robotic arm that has mobile capabilities. Before Fall 2021 semester, the Pick and Place Team focused on designing and constructing robotic arms that could lift, move, and sort items. This new addition of mobility to the robot would further advance the control and sorting abilities. The Pick and Place Team separated the robot into two subsystems: the arm and the base. The arm is configured with six servos, allowing six axes of rotation, and 3D printed structure pieces. The arm was also designed with low tolerances for a better fitted construction. The arm has a reach height of one foot and a theorized lifting weight of 3 pounds. The base is the focus of the mobility of the robot. The base is built with four motors with encoders, a four channel encoder motor driver, omni-directional wheels, aluminum frame, and 3D printed platform. These components allow the robot to move forward, backwards, and side to side without needing to turn while keeping a low weight. For the computational hardware of the platform, the team chose to use a Raspberry Pi. The robot will follow a line and, using a camera, pick up objects and sort them in a designated location.

**Amanda Serger**

**Intelligent Systems & Robotics**

**Assistive Robotic Platform Design for Non-Urgent Household Tasks**

**Faculty Mentor(s):** Hakki Erhan Sevil

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

Humans overcome minor household inconveniences daily without fully recognizing how challenging these tasks could be for individuals such as the elderly or disabled. People in these groups may struggle to complete tasks which may be considered simple for the majority of society, for instance opening a door or reaching for an item. Their condition leads them to rely on caregivers for help. During the COVID-19 pandemic, this human support becomes an unsafe and unreliable solution that results in a greater risk, thus the need for another solution arises: robotic technology. Recent developments in this field have paved the way for this research, aiming to design a home assistance robot with capabilities to complete basic household tasks. The designed robotic platform features four mecanum wheels that support a platform base, a lift mechanism, and a robotic

arm. The omni-directional movement of the wheels is controlled by four DC motors, which allow the robotic platform to navigate to its commanded location. Further, the lift mechanism is controlled by a stepper motor, vertically adjusting the robotic arm based on the requested height. The six-link robotic arm is used for manipulation application. The designed robot has a central computer that utilizes MATLAB and Simulink programming for the developed algorithms. The designed robotic platform's capabilities include autonomous navigation, object fetching, as well as face detection to interact with users. Ultimately, this unique platform can drastically improve conditions for those who cannot independently perform household tasks.

## DEPARTMENT OF MATHEMATICS & STATISTICS

**Raine Brooks**

**Mathematics & Statistics**

***A Statistical Analysis of Veteran Disability Compensation in the USA for 2021***

**Faculty Mentor(s): Achraf Cohen**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #23**

The goal of this study was to understand how the disability compensation of veterans is associated with their service connected disability rating and the quality of life they can live. Poisson regression was initially introduced, but a negative binomial was applied instead due to overdispersion. Three distinct models were developed in order to uncover differences among the variables. The results showed differences in the compensation disabled veterans receive according to their service-connected disability rating, age, and sex. Compensation rates may need to be adjusted accordingly, so those more disabled receive more compensation, especially as they get older. Other factors that contribute to different fundamental needs of males and females have should be taken into consideration for potential future health needs.

**Ihsan Buker**

**Mathematics & Statistics**

***Robust Multiple Imputation Estimation Under Uncongeniality via Jackknife Subsampling***

**Faculty Mentor(s): Samantha Seals**

**Session: Virtual Presentation**

**Session Time: N/A**

**Location: Gather Town**

**Presentation Time: N/A**

**Poster #VIRT-10-MATH**

Missing data is an issue ubiquitous in many fields of science. Today, multiple imputation (MI) is one of the most commonly utilized approaches to provide valid statistical inferences in the presence of missing data. Briefly, MI fills the missing cells in the original dataset by generating a series of plausible values based on an imputation model and, thereafter, creates multiple complete versions of the original dataset. Subsequently, the analysis model is applied to each imputed dataset, and the parameters of interest are pooled to

accurately reflect the loss of information caused by the missing observations. Accompanying MI is the issue of uncongeniality, which occurs when the imputation model and the analysis model make different assumptions about the data. Not long after the conception of MI, Rubin's accompanying set of rules to pool parameter estimates from the multiply imputed datasets was shown to produce biased estimates under uncongeniality. In response, certain combinations of MI and resampling methods have been proposed as robust estimators under uncongeniality; however, their main drawback, to this day, has been their associated computational cost. Moreover, bootstrapping, one of the most commonly utilized resampling methods alongside MI to obtain proper estimates, has its basis in asymptotic theory. As such, in small samples frequently confronted in biological studies, the need for a computationally efficient estimator with statistically desirable properties remains. A jackknife estimator for datasets containing multiply imputed outcome variables under uncongeniality for small sample sizes is presented. The performance of the proposed estimator is investigated using a Monte Carlo simulation study and compared to other methods in the literature. In addition, properties of the estimator, such as bias, variance, and consistency, are discussed. Accordingly, the recommendation is made to replace Rubin's rules as the de facto standard in multiple imputation inference with resampling-based robust estimators.

**Kristina Diaz-Kerkado**

**Mathematics & Statistics**

***A Longitudinal Analysis on Animal Intakes and Outcomes by State***

**Faculty Mentor(s): Samantha Seals**

**Session: Main Oral Presenters**

**Session Time: 1 p.m. - 1:45 p.m.**

**Location: Conf Center Lounge**

**Presentation Time: 1:15 p.m. - 1:30 p.m.**

Shelter Animals Count(SAC) is a 501(c)(3) organization funded through grants, sponsorships and donations. SAC has established a national database for shelters to collect and collaborate data in order to understand trends and build programs to protect animals. When observing data repeatedly over time, we can use linear mixed models to account for the repeated measures. Linear mixed models are used when there is inherent correlation within the data, such as the monthly data from animal shelters, unlike general linear models, which assume independence of observations. Mixed models are named such because they allow random and fixed effects in the model simultaneously. Random effects model the extent to which trends vary across levels of some grouping factor; most commonly, random intercepts are included in models. This allows for every subject to have their own intercept, vs. forcing all subjects to have the same intercept. Fixed effects are the most common types of effects and represent average effects that are constant. In this project, US Census data will be incorporated with SAC data from the last 10 years and mixed models will be constructed to determine if there is a relationship between state characteristics and sheltering/adoption. Using variables that explain the intake/outcome of sheltering services, potential improvement in shelter services will be recommended. Further, prediction in needed services will be made. Data management, analysis, and visualization will all be conducted using R and RStudio. Statistical significance is defined a priori as p is less than 0.05.

**Mingfang Huang****Mathematics & Statistics*****IoT-based Epidemic Monitoring via Improved Gated Recurrent Unit Model*****Faculty Mentor(s): Jia Liu****Session: Main Poster Session****Session Time: 10 a.m. - 11 a.m.****Location: Conf Room AB****Presentation Time: 10 a.m. - 11 a.m.****Poster #24**

During the Coronavirus Disease 2019 (COVID-19) pandemic, non-contact health monitoring and human activity detection by various sensors have attracted tremendous attention. Robotic monitoring will lessen the danger to medical professionals during the COVID-19 pandemic period. Improving the monitoring model's performance and generalization is a critical but difficult task. This paper constructs an epidemic monitoring architecture based on multi-sensor information fusion and applies it to medical robot services such as patient care, disinfection, garbage disposal, etc. We propose a gated recurrent unit model based on a genetic algorithm (GA-GRU) to realize effective feature selection and improve the effectiveness and accuracy of localization, navigation, and activity monitoring for indoor wireless sensor networks (WSNs). By using two GRU layers in the GA-GRU, we enhance the generalization capability in multiple WSNs. With all these benefits, GA-GRU outperforms other representative algorithms in a variety of evaluation metrics. The experiments on the WSNs verify the proposed GA-GRU leads to successful runs and provides optimal performances. These findings suggest that the GA-GRU method may be preferable for epidemic monitoring in medical and related fields, particularly in relation to controlling epidemics or pandemics like the COVID-19 pandemic.

**Nitul Singha****Mathematics & Statistics*****Cherry Blossom Prediction*****Faculty Mentor(s): Achraf Cohen****Session: Main Poster Session****Session Time: 2 p.m. - 3 p.m.****Location: Conf Room AB****Presentation Time: 2 p.m. - 3 p.m.****Poster #16**

The blooming of cherry blossoms is a highly anticipated event in many parts of the world, attracting tourists and locals alike to witness the beauty of these delicate flowers. However, predicting the arrival of cherry blossoms has become a complex and fascinating challenge, as weather patterns and climate change can significantly impact the timing of their blooms. The cherry blossom prediction competition aims at predicting the peak bloom date of cherry trees in four locations around the world: Washington D.C., USA; Kyoto, Japan; Vancouver, Canada; and Liestal-Weideli, Switzerland. The data available for the competition dates back to 1981, allowing participants to explore patterns in cherry blossom phenology over the past few decades. Our project will use two conventional predictive modeling techniques: logistic regression and linear regression. Logistic regression is a widely used statistical technique that is particularly effective for binary outcomes, such as the "month" of cherry blossoms. Linear regression, on the other hand, is a powerful tool for predicting numerical outcomes, such as the timing of cherry blossom blooms, by analyzing historical data from the four

target cities and applying these two techniques. Our project will contribute to the scientific understanding of cherry blossom phenology and the impact of climate change on plant growth and development. Our project will help further the development of predictive modeling techniques and provide valuable insights for future prediction competitions.

**Aaron Stringfellow****Mathematics & Statistics*****Risti'c-Balakrishnan-Harris-G family of distributions with applications*****Co-Author(s): Thatayaone Moakofia, Broderick Oluyedea, Achraf Cohen****Faculty Mentor(s): Shusen Pu****Session: Main Poster Session****Session Time: 12 p.m. - 1 p.m.****Location: Conf Room AB****Presentation Time: 12 p.m. - 1 p.m.****Poster #22**

This article introduces a new family of distributions that generalizes the Harris-G family of distributions. The new distribution is named the Risti c-Balakrishnan-Harris-G (RB-Harris-G) family of distributions. Statistical and mathematical properties such as reliability measures, incomplete and conditional moments, Rényi entropy, distribution of order statistics, stochastic orderings, and probability-weighted moments of the new family of distributions are discussed in detail. Estimation of the parameters of the RB-Harris-G family of distributions is performed via the maximum likelihood estimation method. The performance of the estimates is assessed via a Monte Carlo simulation study. The goodness-of-fit of the new distribution is examined via four real data applications

**Dylan Wright****Mathematics & Statistics*****Neural Network Modelling and Extended Results of the Perturbation Cascading Inference Algorithm*****Faculty Mentor(s): Shusen Pu****Session: Main Poster Session****Session Time: 2 p.m. - 3 p.m.****Location: Conf Room AB****Presentation Time: 2 p.m. - 3 p.m.****Poster #15**

Understanding the causal relationships between nodes is an active problem when understanding the true structure of a network. Among the various time series inference methods, the effectiveness of inferring the correct structure is often limited by implicit biased of incorrect inferred connection of unconnected but highly-correlated nodes. A foundational summary for computational models in neuroscience was given to give a brief general insight to people outside of the field. We extend the results of Stepaniants and collaborators implementation of their novel perturbation cascade inference algorithm (PCI) that suggest stability for small (2-5 nodes) and large (10-20 nodes) to an arbitrarily large network to see if it suffers this bias.

## DEPARTMENT OF MECHANICAL ENGINEERING

**Davin Anderson**

**Mechanical Engineering**

***Design and Construction of an Electric Racing Vehicle for the University of West Florida EV Racing Enterprise Project***

**Co-Author(s): James Kreuser, Nolan Basel, Rafael Maldonado, Dylan Nearbin, Cooper Brisby, Jonah Robinson, Cody Alltop**

**Faculty Mentor(s): Cheng Zhang**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

Most of modern cars are still powered by internal combustion engines, in which the carbon-based combustion process produces pollutants that harm the environment. Electric vehicles are promising to be a more environment-friendly solution for transportation. The UWF EV Racing team aims to explore capabilities of making more efficient electric vehicles, and the goal of this project is to design and construct an electric vehicle to race in Electrathon America. To minimize the power consumption, we decided to use a three-wheel cycle car configuration, which has less rolling resistance force than a four-wheel configuration and can adopt the teardrop shape to reduce the aerodynamic drag. A MATLAB code was developed to determine the torque and power requirements for the motor at different vehicle speeds. Computational fluid dynamics simulations were performed using ANSYS Fluent to design an aerodynamically efficient shell, and finite element analyses were performed using SolidWorks to design a light but strong frame. A battery testing apparatus was constructed to determine the battery discharge characteristics. The construction of the frame, steering system, and the power system has been completed. We are currently working on the construction of the shell and some custom machined suspension components. We expect to have a fully functioning electric vehicle by the beginning of April of 2023.

**Brie Aziz**

**Mechanical Engineering**

***2022-2023 AIAA Design/Build/Fly Competition***

**Co-Author(s): Trey Kilsby**

**Faculty Mentor(s): Daniel Williams**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

Our research project was to design and build a small, remote-controlled, aircraft qualified to compete in the 2022-2023 AIAA design build fly competition. This year's competition marks the 27th year for the Design/Build/Fly Competition. The Design/Build/Fly Competition was initially started in 1996 by the AIAA Applied Aerodynamics, Aircraft Design, Design Engineering and Flight Test Technical Committees as an opportunity for university students to apply real-world aircraft design experience by giving them the opportunity to validate their analytic studies. The competition's objective this year is centered around electronic warfare (EW) missions. The competition flight missions will include staging of the aircraft, surveillance, and jamming. Additionally, there will be a ground test

in which the aircraft is evaluated on how well it can withstand static loading. To meet these criteria, our aircraft is being constructed of lightweight and strong materials such as balsa wood. It incorporates a Clark Y airfoil that is simple but provides substantial lift. The wings have also been designed to have the ability to connect an antenna to the wingtips. Our choice of engine and prop have also been analyzed to ensure our aircraft has ample power to fly with our mission's jamming payload. We have utilized SolidWorks, a computer-aided design software, to test our design. Our final design is constructed from laser cut parts. Finally, a local on-site ground and flight test of Design/Build/Fly Competition's missions will be performed.

**Juliana Barchie**

**Mechanical Engineering**

***2023 NASA Rover Team***

**Co-Author(s): Matthew Arellano, Cole Bokowski, Sam Kammerer, Mark Bulosan, Tanner Clifton, Maddy Geleta, Jacob Faulkner, Sharon Zubler, Karan Shah**

**Faculty Mentor(s): Maher Amer**

**Session: Virtual Presentation**

**Session Time: N/A**

**Location: Gather Town**

**Presentation Time: N/A**

**Poster #VIRT-13-ME**

The UWF NASA Rover team works to design and build a rover that adheres to the NASA Human Exploration Rover Challenge guidelines. The team is a part of UWF's mechanical engineering enterprise program and consists of sophomore and junior mechanical engineering students. The competition has a variety of rules and regulations for example, the rover must be completely human powered, must fit within a 5x5x5 foot cubic area, and a foot clearance from the ground. The rover is fabricated at the Port of Pensacola with proper engineering software and equipment. Due to an important and sudden chassis design change, the assembly of the rover has had to occur at a quick pace to be completed in time to compete. Currently, the mockup assembly has been completed. This assembly will allow for completion of the systems of the rover including drivetrain and steering. Wheel assembly is in progress, but will require further alterations. Final modifications will be implemented during the testing phase. Assembly of the task tool will be taking place shortly, along with the STEM engagement. This event will enable the team to share engineering concepts with the youth. The team plans to compete at the 2023 Human Exploration Rover Challenge April 20th-22nd.

**Trent Booker**

**Mechanical Engineering**

***SAE Aero Design Regular Class Capstone Team***

**Co-Author(s): Matt Preston, Justin Godwin**

**Faculty Mentor(s): Carolyn Mattick**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

For the Spring Semester of 2023, the SAE Aero Design Capstone team is focused on the construction and testing of two identical radio-controlled aircraft

designed to compete in the SAE Aero regular class competition. The aircraft was designed with the goal of maximizing the wingspan and amount of weight the aircraft is capable of carrying, as both are used to earn points. However, the aircraft is heavily restricted in power, must be capable of disassembly into a predetermined space, and must take off in 100 feet or less. To accomplish these conflicting goals, the aircraft is designed with a non-standard twin-boom fuselage and uses multiple materials, such as foam and poplar plywood, to reduce the weight of the aircraft while ensuring necessary structural integrity for safe flight and disassembly. The team will construct and test the aircraft in time for the competition in Fort Worth, Texas, April 14th-16th of 2023.

**Jared Carter** **Mechanical Engineering**  
**Argo Armada Rocket Team**  
**Co-Author(s):** Brendon Jones, Terry Malinowski, Beatriz Rodrigues Domingues, Cody Reilmann  
**Faculty Mentor(s):** Bradley Regez  
**Session:** Engineering Showcase  
**Session Time:** 10 a.m. - 12 p.m.  
**Location:** Cannon Green  
**Presentation Time:** 10 a.m. - 12 p.m.

The main goal of the UWF Argo Armada is to launch and recover high powered rockets in order to garner certifications for our team members. We are L1 and L2 capable, and now look to get a team member certified in L3 rocketry which can achieve an altitude of roughly 10,000 feet. We will use this rocket to attend the Spaceport America Launch in Las Cruces, New Mexico. At this competition we can show how far the team has come since it started, and better determine our next goals after achieving such a feat.

**Joshua Coonrod** **Mechanical Engineering**  
**UWF Battle Bots**  
**Co-Author(s):** Benjamin Feliciano Rodriguez, Jason Konopka, Andrew Cross, Waleed Kashef, Owen Reese, Makenzie Arender, Antonio Gutierrez, Caleb Corson  
**Faculty Mentor(s):** Michael Reynolds  
**Session:** Engineering Showcase  
**Session Time:** 10 a.m. - 12 p.m.  
**Location:** Cannon Green  
**Presentation Time:** 10 a.m. - 12 p.m.

The UWF Battle Bots Design Team is wrapping up its second semester as an Enterprise team in the Mechanical Engineering department. The team is split into two sub-teams, each working to create a separate battle bot with weapons and armor for battle. Each bot weighs less than fifteen pounds, and is smaller than two cubic feet. The two teams plan to battle it out later this month in a nine foot by nine foot arena. Each sub-team will be presenting its specific designs for shielding, motor placement, and weapons. The team hopes to attract competitors from nearby colleges for future competitions.

**Andrew Cross** **Mechanical Engineering**  
**Battlebots Design**  
**Faculty Mentor(s):** Michael Reynolds

**Session:** Engineering Showcase  
**Session Time:** 10 a.m. - 12 p.m.  
**Location:** Cannon Green  
**Presentation Time:** 10 a.m. - 12 p.m.

The Battlebots Design teams work to create two bots with weapons and armor that are under fifteen pounds and smaller than two cubic feet. These bots will spar against each other in a nine foot by nine foot arena in the future. The Battlebots teams will be presenting two different armor and drive designs and will show the advantages and disadvantages of each.

**Keith Floyd** **Mechanical Engineering**  
**Using AI to Guide Healthcare Decision-Making: A state-of-the-Art Review**  
**Faculty Mentor(s):** Tiffany Jackman  
**Session:** Main Poster Session  
**Session Time:** 10 a.m. - 11 a.m.  
**Location:** Conf Room AB  
**Presentation Time:** 10 a.m. - 11 a.m.  
**Poster #28**

Recent changes in healthcare drive the need for innovations that provide improvements in health outcomes and patient experiences. An important innovation in healthcare is the use of artificial intelligence (AI), which uses computers to process information and complete tasks currently performed by humans with greater speed, accuracy, and lower resource utilization. Healthcare leaders and providers are charged with solving vastly complex problems. Artificial intelligence (AI) is helping the healthcare industry reimagine care by boosting innovation and productivity. AI can aid in organizational decision-making, education, marketing, human resources, telehealth, and other areas of healthcare. Organizations are better equipped to fight disasters by using AI decision-making algorithms to detect anomalies and predict future behavior. AI reduces human-intensive labor and aids in the forecasting and prediction analysis of businesses. AI algorithms can be used to analyze medical images to identify patterns and anomalies that might be missed by human providers, leading to quicker and more accurate diagnoses, and resulting in better patient outcomes. In addition to medical risks, AI algorithms can differentiate between patients at low and high risk of medically complex risks and it enables providers the ability to devote more resources toward interventions in the high-risk population. AI innovation requires efficient technology, supporting organizational policy, and cultural change that creates a sense of urgency for AI utilization. This State-of-the-Art review explores how healthcare leaders might leverage the benefits and mitigate the risks of artificial intelligence in their organizations.

**Jake Jenks** **Mechanical Engineering**  
**SAE Mini-Baja**  
**Co-Author(s):** Justin Fradejas, Dawson Scragg, Spencer Tallman, Matthew Blas, Orion Conolly, Hudson Farkas  
**Faculty Mentor(s):** John Stutz  
**Session:** Engineering Showcase  
**Session Time:** 10 a.m. - 12 p.m.  
**Location:** Cannon Green  
**Presentation Time:** 10 a.m. - 12 p.m.

UWF Baja is a team of Mechanical Engineering students who design, build, and compete a Baja off-road vehicle for an intercollegiate racing competition hosted by SAE (Society of Automotive Engineers) International. The competition allows for students to gain an insight into the process of applying engineering principles to the process of constructing and designing the car, as well as, introducing the students into aspects of teamwork, business, marketing, networking, and balancing the school workload with the time consuming build process of the car. The ultimate goal in any SAE sanctioned event is to compete with other schools and determine which one created the best overall vehicle in terms of ergonomics, safety, design cost, and vehicle dynamics during a series of events used to determine the performance of the student designed vehicle. For this year's vehicle our design includes a chassis designed in CAD and analyzed using FEA and built to meet the SAE Baja specifications.

**Thomas Morgan**

**Mechanical Engineering**

**Argonautics**

**Co-Author(s):** Caleb Opava, Lily Haddock, Jake Losquadro, D'Andre Walden, Thao Duell, Skyler Hoskins, Nikolai Miller, Ashley Creighton, Isabella Fonseca, Alyssia Bryson, Brett Brustad, Connor Yourist, Joseph Pusateri, Caleb Jackson, Greg Miller, Hayden Pursell

**Faculty Mentor(s):** Carolyn Mattick

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

The SAE Aero Design competition challenges engineering teams to conceive, design, fabricate, and test a radio-controlled aircraft that can take off, land, and optimally meet the mission requirements. Flight score is determined by the amount of weight a plane can lift, the number of boxes the plane can enclose and carry, and the time it takes the plane to complete a circuit. The limitations of this competition are a maximum 3-foot wingspan, 450 watt power limit, and takeoff on a 8' by 4' platform. We designed a unique cropped delta wing from scratch because it has a large amount of surface area. The more surface area the wing has, the more lift it generates. Our design allows for a large fuselage, which allows our plane to carry more volume. This would be more difficult to achieve in a conventional design. Our plane uses a 60-degree leading edge to maximize vortex lift. Using Ansys fluid flow simulation we were able to reduce drag and weight plus maximize lift. We then did a test flight with our final design and the results confirmed our predictions. We aim for a top 3 placement. On April 14-17, in Fort Worth, Texas, the UWF Argonautics team will compete against universities from all over the world in the SAE Aero Design West competition.

**Sam Schelling**

**Mechanical Engineering**

**Efficient Moisture Removal**

**Co-Author(s):** Levy Siverio

**Faculty Mentor(s):** Carolyn Mattick

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

Dehumidification is a crucial aspect of most buildings across the world. The moisture removal process indoors is necessary to prevent condensation, which could cause problems such as mold. Today's most common approach in all types of buildings for removing water vapor from the air is to condense it into a cold surface created by a heat pump. A large amount of power is required to run these systems. The efficiency of dehumidification is measured in L/kWh, which can also be expressed by the Integrated Energy Factor (IEF). The criteria, specified by Energy Star, needed for an average size house is 1.57 L/kWh. The team has been researching a dehumidifier system consisting of a Peltier module. The absence of a condenser, compressor, evaporator, and inductor could provide an advantage to the Peltier system because of a decrease in moving parts. The Peltier system will use significantly less power by only having a Peltier module and fans. At 25C and 60% relative humidity, our projected efficiency will be 1.54 L/kWh. This system is hypothesized to remove water vapor from air at a slightly slower rate than a heat pump system. Through this project, our team aims to raise efficiency and create a portable, working moisture removal module using a Peltier device.

**Georgia Small**

**Mechanical Engineering**

**Microneedle Design Team**

**Co-Author(s):** Christina Fisher, Jaden Langford, Vero Vargas Salinas

**Faculty Mentor(s):** Maher Amer

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

**Garhett Smith**

**Mechanical Engineering**

**Combating an Infestation: Design of an Autonomous Underwater Vehicle**

**Co-Author(s):** Daniel Bozeman, Stephen Barrs

**Faculty Mentor(s):** Cheng Zhang

**Session:** Engineering Showcase

**Session Time:** 10 a.m. - 12 p.m.

**Location:** Cannon Green

**Presentation Time:** 10 a.m. - 12 p.m.

Purple sea urchins are a rampant problem in the kelp forests along California coasts. The exploding population of these urchins is happening because of die-offs of the sea stars that would normally consume the urchins. The only way to limit the population of these urchins is for divers to gather them up. This slow and tedious process provides little relief to the kelp forests. An Autonomous Underwater Vehicle (or AUV) could collect these urchins automatically. The proposed AUV would use various systems to help solve this problem. A centralized Raspberry Pi microcomputer controls all of the vehicle's systems. The microcomputer uses a color detection program and binocular vision to locate brightly colored objects like the urchins. The color detection program finds the urchin, and the binocular vision triangulates the location of the urchin. Once this occurs, an array of thrusters and a buoyancy tank system navigate the vehicle to the specified location. The microcomputer activates a robotic arm and uses servos in tandem with a collection device to gather the objects. Once the objects are collected, the vehicle pumps the water out of the buoyancy tanks to surface for collection. The design of this vehicle allows it to locate and collect brightly

colored objects similar to the urchins plaguing California kelp forests. This vehicle has the ability to collect urchins in a safer and more efficient method than current methods.

**Hunter Stegall**

**Mechanical Engineering**

**Magnus Aircraft Capstone Team**

**Co-Author(s): Cole Stegall, Aaron Edelen, Braeden Black**

**Faculty Mentor(s): John Stutz**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

The Magnus Aircraft Capstone Team is a part of the Engineering Capstone Design Program at the Hal Marcus College of Science and Engineering. The team's goal has been to design and create a non-traditional RC aircraft that flies by utilizing what is known as the Magnus effect. The Magnus effect can be summarized as a force applied to a rapidly spinning cylinder that will generate lift perpendicular to the direction of the airflow. Rather than utilizing traditional fixed wings like most RC aircraft, this project uses rotating cylinder-like wings to manipulate airflow and produce lift. These rotor-wings are a specific type of geometry shape known as Savonius rotors. These rotors are traditionally known for being used in some types of wind turbines, and in some cases, experimental flight. The primary purpose of this research is to evaluate the possible uses of the Magnus effect in the aerospace industry and to contribute to the theory in designing for use of this unique behavior.

**Adam Stephens**

**Mechanical Engineering**

**Mower Bagging System**

**Co-Author(s): Alaina Coffield, Kim Sanders, Andrew Nguyen, Dylan Robas**

**Faculty Mentor(s): Cheng Zhang**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

The team's goal this semester is to construct and improve the bagging system on a residential push mower in order to prevent clogging while bagging grass clippings. The mower we are modifying is a TroyBilt TB360 push mower. In order to improve the bagging system, modifications to the bag, bag entrance, and the addition of electronics were done. Increasing the volume and shape of the bag allows for more grass to be held and reduces the amount of clippings that fall back into the entrance and clogging the mower. Changing the angle of the hole where the clippings enter also reduces the amount of grass clippings falling back into the entrance of the bag. The addition of a weight sensor, infrared sensors, and OLED display makes the process of bagging grass clippings easier for the user by indicating how full the bag is.

**KJ Torres**

**Mechanical Engineering**

**Skateboard Design Team**

**Co-Author(s): Seth Brayton, Jacob Dunne, Sean Allen Ros, Caleb Jones, Caleb Pereira**

**Faculty Mentor(s): Amrita Gautum**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

The engineering team discussed in the article aims to create an electric skateboard using reused components from their previous skateboards. The board design features numerous components that help students learn how real-world product processes work. The team's goal is to use old boards without modifying them to make the new board during the Spring 2023 semester. They plan to focus more on the environmental aspect of the project in future semesters by creating a cheaper recyclable electric skateboard used from donated old boards. The team faced challenges in selecting the right motor and battery power to ensure that the board has enough force to move but not too much to harm the rider. They decided on a 24V battery and motor and calculated the start torque and maximum current for the motor to ensure safety for the rider. The team also researched and explored recyclable and sustainable materials to continue producing new skateboards while decreasing the use of cut-down trees. The budget for the project is flexible to accommodate the cost of materials required to build the board. The budget covers items like the gas pedal, motor controller, skateboard wheels, battery pack, motor, connection belt, and gear, and electric skateboard wheel pulley.

Overall, the project aims to create an electric skateboard using reused components, which is cost-efficient and environmentally friendly. The project also offers an opportunity for students to apply their knowledge in programming, CAD, and many other areas while working in a team. The team plans to conduct safety tests to ensure that the board is safe for use and allow students outside of the team to ride the board.

**Joshua Wells**

**Mechanical Engineering**

**Solar Car**

**Co-Author(s): Jeff Jean Philippe, Kalim Muhammad, Trevor Leonard, Nick Woods, Ryan Worley, Wesley Schmidt, Jubal Reimer**

**Faculty Mentor(s): John Stutz**

**Session: Engineering Showcase**

**Session Time: 10 a.m. - 12 p.m.**

**Location: Cannon Green**

**Presentation Time: 10 a.m. - 12 p.m.**

**DEPARTMENT OF PHYSICS**

**Lavender Allen**

**Physics**

**Polarization Sensitive Low Frequency Vibrational Spectra of Crystals**

**Faculty Mentor(s): Laszlo Ujj**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #19**

We have measured the polarization-sensitive vibrational phonon spectra of a single crystal of cubic symmetry, Bismuth Germanite, with the chemical formula  $\text{Bi}_2\text{Ge}_2\text{O}_7$  (BGO). We observed the phonon modes connected to the symmetry species of the crystal. First, the polarization-sensitive Raman spectra were measured at specific configurations, allowing us to distinguish and associate band frequencies to the A, E, and F modes per group theory. We used and modified the laser system available at the laser spectroscopy lab at the University of West Florida to obtain the proper polarizations and excitation conditions necessary to isolate the modes. Second, we have designed the polarization conditions for the actinic laser beams to measure the two-beam 3-color broadband coherent Raman spectra (3CBCRS) of BGO. This poster presents of the measured and processed spectra of the low-frequency phonon modes. The background-free spectra were consistent with the spontaneous Raman spectra. It is proved here that the coherent Raman measurements can be used to identify the symmetry species associated with the different phonon modes as well in the former method.

**Brandon Newkirk**

***Automated Spectrometer***

**Faculty Mentor(s): Aaron Wade**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #24**

A cost effective optical spectrometer was designed and fabricated at UWF for the use in a spectroscopy laboratory or as a tool to help students understand the spectral properties of visible light emitted by different sources. It is an automated monochromatic spectrometer inspired by the design of a Spectrophotometer. This design is fully equipped with electronic, mechanical and computational devices to streamline the data collection process. It consists of a 3D printed housing encapsulating two parabolic mirrors and a reflective grating atop of a stepper motor to allow for the selection of different wavelengths. The housing has two tiny slits to allow the passage of light from various light sources into and out of the device to a detector where information about the light can be collected and analyzed in real-time.

**A.J. Orlando**

***Prototype Rotational Translator for Polarization Spectroscopy***

**Co-Author(s): Matt Stapleton**

**Faculty Mentor(s): Laszlo Ujj**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #18**

We have developed and characterized a computer-controlled motorized rotation stage to hold samples and optical components. The chassis was 3D printed to house the gear assembly, motor, and stage. For control, the user interface uses LabView to communicate with an Arduino single-board computer programmed

Physics

Physics

to control the stepper motor movement functions. Additionally, the Arduino returns motor shaft positional data through serial commands and native computation. Positional accuracy was tested using a linearly polarized laser passing through a polarizer mounted to the stage. The intensity of the laser as a function of the angle of rotation of the polarizer was measured using a photodiode and compared to the position returned by the Arduino. This proof of concept is a prototype for a future production model with the ability to construct additional units quickly with repeatable results and at a per-unit cost significantly less than the commercially available options.

**USHA KUNDU, MD**  
**COLLEGE OF HEALTH**



## DEPARTMENT OF HEALTH SCIENCES & ADMINISTRATION

**Kyanna Mai Montoya**

***SHPEP UCLA 2022***

**Faculty Mentor(s): Ann Marie Barker**

**Session: Main Oral Presenters**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Nautilus Chamber**

**Presentation Time: 9:30 a.m. - 9:45 a.m.**

The internship is undertaken in the fulfillment of a Bachelor's degree in Healthcare Administration from the University of West Florida; with the Summer Health Professions Education Program (SHPEP) at the David Geffen School of Medicine at the University of California Los Angeles (UCLA). As part of the SHPEP internship, field research was conducted on Hepatitis B in Los Angeles and San Francisco affecting the Asian community, with an emphasis on Chinese people and Filipinos. The goal of the research is to lower the number of cases per year, long-term effects, as well as transmissions. The internship at UCLA provided the opportunity to study healthcare under like-minded professionals who want to share their talents and skills with one another. Further work at UCLA included health simulations, career development, preparing for a successful application, and matriculation to health professions graduate and professional schools.

Health Sciences & Administration

## DEPARTMENT OF MOVEMENT SCIENCES & HEALTH

**Michael Cote**

***Can Blood Flow Restriction Prevent Muscle Atrophy***

**Faculty Mentor(s): Christopher Dake**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

Movement Sciences & Health



**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #26**

Background A 19-year-old male, college lacrosse player presented with symptoms consistent with a lower 1/3 fractured fibula. During practice he was running towards the other team's goal with a defender trailing him and one coming from the front to defend him. The athlete-initiated contact with the defender in front of him while the defender behind him clipped his ankle. His right ankle inverted due to the contact, and he planted his foot while it was inverted. He felt a pop followed by a burning sensation in his leg. The athlete's ankle swelled immediately and he was sensitive to touch just above the lateral malleolus. The patient was unable to bear weight and had no range of motion in his ankle. Differential Diagnosis Lower 1/3 fracture of the fibula, or high ankle sprain Treatment After the initial exam the was sent to the hospital for an x-ray. The x-ray showed he had fractured the lower 1/3 of his fibula. He had a rod, two screws, and a tight rope put into his bone. The athlete was non-weight bearing and on crutches for 2 weeks. The athlete was put into a boot and started rehab. During rehab he completed Blood Flow Restriction (BFR) to help maintain his leg strength and size every other day. Physical therapy has focused on maintaining strength in his leg. For the first two weeks he used an ACE bandage, Tylenol, Aspirin, and Advil to help reduce the pain and swelling. Uniqueness BFR treatment for muscle atrophy is a technique that research supports and suggest that it can be beneficial by preventing atrophy. BFR treatment without any training yielded results that suggest that BFR treatment has the potential to prevent muscle atrophy induced by disuse. 1 Another study found that, BFR without exercise is able to minimize strength reduction and muscular atrophy after immobilization. 2 Conclusion BFR is a technique that helps maintain muscle mass and strength. Through the use of BFR muscle mass and strength can be maintained even after surgery. Blood flow restriction elicits significantly greater improvements in muscle strength.

**Emily Delgado**

**Movement Sciences & Health**

***The Effect of Ketone Bodies and Exercise on Prevention of Chemotherapy (Doxorubicin)-Induced Cardiotoxicity***

**Co-Author(s): Bailey Marshall**

**Faculty Mentor(s): Youngil Lee**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #25**

Background Doxorubicin (Dox), an anthracycline drug has been used to treat a variety of cancers. Unfortunately, Dox treatment has the potential to produce several adverse side effects including cardiotoxicity. Recent studies have shown that beta-hydroxybutyrate (BHB), a ketone body, and exercise training protect against Dox-induced cardiotoxicity on separate occasions. This study examines the effects of BHB and exercise training on Dox-induced cardiotoxicity, along with the combined synergistic effects of BHB plus exercise on cardiac protection using a cell model. Methods Cardiotoxicity was induced in H9C2 cells (rat left ventricular cardiomyocytes). Cells designated to BHB, exercise, or both BHB and exercise were treated with 10 mM BHB and 1 mM of a pharmacological exercise mimetic AICAR, and 10 mM BHB + 1 mM AICAR, respectively, for 24 hours. Then, cells assigned to

Dox were treated with 3 &micro;M Dox for an additional 24 hours. Cells assigned to the control group were treated with the same volume of saline. Then, cells were observed for mitochondrial morphology, cell death, and changes in mitochondrial biogenesis, antioxidant enzymes, and autophagy through western blotting and fluorescence microscopy. Results LC3 II and LAMP2 are proteins that were analyzed for autophagy. A One-Way ANOVA with Tukey Multiple Comparisons Test revealed that Dox treatment reduced autophagy. Neither Beta-hydroxybutyrate nor AICAR alone did not restore Dox-induced autophagy suppression. Intriguingly, however, the combination of BHB and AICAR reinstated autophagy. Conclusion This study suggests that a ketone supplement along with exercise training before Dox administration may mitigate Dox-mediated cardiotoxicity via autophagy restoration.

**Isaac Keen**

**Movement Sciences & Health**

***Complete Deltoid Ligament Rupture with a Maisonneuve Fracture and a Syndesmotic ankle Sprain. A Case Study***

**Faculty Mentor(s): Chris Dake**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #29**

Introduction: This study will show the parameters of a Maisonneuve fracture with some interesting twists. The syndesmotic ankle sprain has a higher morbidity than a lateral ankle sprain. A Maisonneuve fracture is a result of external rotation of a planted foot commonly accompanied with pronation and dorsiflexion of the ankle. Background: A male, D1 collegiate football player who plays wide receiver was injured during the 2022 season. He was blocking while a defender was pushed into the lateral portion of his right leg while the ankle was slightly in dorsiflexion and heavily everted and firmly planted. He then fell backwards and to the same side he was tackled from. Differential Diagnosis: Maisonneuve Fracture/ Ankle sprain Treatment: Weeks 1-3 we decreased swelling and began active range of motion. After, the pt. moved to two crutches and will in weeks 5-7 start Concentrics and one crutch only. Week eight the screw removal takes place and blood flow restriction and aquatic therapy. Weeks 10-13 includes blood flow restriction and agility work. In week 15 and 16 the patient is running routes at 75% and plyometrics and cleared at the end of week 16. Uniqueness: The spacing of 2.2 mm made this quite significant in making sure the patient is non weight bearing for time specified by the physician. Conclusion: This study had a significant spacing of the syndesmotic membrane larger than the average spacing.

**Bailey Marshall**

**Movement Sciences & Health**

***The Effects of Lactate on Myoblast Proliferation and Differentiation***

**Faculty Mentor(s): Youngil Lee**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #26**

Background Understanding how skeletal muscle cells increase their size (hypertrophy) and are rescued via modulating a rate of positive cell turnover

(e.g., a rebirth of cells) from muscle injuries are important. Modulation of skeletal muscle resident stem cells, called satellite cells plays a crucial role in hypertrophy. A recent study has shown that an exercise-induced rise in blood lactate may act as an anabolic myokine. However, molecular mechanisms remain poorly understood. Thus, the proposed study investigated a molecular mechanism of lactate-induced myoblast proliferation and differentiation. Methods C2C12 mouse skeletal muscle cells were cultured with 10% fetal bovine serum (FBS), 100 U/ml of penicillin, and 100 mg/ml of streptomycin in the presence and absence of 10 mM sodium lactate to mimic mild-intensity resistance training-induced lactate upsurge for 48 hours for cell proliferation. For the cell differentiation experiment, the cells were cultured in a differentiation medium (1.0g/L glucose, 4.0 mM L-glutamine, and 110 mg/L sodium pyruvate) containing 2% heat-inactivated horse serum in the presence or absence of 10 mM sodium lactate that mimics mild-intensity resistance training for 72 hours until they become fully mature myotubes. Cells assigned to a lactate inhibitor were treated with 5 mg of syrosingopine 30 minutes before lactate treatment. Results The differentiated cells treated with sodium lactate had increased fiber length and width, and there was more myotube formation than the lactate inhibitor group. Conclusion Our study suggests that a lactate surge is necessary to enhance myotube formation and hypertrophy of skeletal muscle.

**Simon Talcott**

**Movement Sciences & Health**

***The Protective Effects of Beta-hydroxybutyrate and Exercise on Parkinson's Disease***

**Faculty Mentor(s): Youngil Lee**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #27**

The basal ganglia is a region of the brain responsible for reward mechanisms and motor control. In Parkinson's Disease (PD), neurons within the basal ganglia experience widespread damage and/or cell death, leading to bradykinesia and eventual death of the afflicted individual. PD is widespread, affecting millions of people every year. However, the number of therapeutic options available to patients remains limited. It's been theorized from previous research that ketone bodies, such as -Hydroxybutyrate (BHB), and exercise may prove to have a protective effect and help to prevent or treat PD. A hallmark of PD is an increase in reactive oxygen species leading to oxidative stress, and both BHB and exercise have been shown to improve antioxidative capacity. SHSY-5Y neuroblastoma cells were cultured and seeded into 35mm and 60mm culture dishes, which were split into five groups. One group acted as a control, while four intervention groups were pretreated with MPP+. Three of the intervention groups were then treated with BHB, AICAR, or a combination of BHB and AICAR. The 35 mm dishes were dyed with Hoechst, MitoTracker, and SYTOX green nucleic acid stain to qualitatively analyze patterns of cell death, while cells in the 60mm dishes were lysed and prepared for Western Blotting to quantitatively analyze differences in protein expression. The purpose of this study was to observe how treatment with BHB and AICAR affects the functioning of MPP+ treated human neuroblastomas, which simulates the effects of ketone bodies and exercise on neurons afflicted with PD.

## SCHOOL OF NURSING

**Jorge Alcalde Hernandez**

**Nursing**

***Proper Handwashing Techniques***

**Co-Author(s): Catalina Mihaela Carausu, Scott McMenamy, Noah Jacobs, Sophia Bucinell**

**Faculty Mentor(s): Tina Barbour-Taylor**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #27**

The purpose of this quality improvement project was to improve hand hygiene compliance rates among University of West Florida nursing students during their clinical time spent in different departments at Baptist Hospital, HCA Florida Healthcare, and Ascension Sacred Heart Hospital. Hand hygiene is known all over the world as the single best practice for reducing the spread of unwanted and harmful diseases in hospital settings. Despite its simplicity, the researches indicate that hand hygiene compliance is an ongoing healthcare concern. Our observations reflect poor or negligible behavior. After understanding the factors contributing to poor compliance, education, and training were performed for the nursing students to facilitate behavior barrier identification and positive reinforcement. The experimenters students directly observed nursing students hand hygiene behaviors using direct hand washing observation during clinical. Initially, it was communicated the importance of proper hand washing with students after having the students wash their hands. It was noticed that the spots left dirty were nail beds, the back of the hands, and between the fingers. Then, the nursing students were watched again while performing hand hygiene after germ oil was applied and then checked under the Glo Germ light. Despite being told about the commonly missed handwashing areas, the majority of the observed mistakes were the ones mentioned earlier. The results show that the students were able to correct their mistakes after they were reeducated. Barriers to hand washing compliance were identified from direct observation. Hand hygiene education was performed to promote the BSN program and hospital standards and recognize the specific barriers and any alterations that occurred as a result of uncovered barriers. Continued direct observation after the nursing student's education was performed showed that the students improved hand hygiene behaviors and compliance.

**Aidan Collins**

**Nursing**

***Quality Improvement Project on Students' Knowledge of UWF Student Health Services***

**Co-Author(s): AJ Scarano, Alicia Vlasek, Alyson Loudon, Jadon Kennard, John Perez, Violeta Dragomir**

**Faculty Mentor(s): Tina Barbour-Taylor**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #24**

Student Health Services are offered on many campuses across several higher education schools in the state of Florida. The University of West Florida (UWF) is one such school that offers various services for their students. We offered a ten question survey to a small population of students within the nursing program regarding their understanding of the health services offered to them. We found that about [68%] of students in the sample knew the school offered on-campus health services, while even fewer knew what services were offered, the times they were available and other important information regarding the Student Health Services of UWF. This research does not look into the impact the Student Health Services of UWF makes on campus, or how many it reaches, but rather how we could improve the quality of students knowledge and use of these resources.

**Aidan Collins**

**Nursing**

***Bipolar Disorder and Resources within our Community***

**Co-Author(s): Alyson Loudon, Alyssa Tamagri, Jadon Kennard, John Perez**

**Faculty Mentor(s): Jake Bush**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #17**

Bipolar disorder is a mental health disorder that affects many people internationally, yet is still surrounded by stigma. The focus of this project is to bring awareness to what Bipolar Disorder is, what the clinical manifestations are, treatment options that are available, and resources are available to those who are affected by this mental health diagnosis within our community. We used a literary analysis to research the clinical manifestations and treatment options are for those who are affected by Bipolar Disorder. We contacted and researched organizations to find community resources that are offered to individuals with Bipolar Disorder in Escambia and Santa Rosa county. One, of the results of our research is that we discovered that while there are some community resources available, there is an insufficient amount in this area. This research is important to increase awareness of bipolar disorder and the resources for people affected by it.

**Codi Cook**

**Nursing**

***AP II QI Group Project- NAMI Medical Care***

**Co-Author(s): Monica Nuckles, Corinna Waters, Hope Turner, Kyle Roberson,**

**Josh Servo**

**Faculty Mentor(s): Tina Barbour-Taylor**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #26**

Our poster for the Scholarly Symposium is a research project on wait times for medical care on a military installation. Our aim with this project is to increase patient satisfaction based on wait times at Naval Air Station Pensacola- Naval Aviation Medical Institute, effectiveness of medical care received, and reduce fraud/waste/abuse by implementing a two day Physical process. Why are the wait times so long for military members to complete their prerequisites? Our focus for Day

1 is to complete the prerequisites and for Day 2, schedule an appointment with the provider. Patients are expected to have to wait all day at the clinic for their pre-requisite results to come in, instead of being able to come back. In step one we learned that patients don t like being stuck waiting at the clinic all day. This causes very low satisfaction percentages. Our plan to collect this data is through patient satisfaction surveys. We will be able to track these patients from check in to check out to monitor how long they are in the building utilizing time stamped logs. After we conduct a survey, we will be able to decide what changes need to be made and start implementing them. Our goal is to improve patient satisfaction, decrease wait times, improve efficiency of Naval Aviation Medical Institute medical care and decrease fraud waste and abuse based on surveys. We are hoping our end result is the overall patient satisfaction to increase from 60% up to 82% by April 21st, 2023.

**Nancy Cruz**

**Nursing**

***Sleep Hygiene in ROTC Students***

**Co-Author(s): Vy Lam, Jasmine Lamkin, Gianni Farmer, Voquetta Gay**

**Faculty Mentor(s): Tina Barbour-Taylor**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #23**

Sleep hygiene is an important factor in one s overall health. As one grows up, it is factual that proper sleep hygiene practices begin to diminish due to developmental and societal changes. One developmental factor that changes one s level of priority when it comes to sleep, is the incorporation of higher education through a university setting. Many undergraduate and graduate students share a universal decline in sleep hygiene in order to accomplish the work that their schooling requires. In addition to this, there is another type of undergraduate or graduate student that one can argue has a worse sleep schedule. This would be the students that are also participating in a school s Reserve Officer in Training Program (ROTC), where they balance a regular school load while fulfilling the duties of a future-commissioning US military officer. This project is intended to explore the current sleep habits of the students of the University of West Florida s Army ROTC program and develop ways to improve their sleep hygiene in order to better their overall health.

**Shenique Deninger Nursing**

***Acknowledging Depression and Mental Health Resources Among AFROTC Students***

**Co-Author(s): Emily Mitchell, Brianna Wilson, Erik Morrozoff, Nnanda Allick,**

**Dominic Erie**

**Session: Main Poster Session**

**Session Time: 1 p.m.-2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m.-2 p.m.**

**Poster # 25**

**Daniella Dous**

**Nursing**

***The Importance and Value of Needs Assessments for Educational Institutions***

**Co-Author(s): Noah Simpson, Angela Blackburn, Jacqueline Thomas**

**Faculty Mentor(s): Karen White-Trevino**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #20**

A needs assessment involves systematically examining the gap between an organization's current and desired state and the factors contributing to that gap. Assessing needs is a crucial first step in improving the effectiveness of education investments (Cuiccio & Husby Slater, 2018). To better support nursing students working in complex healthcare environments where they treat traumatized patients, the authors are conducting a needs assessment at the University of West Florida to identify implementation and gaps in trauma-informed care in higher education. The authors reviewed the existing literature surrounding the concept of performing a needs assessment for trauma-informed care within the context of nursing using structured search strategies. Several medical research databases were used, and multiple search terms of variations of 'needs assessment for trauma-informed care education' were applied during the literature review search. The authors will discuss evidence that supports conducting a needs assessment in educational institutions, best practices for conducting a needs assessment, and how to perform a needs assessment. Resource: Cuiccio, C., & Husby-Slater, M. (2018, May). Needs assessment development module 5: facilitator's guide. Retrieved from <https://oese.ed.gov/files/2020/10/na-mod-5-facilguide-508.pdf>

**Jacob Harger**

**Nursing**

***Knowledge of Stress Coping Mechanisms in Panhellenic Sororities at UWF***

**Co-Author(s): Valeria Caraballo Quiñones, Madison Crotts, Karla Gallegos, Alexis Grove, Angelina Shannon**

**Faculty Mentor(s): Tina Barbour-Taylor**

**Session: Main Poster Session**

**Session Time: 1 p.m. - 2 p.m.**

**Location: Conf Room AB**

**Presentation Time: 1 p.m. - 2 p.m.**

**Poster #20**

The purpose of this abstract is to evaluate the effective and ineffective coping mechanisms of stress practiced by University of West Florida students particularly UWF Panhellenic sororities. Our goal was to improve the overall knowledge of effective stress coping mechanisms in UWF Panhellenic Sororities by 15%. We studied stress as a mental, emotional, or tension state resulting from adverse or demanding circumstances (i.e school, financial stress, work related stress/environment, relationship tension, etc ). Our research displays the level of education a student may or may not possess regarding proper coping mechanisms of stress before and after the embedded education videos. We started off by examining stress coping mechanisms currently being used via google survey reaching approximately 50 students. We asked these students to rate their level of stress as a result of outside obligations such as school/work demands, family life, financial stress, extracurricular activities and how likely they were to participate in healthy vs. unhealthy coping mechanisms. Through research we deemed effective coping mechanisms as dealing with stress through listening to music, exercise, medication, reading, positive self-talk, therapy or counseling, journaling, arts and crafts, socializing with friends, and planning ahead. On the flip side you can observe ineffective coping mechanisms

such as: partying, smoking or use of substances, shopping, sleeping, binge eating, procrastinating, social isolation, anger outbursts, avoiding conflict, and negative self-talk. After performing our research we concluded that nearly half of our data population, approximately 13% rated their knowledge on stress management a nine or above out of ten. It then goes on to showcase two educational videos discussing effective coping mechanisms and finally collects a post-video knowledge survey to see if our education on effective coping mechanisms improved. Finally we are able to observe that over 55% of participants rated their knowledge of stress management a nine or above out of ten.

**Keara Quijano**

**Nursing**

***The Impact of 12 Weeks of Adapted Dance on Balance, Gait, and Lower Extremity Function Among Persons with Dementia***

**Co-Author(s): Rodney Guttman**

**Faculty Mentor(s): Crystal Bennett**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #21**

Person s living with dementia commonly experience difficulty with mobility. Difficulties with these activities can lead to an increased fall risk, resulting in an increased loss of independence. Dance engages various parts of the brain including the cerebellum that is primarily involved in coordinating balance, posture, body positioning, and voluntary movement. An aim of this study was to assess whether 12 weeks of adapted dance improves balance, usual walking speed, and lower extremity function among persons living with dementia. An experimental design was used to randomly assign persons with dementia to either a 12-week adapted dance or social stimulation group. The convenience sample consisted of 12 participants, ages ranging from 62-97 years. The adapted dance is low impact where one foot is always in contact with the floor and is appropriate for older adults with cognitive and physical limitations. At baseline and at 12 weeks, measures of balance, gait, and lower extremity function were assessed. From baseline to posttest, the dance group had greater increased times for maintaining tandem balance (+47.5%) and faster times for usual gait speeds (+15.1%); compared with the social stimulation group tandem balance time (+0.98%) and usual gait speed times (+10.5%). A limitation of this study is the small sample size.

**Kyle Roberson**

**Nursing**

***Substance Abuse***

**Co-Author(s): Catalina Carausu, Josh Servo**

**Faculty Mentor(s): Jake Bush**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #19**

Mental Health symposium abstract The purpose of this project is to spread awareness of the substance abuse issue in the community. Substance abuse is a disease and the consequences of it are profound and, most of the time,

devastating. The distress is incalculable in estimating the psychological damage and trauma that follow these patients. There are millions of individuals in the United States that suffer from any type of substance abuse and most of them are living in an unfavorable environment. As a nurse, it is essential to start with being familiar with the risk factors (like genetic predisposition or trauma) and recognizing the signs and symptoms (like poor judgment, changes in appetite, or unexplained need for money) of substance abuse. Furthermore, the patients need to be guided toward identifying the correct coping mechanisms and coping resources to decrease their stress levels and become resilient. Coping strategies should be used at any time and using them regularly can help prevent some stress from happening in the first place. These patients are prone to extensive social, psychological, educational, medical, and future socio-economical struggles. The treatment and solutions for them must include intensive counseling and programs focused on healing these traumatic events to safeguard their future well-being, independence, and self-efficacy. If not helped, these patients often carry their sadness and insecurities until the end of their life. Integrating prevention, treatment, and recovery services into the community healthcare system will increase access to care, improve the quality of services, and generate favorable outcomes for countless patients. Authors: Catalina Carasu Mcc60@students.uwf.edu, Josh Servo jrs166@students.uwf.edu, Kyle Roberson kwr9@students.uwf.edu Faculty mentor: Dr. Bush, Jake Department of Nursing jbush@uwf.edu

**Anonymous Undergrad**  
**Decreasing Overdoses**

**Nursing**

**Co-Author(s):** Samantha Whitaker, Selak Kohn, Kamryn Wright, Rachel Durfee, Mckenzie Lanza

**Faculty Mentor(s):** Tina Barbour-Taylor

**Session:** Main Poster Session

**Session Time:** 1 p.m. - 2 p.m.

**Location:** Conf Room AB

**Presentation Time:** 1 p.m. - 2 p.m.

**Poster #22**

Our goal is to decrease overdose in Escambia County. Escambia County has had 2,485 drug overdoses in this last year. Naloxone, also known as Narcan, is an opioid antagonist that is utilized to reverse the effects of drug overdose. To create our plan, we reviewed the number of times Naloxone has been administered out of the 2,485 overdoses. It was found that Naloxone was only used 745 times. To decrease the number of overdoses, we researched the accessibility of Naloxone. It was found that it is readily available and accessible at CVS and Walgreens pharmacies nationwide. Our plan is to educate Escambia County residents to ensure their knowledge of this drug access to decrease the chances of a fatal overdose. Reflecting on this plan, it is vital for Escambia residents to have this medication on hand to decrease the effects of an overdose, prior to EMS arriving. To promote this education, we will be contacting local news station and newspapers in Escambia County, to share this information with residents. Our hope and desire are to decrease the number of fatal overdoses in Escambia County, through higher usage Naloxone.

**Jill Van Der Like**

**Nursing**

**Let's Go to the Library: Rethinking Learning Outcomes to Promote Self-Accountability in Undergraduate Nursing Students**

**Co-Author(s):** Tina Barbour-Taylor, Jake Bush, Lindsay Jusino, Jennifer Richter, Janet Fuller

**Session:** Virtual Presentation

**Session Time:** N/A

**Location:** Gather Town

**Presentation Time:** N/A

**Poster #VIRT-7-NURS**

Nurse Educators strive to inspire students with self-accountability in lifelong learning. As we move into post-pandemic times facing a serious nursing shortage, graduates need to be resilient and driven to function in the complex healthcare environment. Simulation has been pivotal in nursing education, and the training offers evidence-based opportunities for self-evaluation of competencies. The School of Nursing Simulation Task Force is collaborating with the John C. Pace Library Staff to promote the use of immersive virtual reality, and Oculus headsets will be available for check-out. Students will receive instructions on the use of virtual reality headsets, and engage in select simulated healthcare environments as directed by faculty to promote nursing skills such as time management and patient assessment. Academic quality improvement data will be gathered from the virtual training platform, student perceptions, and faculty feedback. The Simulation Task Force will also examine the effectiveness of cataloging emerging technology resources for undergraduate nursing students.

**Sarah Welch**

**Nursing**

**Nutritional Knowledge in College Students**

**Co-Author(s):** Sabrina Farrell, Marisa Landeros, Roe Guzzetta, Sarah Wright, Lauren Moore

**Faculty Mentor(s):** Tina Barbour-Taylor

**Session:** Main Poster Session

**Session Time:** 1 p.m. - 2 p.m.

**Location:** Conf Room AB

**Presentation Time:** 1 p.m. - 2 p.m.

**Poster #21**

Focus: The focus of our project was to address insufficient knowledge regarding the main food groups and portion control. We chose to conduct our research on the Spring 2024 Nursing Cohort. Methods and Findings: In order to address the issue we created a pre-quiz to assess what the participants' knowledge level was before they read the educational module we created. After reading the educational module, the participants took a post-quiz so we could evaluate if our educational materials were understood and retained. We had 12 participants out of 55 students in the cohort. For the majority of the questions, a greater percent of participants answered the post-quiz correctly. While this wasn't true for all of the questions, 100% of the participants answered that they had learned from the education module. Conclusion: The findings we discovered after conducting the survey among the Spring 2024 Nursing Cohort gave us an idea of their knowledge of nutritious foods. While only a small percentage of students participated, nutritional knowledge is important because having a healthy diet can help an individual physically and mentally. Consumption of high quality, nutrient dense food affects the health of body systems such as the gastrointestinal and cardiovascular systems, and also brain functioning. Diets high in refined sugars are correlated with impaired brain function and worsening of mood disorder symptoms, such as

depression. Nursing students are generally under a lot of stress and a nutritious diet is just one step they can take to protect their physical and mental health.

**Sarah Wright**

**Nursing**

***Complementary and Alternative Medicine and Self-Care Methods for Mental Health***

**Co-Author(s): Sabrina Farrell, Marisa Landeros, Roe Guzzetta, Sarah Welch, Lauren Moore**

**Faculty Mentor(s): Jake Bush**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #18**

Complementary and alternative medicine (CAM) is the term for medical products and practices that are not part of conventional medicine. Self-care is the practice of allotting time for yourself to do activities that are beneficial for your physical health, mental health, and general well-being. We researched different types of common CAM and self-care practices such as acupuncture, chiropractic care, biofeedback, deep-breathing techniques, exercise, and nutrition. With this resource we hope that readers will be able to incorporate these methods into their daily routine to help manage stress, lower their risk for disease, and improve mood and energy. The poster also provides community resources for a variety of mental health needs.

## DEPARTMENT OF PSYCHOLOGY

**Margo Eaddy**

**Psychology**

***Effects of Color/Intensity on the Flash Visual Evoked Potential P2***

**Co-Author(s): Brooke Simila, Crystal Meyer, Aaron Wade**

**Faculty Mentor(s): Jim Arruda**

**Session: Main Oral Presenters**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Center Lounge**

**Presentation Time: 11 a.m. - 11:15 a.m.**

A need exists for early detection of Alzheimer's dementia (AD). Previous studies conducted by Coburn et al. (2005) and Arruda et al. (2021) and a recent literature review conducted by Arruda et al. (2020) revealed that the flash-evoked potential (FVEP-P2) may be a viable non-invasive biomarker for detection of AD. The purpose of the study is to investigate FVEP-P2, particularly to see if FVEP-P2 amplitude is measuring color or luminance. Ten healthy college students (8 female and 2 males) aged 19 - 56 (M=26.6) participated in the study. Each participant experienced five blocks of 100 strobe flashes under two light conditions (blue filtered light and polychromatic white light) with their eyes closed. The FVEP-P2 associated with each trial was identified and the latency and amplitude of each component was calculated. The results of a two-way repeated measures analysis of variance revealed statistically significant differences in the interaction effect involving color and intensity. Simple main effects tests revealed significant difference between FVEP-P2 amplitudes of the blue and white light at each level

of intensity, with the differences declining with increased intensity. The results suggest that for white light, there was a ceiling effect at light intensity level 1. Therefore, for white light, increasing intensity level did not increase FVEP-P2 amplitude. For blue-filtered light, which is less intense than the unfiltered white light, the ceiling effect did not come into play, and with increasing intensity, the FVEP-P2 amplitude did increase. This suggests FVEP-P2 is a luminance channel.

**Lanae Arena**

**Psychology**

***Politics piety and personality: What individual factors predict Covid compliance?***

**Co-Author(s): Mikaela Aiken**

**Faculty Mentor(s): Steven Kass**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #31**

In light of the Covid-19 pandemic, governments around the world have taken measures to control the spread of the virus, including mask-wearing, social distancing, and lockdowns. Compliance with these regulations has been high when mandated, but compliance rates have varied when regulations are no longer required. To understand the predictors of voluntary compliance with Covid-19 restrictions, our study analyzed compliance behaviors, personality attributes, personal beliefs and affiliations, and demographic factors of 160 participants. Defining compliance behaviors as mask-wearing, social distancing frequency, and vaccination status, these outcomes were analyzed through the lens of the influencing personality and belief variables. Our domains for analysis are based on existing research that supports the following variables as potential indicators of compliance: belief in conspiracy, political affiliation, perception of government suppression of religious freedoms, and personality traits such as the Big Five and narcissism (Park et al., 2020). Our preliminary analysis found that compliance with mask-wearing was positively correlated with agreeableness and imaginative intelligence, while negatively correlated with narcissism. Compliance with social distancing was positively correlated with imaginative intelligence and negatively correlated with extraversion. However, no significant correlations were identified among personality factors and vaccination status. A full analysis of the data gathered from this study will lend a better understanding of human behavior to inform the creation of effective preventative strategies and educational promotion to best prepare for future crises. This study contributes to the body of research to fill the gap between what is known about individual behaviors in reaction to Covid regulations. References Park, C., Russell, B., Fendrich, M., Finkelstein-Fox, L., Hutchinson, & M., Becker, J. (2020, May 29). Americans' COVID-19 Stress, Coping, and Adherence to CDC Guidelines, 25(4), 957-980. US National Library of Medicine National Institutes of Health. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7259430/>

**Lanae Arena**

**Psychology**

***ASD in the classroom: The faculty perspective***

**Co-Author(s): Brooke Wagner**

**Faculty Mentor(s): Jane Halonen**

**Session: Main Poster Session****Session Time: 12 p.m. - 1 p.m.****Location: Conf Room AB****Presentation Time: 12 p.m. - 1 p.m.****Poster #28**

ASD in the classroom: The faculty perspective This mixed-methods study examines the concerns of 101 faculty members at the University of West Florida when teaching students with Autism Spectrum Disorder (ASD). Our aim is to identify strategies that improve faculty's ability to manage challenges related to teaching students with ASD, as well as address the gap between faculty needs and their level of comfort and competency for this population. Our study found that 77% of faculty members surveyed would not feel intimidated teaching a classroom including students with ASD. However, 50% of the participants reported not being well-informed about high-impact teaching practices for students on the autism spectrum. As 61% of participants reported an upward trend of the ASD student population, this finding highlights the need to assess the current state of faculty comfortability with teaching students on the spectrum. The research identified some of the most common behaviors seen among students with ASD, primarily difficulty with social cues, classroom disruption, needing extra time, and problems following instructions. To address these concerns, we provided a summary of the insights gained from faculty members and the research on managing these challenges successfully. By doing so, we aim to create an inclusive learning environment that values neurodiversity and ensures high-impact learning for students with different abilities. Our study supports the University of West Florida's institutional mission of inclusion while providing faculty members with the necessary strategies to effectively teach students with ASD, thereby improving their overall quality of education.

**Eden Belanger****Psychology*****Sensory Processing and Executive Functioning in the University Environment*****Faculty Mentor(s): Vanessa Rainey****Session: Main Poster Session****Session Time: 2 p.m. - 3 p.m.****Location: Conf Room AB****Presentation Time: 2 p.m. - 3 p.m.****Poster #25**

Sensory processing disorder may be defined as the inability to process sensory stimuli in a typical manner (e.g. hyperfixation on the rattling of pipes in the walls). Individuals with Autism Spectrum Disorder (ASD) and Attention Deficit/Hyperactivity Disorder (ADHD) commonly experience sensory processing issues which can negatively impact their college experience. As more individuals with such difficulties enter the college environment, research is needed to examine the impact of the classroom environment upon these vulnerable groups. As such, this research seeks to explore this subject through the administration of a newly designed Classroom Sensory Processing Survey (CSPS), the existing Adult Sensory Profile (ASP), and the existing Comprehensive Executive Function Inventory (CEFI). The ASP is a survey designed to assess an individual's sensory processing in the broad environment, breaking it down into Taste and Smell, Touch, Activity Level, and Auditory processing categories. The purpose of the current research is to understand how these categories will correlate with our newly designed CSPS, which extends the sensory

categories specifically to the classroom environment. By doing this, we hope to novelly expand how accommodations for students with these needs are determined and designed. Additionally, we hope to expand current knowledge on how students such as these function on a day to day basis in the college classroom.

**Sydney Brown****Psychology*****Assessing Calling and Sense of Purpose as Two Pathways Leading to Organizational Citizenship Behavior*****Co-Author(s): Emma Harrington****Faculty Mentor(s): Sherry Schneider****Session: Main Poster Session****Session Time: 10 a.m. - 11 a.m.****Location: Conf Room AB****Presentation Time: 10 a.m. - 11 a.m.****Poster #33**

Past research has provided the social and industrial/organizational psychology field with conflicting ideas on whether having a calling and/or a sense of purpose are related to autonomous sacrificial work (Martela & Pessi, 2018), organizational citizenship behavior in paid work (Podsakoff, et al., 2009), and willingness to volunteer in nonprofit organizations (Dwyer, et al., 2013). The Sense of Purpose Scale (Sharma et al., 2018) and the Unified Multidimensional Calling Scale (UMCS; Gerdel et al., 2022) have both been used to measure sources of meaningful work; however, there has not been distinctive research differentiating between sense of purpose and calling. Through review of the literature, we propose a theoretical framework review that suggests that the two are correlated, but differing latent constructs. We hypothesize that the effects of extrinsic motivation on autonomous sacrificial work is mediated by having a sense of purpose, and organizational identity and transformational leadership both enhance this process (Tian, et al., 2020). Furthermore, we believe that intrinsic motivation is mediated through having a calling, which is strengthened through spiritual commitment and servant leadership (Gorsuch & McPherson, 1989; Kim, et al., 2023). Through a mediated moderation model, two pathways have been identified as processes to further explain these claims.

**Jenae Burkart****Psychology*****Faculty and Student Collaborative Intensive Writing Using Google Assignments*****Session: Virtual Presentation****Session Time: N/A****Location: Gather Town****Presentation Time: N/A****Poster #VIRT-6-PSYCH**

Collaborative writing between faculty and students builds student confidence while promoting creativity and brainstorming. Weaknesses in grammar, spelling, punctuation, word choice, and writing skills can be supported as students utilize each other's strengths. Faculty and peer review also prepares students for real-world employment. This presentation will provide an overview of an intensive and collaborative writing assignment in the cornerstone course, Professional Development in Psychology. The assignment includes writing across time, promotes student ownership, incorporates real-world experience, reduces plagiarism, and provides substantive interactions, input, and feedback from

faculty and peers. This high impact assignment utilizes Google Assignments, a new integration tool in Canvas that allows collaborative writing and support across time without requiring multiple assignment versions. Intensive and collaborative writing is highly beneficial for students and can be implemented across disciplines and teaching and learning modalities.

**Kalob Cooper**

***ASD in the Classroom: The Student Perspective***

**Co-Author(s): Angie Fair**

**Faculty Mentor(s): Jane Halonen**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #29**

This study aimed to explore the experiences of college students with autism spectrum disorder (ASD) who are registered with student accessibility resources (SAR) at the University of West Florida. Through the use of surveys, students with ASD shared information about their academic and social challenges. They were also able to provide information about the resources that they had been using in college and any additional resources that they believed would be beneficial for their academic success. The goal of the project was to gain insight into their experiences to identify and address the challenges that students with ASD face in the college classroom, such as their difficulties in participating effectively and overall academic performance. The results revealed that students face a range of challenges, including their ability to communicate with others and their professors, as well as the need for a structured routine in their daily lives and clarity of instructions in the classroom. The students also voiced their need to be viewed as unique individuals with their own independent needs. Overall, the findings highlight the challenges that college students with ASD face, emphasizes the need for a more personalized approach to support their academic success, and provides a valuable foundation for further research on the development of resources that would improve their social and academic experiences.

**Olivia Cutshaw**

***Are Social Support and Child Care Attendance Associated with Maternal Parenting Stress?***

**Faculty Mentor(s): Kimberly Day**

**Session: Virtual Presentation**

**Session Time: N/A**

**Location: Gather Town**

**Presentation Time: N/A**

**Poster #VIRT-11-PSYCH**

Parenting stress describes unique stressors and demands related to one's role as a parent and has repeatedly been linked to poorer emotional well-being in mothers (Abidin, 1995; Skreden, 2012). Social support from family and friends has been found to buffer maternal stress (Racine et al., 2019) and previous research suggests child care may serve as an additional source of social support for families with preschool-aged children (Howard, 2010). As such, the goal of the present study was to examine preschool mothers' stress in the

**Psychology**

context of two potential forms of support: social support and non-parental child care. Participants were 72 mothers of children ages 3 to 5 years old who reported on their parenting stress (Abidin, 1995), social support (Zimet et al., 1990), and indicated whether or not their child was enrolled in childcare. It was hypothesized that social support and child care attendance would be negatively related to parenting stress. Multiple linear regression indicated that the model was statistically significant ( $p = .001$ ) and accounted for 15.3% of the variance in parenting stress. Child care was not a significant predictor of parenting stress, while social support significantly and negatively predicted parenting stress. As hypothesized, the results of the current study suggest that mothers with higher levels of social support experienced lower levels of parenting stress. However, child care did not significantly predict parenting stress. Future longitudinal research should investigate the roles of social support and childcare in predicting parenting stress during the preschool years.

**Michael Martin**

***Does Adaptively Adding Flashcards to Study Improve Learning Outcomes?***

**Co-Author(s): Adelei Carmichael, Brooke Simila**

**Faculty Mentor(s): Lisa Blalock**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #22**

Often students underutilize flashcards when learning by dropping flashcards from the deck when they feel they have mastered the concept. However, prior research shows that dropping flashcards is problematic. Therefore, we designed our study to look at how adaptively adding flashcards based on objective mastery criteria would improve learning outcomes. We hypothesized that students who adaptively added flashcards to the deck would have better learning outcomes than those who did not. In our task, undergraduate participants learned to identify 12 butterfly species using two adaptive mastery conditions: a no add/drop group (consistent items remain in the deck), and a mastery add group (after three items are mastered, more categories are added). The procedure included a pre-test, study time with butterfly species in a flashcard task, and a post and transfer test. After a week, participants took a delayed post and transfer test with a WM capacity measure. Data collection is ongoing. Our results will provide valuable insights for students and instructors on how to best study using flashcards.

**James Pimentel**

***Assessing UWF Students with Sensory Issues and Obstacles to Learning in the Classroom***

**Co-Author(s): Eden Belanger, Kayleigh Roberson**

**Faculty Mentor(s): Vanessa Rainey**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #32**

**Psychology**

**Psychology**



College students with sensory issues, particularly with autism spectrum disorder, or attention deficit hyperactivity disorder (ADHD), are greater challenged in the classroom environment. This study will be identifying sensory issues that are not usually discussed in the classroom or with accommodations. Our hypothesis is that there is a positive correlation between sensory issues in the environment, increased distractions, and obstacles to learning in the classroom. Our methodology includes a survey that assesses sensory issues in the classroom and in general. We also collected data on executive functions that help to control attention skills. We are now analyzing the data to examine these correlations and understand the basic demographics of students at UWF. This study will present basic demographics on different sensory profiles, as assessed through the Adolescent / Adult Sensory Profile (i.e., Low Responsivity, Sensation Seeking, Sensory Sensitivity, and Sensation Avoiding). We will then examine correlations between executive functions and learning challenges.

**Julie Riser** **Psychology**

***Thinking On It: The Indirect Effects of Personality on Rumination Through Social Media Over-Engagement***

**Faculty Mentor(s): April Schantz**

**Session: Main Poster Session**

**Session Time: 12 p.m. - 1 p.m.**

**Location: Conf Room AB**

**Presentation Time: 12 p.m. - 1 p.m.**

**Poster #30**

Social media has become the new norm for the mode of contact across the globe. With this ability at our fingertips, we, as a social group, can take in much more information than ever before. Instant accessibility is integral to our society's psychological perceptions of current events and allows us to share those perceptions with our peer groups. This social vehicle allows individuals to ruminate on everyday social media content. Rumination is the propensity to dwell on sources of stress, unchangeable situational factors, or even stressful events (Parris et al., 2022). In our highly connected society, rumination no longer stops with ourselves, but continues through excessive discussions of stressful, situational factors and events with one's peer groups, referred to as co-rumination (Davila et al., 2011). Tense discussions within social groups lend themselves to negative emotional focuses and, potentially, increased depressive and anxiety symptoms (Davila et al., 2011). Personality factors (e.g., extraversion and neuroticism) have been found related to depression and anxiety (Naragon-Gainey et al., 2014), and therefore more inclined to influence rumination and co-rumination. This study aims to identify relationships between personality traits and rumination and co-rumination, through over-engagement in social media.

**Julie Riser** **Psychology**

***Strike a pose: The Postural Relation Between Power Posing and Pseudoscience***

**Faculty Mentor(s): Jane Halonen**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #24**

In 2010, psychologist Amy Cuddy made claims about the correlation between power posing and the neuroendocrine response, specifically the hormones cortisol and testosterone (Carney et al., 2010). Also known as postural feedback, power posing consists of high (i.e., head held high, chest out, with arms on hips and feet broad set) and low (i.e., a more contracted and closed-off pose with crossed arms and legs) postures. Cuddy's research shows that individuals can assume these forms and convey intention and prowess to themselves and others (Carney et al., 2015). Since the original publication and the movement's magnification, similar studies were conducted with varied findings compared to Cuddy's. This paper explores the scientific reasoning behind this inability to replicate findings as those Cuddy found. My secondary aim is to see if the inability to replicate Cuddy's work correlates with the concepts of pseudoscience. This research has two objectives. The first is to find the possible origin of postural feedback and how Cuddy's idea of power posing was created. I will explore this by evaluating ideas that educational experiences (i.e., modeling and classical conditioning) have primed us to associate these poses with authority. The secondary aim is to find if it is possible to build upon the structure Amy Cuddy created via the Power-Posing Movement to validate any further use of the practice.

**Kayleigh Roberson** **Psychology**

***Learning Tools and Parental Acceptance Contributions to Language Development in Low SES Homes***

**Faculty Mentor(s): Vanessa Rainey**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #30**

The current project is a literature review that will discuss the impact of learning tools in the home versus parental warmth on language development in low socioeconomic (SES) families. Since the well discussed 30 million word gap study (Hart & Risley, 1995) was first published, researchers have done much investigating to figure out how to resolve, or at least shrink, this robust gap. According to Hart and Risley's findings, children from higher SES homes hear 30 million words more than their peers in low SES families by the time they are three years old. At first glance, it would seem that lack of resources would be the main contributing factor to this gap, but recent studies counteract this assumption, pointing to the influence of parent-child interactions in the home. For example, a study in our lab (Rainey et al., under review) found that higher acceptance expressed by the parents helped to explain decreases in language skills in different socioeconomic levels, even more so than the learning tool availability for the children. This directs interventions in lower SES homes to focus on interactions, rather than material availability. The current proposal will examine past research, the current directions, and will propose future directions for the field.

**April Schantz** **Psychology**

***HIP Barriers Project***

**Co-Author(s): Nelson Kowu**

**Session: Faculty HIP Showcase**

**Session Time: 8 a.m. - 9 a.m.**

**Location: Zoom**

**Presentation Time: 8:15 a.m. - 8:30 a.m.**

What challenges must today's students overcome to access high-impact opportunities? This study provides an institutional-wide collection of student perspectives regarding opportunities taken or missed. Goals of the study are to identify barriers to student participation in high-impact practices (HIPs) and guide initiatives to promote inclusion and engagement. While the National Survey of Student Engagement (NSSE) has provided a means to assess student engagement in HIPs, to truly leverage NSSE results we need a more detailed inquiry of our students and the barriers they face when attempting to engage in HIPs. Therefore, this study assesses student engagement at college- and department-level to provide a detailed perspective to the institutional-level results received from NSSE. Specifically, items from the NSSE administration are included on the Qualtrics survey to provide comparisons between department/college level results with university-level results provided by NSSE. The HIP Barriers Project is currently in data collection. Methods and preliminary descriptive results will be discussed at the Faculty HIP Showcase event. Keywords : assessment of high-impact practices, student engagement, barriers to engagement

**Zoanne Stanton**

**Psychology**

***Does Priming Death and Immortality Change Attitudes Towards Organ Donation?***

**Faculty Mentor(s): Sherry Schneider**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #12**

According to Terror Management Theory (TMT) research, death salience increases prosocial behavior (Jonas et al., 2002; Zaleskiewicz et al., 2015). TMT argues death salience causes unconscious defense of one's worldview in response to negative feelings (Greenberg et al., 1986). Hirschberger et al. (2008) concluded that a death cue was not sufficient in provoking prosocial behaviors that involve personal vulnerability. Becoming an organ donor may force an individual to face their own death and thus prompt anxiety and avoidance. However, Jain and Ellithorpe (2016) found becoming an organ donor may give a sense of symbolic immortality, a goal people naturally pursue. Intentions and attitudes towards organ donation were studied using a 2 (death prime, neutral prime) x 2 (immortality prime, neutral prime) between-subjects ANOVA design. We hypothesized participants receiving both death and symbolic immortality primes would report greater intentions to donate and more positive attitudes towards donation. Other possible variables affecting donation such as medical distrust, body unity, and religiosity (Dervis, 2015) were also explored. We primed death using an established procedure from TMT (e.g., Greenberg et al., 1986) and created a new immortality prime based on content coding 400 responses to death and symbolic immortality primes used in a previous study. Data will be collected 400 respondents using the Prolific system for recruitment. While these studies are theoretically interesting, they are also of practical import. In the U.S., 20 people a day die waiting for an organ transplant (U.S. Department of Health and Human Services, 2019).

**Kat Svenson**

**Psychology**

***Virtual Reality Sensory Immersion: The impact of olfaction on stress, mood, and memory***

**Faculty Mentor(s): Steven Kass**

**Session: Main Poster Session**

**Session Time: 2 p.m. - 3 p.m.**

**Location: Conf Room AB**

**Presentation Time: 2 p.m. - 3 p.m.**

**Poster #23**

This study assesses whether adding olfactory stimuli to a virtual reality environment impacts immersion, stress, or mood. The current study hypothesizes that (1) memory retrieval is most accurate when the participant is presented with an olfactory stimulus that is congruent with the audio and visual cues associated with the VR experience compared to control (no olfaction), but memory retrieval is less accurate than control when a non-congruent olfactory stimulus is introduced; (2) when presented with an uplifting VR experience, positive affect is increased when a congruent olfactory stimulus is added compared to control (no olfaction) but is not affected by non-congruent olfactory stimuli, and (3) when presented with a relaxing VR experience, stress levels are reduced when a congruent olfactory stimulus is added compared to control (no olfaction) but is not affected by non-congruent olfactory stimuli. This study aims to build onto the existing body of research related to human psychological and physiological factors and virtual reality technology, particularly with consideration into therapeutic applications.

## OTHER PROGRAMS



### CENTER FOR BEHAVIORAL ANALYSIS

**Bailey Burk**

**Center for Behavior Analysis**

***The Effects of Immediate Visual Feedback on Average Speed Performance in Indoor Cycling***

**Faculty Mentor(s): Mary Reagan**

**Session: Main Poster Session**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Room AB**

**Presentation Time: 11 a.m. - 12 p.m.**

**Poster #10**

Formative feedback has played a fundamental role for learners in successful skill acquisition (Fayyadh, et al., 2017). Many studies focused on the frequency and structure of performance feedback delivery, suggesting that real-time immediate feedback has the potential to lead to positive effects on learning (Fayyadh, et al., 2017). However, more recent studies have suggested that performance-linked visual feedback systems may slow response times during specific tasks, such

as while maintaining required tempo and synchronization during metronome sequences (Chen, Repp, & Patel, 2022). This study focuses on the total presence or absence of immediate visual performance feedback and the impacts it has on individuals average revolutions per minute during an indoor cycling class. The purpose of the present investigation is to extend current research on performance outcomes by directly examining the effects of immediate visual performance feedback on average revolutions exercised per minute in a 45-minute indoor cycling class. It is predicted that classes taught with immediate visual performance feedback provided through a monitor screen will lead to lower overall average speed rates than classes taught while omitting total access to bike monitor functions during class.

**Maggie Helton** **Center for Behavior Analysis**  
***Implementing an Intervention to Improve Interview Responses in College Students Diagnosed with Autism Spectrum Disorder***  
**Co-Author(s): Bailey Burk**  
**Faculty Mentor(s): Mary Reagan**  
**Session: Main Poster Session**  
**Session Time: 11 a.m. – 12 p.m.**  
**Location: Conf Room AB**  
**Presentation Time: 11 a.m. – 12 p.m.**  
**Poster #11**

As of 2018, 1 in 44 children will be diagnosed with autism spectrum disorder (ASD) by the time they are 8 years old (Center for Disease Control and Prevention, [CDC], 2018). As these children mature and transition into adulthood, they are faced with the challenges of entering the workforce. The ASD population represents one of the lowest rates of employment among all disability groups. Only 55.1% of young adults with ASD have held paid employment in the six years following high school graduation (Cameto, et al., 2004). Seeking employment often includes a job interview. This interview process can prove to be a barrier for people with ASD due to social skill deficits (Zaboski, & Storch, 2018). This study investigates the effectiveness of the Big Interview's written curriculum and answer builder module, accessed through an online system, to improve interview performance in a recorded virtual interview setting. The purpose of this study is to improve interview response quality in college students diagnosed with ASD by decreasing the response latency and frequency of filler words. Results will be discussed as well as implications for future research to reduce the challenges of obtaining employment for young adults with ASD.

**Alex Ingebritson** **Center for Behavior Analysis**  
***Social Media Publications: Ethical Violations of Stand-Alone Applied Behavior Analysis Autism Clinics Put Children's Safety at Risk***  
**Faculty Mentor(s): Sarah Kent**  
**Session: Main Oral Presenters**  
**Session Time: 9 a.m. – 10 a.m.**  
**Location: Nautilus Chamber**  
**Presentation Time: 9:15–9:30**

Updates to the 2022 Behavior Analysis Certification Board (BACB) Ethics Code for Behavior Analysts include differentiating between personal and professional social media accounts and specifying what social media content is permitted

for publication by behavior analysts. Section 5.10 of the ethics code requires for each publication, including images of their clients' faces, informed consent is obtained before publishing, and social media posts include a disclaimer stating informed consent was obtained, and the information should not be captured and reused without express permission (Behavior Analyst Certification Board, 2020). The present study aimed to review professional social media channels for stand-alone ABA clinics that treat children with autism spectrum disorder (ASD) that share images of their clients. In our review, we evaluated whether these clinics are compliant with the recent changes outlined in the ethics code. Using a convenience sampling for social media content analysis method, a search of publically-available professional social media channels of ninety-two clinics showed 14.13% of behavior analysts who post images of their adolescent clients on social media comply with ethics code 5.10. Autism clinics that violate this ethics code put the safety of their clients at risk. We recommend behavior analysts review their social media pages and notify their employers of ethical violations.

## KUGELMAN HONORS PROGRAM

**Alyssa Canlas** **Kugelman Honors**  
***Uncovering the Truth Behind the Vaccines and Autism Debate: The Empirical Stance***

**Faculty Mentor(s): Jane Halonen**  
**Session: Main Poster Session**  
**Session Time: 12 p.m. – 1 p.m.**  
**Location: Conf Room AB**  
**Presentation Time: 12 p.m. – 1 p.m.**  
**Poster #27**

This study examines the evidence regarding the perceived relationship between autism and vaccinations along with the reasoning behind what led individuals into believing that the measles, mumps, and rubella vaccines cause autism. I conducted a literature review to search for empirical data differentiating the opposition and support for the correlation, including why individuals believe in the phenomenon and which populations have strong beliefs. I concluded that there is no scientific evidence supporting a causal or even correlational link. Populations more inclined to believe in a causal link included individuals with a household income equal to or exceeding \$200,000, females who gave birth within 12-months of the survey, and males who attended college for one year. Individuals who believe in the phenomenon may not have the proper education on this topic due to the lack of appropriate information along with confirmation bias taking place as they want to look for information that confirms their own beliefs rather than looking for the evidence that is plausible. the negative portrayal of vaccines in the media increases the likelihood of individuals believing vaccines causing autism. Keywords : autism, vaccines, illusory correlation

**Rowan Freitas** **Kugelman Honors**  
***The State of Infertility and Its Future***  
**Faculty Mentor(s): Jill Van Der Like**  
**Session: Main Oral Presenters**

**Session Time: 9 a.m. - 10 a.m.**

**Location: Nautilus Chamber**

**Presentation Time: 9 a.m. - 9:15 a.m.**

Infertility is and will always be an issue. The steady rise of infertility has led to more infertility studies, new technologies, and public awareness. More people are seeking infertility treatment than ever before. Numerous factors can affect infertility and fall into three main categories, those being lifestyle, environmental causes, or genetics. Environmental factors include things like pollutants, pesticides/herbicides, and occupational exposures. Lifestyle factors that can contribute to infertility are cigarette smoke, obesity, and excessive alcoholic consumption. Genetics can directly or indirectly affect fertility, via chemical imbalance or physical abnormality. These topics have been researched, but few look at the application or how to largely benefit the community. The Center of Reproductive Medicine based in Mobile, AL was founded in 1993 and has since helped almost 10,000 babies be born. Given the education and experience the members have, they were interviewed on the topic of infertility and what they have seen in their practice. The aim is to directly compare the research articles to what is seen on the practical level on the Gulf Coast. Specifically, the effects of obesity, mental stress, and COVID-19 are discussed, as well as, the future possibilities in artificial intelligence, shed DNA testing, and more affordable care.

**Julie Riser**

**MAUS: Banned but Not Forgotten**

**Faculty Mentor(s): Jocelyn Evans**

**Session: Main Poster Session**

**Session Time: 10 a.m. - 11 a.m.**

**Location: Conf Room AB**

**Presentation Time: 10 a.m. - 11 a.m.**

**Poster #7**

MAUS, written and illustrated by Art Spiegelman, is a Pulitzer Prize-winning graphic novel about the Holocaust and Spiegelman's familial connection to this harrowing historical event. In early 2022, McMinn County, Tennessee, banned this book from its 8th-grade history course. Within days, MAUS skyrocketed to the top of the Amazon Best Sellers list and vanished from the shelves of physical and digital bookstores nationwide. At the height of this controversial decision, the Kugelman Honors Program implemented this graphic novel in the first-year honors experience. Through this High Impact Practice (HIP), I developed a course curriculum for the students in the freshman cohort (Core 1). The implementation of this program created a service opportunity for students in the freshman cohort to share copies of the book with our transfer-pathway partner, Pensacola State College. From this partnership, we were able to foster discussions outside of class at both institutions and share a wealth of knowledge about the text. This presentation reviews how I, paired with the UWF Kugelman Honors Program, capitalized on this opportunity to engage the entire honors program and field a discussion of the significant themes of MAUS and its censorship in Tennessee. The presentation also covers the partnership between UWF and PSC and how this common read engaged students across disciplines in critical discussion and community outreach efforts.

**Zoanne Stanton**

**Telling Hard Truths: Writing the History of Racial Violence in Escambia County,**

**Kugelman Honors**

**Kugelman Honors**

**Florida**

**Co-Author(s): Victoria Brobeck, Briley Krouse, Natalie Meigs, Elizabeth White**

**Faculty Mentor(s): Jamin Wells**

**Session: Main Oral Presenters**

**Session Time: 12:30 p.m. - 1:30 p.m.**

**Location: Nautilus Chamber**

**Presentation Time: 1:15 p.m. - 1:30 p.m.**

This presentation details the creation of an informational pamphlet about the history of racial violence in Escambia County, Florida. The pamphlet, produced in collaboration with the Escambia County Equal Justice Initiative, provides the first published history of the five brutal lynchings that took place in the county between 1899 and 1910. After situating these lynchings in the broader history of Pensacola and racial violence in the United States, the presentation will trace the collaborative, iterative process that led to the creation of the draft pamphlet. Presenters will highlight the ethical and evidentiary challenges of telling hard truths and debate the value of confronting difficult histories.

## THE ROBINSON HONORS PROGRAM AT PENSACOLA STATE COLLEGE

**Evamaria Castillo**

**Genome editing in Rice**

**Faculty Mentor(s): Melissa Sears**

**Session: Main Oral Presenters**

**Session Time: 9 a.m. - 10:30 a.m.**

**Location: Conf Center Lounge**

**Presentation Time: 9:15 a.m. - 9:30 a.m.**

This study explores how complex but advantageous editing the rice's genome goes from the nutritional aspect to the aesthetic aspect. The sources for this study are from the PSC databases. Results showed that by using CRISPR technology, mutating the rice's genome has made many improvements producing varieties of rice.

**PSC Biology**

**Ivy Crosby**

**Insects Vs Cordyceps**

**Faculty Mentor(s): Melissa Sears**

**Session: Main Oral Presenters**

**Session Time: 9 a.m. - 10:30 a.m.**

**Location: Conf Center Lounge**

**Presentation Time: 9:30 a.m. - 9:45 a.m.**

This study shows the relationship between insects and cordyceps and their impact.

**PSC Biology**

**Jackson Clyde**

**Cannabis and its impact on the opioid crisis**

**Faculty Mentor(s): Richard Carr**

**Session: Main Oral Presenters**

**Session Time: 11 a.m. - 12 p.m.**

**Location: Conf Center Lounge**

**Presentation Time: 11:30 a.m. - 11:45 a.m.**

**PSC Psychology**

The opioid epidemic is a public health crisis that is destroying communities. This study will examine the impact that cannabis has on preventing opioid overdoses and how it can help save people's lives in their community. This study will show how vital a role cannabis can be in reducing effects of the opioid crisis and in turn build a community stronger. Results show that states that have allowed medical cannabis have seen a decrease in opioid related overdoses by nearly twenty five percent. Both CBD (Cannabidiol) and THC (Tetrahydrocannabinol) can aid in reducing heroin and opioid seeking behavior. With the rise of medicinal and recreational marijuana in the past 10 years further investigation is required to determine how cannabis can be used to prevent opioid overdose.

**Zakari Covin**

**PSC Biology**

**Mold and It's Effects on Our Indoor Air Quality and Our Communities**

**Faculty Mentor(s): Melissa Sears**

**Session: Main Oral Presenters**

**Session Time: 1 p.m. - 2:30 p.m.**

**Location: Conf Center Lounge**

**Presentation Time: 2 p.m. - 2:15 p.m.**

This presentation focuses on the impact of mold on our indoor air quality and ultimately, our health. Sources for this study include the CDC, Medical Mycology published by Oxford University, and many other credible sources.

**Damien Cruikshank**

**PSC History**

**Empty Larders: The Tragedy of the Irish Potatoe Famine**

**Faculty Mentor(s): Brian Rucker**

**Session: Main Oral Presenters**

**Session Time: 12:30 p.m. - 1:30 p.m.**

**Location: Nautilus Chamber**

**Presentation Time: 1 p.m. - 1:15 p.m.**

The Irish potato famine of the 1840s was caused primarily by British colonialism and its associated policies, which had a severe and lasting negative impact on Ireland as a whole. The British imposed high taxes on agricultural products, including potatoes, which left many rural farmers without the resources to keep their crops alive. Additionally, Britain's control over Irish politics resulted in an oppressive system that denied basic rights to the Irish people. The growing poverty rates and bad governance led to widespread starvation, death, and displacement of over 2 million, a quarter of the contemporaneous Irish population. This dark period of history left lasting effects that are still felt over a century later in terms of inequality, political unrest, and ongoing economic hardship. This project analyzes the different aspects of this event from a historical, sociological, political, and economic standpoint using multiple secondary sources from literature and peer-reviewed research papers.

**Kevin Daugherty**

**PSC History**

**From Mexica to Mexico**

**Faculty Mentor(s): Brian Rucker**

**Session: Main Oral Presenters**

**Session Time: 12:15 p.m. - 1:45 p.m.**

**Location: Nautilus Chamber**

**Presentation Time: 12:15 p.m. - 12:30 p.m.**

This study looked into how indigenous people of Mexico have influenced the country to become what it is today. I pulled from many sources the various roles that indigenous people have played in the development of Mexico.

Throughout this research, it becomes clearer that Mexico is a beautiful blend of many cultures, although that doesn't mean these cultures were always friendly. Even though the story may be tragic, Mexico has united into a truly unique and strong culture and people unlike any other on Earth. Theoretical and practical implications are discussed.

**Morgan Joiner PSC Sociology**

**Gaming Communities: Why Diversity is Important**

**Faculty Mentor(s): Richard Carr**

**Session: Main Oral Presenters**

**Session Time: 11 a.m. - 12:30 p.m.**

**Location: Conference Center Lounge**

**Presentation Time: 12 p.m. - 12:15 p.m.**

This presentation focuses on the impact that the diversification of gamers in recent years has had on the community. Certain demographic groups have been the majority of the gaming community for years, but players from many different backgrounds have recently been joining the gaming community in droves. This has led to the introduction of diverse characters, but also friction between groups. We will explore the impact this change has had on the gaming community and technology.

**Rachel King**

**PSC Literature**

**Homelessness in "The Outcasts of Poker Flat"**

**Faculty Mentor(s): Lauren Baugus**

**Session: Main Oral Presenters**

**Session Time: 9 a.m. - 10:15 a.m.**

**Location: Nautilus Chamber**

**Presentation Time: 10 a.m. - 10:15 a.m.**

This is a study of connections between characters in "The Outcasts of Poker Flat" by Bret Harte and real-life people experiencing homelessness in the Pensacola area. Information presented was found in articles from the PSC library database as well as gathered from interviews with people experiencing homelessness in Pensacola. Results of the study show that there are similarities between the outcast characters in Bret Harte's short story and people experiencing homelessness in real-life.

**Rachel King**

**PSC Biology**

**Vegan Weightlifters**

**Faculty Mentor(s): Melissa Sears**

**Session: Main Oral Presenters**

**Session Time: 1 p.m. - 2:30 p.m.**

**Location: Conf Center Lounge**

**Presentation Time: 2:15 p.m. - 2:30 p.m.**

This study explores the nutritional needs of weightlifters on a vegan diet and how those needs are met. Research was conducted to determine the risks and benefits of a vegan diet. Results show that management of nutrition is critical and it is possible to gain muscle and strength with a vegan diet. The information presented was found in articles from the PSC library database.

**Evan Klein*****The 123 Years of Poland's Nonexistence*****Faculty Mentor(s): Brian Rucker****Session: Main Poster Session****Session Time: 11 a.m. - 12 p.m.****Location: Conf Room AB****Presentation Time: 11 a.m. - 12 p.m.****Poster #5**

This study examines the history of Poland and how it became the only major European country to make the nearly impossible return after vanishing from existence. After researching the PSC Library databases and online historical document archives, it is clear how the people of Poland were able to keep the goal of independence alive for so long. After Poland was partitioned into nonexistence by Russia, Prussia, and Austria, many patriots joined Napoleon Bonaparte and the French army in the hopes that he could help free their country, only to have their dreams crushed when he lost in 1815. The partitioned Poles tried multiple times to revolt, each one ending in disaster, forcing the later generations to rethink and focus on innovative ideas, such as growth, education, and politics. Hope of independence was beginning to fade after the failed revolutions, but thanks to the growth and the rise of inspiring art and literature, it kept resurging. Finally, World War 1 brought Poland the one chance it needed. The war forced the partitioners to give up control, setting Poland free after 123 years. This segment in Poland's history shows just how much the Polish people wanted their independence back and the strength they had to withstand the hardships and reclaim it.

**Trinity Lentz*****Survival with no Necessities: A Look into the Homeless Community in Pensacola*****Faculty Mentor(s): Richard Carr****Session: Main Oral Presenters****Session Time: 11 a.m. - 12 p.m.****Location: Conf Center Lounge****Presentation Time: 11:15 a.m. - 11:30 a.m.**

Homelessness is seen everywhere at all times of the year and is growing more and more by the day. This research will discuss the topic of homelessness and how it affects and will continue to affect our community. This study plans to use statistical analysis through local and National reports on the homeless demographic. A secondary method of interviews will be used to explore testimonies from homeless citizens from Pensacola through their recounts of first-hand experiences. It will also explore different ways for the community as a whole to stand up and help people in need and what are the most effective ways to help them. This study will also investigate how these people are treated differently from city to city and the laws regarding homelessness and compare the statistics to determine whether the stricter laws help or hurt the community. Learning more about these topics will better inform the community about economic growth and development as well as compassion.

**PSC History****John McLeod III*****The Burden of Ancestry: Structural Views on Poverty in Literature*****Faculty Mentor(s): Lauren Baugus****Session: Main Oral Presenters****Session Time: 10:30 a.m. - 12 p.m.****Location: Nautilus Chamber****Presentation Time: 11:15 a.m. - 11:30 a.m.**

I will be giving an oral presentation regarding the portrayal of poverty in literature from a variety of locations and time periods. The focus of the presentation will be on the effects of intergenerational poverty as pertaining to opportunities for success as portrayed in literature. In many works, the disgruntled father figure diminishes the importance of the son's dreams for the value of practical labor. The father figures in these works are trying to prevent the child character from going down the "path of wild ambition" that led them to their current positions of poverty. If the family was in a different financial situation, then the child would be able to follow their dreams. Literature from different locations and time periods sharing a consistent portrayal of intergenerational poverty shows that struggle remains consistent regardless of location and time period. Portrayals of communities in literature shape how the world views those communities. The different perspectives on the causes of poverty range from systemic to individualist with each perspective providing evidence for the ultimate cause of poverty. Literature from wildly different locations and time periods sharing a consistent view of intergenerational poverty lends credence to the systemic perspective. The portrayal of the impoverished community shows that poverty is an intergenerational issue, not an individualistic one.

**PSC Literature****PSC Psychology****Addison Miller*****Mental Health Of Prisoners*****Faculty Mentor(s): Richard Carr****Session: Main Oral Presenters****Session Time: 11 a.m. - 12 p.m.****Location: Conf Center Lounge****Presentation Time: 11:45 a.m. - 12 p.m.**

The mental health of prisoners is oftentimes overlooked by society. More often than not, those who struggle with mental health issues will be pushed aside and known as crazy or dangerous when in reality they are not getting the adequate care and professional help they need. Prison brings out the worst in many people and many fights and deaths occur on prison grounds. Many of the parolees struggle to join back with society, for many reasons like loss of employment and friends also major anxiety comes with being released. Although the individuals did commit a crime and should be punished the prison system layout is flawed for the prisoners and the guards. The prison setup is overcrowded, overstimulating, and faulty. The prison system is failing those who depend on it for help and reconstruction and the system must be reorganized to better fit the needs of the individuals.

**PSC Psychology**

**Emily Miller*****The Healing Power of Poetry*****Faculty Mentor(s): Lauren Baugus****Session: Main Oral Presenters****Session Time: 10:30 a.m. - 12 p.m.****Location: Nautilus Chamber****Presentation Time: 11:30 a.m. - 11:45 a.m.**

[988-Trigger Warning- This abstract discusses mental health and suicide.] The impact of poetry has the ability to save lives one word at a time. The words, however so small, allow individuals to connect, heal, and overcome mental warship. Poetic voices can be a stepping stone into a path of healing. This study examines the usage of poetry in the mental health community, and how it is used to give an outlet to those struggling, while also creating awareness of how one can approach a survival person and potentially save their life. Additionally, this study examines how individuals can obtain the tools needed to aid themselves and others while learning to heal from the panic, anxiety, OCD, or other mental dilemmas of daily life. Understanding how to approach someone can change their life as “suicide is a leading cause of death in the United States with about one death every 11 minutes.” (Centers for Disease Control and Prevention [CDC], 2022). This research will provide valuable information about mental health while showing poetry as an outlet for individuals struggling and enhancing awareness of resources.

**Lana Sartain*****Coral reef community bleaching events*****Faculty Mentor(s): Melissa Sears****Session: Main Oral Presenters****Session Time: 1 p.m. - 2:30 p.m.****Location: Conf Center Lounge****Presentation Time: 1:45 p.m. - 2 p.m.**

This study investigates how rising ocean temperatures and ocean acidification are contributing to the death of coral reefs and what people can do about it . The information for this project is sourced from peer reviewed articles from PSC databases, documentaries, credible sources, as well as direct data collected from water testing.

**Derek Smith*****Adolescents with Type 1 Diabetes*****Faculty Mentor(s): Melissa Sears****PSC- Literature****Session: Main Oral Presenters****Session Time: 12:15 p.m. - 1:45 p.m.****Location: Nautilus Chamber****Presentation Time: 12:30 p.m. - 12:45 p.m.**

This study examines type 1 diabetes, its mechanisms, impact on adolescents, and treatment options. Research was obtained from books, videos, and articles from the PSC library and other reputable sources. Results show that although type 1 diabetes can be fatal, if properly cared for, type 1 diabetics can have a similar lifespan as someone not affected by diabetes.

**Amaya Stallworth*****How Ageism and Adulthood Are Affecting Black Girls (and You, Too)*****Faculty Mentor(s): Richard Carr****Session: Main Oral Presenters****Session Time: 11 a.m. - 12:30 p.m.****Location: Conf Center Lounge****Presentation Time: 12:15 p.m. - 12:30 p.m.**

Adulthood bias is a form of racial prejudice that makes marginalized children be seen or treated like adults. For black girls, adulthood can lead to harsher school punishments, sexual assault, and even death. Within this project, I will examine how adulthood damages black girls and discuss how black girls experiencing adulthood bias leads to rippling catastrophic effects on society.

**PSC Psychology****PSC Biology****Amaya Stallworth*****Black, Woman: How Intersectionality and Poetry Live*****Faculty Mentor(s): Lauren Baugus****Session: Main Oral Presenters****Session Time: 12:15 p.m. - 1:45 p.m.****Location: Nautilus Chamber****Presentation Time: 1:30 p.m. - 1:45 p.m.**

Intersectionality is the intersection of social categories (race, gender, and class) that marginalized communities face in a system of discrimination. Poetry is a literary genre that exceeds social categories such as race, gender, and class and uses language to break down or examine humanity. Black Women are an ethnic group in America that stands in the middle of all social categories, yet their experiences (and lives) are rarely acknowledged through a compassionate lens. For this project, I will use the political framework of Intersectionality and the works of poets like June Jordan to highlight and document Black women's everyday lives through the lens of compassion, honesty, and poetry.

**PSC Literature****PSC Biology**

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